LIVENARCH IX

livable environments & architecture



PRIORITIES IN / OF ARCHITECTURE

proceedings volume I

9th International Congress

September 25-27 2025 Trabzon TÜRKİYE

KTU 1955

KARADENİZ TECHNICAL UNIVERSITY
FACULTY OF ARCHITECTURE
DEPARTMENT OF ARCHITECTURE
F.ARCH

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livable **en**vironments & **arch**itecture

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Trabzon – Türkiye

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september 25-27 / 2025, Trabzon – Türkiye
karadeniz technical university, faculty of architecture, department of architecture

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Branko KOLAREVIC *"Time and Architecture of Change "*	Hillier College of Architecture and Design at New Jersey Institute of Technology, USA
Constantin Viktor SPIRIDONIDIS *"Form Follows Breath: Building in the Cracks of the Human Era"*	School of Architecture and Interior Design, Dubai
Emre AROLAT *"NEGOTIATING OBJECTIONS by tracing the specifics of "CONTEXT"*	Emre Arolat Architecture, Türkiye
Maria VOGIATZAKI *"From Xenomateriality to Xeniomaterialism: Prioritising the Materiality of Architecture"*	School of Architecture at Anglia Ruskin University, UK
Philip D. PLOWRIGHT *"Changing the Question: Information, Embodiment, and Architectural Practice"*	College of Architecture and Design, Lawrence Tech., USA

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ACKNOWLEDGEMENTS

On behalf of the Department of Architecture of KTU, we are greatly honored and pleased to organize the ninth of LivenARCH Congress since its first started in 2001. From 2001 and onwards, our enthusiasm and commitment to organize "LivenARCH" has gradually increased and today it has already been associated with the Department of Architecture of KTU.

The organization was carried out entirely with a team spirit. KTU Department of Architecture is in the center of the team that has partners from in and out of the university from all over the world. I thank all my colleagues for this team spirit.

The theme for this conference was "PRIORITIES in/of ARCHITECTURE". The changing and unchanging priorities of architecture over time were the main issue of the congress. Under this main theme, the following sub-themes were also discussed in theoretical and practical terms.

- PHILOSOPHY/THEORY/DISCOURSE/CRITICISM/METHOD
- DESIGN/ INTERIOR DESIGN
- CONSERVATION/TRANSFORMATION/RE-USE
- TECHNOLOGY/MATERIAL/SUSTAINABILITY
- URBAN/CITY/LANDSCAPE/RURAL
- EDUCATION

There were keynote speakers in the congress, along with those who presented papers. The keynote speakers in the order of the presentation were:

- Branko KOLAREVIC, "Time and Architecture of Change", Professor, Hillier College of Architecture and Design at New Jersey Institute of Technology (NJIT)

- Philip D. PLOWRIGHT, "Changing the Question: Information, Embodiment, and Architectural Practice", Professor, Chair, Design Theory + Architectural Design, College of Architecture and Design, Lawrence Tech

- Maria VOGIATZAKI, "From Xenomateriality to Xeniomaterialism: Prioritising the Materiality of Architecture", Professor, Head of the School of Architecture at Anglia Ruskin University

- Constantin Viktor SPIRIDONIDIS, "Form Follows Breath: Building in the Cracks of the Human Era", Professor, Head of Department of Architecture, School of Architecture and Interior Design

- Emre AROLAT, "NEGOTIATING OBJECTIONS by tracing the specifics of 'CONTEXT'", M. Arch., Hon. FAIA, RIBA, Founding Partner & Principal

I would like to extend my sincere gratitude to our keynote speakers and to all the congress participants for their interest and support throughout this process, as this congress would not have been possible without them.

I am grateful to members of the scientific committee for their selfless contributions to the evaluation of the submitted papers; Aysu AKALIN, Ahadollah AZAMİ, Ayşen CİRAVOĞLU, Beatriz BUENO, Başak İPEKOĞLU, Cânâ BİLSEL, Carlos Machado e MOURA, Dilek Yıldız ÖZKAN, Eleni GAVRA, Erhan Berat FINDIKLI, Elvan ALTAN ALTUĞ, Derya ELMALI ŞEN, Farhad AKHOUNDI, Gökçeçiçek SAVAŞIR, Gülsu ULUKAVAK HARPUTLUGİL, Güzin KONUK, Hamed BEYTI, Hatice Gökçen ÖZKAYA, Jasim Azhar, Javad Eiraji, Kağan GÜNÇE, Kıymet SANCAR ÖZYAVUZ, Marc Aurel SCHNABEL, Melek KILINÇ, Melih BİRİK, Merve ÇAŞKURLU, Nisa SEMİZ, Olgu ÇALIŞKAN, Ömer İskender TULUK, Özlem Sıla DURHAN, Pelin GÜROL ÖNGÖREN, Pınar Kısa OVALI, Reyhan MİDİLLİ SARI, Serdar AYDIN, Shuva CHOWDHURY, Styliani LEFAKI, Sonay ÇEVİK, Şengül ÖYMEN GÜR, Türkan ÖZBALTA, Try RAMADHAN.

I also thank to the KTU Rectorate, the Dean of Architecture Faculty, and the Head of Department of Architecture for providing us all the necessary means as well as for letting us totally free to run everything by.

I would like to express my gratitude to TÜBİTAK (The Scientific and Technical Council of Turkey) for their support. I also thank to Trabzon Branch of the TMMOB Chamber of Architects and the head of the branch Serbülent VURAL. Moreover, to Cansu BEŞGEN who is the graphic designer of LivenARCH Congresses and to Vizyon Information and Communication Company for their contributions.

I offer my special thanks to the Organization Committee members; Asu BEŞGEN, Aysun AYDIN SANCAROĞLU, Ayşegül ÖZYAVUZ, Bahar KÜÇÜK KARAKAŞ, Deniz BAYRAK, Esra KOÇ, Esra Lakot ALEMDAĞ, Esra TURAN, Ezel Yağmur ÇEBİ OKUMUŞ, Güneş MUTLU AVİNÇ, Gürkan TOPALOĞLU,

Mehmet Ali OTYAKMAZ, Murat TUTKUN, Neslinur HIZLI ERKILIÇ, Nihan CANBAKAL ATAOĞLU, Nihan ENGİN, Nilhan VURAL, Ömer Faruk GÜNENÇ, and Sonay ÇEVİK.

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I also thank to the academic and administrative staff of the KTU Department of Architecture and to many of our students that I cannot name them all.

I wish to see you again in the future LivenARCH Congresses.

Best Regards,

Prof. Dr. Nilgün KULOĞLU

Head of LivenARCH IX-2025 Congress

OPENING SPEECH

Honorable university management, valued guests, academics, architects, and dear students,

Today, it is a great honor to have you with us at our ninth LivenARCH congress, titled "Priorities in/of Architecture." LivenARCH Congresses can be considered not only a platform where we gather and share information but also the meetings where we discuss the future of our professions, our responsibilities, and our goals. I believe that the LivenARCH congress, which has been meeting with you, every two years since 2001 (two thousand and one) with a different theme, will open new horizons for the architectural world today as well. Each new theme allows us to look at our professions from different perspectives, to focus on past and current problems, and to produce innovative solutions. For this reason, the Department of Architecture at KTU would like to commemorate all colleagues who made this conference possible in the past with love, respect, and gratitude. I extend my endless thanks to them for this valuable legacy they left to future generations. And I advise the young generations to do their best to continue this valuable platform.

Architecture is one of the most ancient professions, ongoing since the day humankind existed. This journey, extending from the first shelters to pyramids, from ancient temples to modern skyscrapers, is in fact a reflection of human history. Although architecture may appear as a concrete object as a final product, it is understood that there is always very important intellectual process behind it. That's exactly why the act of architecture is multidimensional and contains many parameters simultaneously.

In my opinion, the most important priority of the architecture is to accept that its priorities can change over time. Therefore, we must also accept that the profession of architecture does not have a static definition - which Vitruvius had to explain by making a very comprehensive definition about architecture- but is instead a living, breathing, and constantly evolving process.

In history, the most fundamental priority for the first humans was to be protected from the wild. For this reason, they lived in caves and later built defensive structures like castles. The priority was safety and shelter. In times when the afterlife was highly valued, tomb structures became the dominant works of architecture. When the Industrial Revolution occurred, the priority was for factories to be suitable for mass production and for housing to provide shelter quickly for the growing population.

Thus, during this period, the priority was functionality and speed. In Modernism, simplicity became the highest priorities of architecture. In accordance with architecture's flexible nature, priorities were in a constant state of flux. This change and transformation were just like those in human history. As a result of this, sometimes the need for shelter became the primary priority, while at other times, aesthetic and theoretical thoughts shaped architecture. Today, still the challenges and/or opportunities of our era are redefining the priorities of architecture. It's possible to argue that the most significant shift in architectural priorities between the past and the future is "the human being" itself.

Besides, in today's and tomorrow's architecture, the priority is "life" and "experience." Buildings are no longer just physical structures; they are seen as ecosystems that support people's well-being, health, and happiness, and inspire them. With the help of technology, buildings are expected to evolve from static masses into living, breathing, intelligent organisms that interact with their surroundings and the people within them. When we look at the process, it's clear that some priorities from the past continue to be, and should be, priorities of today as well. However, the most fundamental difference is the shift in focus from the building as a concrete object to the human being as a social and emotional entity. Architecture is no longer about "what you build," but rather about "what kind of life you create for people."

In the light of this phenomenon, this year, the main aim of our congress is to bring to the agenda, discuss, and present new perspectives on the changing and/or similar priorities of architecture from past to present. Throughout our congress, we will address these topics in depth through presentations, panels, and discussions. This congress will once again help us to understand the multifaceted nature of our profession, gain different perspectives, and draw new roadmaps for the future of our field.

I wish that the LivenARCH Congress will be an inspiring, fruitful, and unforgettable experience for all of us.

I would like to thank you all once again for sharing this valuable process with us and for being here and looking forward to meeting you gain in 2027 (two thousand twenty-seven) at LivenARCH X.

Prof. Dr. Nilgün KULOĞLU
LivenARCH-IX 2025 Congress Head

KEYNOTES

TIME AND ARCHITECTURE OF CHANGE

Branko Kolarevic

Hillier College of Architecture and Design at New Jersey Institute of Technology, USA

Over the past two decades we have seen an increasing interest in exploring the capacity of built spaces to change, i.e., to respond dynamically — and automatically — to changes in the external and internal environments and to different patterns of use. Different terms have been used to describe such architecture: adaptive, dynamic, interactive, responsive, etc. The principal idea behind it — facilitating and accommodating change — is not new; what has changed are the technologies (and materials) to accomplish it.

In the quest to establish a context for change and variety in architecture, an international network for *Open* Building was established more than a decade ago, with the focus on disentangling building systems and subsystems from each other so that they can be better organized to facilitate not only their efficient assembly, but also their disassembly and reassembly, enabling reuse. In similar vein, Ed van Hinte and the other authors of *Smart Architecture* (Amsterdam: 010 Publishers, 2003) also articulate a need for designing buildings that can change but do so with a dimension of time explicitly in mind. They propose dividing buildings into seven system-based layers, each with its own lifespan that ranges from centuries down to a couple of years. The layers are (in ascending order, depending on life span): location, structure, access, façade, services, dividing elements, and furniture. The dynamics of these layers — and their different life spans — have to be taken into consideration when designing "integrated" buildings, because a building with tightly integrated building systems may not have a capacity for change if the systems are impossible to separate and disassemble.

If we accept change as a fundamental contextual condition — and time as an essential design dimension — architecture could then begin to truly mediate between the built environment and the people who occupy it. But to get there, we need to first answer some fundamental questions pertaining to change as a conceptual and time as a phenomenological dimension in architecture. We need to go beyond the current fascination with mechatronics and explore what change means in architecture and how it is manifested: buildings weather, programs change, envelopes adapt, interiors are reconfigured, systems

replaced. We need to explore the kinds of changes that buildings should undergo and the scale and speed at which they occur. We need to examine which changes are necessary, useful, desirable, possible. Change — and time as a design dimension in architecture — are far from being adequately addressed or explored theoretically, experimentally, or phenomenologically.

NOTE

Parts of this summary have been published previously by the author in *Building Dynamics: Exploring Architecture of Change* (Routledge 2015).

CHANGING THE QUESTION: INFORMATION, EMBODIMENT, AND ARCHITECTURAL PRACTICE

Philip D. Plowright

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Architecture has long asked "What should we build?" when the more urgent question is "How do humans come to understand what is built?" This presentation reframes the discipline by shifting emphasis from finalized forms to the informational and embodied processes that precede and sustain them. Design priorities must be reorganised around understanding spatial semantics through human cognition before engaging cultural expression.

Drawing on research into cognitive image schemas and the tacit algorithms that structure perception, the presentation demonstrates that every spatial decision is interpreted through shared bodily experiences—containment, orientation, path-goal—well before it accrues symbolic meaning. These pre-conscious operations provide architecture with its only truly universal knowledge base and thus its legitimate claim to disciplinary authority. When they are ignored, reliability is exchanged for novelty, producing environments that are formally inventive yet experientially ambiguous.

The disciplinary crisis that follows is visible on three fronts. First, self-referential theory seeks validation from philosophy, sociology, or technology precisely because architecture has lost confidence in its cognitive foundations. Second, dependence on external meaning leaves practice hostage to shifting markets and political caprice. Third, pedagogy substitutes personal taste for defensible methods, cultivating virtuoso authorship at the expense of collective understanding. Re-establishing architecture as a natural discipline does not eliminate individual expression; it situates creativity within a stable interpretive matrix. Once designers acknowledge the informational priorities of embodiment, cultural and stylistic choices become secondary layers—artificial yet vital—that enrich rather than obscure fundamental comprehension. Expression is not suppressed but disciplined: judged by its capacity to resonate with the deep structures through which people unconsciously make sense of their world.

The presentation proposes a practical recalibration of priorities including the explicit understanding of embodied schemas during concept formation, and communicative frameworks that describe intention in

experiential, not merely formal, terms. By changing the question architects pose—from "What does this look like?" to "How will this be understood?"—design ambition aligns with human potential, secures architecture's disciplinary autonomy, and offers a resilient, inclusive contribution to a rapidly transforming world. Such a shift does not dismiss the built artefact nor its cultural priorities; it intensifies its capacity to act as a social, ecological, and ethical interface, reasserting architecture's relevance at a moment when priorities are being renegotiated across the globe. It invites practitioners to see information as their primary material.

"PRIORITIES IN/OF ARCHITECTURE"

Maria Vogiatzaki

Professor, Head of the School of Architecture at Anglia Ruskin University, UK

Architecture has never been neutral. From the quarried stone of empire to the glass towers of late capitalism, every material decision encodes the values of its time—power, ideology, and our shifting relationship with the Earth. Today, as we confront planetary crisis, the priorities of architecture must be radically reimagined. No longer can materiality be treated as passive. Instead, we must embrace active materialisms that recognise buildings as agents within a living system. This is not merely about sustainability—it is about redefining our covenant with Gaia.

For too long, architecture's priorities reflected a modernist mindset that saw nature as an infinite reservoir of raw material—concrete, steel, and glass serving as instruments of control and human dominance. But matter is never neutral. It has agency—from the carbon memory embedded in timber to the responsive behaviour of smart ceramics. Rethinking the priorities of architecture means designing with materials as collaborators, as living participants in ecological processes. This shift toward architectural materialism acknowledges that design is never separate from the systems it touches.

The priorities of architecture must now move away from extraction toward cohabitation. Emerging technologies such as synthetic biology allow us to grow structures from living organisms, transforming buildings into metabolic extensions of the planet. Parametric design and robotic fabrication offer efficiency, but they must be in service of ecological ethics, not market logic. What if architecture no longer imposed itself on the land, but engaged in dialogue with it? Imagine structures that grow, adapt, heal, and gracefully decay—embodying a priority of reciprocity over permanence.

To address the climate emergency, the priorities of architecture must align with planetary systems. Gaia theory reminds us that Earth is not a backdrop but a dynamic actor. Architecture must join that choreography—through carbon-sequestering materials, distributed fabrication networks, and responsive bio-interfaces. In this vision, architecture becomes a tool not of control, but of calibration—an agent of planetary care rather than industrial imprint.

The challenge ahead is existential, not simply technical. To redefine the priorities of architecture, we must let go of human exceptionalism and

embrace our role as cohabitants. Every beam, brick, and bio-fabricated element must express solidarity with the more-than-human world. Architecture must move from constructing objects to rebuilding relationships. The materials are ready. The priorities are shifting. The question remains: are we?

FORM FOLLOWS BREATH: BUILDING IN THE CRACKS OF THE HUMAN ERA

Constantin Viktor SPIRIDONIDIS

Professor, Head of Department of Architecture, School of Architecture and Interior Design, Dubai.

The acute climate emergency and the pervasive influence of artificial intelligence have rendered many of the methodologies and tools humans have developed to understand and shape their world obsolete. These nonhuman forces, climate systems, and machine intelligence have fundamentally changed modern life, making us realize that agency is no longer solely human. In this context, Gaia (the planetary system) and intelligent machines become active participants in shaping existence, indicating our arrival at posthuman conditions where life is seen as a continuum of human, nonhuman, and technological entities interactions. This paradigm shift challenges the anthropocentric foundations of humanism, which positioned humans as sovereign actors separate from and dominating over nature. Post-humanist thought rejects these binaries, instead advocating for a reconceptualization of relationships between human and nonhuman entities, not as opposing forces but as interconnected agents within a dynamic, hybridized system of reality.

Within this framework, architecture faces an urgent moral and philosophical duty to move beyond its traditional focus on human-centered priorities. Historically, architectural discourse has been centered on human needs, whether expressed through Renaissance ideals of beauty, modernist functionalism, or postmodern cultural stories. Yet these concerns now seem shortsighted considering planetary crises. The discipline must instead engage with architecture as a living, adaptive system embedded within Gaia's ecological and technological networks. This requires abandoning the idea of buildings as static objects designed only for human use and rethinking them as intelligent artifacts capable of self-regulation and co-evolving with their environments. Generative design processes, driven by machine learning and environmental data, replace deterministic planning, allowing architectural forms to emerge from complex interactions among human intention, algorithmic computation, and material behavior.

Significantly, this shift requires a redefinition of architectural agency. Artificial intelligence is no longer just a tool for efficiency but an active participant in design, capable of processing extensive ecological data and proposing solutions that surpass human cognitive limits. Architects become mediators in a collaborative process where human creativity

interacts with machine intelligence and ecological feedback loops. This collaborative model challenges traditional hierarchies in the profession, calling for new literacy skills in computational design, systems thinking, and ecological ethics.

The geopolitical aspects of the climate crisis further complicate the role of architecture. Planetary computation, the use of AI to model, monitor, and intervene in Earth systems, reveals the interconnectedness of ecological and technological realms. Architecture can no longer address sustainability with isolated technical fixes; it must engage with global-scale dynamics. The architectural discipline's historical emphasis on local context risks becoming irrelevant unless it also addresses worldwide material flows, energy patterns, and geopolitical inequalities.

This moment marks a transitional period in which established paradigms weaken before new ones emerge. Humanist architecture, with its focus on permanence and human mastery, has unintentionally contributed to the crises it now faces. The way forward requires viewing architecture as a practice of negotiation: between human and nonhuman actors, between local and global scales, and between intervention and adaptation. The ethical responsibility is significant to design not just for human comfort, but for the survival of Gaia's living systems. In this redefined social project, architecture's primary goal becomes fostering resilience through symbiotic relationships, where buildings are not isolated objects but active participants in Earth's delicate balance. The challenge is nothing less than reimagining design as a way of coexisting in an increasingly posthuman world.

NEGOTIATING OBJECTIONS BY TRACING THE SPECIFICS OF "CONTEXT"

Emre AROLAT

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Architecture today confronts an increasingly unstable terrain in which established truths dissolve under the weight of global homogenization and neo-colonial patterns. The question that persists is not about form or style, but about the role of architecture as an agent of critical negotiation within this climate. The discipline is compelled to operate at the intersection of objection and compromise, acknowledging the urgency of resisting prevailing norms while simultaneously constructing spaces of possibility where social benefit may emerge.

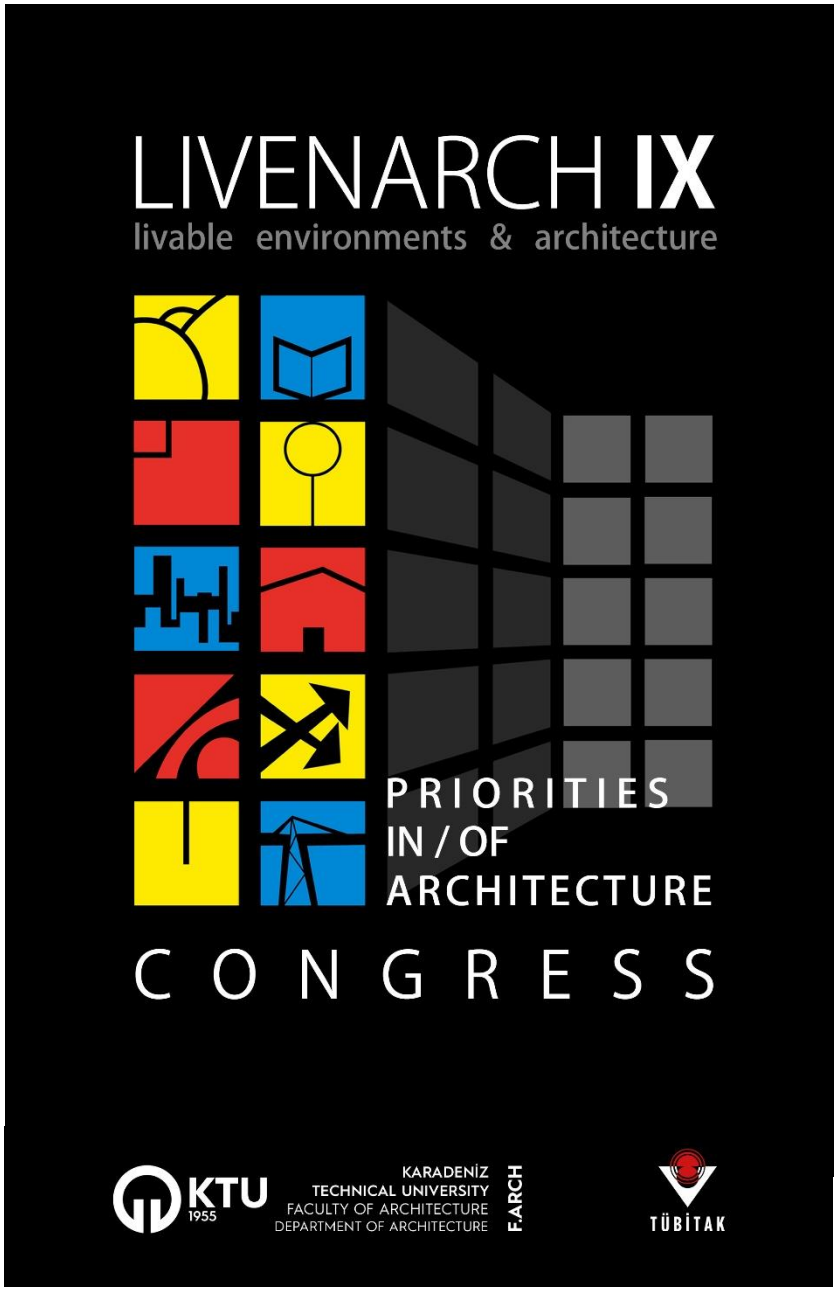
The notion of context is central to this undertaking, yet it must be understood not as a fixed backdrop but as a multilayered and dynamic field. Historical strata, cultural residues, economic pressures, and ecological fragility accumulate to produce environments charged with conflict and potential. To design within such conditions requires an act of superimposition, where existing traces are neither erased nor fetishized, but allowed to coexist with contemporary interventions. Cities gain richness by holding together contradictory layers of memory, material, and aspiration.

This perspective positions architecture as a mediating practice. It refuses the allure of iconic novelty and resists reductive replication of inherited typologies. Instead it seeks permeability, allowing the built environment to remain open to public life, to history, and to the multiplicity of future uses. The projects to be mentioned in the lecture LivenARCH Congress-IX on Priorities in/of Architecture, were chosen to precisely convey this framework. The museum ceases to be a sealed container for art, becoming instead a porous infrastructure where structural grids, industrial remnants, and civic flows intertwine. The hotel dissolves into archaeological terrain, transforming excavation into a living framework for habitation and collective memory. The mosque retracts from monumental imitation, embedding itself in the earth and rediscovering the essence of ritual through modest light and topographic continuity.

In all these instances, architecture becomes a form of negotiation: between the demands of capital and the fragility of heritage, between the weight of collective memory and the necessity of new inhabitation, between the symbolic burdens of tradition and the aspiration for authenticity. The act of building, then, is no longer a mere technical resolution but an ethical stance, a recognition that form and matter are inseparable from social responsibility. By insisting on objection as a

generative principle and by engaging in continuous dialogue with the specifics of context, architecture retains its capacity to reframe the conditions of urban life and to project spaces where truth and meaning have not yet fully dissolved.

VOLUME 1


LIVENARCH IX
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BIOPHILIC DESIGN and PEDESTRIAN

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ABSTRACT

With the onset of the Anthropocene, the connection between urban populations and nature has been weakened. The influx of people from rural areas has altered the structure of cities, and the resulting demand for housing has promoted high-rise development, leading urban spaces to lose their human scale. Before the motorization era, people traveled through human-scaled urban corridors on foot or by horse-drawn carriages. Afterward, faster modes of travel became preferred, initially through public transport and later through private automobiles, which emphasized individual mobility. Consequently, urban residents began to grow alienated from their environments. Nevertheless, humans remain fundamentally dependent on nature and its resources. The physical and mental well-being of humans, inherently tied to nature, depends on the quality of the environment in which they live. In this context, the biophilic design approach has gained increasing attention in recent years as a means of supporting well-being. Humans, engaging emotionally with the biotic elements of nature, perceive their surroundings through sensory experience. Walking, in particular, enables a richer sensory perception compared to other modes of transportation, as it involves seeing, hearing, smelling, tasting, and touching. Thus, pedestrian mobility offers a distinct advantage in fostering environmental interaction. Spatial planning that prioritizes pedestrians is therefore essential for enhancing the success of biophilic environments in strengthening the human–nature relationship. This study aims to highlight the importance of supporting pedestrian-oriented travel in experiencing and perceiving biophilic spaces, establishing a conceptual link between biophilic design and pedestrian-priority planning.

Keywords: Biophilic Design, Pedestrian, Spatial Perception, Walkability, Biophilia.

INTRODUCTION

The Anthropocene, defined as the period in which natural structures of the Earth such as landforms, the atmosphere, oceans, and material cycles have been significantly altered by human activities and referred to as the 'recent age of man,' is commonly associated with the onset of the Industrial Revolution (Rafferty, 2025). The Industrial Revolution is considered a turning point both for the rapid increase in urbanization (Mumford, 2007) and the emergence of motorization (Vulvic, 2007).

Before industrialization, streets surrounded by low-rise buildings functioned as channels for the movement of people and animals (Sjoberg, 2002). In the pre-motorization era, individuals traveled through human-scaled urban corridors on foot or by horse-drawn vehicles, yet after the advent of motorization, they began to prefer faster modes of transport (Vulvic, 2007). What began with public transport soon evolved into widespread private car use, symbolizing individualism. As population growth increased the number of vehicles, roads were expanded; the expansion of roads in turn encouraged more cars, creating a cycle that ultimately led to automobile-oriented cities (Freund & Martin, 1996). This process replaced pedestrian-centered urban corridors with car-dominated ones.

While only around 10% of the population lived in cities prior to industrialization (Sjoberg, 2002), today the urban population has surpassed the rural population (Ritchie, Samborska, & Roser, 2024). Rising land values in urban areas, driven by population growth, have encouraged dense housing construction (Uğurlu, 2010). This has triggered high-rise developments and urban sprawl (Couch, Leontidou, & Arnstberg, 2007). Whereas compact cities in the pre-motorization era enabled walkable distances (Southworth, 2005), urban sprawl extended walking distances and encouraged automobile dependency (Arbury, 2005; Gillham, 2002). Consequently, in the Anthropocene, cities have expanded both vertically and horizontally, exceeding the human scale. According to Akbarishahabi (2022), the loss of human scale undermines feelings of belonging and attachment, leading urban residents to experience alienation from their surroundings.

Despite this alienation, human life remains fundamentally dependent on nature for basic needs such as food, shelter, clothing, and health. McHarg (1964) further highlights that human survival is inseparably tied to ecological processes such as photosynthesis, nutrient cycling, and water purification, emphasizing that humans are subject to the same natural laws as all living systems Moreover, Kellert (2016) emphasizes that humans inherently tend to seek connections with nature. Emerging from

this perspective, the concept of biophilic design aims to reinforce human contact with nature within the built environment. At the same time, walking is the most natural mode of mobility, and according to Gehl (2020), individuals perceive their environment most effectively while walking.

This study highlights the importance of supporting biophilic spatial experiences through pedestrian-oriented mobility. Accordingly, the concepts of biophilic design and pedestrian-centered planning are examined, and the relationship between the two approaches is discussed.

BIOPHILIA AND BIOPHILIC DESIGN

In the opening page of 'Biophilia', Edward O. Wilson (2003:1) defines the concept as "...the innate tendency to focus on life and lifelike processes." Wilson (2003) explains biophilia as an outcome of biological transmissions shaped through evolutionary processes from ancestral times to the present. Kellert and Calabrese (2015) argue that biophilia stems from human adaptation, whereby individuals respond more readily to natural forces rather than artificial ones. Thus, the human tendency to establish connections with, and respond to, nature constitutes an integral part of the evolutionary process. Human senses, abilities, and intelligence have developed through these interactions (Kellert, 2016; Kellert & Calabrese, 2015).

Öhman's (1986) study suggests that while the inclination to engage with nature may become attenuated in the modern built environment, it never entirely disappears (Kellert & Calabrese, 2015). In the context of the contemporary world, human beings have increasingly moved away from lifestyles harmonized with nature. Nevertheless, the incorporation of nature-compatible practices into modern environments has the potential to support human well-being (Gullone, 2000).

The effort to reinforce human contact with nature and to enhance well-being within the contemporary built environment has given rise to concepts such as 'biophilic design' and 'biophilic urbanism' (Kellert, 2016; Kellert & Calabrese, 2015). Biophilic design has gained growing attention in recent years (Özğan & Aluçlu, 2023a), attracting researchers from a wide range of disciplines including landscape architecture, architecture, interior design, urban and regional planning, public health, and environmental studies (Özğan & Aluçlu, 2023b).

The outcomes of biophilic design such as sustainable encounters with nature, the promotion of human well-being and natural adaptation, ecological and cultural belonging, the consideration of non-human

beings in community formation, and the creation of nature-connected architectural solutions (Kellert, 2016; Kellert & Calabrese, 2015) constitute key objectives for designing more human-centered built environments.

According to Kellert (2016) and Kellert & Calabrese (2015), five fundamental conditions characterize effective and successful biophilic design practices:

1. Ensuring repeated and sustained interactions with nature,

2. Focusing on evolutionary adaptations that enhance human health, well-being, and quality of life,

3. Strengthening the emotional bond between people and places,

4. Establishing a positive relationship between humans and nature that fosters engagement and responsibility toward natural communities,

5. Supporting mutually reinforcing, integrated, and interconnected design solutions.

Thus, an isolated factor—regardless of whether it relates to nature—cannot be regarded as biophilic design on its own (Kellert, 2016). Biophilic environments should offer an integrated and interrelated structure. In this regard, environmental/place experience has been framed under three dimensions of nature experience: direct nature, indirect nature, and experience of space and place (Table 1) (Kellert, 2016; Kellert & Calabrese, 2015).

Table 1. Experience Types of Nature, After Kellert (2016) and Kellert & Calabrese (2015).

Experience Types	Environmental Specialities
Direct Experience of Nature (Represents biotic elements within the built environment)	Light
	Air
	Water
	Plants
	Animals
	Weather
	Natural landscapes and ecosystems
	Fire
Indirect Experience of Nature (Represents characteristic features of nature such as colors, patterns, and materials)	Images of nature
	Natural materials
	Natural colors
	Simulating natural light and air
	Naturalistic shapes and forms
	Evoking nature
	Information richness
	Age, change, and the patina of time
	Natural geometries
	Biomimicry
Experience of Space and Place (represents the characteristic features of natural environments that support human well-being)	Prospect and refuge
	Organized complexity
	Integration of parts to wholes
	Transitional spaces
	Mobility and wayfinding
	Cultural and ecological

The concept of biophilic design, which is spatial design and planning-oriented, has attracted the attention of professionals engaged in research on architecture, landscape architecture, urban and regional planning, interior design, education, health, and well-being (Özğan & Aluçlu, 2023a). Particularly, the rapid destruction of natural areas due to urbanization and the minimization of urban residents' interactions with nature have increased the significance of biophilic design in both outdoor and indoor urban environments.

Biophilic design has been interpreted and applied in various design-related fields. Within this framework, architecture has been one of the leading domains in which biophilic principles are explored and materialized. Architectural approaches integrate natural elements, forms, and systems into the built environment to foster well-being, enhance environmental performance, and reconnect people with nature.

Applications of Biophilic Design in Architecture, Planning, and Design

Biophilic design has been interpreted and applied across various design-related disciplines. Within this framework, spatial design has emerged as a central domain in which biophilic principles are explored and materialized. Spatial design approaches integrate natural elements, forms, and systems into the built environment to foster well-being, enhance environmental performance, and reconnect people with nature.

Architecture and Biophilic Design

Since the 1960s, the rise of holistic environmental thinking has led to ecologically and climate-sensitive practices within the architectural discipline. Early examples of green architecture were introduced by pioneers such as Le Corbusier, Frank Lloyd Wright, Ralph Erskine, Constantinos Doxiadis, Louis I. Kahn, and Alvar Aalto (Tabb & Deviren, 2017).

According to Cramer and Browning, from an architectural perspective, biophilic design should not only adhere to sustainability principles such as low environmental impact and energy efficiency but also strengthen human-nature connections, enrich life, and promote health and life satisfaction (Çorakçı, 2016).

One prominent example is Frank Lloyd Wright's 'Fallingwater House', which has attracted the attention of numerous researchers studying biophilic design, including Çorakçı (2016), Coşkun (2024), Kellert & Calabrese (2015), and Zhong, Schröder, & Bekkering (2022) (Figure 1).



Figure 1. Lloyd's Fallingwater House (Wikipedia, 2025b).

Designed by Emre Arolat and recognized with multiple international awards (TRT Haber, 2018), the Sancaklar Mosque represents a significant example of biophilic design within the context of contemporary architecture in Türkiye (Figure 2). The building embodies an approach that positions biophilia not merely as an aesthetic element but at the very core of the spatial experience.



Figure 2. Sancaklar Mosque a:(Çimen, 2024), b:(Alahmad, 2022).

When evaluated through a biophilic design perspective, the Sancaklar Mosque successfully integrates all three forms of nature experience. The climatic and atmospheric experiences offered by its open and enclosed spaces, the presence of vegetation, water features, natural lighting, and the harmony between built and natural landscapes provide a direct experience of nature. Indirect experiences are achieved through the use of natural materials such as stone and wood, their color tones, the organic connections employed in façades and vertical circulation elements, and the building's careful placement in harmony with the topography. Moreover, the simplicity of design, the integration of cultural and ecological conditions, and the organization of spatial functions create a spatial and place-based experience that supports human well-being.

Interior Architecture and Biophilic Design

Biophilic interior design is a set of practices that has the power to transform lifeless, monotonous spaces into peaceful and vibrant environments by incorporating natural elements into interiors to establish a connection between people and nature. With the aim of creating a sense of well-being indoors, the integration achieved through elements such as materials, textures, and plants is intended to foster a bond between nature and humans (Sawantt, 2025).

Natural light and ventilation, water features, vegetation, natural textures, and materials provide opportunities to directly experience natural elements in the interior. Natural colors, biomimetic designs, naturalistic artworks, and the use of organic shapes and forms offer an indirect experience of nature. Meanwhile, a balanced use of open and enclosed spaces, connections between indoor and outdoor areas, the harmony of natural transitions between spaces, and the emphasis on natural landscapes and vistas create a natural flow within the interior (Sawantt, 2025).

Compositions created with indoor plants and vertical gardens, aquariums, indoor water features, and reflective water surfaces, along with natural ventilation and daylight provided through openings such as windows, are among the most common strategies for enabling direct experiences of nature in interior spaces. In his own residence, vertical garden designer Patrick Blanc employed vertical gardens and planted aquariums to establish an environment that extends beyond aesthetic appeal, offering microclimatic regulation, olfactory enrichment, and tactile engagement (Figure 3a). Similarly, the 'Jewel' at Singapore Changi Airport stands out as one of the most remarkable large-scale examples of biophilic interior design (Figure 3b). The integration of diverse plant compositions, the influx of natural light through the glass roof, the microclimatic contribution of vegetation, and the sensory and visual effects generated by the central waterfall provide opportunities for direct encounters with nature. Furthermore, the organic form of the building and the structural patterns of its roof embody indirect biophilic qualities. The walking paths, with their shifting vistas, enhance the sense of exploration, while the overall spatial experience contributes to reducing pre/post flight stress, offering passengers a tranquil yet stimulating travel environment.



Figure 3. a: Patrick Blanck's Home – aquarium and vertical garden (Patrick Blanc, 2025) b: The Jewel, Singapore Airport (Rodenburg, 2024).

Therefore, in the context of interior design, biophilic design can be implemented at both micro and macro scales. In this way, it encompasses a spectrum of impacts, ranging from individual biophilic experiences to collective ones.

Landscape Architecture and Biophilic Design

When evaluated within its definition and scope, landscape architecture can be regarded as the discipline that most strongly turns towards nature and embraces biophilic design among other design fields. In creating physical environments for people, landscape architecture not only adheres to aesthetic and scientific principles that aim to ensure users live in comfortable, safe, and healthy surroundings, but also addresses physical environments at different scales that support biodiversity (Demirbaş & Demirbaş, 2019). Ian McHarg's (1969) seminal book 'Design with Nature', which advocates for nature to be taken as a model in landscape planning and design, stands as a foundational work emphasizing the discipline's relationship with nature. Looking further back, the design philosophy of Frederick Law Olmsted regarded as the father of landscape architecture already embodied concerns that resonate with the principles of biophilic design (Table 2).

Table 2. Key principles shaped Olmsted's designs (Olmsted Network, 2021 from Beveridge).

Principles	Contents
Scenery	Enriched spatial environments, expansive and continuous vistas, along with greenways and boulevards that integrate parks into the public realm.
Suitability	Spaces that adapt to the topography and remain faithful to the landscape, plant species that are low-maintenance and non-invasive, and the preservation of the ecosystem and natural features.
Style	Relaxing and invigorating plant and water surface views in a pastoral style, plantings featuring diverse forms in a picturesque style, and a sense of light–shadow interplay and mystery.
Subordination	Harmonious and integrated landscapes.
Separation	Ensuring safe, relaxing, and restorative mobility by separating areas serving different purposes, while facilitating easy and efficient movement.
Sanitation	Engineering elements such as drainage, and spaces that support physical and mental well-being.
Service	Connecting with nature, supporting physical and mental well-being, and bringing together people from all walks of life.

Olmsted's works such as Central Park, Prospect Park, Mount Royal, and the Emerald Necklace can be regarded as pioneering green space projects that brought people closer to nature within the urban context (Figure 4).

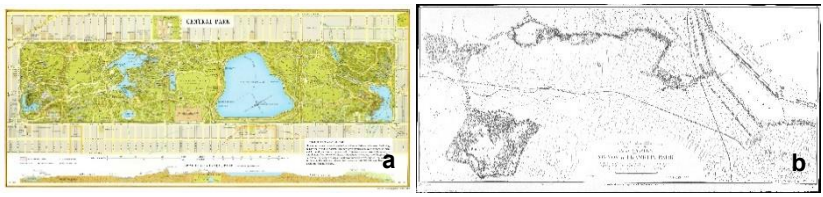


Figure 4. (a) Central Park (Greensward Foundation, 1994), (b) Emerald Necklace (Wikimedia Commons, 2020).

Landscape architects operate across a wide spectrum of scales, ranging from 1/10 to 1/10,000. Particularly within urban contexts, their work seeks to establish connections between people and nature through diverse practices: from residential garden design to the creation of public open and green spaces such as parks and squares; from urban design interventions in coastal landscapes and campus areas to the

implementation of green infrastructure systems, including greenways, interconnected open spaces, green grids, wedges, and belts.

The city of Singapore stands out as one of the most prominent examples of biophilic urbanism. As a successful case of fostering human–nature interaction, the city has earned recognition as a biophilic city through landscape interventions implemented since 1963 (Bowles, 2025). Both horizontal and vertical greening practices, ecological restoration sites, bayfront parks and gardens, green interventions in campuses, hospitals, and schools, as well as the integration of greenery into street and urban layouts and even the airport, collectively contribute to its reputation. The systematic and holistic integration of these applications positions Singapore as a leading biophilic city (Figure 5) (Acar & Acar, 2020).



Figure 5. Singapore's Urban Landscape a: (Hungerbühler, 2019), b: (Goel, 2024).

Pedestrian and Pedestrian Priority in Design

According to the WHO (2023), anyone walking, sitting, running, standing, lying down, exercising, or using mobility aids such as canes, walkers, strollers, or wheelchairs; as well as those carrying objects by hand, on their back, or on their head, and even individuals traveling by skateboard or roller skates, are classified as pedestrians. Therefore, while it can be said that a person who walks is traveling as a pedestrian, not every pedestrian necessarily walks. In this sense, the term "pedestrian" is considerably inclusive.

Pedestrian movement varies according to factors such as purpose, age, ability, and the physical characteristics of the environment. On average, a modern individual walks at speeds ranging between 0.3 m/s and 1.75 m/s, or approximately 1 km/h to 6 km/h (The Global Designing Cities Initiative, 2025). Although its relative slowness may appear as a disadvantage compared to other modes of transportation (Vulvic, 2007), when it comes to environmental perception, walking constitutes the most powerful form of mobility (Gehl, 2020).

Humans, as beings emotionally engaged with biotic factors of nature, perceive their surroundings through their senses. Perception is defined in psychology as the apprehension of a whole, while the senses provide fragmented impressions of the environment (Cevizci, 1999). Perception, closely related to sensation, organizes these impressions into a meaningful world (Tunalı, 1998). Walking differs from other modes of travel in transforming sensations into perceptions, as human sensory organs are adapted to environmental perception at walking speed. At speeds higher than walking or running, both visual acuity and the ability to interpret what is seen decline (Gehl, 2020). While walking, individuals have greater opportunities to notice their surroundings: microclimatic changes, surface textures, or the presence of other pedestrians. In contrast, individuals within a vehicle lose kinetic freedom and remain in a restricted or fixed position (Dede, 1999). Walking, therefore, is the unique mode of movement and posture through which one can perceive both external surroundings and internal bodily states. By enhancing multisensory awareness (seeing, hearing, smelling, tasting, and touching) walking provides a superior form of engagement with the environment compared to other transportation modes.

According to Olszewski (2007), interest in pedestrian-oriented transportation has increased due to the following concerns:

- **Environmental issues:** Motor vehicle–dependent planning is unsustainable, requiring the promotion of green transportation modes such as cycling and walking.
- **Pedestrian safety:** Pedestrians and cyclists are the most vulnerable road users, necessitating systems that reduce risks and enhance protection.
- **Transportation system integration:** For an effective public transport system, modes of transport must be integrated in terms of transfers, distances, and accessibility.
- **Accessibility:** Urban environments should be improved to ensure accessibility for elderly and disabled individuals.
- **Public health:** The growing prevalence of sedentary lifestyles and related health issues has increased the need for pedestrian-oriented environments that encourage walking.

Walking is also a socially significant form of movement. According to Zhu, Lu, Yu, Lee, and Mann (2013), pedestrian-friendly environments promote social interaction and solidarity, enabling genuine social connections and strengthening urban belonging.

Given these individual, environmental and social dimensions of walking, it is important to examine pedestrian-oriented design and planning

models within spatial frameworks that allow all their benefits to be realized. Several pedestrian-oriented design and planning models can be summarized as follows:

- **Sustainable Transport Hierarchy** (Sustainable Development Commission, 2011):
  1. Reducing the demand for motorized transport: Increasing the demand for pedestrian and bicycle mobility.
  2. Transitioning to sustainable and land-efficient modes: Ensuring integration between transport modes, particularly between walking and cycling.
  3. Improving existing transport modes: Encouraging multiple occupancy of private vehicles.
  4. Increasing motorized transport capacity: To be considered only after the previous three strategies have been thoroughly explored.
- **Pedestrian-Friendly / Walkable City Model:** This approach emphasizes the improvement, design, and planning of the built urban environment for pedestrians in line with criteria such as comfort, safety, accessibility within reasonable effort and time, attractiveness, and inclusivity (Abley & Singh, 2011; Forsyth, 2015; Southworth, 2005; Speck, 2013, 2018). It represents a concept in which the pedestrian experience is placed at the very center of urban life (Gehl, 2020).
- **Complete Streets:** A framework for planning, designing, constructing, maintaining, and operating multifunctional and inclusive streets to ensure safe mobility for all users (pedestrians, cyclists, public transport passengers, and drivers) of all ages and abilities. Each user travels within designated boundaries in the same shared urban corridor (Smart Growth America, 2025).
- **Shared Space Approach:** Developed by traffic engineer Hans Monderman, the best-known examples of this model include the so-called *woonerf* or "living street," where pedestrians, motor vehicles, and cyclists coexist in the same space without conventional traffic signals or signage. Pedestrian priority is emphasized, and drivers are compelled to behave cautiously (Wikipedia, 2025a).
- **Car-Free Zones:** These refer to areas entirely free of motorized transport. Pedestrianized streets and squares defined as the transformation of urban roads into pedestrian-only spaces or the allocation of more generous areas for walking through specific design interventions (Kırmızı, Kolağasıoğlu, & Çalışkan, 2012) as well as urban greenways [According to Lille Declaration, "Greenways are independent communication routes reserved exclusively for non-motorised journeys, developed in an

integrated manner which enhances both the environment and quality of life of the surrounding area." (European Greenways Association, 2000).] can be considered within this scope. Such areas may serve diverse functions, including commerce, tourism, recreation, or ecological purposes.

Positioned at the top of the sustainable transport hierarchy, walking is not only an ecologically and socially sustainable mode of urban mobility but also a critical concept through which biophilic design can be perceived and experienced. Pedestrian-oriented planning strengthens direct human interaction with both natural and built environments, thereby amplifying the ecological, social, and perceptual benefits of biophilic design.

CONCLUSION

Pedestrianism is the sole form of movement and posture that enables a person to perceive both what is happening around them and what is happening within their own body. Therefore, as sensations obtained through sight, hearing, smell, taste and touch are perceived more effectively, walking provides an advantage over other modes of transport in terms of interaction with the environment. Walking is also the most natural form of transport. Therefore, there is an inevitable relationship between being a pedestrian and being biophilic.

Biophilic design strengthens environmental perception and creates opportunities for social interaction by integrating natural elements into the built environment. Pedestrian-oriented and nature-oriented areas foster a collective sense of belonging by creating environments where individuals can connect with their surroundings and with each other. Prioritizing pedestrians in spatial planning contributes to the success of biophilic design environments in terms of strengthening the relationship between nature and humans. These two concepts, which are directly related to sustainability, should not be considered separately. When planning/designing biophilic environments, other modes of transport should take a back seat to ensure that pedestrians can travel in more walkable environments.

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MAURICE MERLEAU-PONTY AND ARCHITECTURE IN THE CONTEXT OF PRIORITY OF SUBJECT, OBJECT AND SPACE RELATIONSHIPS

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ABSTRACT

Throughout history, many theorists have questioned the concepts of subject, object, and space, establishing specific priorities in defining these concepts and shifting their influence from philosophy to architecture. Descartes' "Cartesian subject" approach led to the separation of the concepts of subject, object, and space. By the 20th century, Phenomenology Theory asserted that the object is not independent of the subject rather; the object is perceived in different ways through the determinations of the subject. Maurice Merleau-Ponty's influence on this theory lies in his assertion that the subject performs all its actions within space through the body, by adding the concept of the "body". Phenomenology has enabled Merleau-Ponty's centralization of the concept of the body, enabled the concepts of subject, object, and space to be addressed through bodily experience. In this context, the aim of this study is to determine the priority of the interrelationships of subject, object, and space. This study aims to analyze the relationships among the concepts of subject, object, and space, and the priorities established within these relationships, through the discourses of Maurice Merleau-Ponty. Content analysis and discourse analysis techniques, which are qualitative data collection methods, were employed in the study. The material for the study consists of Merleau-Ponty's masterpiece, The Phenomenology of Perception. The study revealed that Merleau-Ponty prioritized perceiving embodied subject over the concepts of subject, object and space. The study provides an interdisciplinary perspective on the concept of "priority" and offers a different definition within the discipline of architecture, based on Maurice Merleau-Ponty's Theory.

Keywords: Maurice Merleau-Ponty, Subject, Object, Space, Priority.

INTRODUCTION

“The main focus of phenomenology is the way people exist in relation to their world”, (Seamon, 2013, p.38)

According to Heidegger (2001), we do not dwell because we build, but we build because we dwell. It can be said that the subject is a being that has been dwelling, constructing, and therefore both existing in space and producing space for itself since its very existence. Spaces emerge from a necessity of the subject. However, spaces born from the subject's needs and constructed for this purpose are created not to be viewed from the outside but to be lived in (Usta, 2020). The subject lives with objects within space. In order for the subject to live together with objects and space, certain priorities within these interrelations must be taken into account.

Throughout history, the priorities in the relationship between subject, object, and space have been questioned in different ways across different disciplines. While philosophy explains the priorities between the concepts of subject, object, and space within a system of thought, architecture translates thought into concrete products and manifests them within space. Among these disciplines, philosophy and architecture have frequently influenced each other. Therefore, it is believed that an interdisciplinary examination of the concept of "priority" can establish a connection between philosophy and architecture.

Descartes's "Cartesian subject" approach created a distinction between the subject's body and consciousness. This led to the concepts of subject, object, and space being considered separately, and to the concept of consciousness being prioritized in defining these concepts. The relationship between the subject, object and space was established through consciousness, and objects and space began to be conceived as disconnected from the subject and not communicating with it.

In the 20th century, Phenomenology Theory, in contrast to Descartes' "Cartesian Subject" approach, centered on the concepts of experience and sensation. Objects and spaces began to acquire meaning and be designed through the determination of the subject. With Phenomenology Theory, space became not a fixed place but a place that flowed with experience, contained meaning, and was discovered through experience (Ulubay & Önal, 2020).

Phenomenology Theory was shaped by Edmund Husserl, Martin Heidegger, and Maurice Merleau-Ponty. Merleau-Ponty's influence on this theory is his centralization of the concept of the "body" and his

assertion that the subject performs all actions within space through the body.

Maurice Merleu-Ponty

"…not only is my body merely a section of space for me, but without my body, space would not exist for me either", (Merleau-Ponty, 2017, p.152).

Merleau-Ponty constructs his philosophy around the body. He explains this through the act of perception. Şimşek (2018) states that Merleau-Ponty first describes perception and then constructs the body. In this way, Merleau-Ponty reveals the body's contact with the world. Thus, consciousness and the body, separated in Descartes, begin to integrate in Merleau-Ponty's theory. This situation leads to the coming together of all dualities considered as opposites or separate, and to the consideration of dualities such as subject/object, subject/space, seeing/touching, and seer/seen together.

Merleau-Ponty's approach to perception is fundamentally based on the Gestalt Theory of Perception. According to Merleau-Ponty, perceived things can be anything: objects, spaces, paintings, poems, music, subjects, etc. (Merleau-Ponty, 2005). In other words, everything in the world can be the subject of perception. However, the perceived thing always has a perceptual field, that is, space, and has a specific form or figure (Moran, 2002). The relationship established by the Gestalt Theory of Perception through figure-ground is seen to be established in Merleau-Ponty's Theory through the concepts of person/world, subject/space, and object/space.

According to Merleau-Ponty, perception is an experience involving active qualities. In other words, in perception, the subject is not a passive receiver, but an active, living, perceiving embodied subject (Şan, 2017). According to Merleau-Ponty, the subject's relationship with objects and space is not distanced by virtue of an experiencing body. According to Merleau-Ponty, "every object speaks to our body and life, taking on human characteristics" (Merleau-Ponty, 2005, p.31).

In the later stages of his philosophy, Merleau-Ponty explains the act of perception and the relationship between perceiver and perceived through the concept of "flesh". According to Merleau-Ponty, the act of perception between human/world, subject/space, subject/object, object/space, perceiver, and perceived thing takes place in the flesh. Merleau-Ponty argues that the seer and the visible are imbued with "flesh," the birthplace of vision. According to Merleau-Ponty, during vision, "the seer and the visible respond to each other, and we no longer know which one is seeing and which one is being seen. What we just

called flesh is this visibility" (Merleau-Ponty, 2023, p.179). At this point, perception through the concept of flesh no longer pertains solely to the subject or the object. Perception cannot be considered separate from being in the world, being embodied, and having the same flesh as the world.

In light of all this information and the influence of Merleau-Ponty's Theory on Phenomenology, the aim of this study is to identify the priorities in the relationships between the concepts of subject, object, and space, which are common research areas in philosophy and architecture. This study aims to analyze the relationships between the concepts of subject, object, and space, and the priorities revealed within these relationships, through the discourses of Maurice Merleau-Ponty. Merleau-Ponty has written works in numerous fields, including linguistics, philosophy, politics, and cinema. This study is based on Merleau-Ponty's masterpiece, The Phenomenology of Perception (Figure 1).

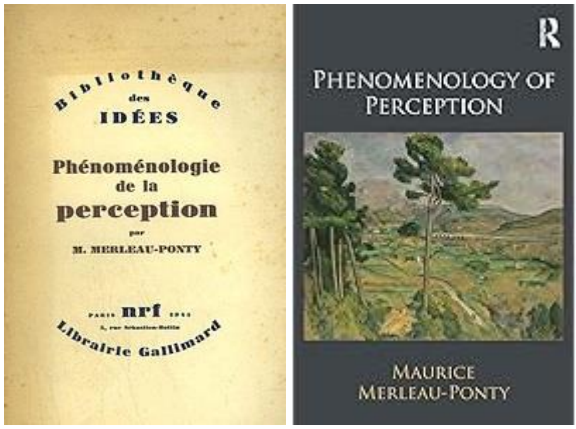


Figure 1. Phenomenology of Perception, Maurice Merleau-Ponty [1]

METHOD

Content analysis and discourse analysis techniques, which are qualitative and quantitative data collection methods, were used in the study. The content analysis technique allows for the identification of

[1] First published in 1945 in French as "Phénoménologie de la perception", the 1st English Edition is published in 1962 by Routledge, London, with the translation of Colin Smith.
You may see the eBook Edition which is published in 15 April 2013 at: https://doi.org/10.4324/9780203720714

general attitudes towards a topic. Qualitative content analysis reveals implicit messages by asking questions related to the topic. Quantitative content analysis, on the other hand, generates numerical data by creating categories and codes based on selected documents (Metin & Ünal, 2022).

Discourse analysis attempts to uncover the visible and invisible meanings of language. The primary goal of discourse analysis is to reveal all aspects of the meaning within discourse. This analytical technique, preferred in many fields from literature to psychology, from sociology to philosophy (Taşdemir & Karadeniz Demirata, 2023). Using the techniques mentioned, the concept of "priority" was discussed and analyzed through Merleau-Ponty's Phenomenology of Perception. The study consists of two stages:

- The first stage involves identifying sentences in The Phenomenology of Perception that contain the concepts of subject, object and space, and determining the most frequently occurring concepts within these sentences. Content analysis was used in this stage. The work was coded with the concepts of subject, object, and space, and the coded sentences were examined, and word clouds were created to identify the most frequently occurring concepts.
- The second stage involves identifying the most frequently occurring word in the coded sentences and interpreting the sentences in which the specified word appears. Discourse analysis was used in this stage.

Determining Priority in Sentences Containing the Concepts of Subject, Object and Space

In Merleau-Ponty's Phenomenology of Perception, 17 sentences containing the concepts of subject, object, and space were identified. Content analysis was conducted on these sentences to identify the most frequently occurring words. Numerical data was obtained through frequency analysis, and word clouds were created to provide visual representation. This allowed us to identify five frequently occurring concepts within the sentences.

When the 17 sentences were analyzed as described above, when the concepts of subject, object, and space were taken into account, the concept of “object” was found to occur 25 times, the concept of “space” 23 times, and the concept of “subject” 20 times. Considering these concepts, it was seen that Merleau-Ponty gave priority to the concept of “object” in the relationship between subject, object, and space (Figure 2).

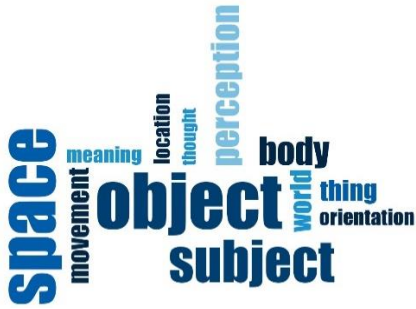


Figure 2. Concepts in Phenomenology of Perception.

When the concepts of subject, object, and space were not taken into account, the concept of "perception" was found to occur 10 times, the concept of "body" 9 times, the concept of "movement" 7 times, the concept of "world" 5 times, and the concept of "thing" 4 times. In this respect, it was seen that Merleau-Ponty gave priority to the concept of "perception" in defining the concepts of subject, object, and space, and the relationships between concepts (Table 1).

Table 1. Number of Concepts in Phenomenology of Perception.

Subject, Object and Place Sentences		
	Concept	Number
1	Object	25
2	Space	23
3	Subject	20
4	Perception	10
5	Body	9
6	Movement	7
7	World	5
8	Thing	4

Analysis and Interpretation of Sentences Containing the Concept of Perception

Because the word "perception" frequently appears among the identified concepts, it appears that Merleau-Ponty prioritized the concept of "perception" in explaining the concepts of subject, object, and space and in expressing the relationship between them. In this study, sentences containing the concept of "perception" were identified and interpreted among the 17 sentences in Merleau-Ponty's work, "The Phenomenology of Perception". Eight sentences were found to contain the concept of perception. These sentences were interpreted within the context of their title and subject within the work (Table 2).

Table 2. The Concept of Perception and Its Related Concepts in Phenomenology of Perception.

THE CONCEPT OF PERCEPTION		
	Sentences	Concepts
1	*"The ambiguous determination of a place, this paradoxical phenomenon, reveals a pre-objective space in which extension actually exists, because the many points of the body touched simultaneously are not confused by the subject, but they do not yet have a single location, since no fixed spatial framework remains intact in the transition from one perception to another."* (Merleau-Ponty, 1945: 62).	Subject, Object, Space, Perception, Body.
2	*"In the same way, the subject who stands before his scissors, his needle, and his familiar tasks need not look for his hands or fingers, for they are not objects, bones, muscles, nerves, to be found in objective space; they are forces already set in motion by the perception of the scissors or the needle, by the central end of the 'intentional bonds' that connect it to given objects."* (Merleau-Ponty, 1945: 157).	Subject, Object, Space, Perception, Movement.
3	*"The case of pure apraxia, in which spatial perception is intact and even the 'intellectual notion of the bodily movement to be performed' does not appear to be confused, yet the patient still does not know how to copy a triangle, or the case of constructive apraxia, in which the subject shows no gnostic disturbance other than the inability to localize stimuli on his body, yet cannot copy a cross, a v, or an o, demonstrates very well that the body has a world and that objects or space can be present for our knowledge while not present for our body."* (Merleau-Ponty, 1945: 201-202).	Subject, Object, Space, Perception, Body, Movement, World,
4	*''Yet, if we resort to space or the perceived thing, it was not easy to rediscover the relationship between the embodied subject and its world, because this relationship is spontaneously transformed in the pure exchange between the epistemological subject and the object."* (Merleau-Ponty, 1945: 220).	Subject, Object, Space, Perception, Body, World, Thing.
5	*''If the subject of perception did not have this gaze which holds on to things only in a certain orientation, there would be neither contours, nor figures, nor grounds, nor objects in our perception in general, hence there would be no perception of anything, and finally no perception; directionality in space is not a contingent property of the object, but is what allows me to recognize it and to become conscious of it as an object.''* (Merleau-Ponty, 1945: 344).	Subject, Object, Space, Perception, Thing, Consciousness.

6	*''Just as up and down, right and left, are not given to the subject along with the perceived contents, but must be constituted at every moment by a spatial level in relation to which things are situated, so depth and magnitude come to things by virtue of the placement of things according to a level of distances and magnitudes that define the far and the near, the large and the small, before any object can serve as a sign.*" (Merleau-Ponty, 1945: 361-362).	Subject, Object, Space, Perception, Thing.
7	*"And just as we found the origin of spatial location in the pre-objective position or place of the subject, which fixes itself in its environment, so beneath the objective thought of movement we will have to rediscover a pre-objective experience of movement that gives it its meaning, where movement still depends on the perceiver and is a variation of the subject's attachment to its world.''* (Merleau-Ponty, 1945: 363).	Subject, Object, Space, Perception, Movement, Thought, Experience.
8	*''Up to this point, we have considered only the perception of space, as classical philosophy and psychology did, that is, we have considered the information that an impartial [desinteresse] subject would receive from the spatial relations between objects and their geometrical properties.''* (Merleau-Ponty, 1945: 380).	Subject, Object, Space, Perception.

According to Merleau-Ponty, the world experienced by the subject is the world of the embodied subject. The world is experienced, shaped, and exists through the body. Objects and space are perceived through the subject's body. If one wishes to understand objects and space, this must be investigated through the embodied subject's experience. Investigating objects and space without an embodied subject reduces objects and space to a collection of objective properties and qualities, rendering them tools that fail to understand the subject's life.

According to Merleau-Ponty, when perceiving space, the subject fixates it in certain situations and realizes the perception. However, this fixation persists until another perceptual act occurs. In Merleau-Ponty, the act of perception occurs continuously, not sequentially. According to Merleau-Ponty, in the act of perception, the subject tends to create a perceptual field, that is space. Whether what is perceived is a touched part of the subject's body or an object, a perceptual field, that is, space, is created with each act of perception, and this situation changes and transforms from one perceptual act to the next.

According to Merleau-Ponty, objects are given objects. The subject, however, always takes a stance toward the object, that is, is turns toward it. At this point, the subject is intentional. This intentionality occurs in two ways: one is the intentionality of the body, and the other is the

intentionality of consciousness. However, in Merleau-Ponty, this is the intentionality of a conscious body. Merleau-Ponty explained the perceptual experience of a subject who has turned toward and perceived an object and then performs the same action again through the use of scissors and needles. The subject who has previously perceived the scissors and needle, that is, who has experienced them with their body (sight, touch, etc.), resurfaces old connections. At this point, the subject is not searching for the location of their limbs in their body or the location of the object in space. What is truly sought is the location of experience in the body and space. Experience activates the subject's bodily movements at the point where they are directed toward objects. At this point, the experienced object or space becomes the object and space that evokes certain movements or behaviors in the subject. By turning toward the experienced object and space, the body is already a body in action.

In Merleau-Ponty's analysis of an apraxic patient, he observed that when the body failed to recognize objects and spaces and consciously mobilize itself—in other words, when the subject was asked to perform an action—the patient was unable to do so and could not establish a connection between the desired and the qualities. However, Merleau-Ponty argued that even when the patient's body failed to establish these connections, objects and spaces still existed through knowledge acquired through experience. According to Merleau-Ponty, the body possessed a world of its own, and even if consciousness of movement disappeared, movement could continue.

According to Merleau-Ponty, objects and space are directional, just as the subject is directional. The object's directionality stems from the directionality of space beyond its own configuration. If an object always remains the same in a space, its right/left, up/down, become definite for the subject.

According to Merleau-Ponty, the subjects directed toward the object are diverse: the subject of thought and the subject of perception. The subject of thought, in communicating with the object, understands and recognizes it even in a space different from the one it usually sees. However, the subject of perception may not understand the object when the object is in a different space, when its up-down qualities are distorted. According to Merleau-Ponty, the directionality of the object and space exists for the subject of perception. The subject of perception always perceives the object and space through specific expressive possibilities in line with this directionality. This situation is like an acceptance made about the object and space at a certain point.

Boundaries, lines, shape and ground relationships are formed in line with the acceptances made about the object and space.

The knowledge of up/down or right/left is always reshaped through the space perceived by the subject. When perceiving an object, the subject constructs a new spatial level based on the specified qualities. The concepts of depth and magnitude, which Merleau-Ponty describes in sentences, can only be perceived through the establishment of a new spatial level. At this spatial level, before perceiving the object's depth or magnitude, the subject must understand the space where the object is located, the distance between the subject and the object, and the distance between the object and other things, in other words, the relationships between the qualities through the body. Thus, the subject creates a spatial level where they understand, perceive, and experience the concepts of depth and magnitude. According to Merleau-Ponty, qualities also have a space, and to perceive these qualities, the subject must construct a space based on the qualities.

Merleau-Ponty also explains perception through the concept of movement. For Merleau-Ponty, movement, beyond mere displacement, is a means through which the subject interacts with space, understands it, communicates with it, and lives with it. The subject engages with and perceives space through movement. According to Merleau-Ponty, the perception of space differs between moving and non-moving subjects. Movement not only changes the perception of space but also the subject. For Merleau-Ponty, the concept of movement cannot be considered separately from the mover (subject/object), the perceiver of movement (subject), and the place where the movement occurs (space). During movement, each concept undergoes transformation within itself and in its relationship with each other.

The subject Merleau-Ponty describes in the sentences examined is neutral. In other words, its gender, background, culture, and the semantic relationships it establishes with objects and space are ignored. Definitions are made in terms of a neutral subject, a neutral object, and a neutral space, or in terms of a general subject, a general object, and a general space, all combined in terms of their attributes.

CONCLUSION

In the study conducted on the Phenomenology of Perception, it was observed that Merleau-Ponty prioritizes the concept of "object" among the concepts of subject, object, and space. This is because Merleau-Ponty attempts to reveal object perception, spatial perception, that is,

the perception of perceived things. However, Merleau-Ponty explains this through the perspective of the embodied subject who perceives.

Merleau-Ponty appears to prioritize the concept of "perception" in establishing the relationship between the concepts of subject, object, and space. In Merleau-Ponty, the primacy of perception is explained through the perceiving subject's perception of space. Merleau-Ponty frequently refers to the perceiving subject's embodiment, bodily experience, and sensory body.

The subject's communication with everything in the world occurs through the body in the act of perception. Qualities (size/smallness, distance/closeness), boundaries, shapes, depth, perspective, color, and so on emerge in perception through the body.

The subject performs the act of perception in space. However, there is also a space that it shapes to perform the act of perception. To perform the act of perception, the subject establishes a space defined by its body between objects. According to Merleau-Ponty, even movement is something that occurs between the subject, object, and space, altering the perception of the object and space.

The relationship between subject, object, and space, through the state of being perceived through the body, makes these concepts an extension of each other. The subject stores information about object and space within their bodies. The subject's re-encounter with the object and space they perceive, and experience reactivates their habitual actions.

In conclusion, in Merleau-Ponty, subject, object, and space are related to each other through the act of perception. Merleau-Ponty explains the perception of objects and space by focusing on the perception of the subject.

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SUFFICIENT/INSUFFICIENT LIGHT AESTHETICS IN ARCHITECTURE: THE CASE OF PETER ZUMTHOR

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ABSTRACT

This study examines how light in architecture can be used as a multi-layered experiential element that goes beyond merely serving a physical lighting function, deepening the atmosphere, character, and emotional connection of the space with its users. In particular, the aesthetics of insufficient light, created by reducing light intensity or limiting its direction, is considered a unique approach that encourages users to establish a slower, more contemplative and intuitive connection with the space. In this context, the architectural understanding of Swiss architect Peter Zumthor, who stands out in contemporary architecture with his phenomenological approaches, has been taken as a basis; it has been emphasised that light in his structures is not merely an illumination tool, but also represents the spirit of the space, its nature that changes over time, and a sensory layer that leaves an impression on human memory. In Zumthor's designs, light does not merely render the space visible; it becomes an element that works in tandem with silence, shadow, texture, and time, triggering a multi-sensory experience. The study adopted a qualitative research method; in addition to a literature review, architectural analyses were conducted on selected examples from among Zumthor's various structures. These analyses observed how light enters the space, how it changes throughout the day, how shadows move within the space, and how they relate to the materials. The findings reveal that diminished light directs the user not only towards visual perception but also towards auditory, tactile, and bodily sensations. Consequently, when evaluated through Zumthor's architecture, the aesthetics of insufficient light emerge as a unique design language with the potential to produce an intuitive, sensory, and timeless experience in modern architecture.

Keywords: Peter Zumthor, Light Aesthetics, Insufficient Light, Phenomenological Architecture, Sensory Experience

INTRODUCTION

Architecture is the art of constructing a multi-layered experience space that appeals to the human senses, emotions and unconscious while providing functional requirements. In this framework, light is considered not only as an element that meets the physical needs of the space, but also as a fundamental element that defines the atmosphere and spirit of the space. From the past to the present, it is accepted as one of the important elements of architectural design that the space receives the right amount of light in accordance with its function (Uysal, 2017). Providing a level of lighting that supports the physical comfort and visual perception of users in a private or public space has been an inevitable part of design. However, the technological possibilities and lighting systems that have developed with modern times have turned spaces into very open and continuously illuminated homogeneous areas. When light is evenly distributed to every corner, it may seem like a practical advantage at first, but over time it weakens the mystery and intuitive perception that preserves the character of the spaces (Pallasmaa, 2005). The constant visibility of every detail of the space has reduced the user to the position of observer rather than experience, creating a superficial perception instead of a deepening spatial relationship. This situation has made it necessary to rethink that the role of light in architecture cannot be reduced to lighting alone. In this context, some architects have discovered that by reducing the intensity or restricting the direction of light, the space can offer a much stronger sensory and emotional experience. This approach, which can be called the aesthetics of insufficient light, is particularly evident in the phenomenological understanding of architecture. As Juhani Pallasmaa (2005) emphasizes, the experience of space is not only visual; it is integrated with tactile, auditory, olfactory and bodily perceptions. Reducing light sharpens one's other senses and transforms the space into a more holistic experience.

One of the most influential practitioners of this system of thought in contemporary architecture is Swiss architect Peter Zumthor, who skillfully combines modern forms with traditional materials, focusing on the perception of spaces through emotions. Zumthor's architectural approach goes beyond the aesthetics visible on the surface to build the spirit, memory and sensory intensity of space (Bilgin, 2016). In his buildings, natural materials such as stone, wood and concrete become elements that reflect the silence and permanence of the space, while light becomes a living layer of the space that changes over time (Zumthor, 1998). Zumthor uses light in the creation of space not as a generous diffuser, but as a material that filters through carefully selected openings and crevices. It is a fundamental principle in his design process

to first construct a building as a dark mass and then bring the space to life by letting in light from certain places (Zumthor, 2006). This method not only strengthens the users' sense of orientation in the space, but also makes the changing nature of the space continuously experienceable at different times of the day.

The presence of limited and filtered light in a space allows the user to develop an awareness that goes beyond simple visual perception. By reducing visual information (i.e. through inadequate lighting), sensations such as hearing the echo of a distant sound, feeling the texture of the floor with bare feet, and perceiving the coolness of the wall in the palm of the hand become possible (Pallasmaa, 2005). Thus, space becomes not an object that can be grasped with a glance, but a phenomenon that can be entered and felt over time. Zumthor's approach overlaps with Christian Norberg-Schulz's concept of the "spirit of space" (genius loci). The spirit of space is revealed not only through architectural form but also through multisensory experiences such as the filtering of light, the heaviness of shadow, the coolness of stone, the smell of moisture in the air (Norberg-Schulz, 1980). In this context, the inadequate use of light transforms the space into a design strategy for experiencing it with all the senses, not just visually. The aesthetics of insufficient light is also a stance against the speed and consumption-oriented architecture of the modern age. Unlike overly bright spaces that turn the space into an instantly consumable object, Zumthor's designs demand time. They slow the user down, make them think and invite a deeper connection with the space. This approach not only creates a new level of consciousness in the human relationship with space, but also produces a timeless and permanent space of experience (GZT, 2022). We can say that the reduction of light in Zumthor's spaces is not a feeling of lack, but on the contrary, an element that provides depth. The unlit parts, full of curiosity and associative powers about the unseen, can keep users in a constant active engagement with the space. From the gently filtering beam of light to the sound of quietly flowing water or the shadows on the wall, every detail makes the space perceived as a living entity.

The general framework of this study aims to reveal how light can go beyond a mere illumination function and how it can structure the intuitive and emotional layers of space. While discussing the aesthetics of insufficient light through Peter Zumthor's architecture, it is conceptualized how the depth of experience created by the subtraction of light offers new openings to modern architectural practice. In particular, it is emphasized that elements such as darkness, shadow and dimness, which are ignored in traditional architectural understanding, can be used as conscious design tools; and that the combination of modern form and traditional material offers a strong

ground that supports this atmosphere. The study adopts a qualitative research method and develops a conceptual analysis of Peter Zumthor's use of light through literature review and phenomenological readings.

Within the scope of this study, it has been revealed that light in architecture is not only a functional lighting tool, but also an effective design element that deepens the atmosphere, spirit and emotional bond with people. The analysis of Peter Zumthor's architectural approach has shown that inadequate use of light creates a multi-layered and intuitive experience in space. Reducing the light in the space activates the user's other senses, enabling a physical and spiritual interaction with the space beyond the visual. In this context, it is concluded that the aesthetics of sufficient/insufficient light, which is deliberately preferred instead of intense light, is not only an aesthetic choice in modern architecture, but also a unique approach that strengthens the intuitive and sensory connection that people establish with space.

THEORETICAL FRAMEWORK

Architecture is not merely the art of producing functional solutions; it is also a multi-layered experiential space established through the senses, time, and atmosphere. In this context, the phenomenological approach to architecture, which treats space not merely as a visual composition but as a phenomenon perceived by the whole body, has gained increasing importance in architectural theory in recent years (Pallasmaa, 2005; Norberg-Schulz, 1980).

One of the key figures of this approach, Juhani Pallasmaa, criticised the increasing reduction of modern architecture to visuality and advocated an architectural production approach in which the body experiences space with all its senses. According to Pallasmaa (2005), 'architecture remains incomplete when it does not integrate with sensory processes such as touch, hearing, and living with time.' The idea that architecture should be not only a visual but also a sensory art radically transforms the aesthetic understanding of light usage. In this context, the 'aesthetics of insufficient light' is a conscious design choice that limits visual perception, enabling the space to be experienced through other senses. 'Light is an important medium for conveying messages in architecture; it often significantly affects the atmosphere of a space without us being aware of it' (Halim et al., 2022).

Junichiro Tanizaki's work In Praise of Shadows (1977) highlights the aesthetic values created through the reduction of light. According to Tanizaki, shadow is not the opposite of light; it is an element that reveals

its depth and meaning. This idea underpins the practice, particularly in Japanese architecture, of consciously using shadow to create depth and introversion. Similarly, Gernot Böhme (2017) emphasises that atmosphere is a central concept in architecture, that space is constructed not only with physical but also with emotional and temporal layers.

Within this theoretical framework, the prominent Swiss architect Peter Zumthor uses light in his buildings not merely as a means of illumination, but as a 'sensory event'. His design process often begins by focusing on the spirit of the 'place' where the building will be constructed and its future use; the initial sketches and models are designed to convey the atmosphere that the yet-to-be-built space will carry in the future (Platt et al., 2010). In Peter Zumthor's architecture, light is not merely a visual element; it is a vehicle for emotional and spiritual experience (Halim et al., 2022). Elements such as light, material, sound, and time are equally important in his architecture. The buildings designed by Peter Zumthor are largely dependent on how light is brought into the space and the play of light on material surfaces (Halim et al., 2022). Zumthor designs space as a 'theatre of the senses' and, in doing so, creates a spatial atmosphere through elements such as tactility, echo, humidity, coolness and shadow rather than visuality. For him, 'silence' does not mean emptiness or deprivation; on the contrary, it is an intensified combination of material, light and spatial arrangements (Platt et al., 2010). In this context, Zumthor defines architecture not merely as a functional shelter, but as an experience that integrates with human senses and leaves a lasting impression. Indeed, his emphasis on the fact that 'buildings can possess a beautiful silence associated with qualities such as stillness, self-evidence, presence, warmth and sensibility' demonstrates his understanding of architecture as an existential atmosphere beyond aesthetics (Zumthor, 2010).

Swiss architect emphasises that architecture gains meaning not only through its visual forms but also through the sensory and emotional effects it evokes in people. According to him, 'we enter a building and within a moment we form a feeling about it; we perceive its atmosphere with our emotional sensitivity' (Zumthor, 2006). Therefore, the value of his structures is determined not only by how they look, but also by the feelings they evoke in users. For Zumthor, architecture is the art of creating a wholeness that is experienced through the participation of bodily senses and memory (Zumthor, 2010).

In Zumthor's architecture, the reduction of light allows time to be perceived more slowly, directs the user's attention to details, and induces a state of intuitive awareness. In his designs, windows and

openings are shaped not only to provide light but also to give the space a cave-like or fissure-like effect; thus, light imparts a dramatic intensity and sense of direction to the interior space (Platt et al., 2010). For example, according to Ursprung (2009), 'Zumthor's spaces are defined not only by how they look, but also by how they sound and what images they evoke'. This approach also coincides with Christian Norberg-Schulz's (1980) concept of the 'spirit of place' (genius loci). The spirit of a place is shaped not only by form, but also by shadow, the refraction of light, the coolness of stone, the silence within the interior space, and even smell. When light strikes a material, the texture and colour of that material strongly determine the feelings and experience of the user (Halim et al., 2022).

Özer (2024), while examining the multi-layered structure of atmosphere in Zumthor's architecture, points out that dynamic sensory elements such as light transform the spatial experience over time. In this sense, structures such as Therme Vals, the Kolumba Museum, and the Bruder Klaus Chapel constitute the architectural counterparts of these theoretical approaches, both in terms of construction techniques and the creative use of light in space. The reason for selecting these three structures is that they embody Zumthor's understanding of atmosphere in different contexts: at Therme Vals, the relationship between nature and the body; at the Kolumba Museum, historical continuity and silence; and at the Bruder Klaus Chapel, spirituality and integration with nature. In these structures, light becomes an element that integrates with the material, reinforcing the sense of reality of the space and leaving a lasting impression on the user (Platt et al., 2010).

In Zumthor's buildings, the reduction of light does not merely mean a restriction of visual data; it also leaves the user alone with the space within the wholeness of the senses. According to Zhao (2016), Therme Vals 'creates a sensory tension between darkness and silence with its semi-cave effect embedded in the hill.' Platt & Spier (2010) note that in such spaces, the experience is constructed not only through what is visible, but also through the smell of the materials, the texture of the surfaces, and the echoes created by sounds in the space. This creates a conscious slowing down and spatial awareness in the user.

ANALYSIS AND EVALUATION

This section examines three significant structures by Peter Zumthor: Therme Vals (1996), Bruder Klaus Chapel (2007) and Kolumba Museum (2007). These structures demonstrate the architect's use of light, materials and spatial composition in different contexts. The analysis will examine

each building's relationship with light, its sensory qualities, and the effects it has on users, in line with the literature.

Therme Vals (1996)

Located in Switzerland's Graubünden region, Therme Vals (Figure 2-7) creates a distinctive atmosphere through its structure, which blends with the natural topography, its use of local stone, and its dramatic reduction of light. Much of the structure is buried in the ground, and light enters the interior only in a limited way through specific openings (Zhao, 2016). Zumthor (2006) uses light as a 'material' in this particular building; avoiding fixed and homogeneous lighting, he allows the light entering the space to create different effects at different times. At Therme Vals, daylight filters through cracks in the ceiling into the water vapour, contributing to the cool and tranquil atmosphere of the space (Halim et al., 2022). Platt & Spier (2010) emphasise that the openings in this structure are designed not like windows but to create a cave-like effect, allowing light to enter the space as a dramatic and directive force. They note that this design creates both spatial and temporal tension in users stepping inside the structure.

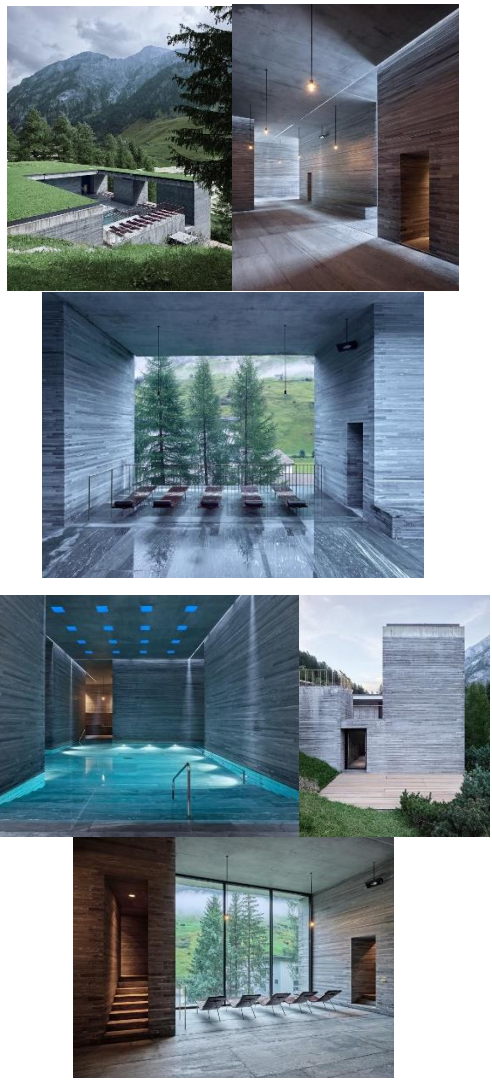


Figure 1-7. Thermes Vals, designed by Peter Zumthor. Photographs by Fabrice Fouillet [URL1].

The lack of light in the structure allows other senses to come to the fore by limiting the sense of sight. Sensory elements such as the coolness of the stone, the sound of water, and the movement of echoes in the space create a multi-layered awareness in the user that integrates with the space (Pallasmaa, 2005). Zumthor's idea of spreading the experience over time takes physical form in the process of waiting to reach the light while walking through dark corridors (Böhme, 2017).

Bruder Klaus Chapel (2007)

Located in a rural area of Germany, the Bruder Klaus Chapel (Figure 8-13) is a quiet and enclosed place of worship where light filters in only from above. The interior surfaces are covered with a burnt texture created by burning the logs used in the construction process. This brings the tactile and olfactory experience to the fore rather than visual information (Jenner, 2011).

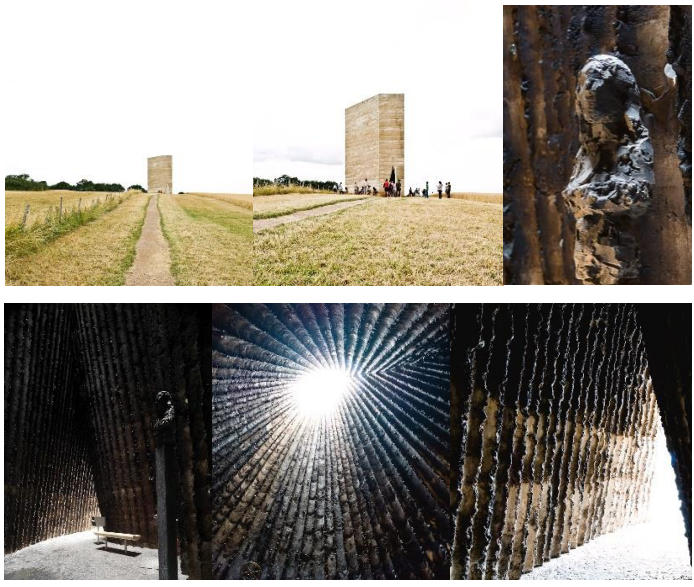


Figure 8-13. Bruder Klaus Chapel, designed by Peter Zumthor. [URL2] , [URL3].

A single beam of light entering from above in the Bruder Klaus Chapel creates a dramatic focal point at the centre of the space and invites visitors to a devotional experience (Halim et al., 2022). Platt & Spier (2010) state that the single focal light source in this chapel intensifies the experience of the space over time and invites the user on an almost ceremonial walk from the entrance to the centre. This approach reveals that light is used not only as a visual element but also as a ritualistic one.

The low light level immediately felt upon entering the space creates both a sense of spatial depth and a spiritual slowing down. The light entering from above not only defines the space but also guides the user. Tanizaki's (1977) concept of 'the aesthetics of shadow' is tangibly felt here: the absence of light lends the space an air of mystery and sanctity. Zumthor's use of light here as an almost ceremonial tool aligns with the

function of the space; it transforms the user from a mere observer into a subject who feels.

Kolumba Museum (2007)

The Kolumba Museum (Figures 14-19), built in Cologne, is a cultural structure created by incorporating the remains of a former church. Here, Zumthor allows light into the space not directly, but in a softened and quiet manner, through permeable brick walls that filter daylight. In the Kolumba Museum, light filters through the brick walls, creating a timeless atmosphere; thus, the space becomes a silent witness to both the past and the present" (Halim et al., 2022).

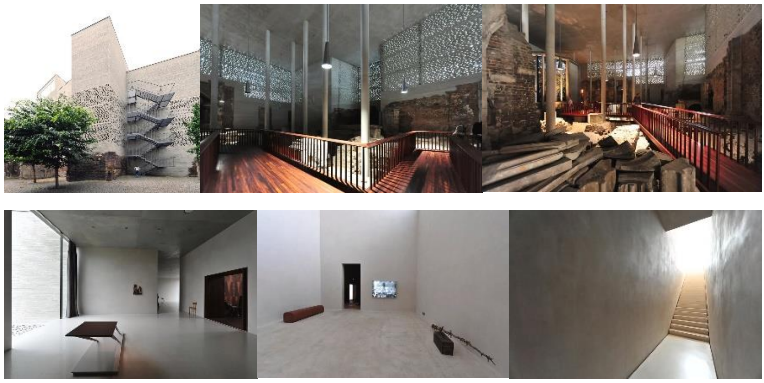


Figure 14-19. Kolumba Museum, designed by Peter Zumthor. [URL4].

Platt & Spier (2010) associate the use of light at the Kolumba Museum with the concept of 'intensified silence.' According to them, silence here is not produced by emptiness, as in minimalism, but by an intense combination of material, shadow, and light. This creates a sense of both historical and spatial depth in the visitor.

This light, blended with shadow, creates an atmosphere around the exhibited works that is constantly changing but never fully visible (Potworowski, 2022).

At Kolumba, light defines the sensory void surrounding objects rather than bringing them to the fore. The space, with its constantly changing balance of light and shadow, encourages the user to wander in attentive silence. Özer (2024) notes that in this structure, light is used more for the purpose of 'reminding' and 'provoking thought' than for visual appeal. This is an important element that creates the effect of 'timelessness' often encountered in Zumthor's architecture.

Notes on Other Examples

Although not analysed in detail in this study, it is observed that Zumthor similarly employs an aesthetic of insufficient light in structures such as the Sogn Benedetg Chapel and the Steilneset Monument. Zumthor often conceives light in his projects as an experiential rather than a visual element (Halim et al., 2022). Zumthor's structures can be linked to Pallasmaa's (2005) understanding of architecture based on sensory experience and Sharr's (2007) phenomenological readings. In this context, Therme Vals, the Bruder Klaus Chapel, and the Kolumba Museum are considered among the strongest examples of this aesthetic.

FINDINGS

Based on the phenomenological readings and architectural analyses conducted within the scope of this study, it has been determined that the spatial experience created by the reduction of light in Peter Zumthor's architecture enables the establishment of a deep, temporal and multi-sensory connection that goes beyond mere visual perception. Findings obtained from the examples of Therme Vals, Bruder Klaus Chapel and Kolumba Museum show that a spatial atmosphere constructed through the deliberate reduction of light effectively reveals the intuitive and sensory layers that are often neglected in contemporary architecture.

1. Light is a Tool that Intensifies Spatial Time

In Zumthor's architecture, light is not a fixed lighting element; it becomes a component that flows, changes, and directs with time. Particularly in Therme Vals, the way light enters the space consciously slows down the user's movement; spatial progression becomes a kind of ritual (Zhao, 2016; Zumthor, 2006). The filtering of daylight into interior spaces through limited openings encourages the user to experience different moments of the space with temporal awareness. In this respect, light creates not only a visual but also an intermittent and sensory temporality (Özer, 2024).

2. Reduced Light Sharpens Other Senses

As Pallasmaa (2005) points out, limiting visual information directs the individual towards other senses. This is clearly observed in the example of the Bruder Klaus Chapel: the limited light entering only from above, combined with the burnt wooden surfaces of the space, produces an experience related more to touch and smell than to sight. The suppression of the sense of sight brings elements such as the echo of footsteps, the coolness of the walls, or the perceptibility of scent to the

fore; it transforms architecture from an object that is merely 'observed with the eyes' into a phenomenon that is 'felt with the body.'

3. Light Shapes the Atmosphere by Integrating with Materials

In Zumthor's understanding of architecture, light is not direct; it is woven into the space through materials. The permeable brick walls used in the Columba Museum filter daylight, creating a constantly changing atmosphere in the interior (Potworowski, 2022). This permeability makes the interaction between light and material more perceptible than the direct effect of light itself. This situation, which coincides with Böhme's (2017) concept of 'the aesthetics of atmosphere,' demonstrates that light is transformed into an element that activates the emotional layers of space rather than being a visual quality.

4. User-Space Interaction Becomes More Personalised and Deepened

Insufficient lighting removes the user from the position of a passive observer and transforms them into an active and sensory subject. The transition from the semi-dark areas inside Therme Vals to the bright pools, or the sense of directionlessness in the dim corridors of the Kolumba Museum, allows the space to become an entirely individual discovery process. According to Ursprung (2009), these structures create an effect on the user that is 'more of a spiritual state than an architectural work'. This is directly related to Zumthor's design language, which invokes the 'spirit of the place' (Norberg-Schulz, 1980).

CONCLUSION

This study aims to examine the concept of 'insufficient light aesthetics' within the context of phenomenological architecture through Peter Zumthor's architectural production, revealing how light can be used not only as a functional or visual element, but also as a temporal, tactile, and intuitive component. The analyses conducted demonstrate that the deliberate reduction of light enables users to establish a slower, more attentive and holistic connection with the space. This connection manifests as an experience that appeals not only to the sense of sight but to the entire body.

In the examples of Therme Vals, Bruder Klaus Chapel and Kolumba Museum, it has been observed that reducing light creates an atmosphere where time passes more slowly in the space, visual information is limited, and auditory, tactile and olfactory perceptions come to the fore. In this respect, light does not merely make the space visible; it also creates a sensory awareness that extends over time in the user. This situation positions itself as a more profound and poetic

alternative to the overly bright, homogeneous and speed-oriented space designs frequently encountered in contemporary architecture.

Zumthor's design approach treats light as a 'material,' transforming it into a tool that directs the atmosphere. The tension between light and shadow produces not only an aesthetic but also an existential experience. In this context, the aesthetics of insufficient light can be seen as an expression of a unique architectural language developed in response to the sensory monotony of modern architecture.

Ultimately, this study bridges phenomenological architectural theory and contemporary architectural practice, demonstrating that insufficient light is not a deficiency but carries the potential to focus the user on the space, deepen awareness, and personalise the experience. This sensory intensity, established through the reduction of light, provides an important basis for rethinking experience-centred approaches in future architectural designs.

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THE EVOLUTION OF PRIORITIES IN ARCHITECTURAL HISTORIOGRAPHY AND THEIR IMPLICATIONS FOR THE CANON

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ABSTRACT

In architectural historiography, the notion of the "canon" is recast from a fixed rule into a measurable phenomenon, and Bernard Rudofsky's thesis of historiographic selectivity in Architecture Without Architects (1964) is subjected to a stress test within this frame. A multilingual corpus of 90 texts, spanning from the earliest written discourse to 1965 and organized into three periods, has been examined. A composite "Canon Score" was developed and applied to gauge institutional circulation by combining curricular presence, representation in reference works, and publication continuity. Content was analyzed both qualitatively and quantitatively across four axes—geography, society, scale, and ideology—using a standardized coding matrix.

Findings indicate that geographic foci shifted from singular centers to institutional "centers of calculation" and then to multi-centered networks, while curatorial selectivity persisted. Socially, emphasis moved from court–church–guild formations to expert communities and, later, to plural subjectivities; nonetheless, women's labor and vernacular knowledge remained only partially visible. With respect to scale, priority migrated from monumental programs toward an equivalence that also legitimized the street's vitality, user cognition, and typological continuity. Ideologically, legitimation diversified from cosmic–historical order to rational–scientific objectivity and, ultimately, to negotiated plurality. Overall, long-run agendas of legitimation, standardization, centralization, and rationalization endured, to which late-stage tendencies toward pluralization and localization have been added. Methodologically, the approach furnishes a transparent basis for comparative evaluation across curricula, exhibitions, and publishing practices.

Keywords: Architectural Historiography, Canon, Rudofsky Matrix, Canon Score, Selectivity

INTRODUCTION

Architectural historiography organizes the past through specific theoretical and methodological instruments. Over time, some narratives stabilize and harden into canonical frames that are presumed to present their objects in the "most correct/complete" manner. These dynamic underscores the field's dual nature as both constitutive (canon-forming) and constraining. As perspectives multiply, claims to absoluteness are unsettled; plural readings reveal historical accounts to be contestable constructions rather than linear certainties (Gürkaş, 2010).

This study positions Bernard Rudofsky's Architecture Without Architects (1964) as a stress test. Rudofsky argues that Western, canon-forming narratives generate selective priorities both geographically (Eurocentrism) and socially (elite/"official" productions). The aim here is neither to romanticize nor to presume the truth of that claim; rather, measurable indicators are developed and applied to a broad pre-1965 corpus to identify where the claim is reproduced, where it fractures, and which institutional and visual devices sustain it.

The research analyzes approximately 90 texts across three periods—Classical (antiquity–1500), Early Modern (1500–1900), and Modern/Contemporary (1900–1965)—including canonical textbooks, anthologies, encyclopedias, exhibition catalogues, type/standard handbooks, and urban–sociological studies. To trace institutional circulation, a composite Canon Score (CS) aggregates (i) curricular visibility, (ii) representation in reference works, and (iii) publication/circulation continuity. Texts with CS ≥ 8 are classified as "core canon," those with CS 5–7 as "complementary canon." In this way, the "canon" is operationalized as a measurable, cross-period phenomenon rather than a normative claim.

Analytically, selectivity is mapped along four axes—geography (center–periphery), society (elite–everyday actors), scale (monument–everyday continuum), and ideology (regimes of legitimation). Visibility indicators (chapter/title allocation; plate/photo–diagram density; index/keyword frequencies; case/monograph share) are tracked through qualitative content analysis and quantitative counts. Interpretation is triangulated with Frampton's critical regionalism, Rapoport's emphasis on everyday/anonymous production, and Hays's disciplinary historian stance; the objective is not to compile a "list of omissions" but to show how and when regimes of priority are constructed and transformed.

As structural background, regimes of verification and legitimation are shown to recalibrate across three techno-epistemic phases: (i) an early

textual phase (convergence of norm–witness–proof), (ii) a print/engraving phase (optic standardization and protocollization), and (iii) a photo/offset/exhibition phase (curatorial montage and pluralization). The canon is thus treated not as a fixed inventory but as an operating logic that manages continuities and ruptures through institutional and visual carriers.

The study's goals are: (1) to demonstrate empirically that architectural history has been organized through selective priorities, and (2) to identify the institutional, visual, and social apparatuses by which those priorities have been reproduced across periods.

2. METHODOLOGY

This study tests the hypothesis that, from the beginnings of written architectural discourse to the mid-twentieth century (pre-1965), architectural historiography has produced systematic priorities in favor of particular geographies, social groups, and building types, and that these priorities have been canonized through curricula, ideological discourse, and publishing–exhibition practices. The research proceeds in four stages:

1. Data Selection and Sampling Strategy

The time span extends from the earliest written sources to 1965 and is divided into three periods: Classical (antiquity–1500), Early Modern (1500–1900), and Modern/Contemporary (1900–1965). For each period, a corpus of ~30 texts were assembled using layered, purposive sampling. Selection balanced temporal representativeness and institutional influence, combining "core" canonical texts with critical/alternative voices.

2. Measuring Canonical Visibility: The Canon Score (CS)

To assess institutional circulation and impact, a composite **Canon Score (CS)** was developed, summing three components on fixed scales:

- **Curricular and Educational Visibility (0–5):** frequency of appearance as required/recommended readings in undergraduate/graduate syllabi at leading schools of architecture and theory.
- **Representation in Reference Works (0–3):** degree of citation, discussion, or listing in standard handbooks, anthologies, and encyclopedias.

- **Publication and Circulation Continuity (0–2):** presence of critical editions, multi-lingual translations, and commercially accessible reprints after first publication.

Texts with **CS ≥ 8** are classified as **core canon**; those with **CS 5–7** as **complementary canon**.

3. Multi-Dimensional Text Analysis

Each selected text is analyzed through a three-part analytic model:

- **Structural Analysis:** organizational architecture (genre/form, logics of partition, argumentation strategies, and paratexts).
- **Content Analysis:** explicit/implicit ideological frames, geographic–typological priorities, and deliberate exclusion patterns identified via close reading.
- **Quantitative Analysis:** thematic weights; geographic and typological distributions; density and types of visual material (plates/photos/diagrams), measured with standard metrics and compared across periods.

All findings are encoded into a standardized coding matrix that operationalizes Rudofsky's critical perspective along four axes—geography, social actor, scale, and ideology—to render canon-formation claims empirically testable and cross-comparable.

4. PURPOSE AND CONTRIBUTION

The study treats the canon not as a normative claim but as a measurable, codable, and cross-period comparable phenomenon. In a post-Bourdieu framework, the canon is conceptualized as a selectivity regime embedded in cultural capital and authority relations; this regime is tested on a multi-lingual pre-1965 corpus using transparent criteria. Rudofsky's (1964) thesis on spatial/social limitation is converted into traceable evidence, allowing continuities and ruptures to be mapped over time. The approach provides the academy with a replicable basis for comparative analysis of canon debates and supplies practice—curricula, museum/exhibition policy, and publishing—with evidence-based support for designing more inclusive canonical repertoires.

Canon: Concept, Function, and the Historiographical Operating Logic

The term *canon*, rooted in *canna* ("measure/rule"), first accrued legitimacy within Christian contexts through its association with "Sacred Scripture" and "Canon Law," and subsequently secularized to denote a field's "core reference set" in general (Varlık, 2004; Çıkla, 2007; Atakay,

2004). In architectural historiography, the canon functions not as a mere "list of works," but as a regime of selectivity that draws boundaries, generates criteria, and regulates channels of transmission. In other words, it both defines what counts as architecture and specifies the institutions and circulation technologies through which that definition is sustained (Bourdieu, 1996).

This selectivity is calibrated as much by cultural capital and authority relations as by aesthetic judgment: artifacts produced along the critic–academy–museum–publishing axis circulate via syllabi and anthologies, whereby "key texts" and "exemplary buildings" are transmitted as norms to successive generations. Within a Western-centred narrative stretching from ancient Greece and Rome through the Renaissance to Modernism, a hierarchical history has been organized around the triad "great master/masterpiece/forerunner," structuring the field's memory (Pevsner, 1936; Giedion, 1941). In education, authors such as Vitruvius, Alberti, and Le Corbusier—and works like the Parthenon, Pantheon, Notre-Dame, and Villa Savoye—have become durable points of reference, indicating that the canon not only records but also shapes design ideals and evaluative criteria (Jencks, 1985).

At the same time, the canon operates through exclusion. Post-structuralist and postcolonial critiques have shown how extra-European traditions, vernacular practices, and women's labour have been rendered invisible, and how claims to "universality" have been articulated through centralized networks of power and knowledge (Foucault, 1980; Said, 1993; Colomina, 1992; Rudofsky, 1964). Hence, the canon appears less as a fixed and immutable list than as a contested, continually retuned regulatory apparatus: which geographies, social subjects, scales, and regimes of legitimacy are foregrounded—and which are left at the margins—are historically redefined.

Structural Framework of Architectural Historiography

Architectural historiography is not merely a sequencing of content; in every period, knowledge is shaped by the tools that produce it, the media that circulate it, and the institutional dispositifs that validate it. Put differently, to grasp how architectural knowledge is transmitted, one must look behind the texts to their epistemic apparatus. Latour's "centres of calculation" (1987), Eisenstein's account of print's "transformative power" (1980), and Daston & Galison's "regimes of objectivity" (2007) together indicate that architectural history has always been tethered to particular modes of verification and visual-technical carriers. From this angle, what comes into view is not a fixed set of contents but the historical reconfiguration of operating logics. The

argument is traced across three phases: an early textual phase (the co-presence of norm, testimony, and demonstration), a print-and-engraving phase (optical standardization), and a photography-and-exhibition phase (curatorial montage and pluralism).

1. Early Textual Phase — the co-presence of norm, testimony, demonstration

The coupling of text–diagram–institution established a regime in which knowledge was produced simultaneously along principled (normative treatises), evidentiary (testimony/chronicle), and technical-demonstrative (geometry/optics manuals, workshop recipes) channels. Within the same episteme, Vitruvius's discourse on principles and proportion (Vitruvius, 1999), Isidore's taxonomic classifications (Isidore of Seville, 2006), Ibn al-Haytham's experiment- and measurement-based optics (Ibn al-Haytham, 1989/2002), and Li Jie's practice-oriented prescriptive standards (Li, 2017) coexisted. Monastic and cathedral libraries, court ateliers, and madrasa–dīvān networks calibrated this production with a juridical-administrative spine; lemma–module partitioning and the articulation of normative–demonstrative–operative discourse strands anchored legitimacy in a conjunction of intra-textual proof and institutional oversight.

2. Print & Engraving Phase — optical evidence and standardization

Print and engraving converted "evidence" into visual standard and radically rescaled circulation (Eisenstein, 1980; Daston & Galison, 2007). Serial plate suites enhanced comparability; *cours/traîté* formats translated proportion–type–problem sets into didactic modules (Blondel, 1771–1777; Rondelet, 1802–1817). Index, table, and protocol devices redefined the reader as a "researching–measuring–replicating" subject (Yates, 1966; Goody, 1977), while catalogue and museum economies archived the architectural repertoire as a marketable visual memory (Piranesi, 1756; Pomian, 2020). Within this order, textual architecture crystallized around an index–plate–protocol chain, and legitimacy was consolidated through the coupling of optical proof with pedagogical standardization.

3. Photography, Offset & Exhibition Phase — curatorial montage and pluralism

Photography and offset printing installed montage as an organizational principle; exhibitions and manifestos multiplied conceptual frames via concise thesis–icon assemblages (Hitchcock & Johnson, 1932; Giedion, 1967). Standard handbooks converged studio and site within a single decision language (Neufert, 1936). Urban sociology and environment–

behavior research elevated the "user" to a measurable subject (Lynch, 1960; Jacobs, 1961), while counter-canonic strands (Rossi, 1982; Venturi, 1966; Archigram, 1961–1974; Rudofsky, 1964) assembled a plural architecture of persuasion. Legitimacy thus came to be negotiated among technical functionality, historical–typological continuity, and sociological evidence; the canon shifted from a fixed content list to an operating logic tuned by period-specific verification forms and visual-technical carriers (Latour, 1987; Daston & Galison, 2007).

Taken together, these three phases indicate that the canon operates less as a static inventory than as an adjustable logic in which verification modes and media infrastructures are periodically recalibrated (Latour, 1987; Daston & Galison, 2007). Against this backdrop, the ensuing "priority maps" examine how this operating logic—across geography (centre–periphery), society (elite–everyday), scale (monument–everyday continuum), and ideology (regimes of legitimacy)—has instituted preferences and produced blind spots, and how these vary across phases in comparative perspective.

Evolution of the Selected Canon in the Rudofsky Matrix

Rudofsky's *Architecture Without Architects* (1964) offers a critical lens for reading architectural historiography. Rather than asking only "what is said," the lens foregrounds "from where, on whose behalf, at what scale, and within which ideological frame" canonic texts speak. To make this legible, a four-axis matrix is proposed—geography, society, scale, ideology—through which the politics of canon formation and legitimation can be parsed.

Geographic Selectivity in Architectural Historiography

Maps do not simply depict the canon; they help produce it. Across history, knowledge nodes—ports, archives, academies—have concentrated texts, defined what counts as a "center," and cast other lines of transmission into shadow. The following trajectory tracks the tension between focal hubs and marginalized regions as singular nodes give way to institutionalized centers and, eventually, to multi-nodal networks.

1. Hubs of Focus

Canonic geography has long leaned on institutional nodes of production; the monastery–court–madrasa axis established a "near horizon" of attention. Within that horizon, the ancient anchors of the Mediterranean and the Latin West (Attica–Peloponnese, Rome, Constantinople) and pilgrimage routes, the Abbasid manuscript circuits

across Mesopotamia and the Arabian Peninsula, and, in Song China, imperial capitals and standardized provincial grids set the field of view (Pausanias, 1971; Isidore of Seville, 2006; Ibn Khordādhbeh, 1889; Ibn Ḥawqal, 1992). Over time these foci consolidated around print–academy–museum "centres of calculation": Paris centralized *cours/traîté* production and visual standardization; London exported the English-language textbook globally; Rome fused the antique repertoire with a Catholic continuity image to reinforce textual/visual legitimacy (Latour, 1987; Blondel, 1771–1777; Rondelet, 1802–1817; Chambers, 1759/1970; Piranesi, 1756; Fontana, 1694/2003). Later, the single-center system loosened into articulated networks: New York and Boston generated new legitimacy through user-data-driven urban research; London's avant-garde periodical culture and Milan's typological debates sustained a lively critical discourse (Jacobs, 1961; Lynch, 1960; Archigram, 1961–1974; Rossi, 1982). In parallel, Rudofsky pulled "anonymous" traditions from the Mediterranean, Africa, Asia, and Latin America into a comparative reference field, while museum/exhibition economies and regimes of visual objectivity calibrated this plural circulation through their own instruments (Rudofsky, 1964; Daston & Galison, 2007; Pomian, 2020).

2. The Excluded

Persistent blind spots also emerge: Sub-Saharan Africa, large swathes of Central Asia, and the Americas long remained unrepresented or surfaced as scattered anecdotes; local and vernacular practices hovered at the edge of normative frames (Pausanias, 1971; Isidore of Seville, 2006). In the print/engraving era, extra-European geographies were often miniaturized into exotic footnotes within *Grand Tour* albums, while colonial filters shored up a claim to "universality" through selective exemplars (Ruggieri, 1737–1748; Dézallier d'Argenville, 1762–1772; Eisenstein, 1980). Even as inclusive rhetoric strengthened later, access and representation continued to be delimited by the curatorial selectivities of global museum–journal–exhibition networks and by the standardized pedagogical language of technical-bureaucratic tools, which could remarginalize alternative knowledge forms (Neufert, 1936; Daston & Galison, 2007; Pomian, 2020).

Taken together, the shifting geography of the canon indicates that architectural knowledge has not been neutral; it has been tightly coupled to the spatial power structures within which it is produced and controlled. In every period, the interplay between focal centers and excluded regions/knowledges exposes the selective and political nature behind claims of architectural "universality."

Social Selectivity in Architectural Historiography

Who holds authority, which forms of labor are named, and whose experience is converted into "knowledge" have drawn the boundaries of the canonic idiom. Each waypoint along the court–church–guild axis toward expert corps and plural subjectivities has reconfigured the regime of representation. The analysis below maps shifts between focal actors and excluded constituencies, reading continuities and ruptures across periods.

1. Focal Actors

Over the long durée, canonic narratives have centralized actors articulated to power. Courts and dynastic circles defined the field through political/financial patronage; episcopal and monastic institutions consolidated intellectual–spiritual authority; high guilds strengthened professional oversight by regulating production and supply (Book of the Eparch, 1938/1962). Craft knowledge was translated into written norms, yielding a normative–administrative idiom; workshop recipes and sketchbooks codified practice as repeatable procedures (Theophilus, 1979; Villard de Honnecourt, 2009). Over time, focus concentrated within institutional expertise: schools and academies constructed a closed field of competence through studio, jury, and examination regimes; state/municipal authorities set urban norms via discourses of hygiene, infrastructure, and public interest (Blondel, 1771–1777; Patte, 1769). Professional corps—architects and engineers—standardized practice through type/detail repertoires, while calculation, experiment, and protocol secured technical legitimacy (Gibbs, 1728; Chambers, 1759/1970; Rondelet, 1802–1817; Duhamel du Monceau, 1767–1777). In the contemporary period, this axis has broadened to plural subjectivities: citizens/users have been positioned as legitimate producers of knowledge via street-level observation and experience; cognitive mapping reframed urban experience as measurable units (Jacobs, 1961; Lynch, 1960). Anonymous producers and local communities gained visibility through "architecture without architects," while avant-garde collectives staged scenes of collective authorship through media and manifestos (Rudofsky, 1964; Archigram, 1961–1974).

2. The Excluded

This line of centralization also generated systematic exclusions. Women's labor, peasant practices, and the everyday spatial experience of the lower classes long remained unrepresented, often relegated to footnote status in normative texts (Geoponika, 2011). Local and vernacular knowledge was "othered" vis-à-vis standardized academic/professional discourse; the economies of engravings, catalogues, and collections

installed selectivity durably into circulation (Pomian, 2020). As inclusive rhetoric strengthened, expert standards, user data, and local memory were negotiated within the same validation circuit—yet curatorial selectivities across global museum–journal–exhibition networks and the one-size technical-bureaucratic idiom of standardized pedagogical tools continued to generate new exclusions (Neufert, 1936). Thus, architectural historiography has expanded from an "overhead norm" to a negotiated plurality, while the question of whose voices are heard—and whose are silenced—has persisted with varying intensity across periods.

Up shot. The social evolution of the canon has shown that architectural knowledge is not neutral but entwined with the politics of power and representation. Even as the narrative shifts from "top-down norm" toward "negotiated plurality," the issue of audibility versus muting remains a constant.

Scalar Selectivity in Architectural Historiography

Scale amplifies, diminishes, or distributes value; the prestige of the monument, the standard of the façade, the vitality of the street, and the cognitive trace of the user each produce distinct modes of legitimacy. Over time, layered hierarchies and claims to equivalence have traded places; the question of which dimensional register counts as "primary" has stayed at the center of the discipline. The narrative below traces oscillations between elevated scales and the invisibilized everyday/technical registers.

1. Scales of Emphasis

Canon formation has long operated scale as a preference mechanism, centralizing monumental and institutional dimensions as the legitimate locus of knowledge production. Temples, basilicas, theaters, palaces, and large infrastructures surfaced as material expressions of power, faith, and publicity; Vitruvian normativity and imperial building panegyrics reinforced this emphasis (Vitruvius, 1999; Procopius, 1940). In parallel, the administrative scale framed urban economies via statutes regulating markets, guilds, and price regimes (Book of the Eparch, 1938/1962). Gradually, scale hardened into a layered, rational hierarchy: interior composition and ornament pedagogy translated aristocratic life into a normative idiom (Boffrand, 1745/2003); façade/detail tables circulated a "pocket canon" among teaching–jury–practice (Chambers, 1759/1970; Blondel, 1771–1777). The city was cast as a technical apparatus organized by air–water–waste–traffic networks (Patte, 1769), while materials and structural systems converged in a shared technical language of experiment and calculation (Rondelet, 1802–1817). Later,

the principle of equivalence gained ground: street and neighborhood were recentered as primary units of urban vitality (Jacobs, 1961); perceptual/cognitive scale became a measurable reference for planning (Lynch, 1960); morphological/typological continuity was reframed as a carrier of urban identity (Rossi, 1982). Operational and utopian scales reimagined architecture as flexible processes and infrastructural scenarios; small-scale anonymous productions crossed the threshold of "canonic visibility" (Archigram, 1961–1974; Rudofsky, 1964).

2. Scales Pushed Aside

That centralization long rendered ordinary scales invisible: caravanserais, bridges, rural dwellings, and vernacular housing cultures often survived as marginal notes (Theophilus, 1979). Technical/production scales—automata, lifting devices, agricultural practices—were recorded yet subordinated to normative frames, stripped of autonomous value (al-Jazarī, 1974; Villard de Honnecourt, 2009; Geoponika, 2011). Visual repertoires placed the vernacular at the margins of city albums as "exotic/picturesque" optical crumbs, without conferring systematic canonic status (Ruggieri, 1737–1748; Piranesi, 1756). As standardization strengthened, a technical-bureaucratic idiom further seconded everyday scales; conversely, late-century equivalence repositioned street vitality, user perception, and typological continuity among core sources of value (Jacobs, 1961; Lynch, 1960; Rossi, 1982).

The double movement has shown that architectural value has been produced not only by monumental prestige or modern technical rationality, but also by street life, legibility, morphological persistence, and operational scenarios; scalar selectivity has, in turn, redefined whose experience counts.

Ideological Selectivity in Architectural Historiography

Legitimacy has been grounded—at different times—in cosmic order, reason and science, and curatorial–perceptual plurality. Coupled to value systems and structures of belief, these frames have defined what counts as public good, aesthetic norm, and universality. This section surfaces the bargaining between dominant ideological lines and excluded/implicit perspectives.

1. Frames of Legitimacy

Across the long run, canonic discourse has recalibrated legitimacy between cosmic–historical order, rational/scientific regimes, and curatorial/perceptual plurality. Early canonic texts cast power—empire–church–court—as the representative of an eternal historical order;

hagiographic/panegyric idioms naturalized and inevitabilized this order (Procopius, 1940; *Liber Pontificalis*, 1992). Cosmography and theology sutured knowledge to authority: the *Huainanzi* matched cosmic principles with political order; Isidore disciplined the cosmos through etymological classification (Huainanzi, 2010; Isidore of Seville, 2006). Administrative–legal texts stabilized a centralized world-image via guild and pilgrimage regimes (Book of the Eparch, 1938/1962).

Subsequently, legitimacy shifted from cosmic teleology to a ground of reason and science: regimes of "good taste" and the "primitive hut" myth institutionalized style debates as arenas of public regulation (Boffrand, 1745/2003; Laugier, 1753/1977). The proportion–custom controversy was recoded on rational grounds; experiment–calculation protocols bound architecture to demonstrable procedures (Perrault, 1683/1993; Rondelet, 1802–1817; Daston & Galison, 2007). Hygiene and public-interest discourses legitimated urban norms; Palladian–neoclassical idioms circulated under the banner of "universal reason" through print, engraving, and museum economies (Patte, 1769; Chambers, 1759/1970; Eisenstein, 1980; Pomian, 2020).

Later, legitimacy opened from a single line of progress to negotiated plurality: the civil/everyday inverted planning authority; perceptual legibility entered the ethical ground of design; morphological persistence reframed urban identity (Jacobs, 1961; Lynch, 1960; Rossi, 1982). Technological utopias and vernacular alternatives bargained on the same stage; manifestos, exhibitions, and media assembled a plural architecture of persuasion (Archigram, 1961–1974; Rudofsky, 1964; Hitchcock & Johnson, 1932; Giedion, 1941/1967).

2. Perspectives Left Out

These lines of legitimacy also produced durable exclusions. Classical narratives elevated a Greek–Roman–Byzantine–Iranian axial memory, while local, heterodox, and subcultural perspectives were largely effaced (Pliny the Elder, 2004). In the modern period, the "universal language" in practice condensed around Paris–London–Rome centres of calculation; vernacular regimes of knowledge and women's labor were sidelined by a centralized—and often masculine—discourse (Latour, 1987; Dézallier d'Argenville, 1762–1772). Even where inclusivity has grown, curatorial selectivities within global museum–journal–exhibition networks and the standardized, technical-bureaucratic idiom of pedagogical tools have reproduced new forms of exclusion (Daston & Galison, 2007; Pomian, 2020; Neufert, 1936).

Ideological selectivity has displaced the canon from a fixed list of contents to a dynamic process that asks which value systems underwrite

legitimacy—and how those systems shift and are recalibrated over time. Read through Rudofsky's matrix, the contemporary canon appears as a field that disperses modernity's centrisms: not a single "style history," but a continuously negotiated archive of pluralities across museum, school, municipal, and media interfaces (Hitchcock & Johnson, 1932; Giedion, 1941/1967).

CONCLUSION AND IMPLICATIONS

It has been demonstrated that the "canon" has been treated not as a normative proposition but as a measurable, codable, and cross-period–comparable phenomenon. When Rudofsky's claim of spatial and social boundedness has been subjected to a stress test on a multilingual, pre-1965 corpus with explicit metrics, canonical priorities have been shown to arise not randomly but through specific regimes of verification and visual–institutional carriers. The three-phase structural backdrop (early textual; print–engraving; photography–offset–exhibition) has revealed that canon formation has been tethered to an operating logic recalibrated over time.

Mapping across four axes has yielded a shared picture:

- **Spatial axis.** A transition has been observed from singular foci to institutional "centres of calculation," and then to polycentric networks; yet curatorial selectivities and standardized pedagogic idioms have not eliminated geographic blind spots.
- **Social axis.** An opening has been traced from the court–church–guild line toward expert corps and plural subjectivities; nevertheless, women's labour, vernacular knowledge, and lower-class experiences have not consistently secured representation.
- **Scalar axis.** A shift has been marked from monumental–institutional weight to layered hierarchies and, later, to an equivalence principle, showing that value has been produced as much from street vitality, user perception, and typological continuity as from prestige and technical rationality.
- **Ideological axis.** A movement has been confirmed from cosmic–historical legitimacy to rational–scientific objectivity and, ultimately, to a negotiated plurality, diversifying the grounds of canonic discourse.

1. Historical Agenda and Aims: Priorities and Priority-Setters

The combined maps and measures indicate that architectural historiography has followed an implicit/explicit agenda over time:

- **Legitimating order.** Authority (court, church, empire; later nation-state and municipality) has been confirmed through architectural representation—early on via hagiographic/panegyric idioms, later via "public interest," hygiene, and rationality.
  Prioritized by: Courtly circles, high ecclesiastical authority, administration, technical bureaucracy.
- **Drawing disciplinary boundaries.** Studio, jury, and examination regimes have defined what counts as "architecture," consolidating a singular field of competence through type/facade tables, handbooks, and pedagogy.
  Prioritized by: Academies, professional bodies, elite schools.
- **Coding the visual repertoire and steering circulation.** Engraving, cataloguing, and museum policies have standardized evidence optically and archived "exemplary" monuments.
  Prioritized by: Publishers, curators, collectors, journal networks.
- **Centering and bordering.** Centres have been built around production nodes, while peripheries have been exoticized or framed through selective samples.
  Prioritized by: European centres of calculation, colonial/semi-colonial knowledge networks, the Grand Tour economy.
- **Installing expert hegemony.** Craft and vernacular techniques have often been relegated to "sub-knowledge," while experiment–calculation–protocol has installed technical authority.
  Prioritized by: Architect/engineer corps, standards commissions.
- **Rationalizing risk and responsibility.** Safety, health, and infrastructure have produced an ethic of calculability, turning measurability into an epistemic and normative value.
  Prioritized by: Public administrations, technical institutes, codes/standards bodies.
- **Opening pluralizing counter-agendas.** In later periods, citizen/user experience, anonymous production, and vernacular continuity have been admitted to legitimate knowledge—though curatorial selectivity and standardized pedagogy have continued to generate new exclusions.
  Prioritized by: Urban sociology and environment–behavior research, counter-canonic authors, avant-garde and alternative platforms.

This framework has shown that historiography has not merely "selected objects"; it has concentrated selection power within specific institutional arenas to construct a purposeful representational field. In short, while canon production has exhibited continuity around legitimation,

standardization, centration, and rationalization, late additions have included pluralization and localization.

2. Implications for Practice

- **Curricula.** Syllabi can be designed to co-locate core and counter-canonic clusters, with visibility audits at term start to quantify representation gaps.
- **Museums/exhibitions.** Montage principles that pair monument–everyday and centre–periphery can be institutionalized as policy.
- **Publishing.** Translation/critical-edition series and dedicated dossiers on vernacular/anonymous production can open durable channels of access.

3. Limitations and Future Work

Language/access biases in the corpus, the Canon Score's sensitivity to institutional circulation, and the coarseness of period blocks have increased interpretive latitude. Even so, the transparent coding schema has been designed to be repeatable on enlarged corpora. Post-1965 studies supported by computational text mining, network analysis, and visual data counts—linked to university syllabi, museum collections, and publisher catalogues—are expected to render the current production–distribution mechanisms of canonical priorities with greater resolution.

In the end, Rudofsky's hypothesis has been used as a lever; rather than demolishing the canon, a regime of reading that resizes and pluralizes it has been proposed. This regime has been shown to furnish an evidence-based ground for transformation—preserving accrued knowledge while making representation gaps legible—and to renew architectural historiography with both fidelity to tradition and a forward-looking inclusive ethic.

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A CRITIQUE ON THE DESIRE OF STATES TO LEGITIMIZE THEIR EXISTENCE WITH WORKS OF RELIGIOUS ARCHITECTURE; THE ISRAELI STATE'S EXCAVATIONS IN THE AL-AQSA MOSQUE

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ABSTRACT

Palestine is historically, culturally, and religiously sacred in many societies. This sanctity stems from the region's important religious and historical sites, the unique culture of the Palestinians, and historical events. By analyzing Israeli excavations beneath and around the Al-Aqsa Mosque, the damage caused to its structural integrity and the cultural identity of Palestinians is highlighted. The study aims to reveal the extent to which Palestinian regions are influenced by Israeli policies, to examine whether architectural priorities exist in such conflict zones and to highlight how architecture extends beyond physical space to encompasses history, identity, memory, culture, and sovereignty. A critical architectural methodology was adopted, combining contextual and advocacy-focused approaches. UNESCO reports, NGO and human rights publications, excavation maps and photographs were analyzed to assess how excavated areas have been transformed and affected cultural and social contexts. Findings revealed that more than 60 excavation sites have caused damage to Al-Aqsa Mosque's structure, restricted Palestinian access, weakened the Palestinian sense of cultural belonging and made Israel's presence in the region more dominant. This situation represents not only physical destruction but also an effort to erase the socio-cultural memory and construct a new identity. For Israel, architecture has priorities such as establishing and consolidating control, building a modern nation, and ensuring its own security. For Palestine, architecture means creating a space of resistance to preserve its social and cultural existence. These priorities show that architecture is not only a matter of design but also a field with profound cultural, social, political, and humanitarian implications.

Keywords: Jerusalem, Al-Aqsa Mosque, Israeli Excavations, Identity, Priority

INTRODUCTION

The history of humanity can be read as the history of wars, conflicts, and the subsequent destruction experienced on global, regional, and local scales, as well as the redrawn borders and new constructions that emerged afterward. Throughout this historical process, different states have employed various instruments to strengthen their political authority and reinforce their social legitimacy. One such instrument appears in the form of religious architectural works. Within the historical process, religious structures such as temples, mosques, and churches, in addition to serving their function as places of worship, have gained significance as tools that make visible the claims of permanence, continuity, and exaltation of states. Religious architecture can be observed as a determining element in the shaping of social identities and the representation of political power in different historical contexts. For example, in medieval Syria, the planning of mosques and the architectural decorations made were carried out directly with the aim of reinforcing legitimacy messages under imperial patronage.

The geography of Jerusalem presents itself with its multilayered religious fabric of the past and the political conflicts of the present. The region of Palestine has been the scene of conflicts of interest for centuries. The mass Jewish immigration to Palestine, which began with the aim of forming a people's community—a prerequisite for state formation—up until 1948, largely triggered conflicts with the Palestinian population in the region and ultimately led to the emergence of the Israeli-Palestinian problem, which has affected the entire Middle Eastern geography.

Based on this issue, the course of the problem is addressed within the framework of Jerusalem, the Al-Aqsa Mosque, and the excavations carried out beneath the Al-Aqsa Mosque. Whether these actions involve architectural priorities is discussed in the article. The purpose of the study conducted within this scope is to define the traditions and culture of Palestine, to explain the extent to which the Palestinian territories are affected by Israeli policies, and to reveal architectural priorities by attempting to examine the Israeli-Palestinian issue on a theoretical basis. The Israeli-Palestinian issue is critically analyzed within the framework of the policies of the states, their impacts on the culture of those lands, and the results of the excavations carried out beneath the Al-Aqsa Mosque. By approaching the issue from a different dimension, the article aims to contribute to existing studies. The study examines how Israel's excavation activities are evaluated in the context of historical continuity and contemporary political debates, by which mechanisms states construct their social and political legitimacy through religious

architectural works, and how the case of Jerusalem, especially the Al-Aqsa Mosque, carries symbolic and strategic significance in this context.

QUESTIONING THE EXISTENCE OF ARCHITECTURAL PRIORITIES IN CONFLICT ZONES

The existence of architectural priorities in conflict zones is controversial, and the question of whether such priorities exist is considered a matter of debate in these regions, where architecture becomes not only the design of space or function but also a tool for ensuring political and cultural legitimacy. States have significantly used architecture, and especially religious architectural works, to establish and strengthen their legitimacy. Although sacred structures are primarily regarded as places of worship, beyond this, they have become symbolic spaces where states stage their claims of power and continuity. Questioning architectural priorities in the Israeli-Palestinian conflict zones does not merely mean examining the organization of physical spaces; it also involves understanding a multilayered phenomenon in which identity, legitimacy, and resistance contexts are intertwined.

Palestine, with its multilayered structure and its cultural and sacred heritage, is regarded as one of the places where the relationship between religious architecture and political authority can be observed most clearly. The policies implemented by a sovereign state in a region affect the lives of the people as well as shaping the cities and architectural fabric in that area. Palestinian architecture in Jerusalem and its surroundings proceeds through a similar process. It can be said that the most tangible reflection of Israel's attempts to change the demographic structure of the region is seen in the changing urban and architectural texture of Jerusalem (Kişmiroğlu & Köymen, 2021). Although architecture generally implies the shaping of physical space, in Israeli Palestinian interaction it has gone beyond this feature and has become a priority encompassing history, identity, memory, culture, and struggles for sovereignty. It can be argued that architectural works analyzed in a cultural and social context are regarded by states as a priority in legitimizing and grounding their existence. In this context, Israel aims to increase its legitimacy in the region by incorporating Palestinian architecture into its own historical narrative.

Architecture is not merely composed of buildings; architectural structures and artifacts also represent the collective memory and identity of communities. Israel's policies over Palestine and its excavation activities have weakened the Palestinian sense of cultural belonging and have made Israel's presence in the region more dominant. This situation in Palestine is seen not only as a physical destruction but also as

an effort to erase the socio-cultural memory of the region and to construct a new identity.

Jews who migrated to Palestine used sacred text narratives in order to determine the land's identity-based belonging and conducted archaeological studies within the framework of these narratives. Indeed, the archaeological works carried out in the region have mostly focused on revealing Jewish presence. Such works, in this sense, embody an approach that disregards the indigenous Palestinians. Following sacred text narratives, these studies portray the region as the "historical homeland of the Jews," thereby producing legitimacy for the existing Jewish presence. Moreover, architectural structures built in the region following the physical occupation of settlements are intended to change the identity of the area and to normalize their presence there. The archaeological excavations conducted in the region also serve this purpose. These excavations have weakened the Palestinians' connection to their land. In this context, architecture has been used both as a tool and as a form of ideological expression (Kurt, 2020).

JERUSALEM AND AL-AQSA MOSQUE: HISTORICAL BACKGROUND, CULTURAL SIGNIFICANCE

The lands of Palestine, particularly Jerusalem, hold both religious and historical significance for Muslims within the Islamic faith. Jerusalem's status as an inseparable part of Palestinian geography has strengthened Muslims' attachment to this region. The Qur'an's mention of the sanctity of Al-Aqsa Mosque and its surroundings further reinforces the city's value for Muslims. Therefore, Jerusalem is not merely a city but also an expression of a deep spiritual bond and historical continuity. Although the grounds of its sanctity are at times debated, Jerusalem occupies a special place among the holy cities of the Islamic world. From the perspective of the Islamic world, Jerusalem has enjoyed a privileged status especially because it is home to Al-Aqsa Mosque. As the first qibla of Muslims and the site of the Mi'raj, Al-Aqsa Mosque holds a unique place in Islamic tradition (Mert, 2017). The Dome of the Rock and Al-Aqsa Mosque were constructed during the Umayyad period and became not only exemplars of religious architecture but also markers of political legitimacy.

Palestine and Jerusalem constitute one of the most important geographies regarded as sacred by the three Abrahamic religions. Within the belief systems of Islam, Christianity, and Judaism, Jerusalem is embedded in powerful religious, cultural, and historical contexts. Today, at the center of the conflict between Israel and Palestine lies, to a great extent, this multilayered sanctity of Jerusalem. For Islam, Jerusalem

possesses profound spiritual value due to Al-Aqsa Mosque, which is explicitly mentioned in the Qur'an. For Jews, Jerusalem has been symbolized by the Beit HaMikdash (the Holy House), regarded as the place closest to God and as the site where the resurrection will occur. Thus, Jews have turned their faces toward Jerusalem in prayer and have described the city as the holiest and most unique on earth. For Christianity, Jerusalem occupies a central position because it hosts the holy places associated with the life, crucifixion, and resurrection of Jesus. Accordingly, Jerusalem has been not only a religious center but also a multifaceted city that, throughout history, has housed Muslim, Jewish, and Christian communities together, embodying theological, social, and architectural diversity. This diversity has made Jerusalem both a holy city and a symbol of cultural interaction (Çokdoğan, 2024). Standing at the center of this multilayered religious and cultural meaning is Al-Aqsa Mosque, which has moved beyond serving merely as a place of worship to become, over time, a symbol of identity, belonging, and resistance in the historical memory of Muslims. In this context, Jerusalem and Al-Aqsa Mosque appear not only as physical sites of settlement but also as a "city of symbols" where collective memories intersect—or at times collide. Beyond being sacred centers, these two locations can be regarded as sites that bear spatial memory.

METHODOLOGY

This study adopts a critical architectural approach that combines contextual and advocacy-focused methods. The contextual method frames Al-Aqsa Mosque and its surroundings as living cultural spaces for worship, education, gathering, and identity. The advocacy-focused method emphasizes architecture's ethical responsibility to protect accessibility, inclusivity, and cultural continuity, particularly in conflict zones where these priorities are most vulnerable.

The study examined how priorities have changed using various evidence. This evidence includes reports from international heritage groups, NGO documents, human rights research, and studies on heritage and architecture. UNESCO sets global protection rules. NGO and human rights reports show the impact of excavation projects on people. Media sources such as Al Jazeera provide real-time evidence of how access and community activities are affected, particularly at Al-Aqsa. Academic studies contribute to understanding how heritage and architecture are used in conflict zones.

Excavation maps and repurposed sites were used as key tools in the study. These were examined alongside photographs, reports, and media coverage to see how excavated areas were transformed into

synagogues, museums, tourist sites, or archaeological parks. By paying attention to how areas changed and to restricted access, displacement of people, and new cultural uses, the study placed its analysis in a social and cultural context.

With this dual methodological approach, it combines documentary, spatial, and media analysis with contextual and advocacy-focused criticism to examine what is preserved, what is overlooked, what is displaced, or what is altered. This contributes to evaluating architecture as both a cultural and ethical issue. The study addresses one of the main questions: Are there priorities in architecture? If so, what are they, and how are they preserved or altered in conflict zones?

ISRAELI EXCAVATIONS AS AN ARCHITECTURAL PRIORITISATION TOOL

Israel legitimizes the excavations under the pretext of searching for 'Jewish remains'. However, the purpose of these excavations has extended beyond this scope (Emek Shaveh, 2016). The excavations and the network of tunnels serve the goal of establishing Jerusalem as a historic Jewish holy city. In fact, these excavations aim to demolish and remove Islamic buildings, including mosques, corners, markets, residences, and cemeteries located above, adjacent to, or near the excavation sites along the *Burak Wall* (now known as the Western Wall), which extends from the western and southern sides of the Al-Aqsa Mosque. The excavations have resulted in the deliberate destruction of numerous artifacts both on and below the surface, as well as the demolition of historical layers dating back to the Arab, Islamic, Umayyad, and Ottoman periods (Shahin, 2021; URL-1, 2025; URL-2, 2025; Zariuokh, 2020).

Additionally, these excavations have caused cracks and damage to the walls and floors of the Al-Aqsa Mosque, as well as to historic buildings in Jerusalem (Yakub, 2023; Zariuokh, 2020). They contribute to strengthening Israel's control both above and below ground and to expanding Jewish settlement projects (Emek Shaveh, 2016). Many of the excavated areas and tunnels have now been converted into Jewish places of worship, synagogues, Talmudic temples, and tourist sites.



Figure1 . Moroccan Neighborhood, Al-Aqsa Mosque, 1928 (URL-3, 2025).

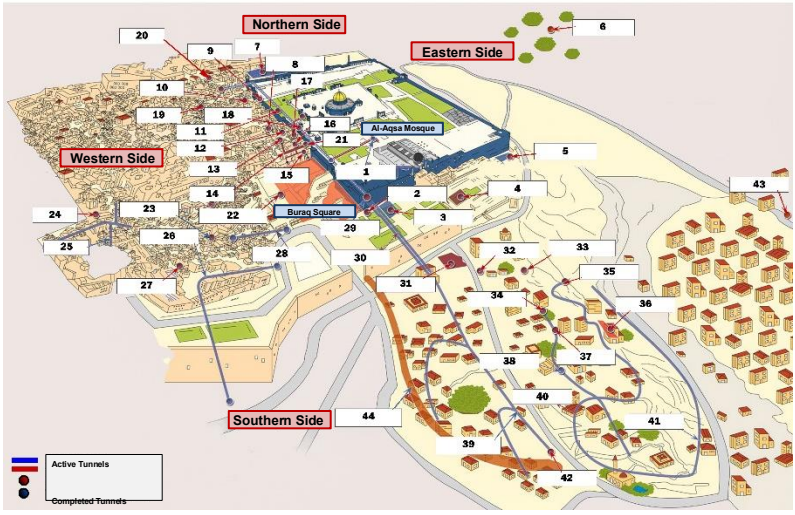
The excavation series began in 1967 and took place in 10 phases. With each phase, the work became increasingly difficult, and the focus of the excavations expanded to cover a larger area. These excavations continue to this day and are not limited to the Al-Aqsa Mosque but also include its surrounding areas (URL-1, 2025).

In June 1967, Israel demolished the entire *Al-Maghariba* (Moroccan) neighborhood, displacing its residents and reducing its rich 800-year Islamic heritage to rubble (Figure 1). Subsequently, the area was repurposed for Jewish prayers and celebrations and renamed the Wailing Plaza or Western Wall Plaza (Figure 2) (Alshami, 2023; URL-2, 2025; Zariuokh, 2020).



Figure 2. The Moroccan neighbourhood was demolished by Israel. June 1967 (Peled, 2017; URL-4, 2025).

According to available data, Israel has conducted approximately 64 excavations in the vicinity of the Al-Aqsa Mosque area (Figure 3). These excavations are distributed beneath and around the mosque as follows: 25 sites to the south, 32 to the west, 6 to the north, and 1 to the east. (Emek Shaveh, 2016; Jubeh, 2009; URL-5, 2025; URL-6, 2025; Zariuokh, 2020).



1- Western Wall Tunnel Network
2- Excavations at the Southwestern Corner
3- Umayyad Palace Excavations
4- Buildings of the City of David
5- Excavations of the Marwani Mosque
6- Excavations of the Olive Branch
7- Al-Kipara Excavation Site
8- Excavations of Hammam Al-Ain
9- Quarry
10- Water Channel
11- Warren's Gate
12- Secret Passage
13- (Al-Qa'a al-Kubra) Great Hall
14- (Silsilat al-Ajyal) Tunnel
15- Wilson's Arch
16- (Al-Herodiyani) Great Hall
17- Hall of Ages
18- Excavations of the Al-Silsile Gate
19- Excavations of the Bayram Cavish Ribat
20- Excavations of the Armenian Catholic Church
21- Excavations of Hammam Al-Ma'bad
22- Excavations of the Buraq Square
23- Excavations of the Jewish Quarter
24- Excavations of the Citadel of Jerusalem
25- Excavations of Bab Al-Halil
26- Old City Tunnel
27- Excavations of the Roman Hammam
28- Jewish Quarter Tunnel
29- Western Wall Channel
30- Southern Water Channel
31- Excavations of the Givati Parking Lot
32- Water Cistern
33- Excavations Opposite the Triple Gate
34- Excavations of the Palace of King David
35- Shiloah Pool
36- Excavations of the Canaanite Wall
37- Warren's Shaft
38- Tunnel of Siloam
39- Herodian Street
40- Silwan Water Channel
41- Canaanite Water Channel
42- Birket Silwan
43- Excavations of Ras al-Amud
44- Pilgrims' Road Tunnel

Figure 3. Map showing completed and ongoing excavation work at the Al-Aqsa Mosque and its surroundings (Yakub, Ibhais, Ibrahim, & Aldannan, 2023).

The policies and practices implemented by Israel and Jewish organizations-including ongoing excavations and the conversion of many excavated sites into synagogues, Jewish temples, and tourist museums- aim of alter the cultural fabric of the city's Islamic, Christian, and Old City quarters, imparting a Western Jewish character (Alhindi, 2017; Shahin, 2021; URL-7, 2025). The excavations around Al-Aqsa Mosque have been presented as archaeological studies intended to

preserve heritage. However, the outcomes of these excavations reveal a selective approach designed to make sacred and public spaces more compatible with certain narratives over others. These practices, framed as conservation efforts, have redefined the meaning and use of the architectural spaces by transforming living environments into instruments of power. They constitute part of a broader attempt to alter the cultural, social, and architectural fabric of the region and serve as tools in the construction of Israeli identity (Zariuokh, 2020).

Photographs of the excavation sites and their subsequent transformations provide tangible evidence of these changes. They also serve as a visual record of how architectural priorities such as accessibility, inclusivity, and cultural continuity have been compromised.

The Western Wall Tunnels, the deepest and most active of all excavations on the western side of the Al-Aqsa Mosque, exemplify how excavation sites have been completely transformed into Jewish spaces. A section of the tunnels has been converted into a meeting hall (Ibhais, 2012; Jubeh, 2009; Zariuokh, 2020).



Figure 4. The excavations of the Western Wall tunnels have been converted into tourist and meeting areas (Ibhais, 2012; Linde, 2023).

Most of the excavated tunnels have been converted into synagogues, tourist attractions, exhibition spaces and meeting halls (Figure 4,Figure 5 & Figure 6). However, during the excavation process, many important Islamic artifacts dating from the Umayyad to the Ottoman periods were destroyed (Ibhais, 2012).



Figure 5. The Western Wall tunnels have been excavated and converted into Jewish synagogues (Ibhais, 2012; URL-8, 2025).

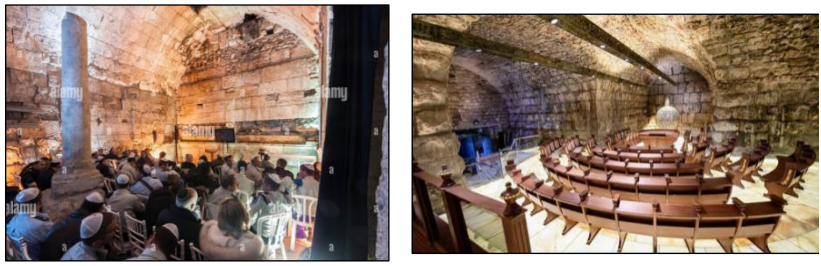


Figure 6. The excavations of the Western Wall tunnels have been converted into a Jewish and meeting hall (URL-9, 2025; URL-10, 2025).

In addition to the tunnels, new buildings have been constructed in the excavation areas. These buildings serve as religious schools, places of worship, and visitor and tourist centers. For example, the Kedem Center building was constructed in the excavation area of the Givati Parking Lot, opposite the Al-Aqsa Mosque (AlJundi, 2021; Emek Shaveh, 2013; Ibrahim, 2025; Lazaroff, 2017; Mizrachi & Veeder, 2013; URL-11, 2025). This project, which functions as a hub to direct visitors to tourist sites, aims to host 10 million tourists annually (Figure 7). Israel continues to develop underground tunnels to connect the project to the Al-Aqsa Mosque (Hawari, 2022; Ibhais, 2012; Jubeh, 2009; Yakub et al., 2023; Zariuokh, 2020).

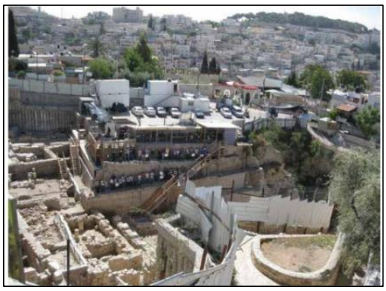


Figure 7. The Givati Parking Lot excavations have been converted into a tourist complex, Kedem Center (Lazaroff, 2017; Mizrachi & Veeder, 2013).

Another example is Beit Strauss, located 50 meters from the Western Wall. This project was constructed following large-scale excavations in Al-Burak Square (now known as the Western Wall Plaza) and includes a religious school, a synagogue, a police operations center, and Talmudic study halls (Figure 8). According to sources from Jerusalem, the excavation works damaged Islamic artifacts as well as historical buildings, particularly those from the Mamluk period, which existed in this area from the Umayyad period through the Ottoman period (Ibhais, 2012; Ibrahim, 2025; URL-12, 2025; URL-13, 2025; Zariuokh, 2020).



Figure 8. The excavations of the Western Wall Plaza have been converted into a Jewish complex, Beit Strauss (URL-12, 2025; URL-13, 2025).

Beit Haliba was also constructed during the excavation work at the Western Wall Plaza. This three-story building includes sections such as administrative offices, an education center, an exhibition hall, a visitor hall, an event hall, a library, and guide rooms. Additionally, it features an open rooftop and a glass terrace that directly overlooks the Western Wall, Al-Aqsa Mosque, and the Old City (Figure 9). The project was built on the ruins of the Moroccan (*Al-Magharibeh)* Quarter, which was demolished by Israel in 1967 (Ibhais, 2012; Zariuokh, 2020). During the excavations, many significant Islamic artifacts dating from the Umayyad

to the Ottoman periods were also destroyed (Emek Shaveh, 2013; Ibrahim, 2025; URL-11, 2025; URL-14, 2025; Yakub et al., 2023).



Figure 9. The Western Wall Plaza excavations have been converted into a Jewish complex, Beit Haliba (URL-15, 2025; URL-16, 2025).

The tourist complex at the *Beit Haliba*, *Beit Strauss*, and *Givati* excavations is designed to emphasize Jewish history, thereby overshadowing the region's rich and multi-layered heritage. By highlighting certain remains while neglecting others, the perception of the region is consequently altered. Access to these buildings is restricted to tourists and Israelis only, with local Palestinians prohibited from entry, unlike typical archaeological sites, which are generally open to the public. As a result, the signifcance of Palestinian culture and presence has been diminished (Emek Shaveh, 2013). The construction of these buildings carries political and social implications that must be carefully considered. It is important to recognize that the intention behind strengthening Israel's control around the Al-Aqsa Mosque is to alter the existing image of the city and reinforce Israel's claims of sovereignty over the Old City (Emek Shaveh, 2013). In addition to converted tunnels and new buildings, excavations have also led to the establishment of museums and archaeological parks. These parks and museums often promote a constructed history that overlooks the presence and heritage of other cultures. For example, the Davidson Archaeological Park and Museum, the City of David National Park, and the Tower of David Museum exemplify this trend. The excavations south of the Al-Aqsa Mosque, which have been converted into the Davidson Archaeological Park and museum (Figure 10), emphasize the narrative that non-Jews did not inhabit in the city and therefore have no legitimate claim to the land (AlJundi, 2022; Alshami, 2023; Eshkolot, 2025; Ibhais, 2012; Klein, 2023; Kletter, 2015; Yakub et al., 2023; Zariuokh, 2020).



Figure10 . Excavations south of Al-Aqsa Mosque have been converted into the Davidson Archaeological Park and museum (Eshkolot, 2025; URL-17, 2025).

David City National Park was also constructed in the excavation area south of the Al-Aqsa Mosque (Ibhais, 2012; Jubeh, 2009; Zariuokh, 2020). The project includes a Talmudic garden and a tourist attraction center where visitors can explore tunnels and water cisterns and learn about Jewish history through exhibits (Figure11) (AlJundi, 2022; Anabtawi, 2013; Hawari, 2022; Ibhais, 2012; URL-18, 2025; URL-19, 2025).



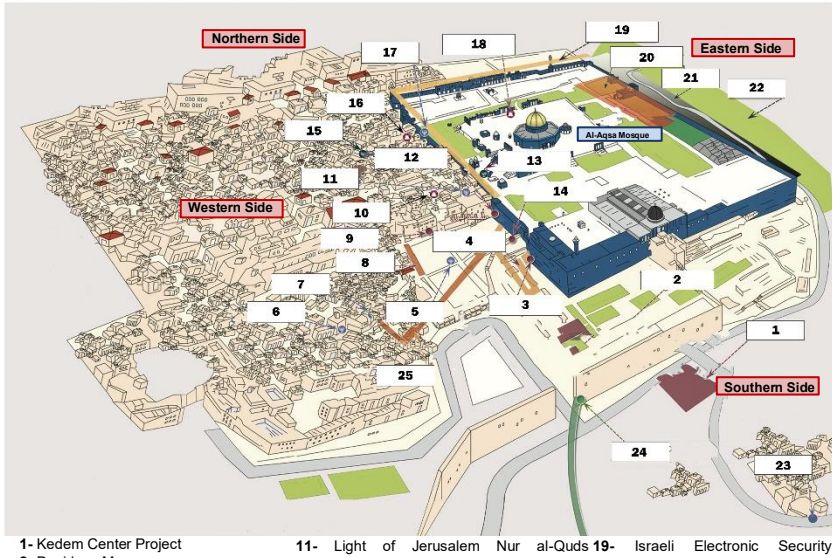
Figure11 . Excavations at the south of Al-Aqsa Mosque have transformed the site into the City of David National Park (Ibhais, 2012; URL-18, 2025).

Following the excavation and restoration of the historically renowned Jerusalem Castle, it was converted into the Tower of David Museum (Figure 12). The museum features ten exhibition halls with interactive displays utilizing advanced technology and aims to narrate the history of Jerusalem through the Israeli biblical narrative (AlJundi, 2022; URL-20, 2025; URL-21, 2025; URL-22, 2025; URL-23, 2025; URL-24, 2025; Wheelerport, 2025; Yakub et al., 2023).



Figure 12. The excavations of the Jerusalem Castle have been converted into the Tower of David Museum (URL-20, 2025; URL-21, 2025).

Official reports and visual data, such as photographs, maps, and plans, reveal how areas that were once centers of social traditions have changed. These materials show that the excavation results extended beyond physical changes and transformed daily life. In summary, the excavation outcomes can be divided into four categories: religious, touristic, museums, and archaeological parks.



1- Kedem Center Project
2- Davidson Museum
3- New Jewish Prayer Areas (Expansion Plan of Al-Buraq Square)
4- Expansion Plan of Al-Buraq Square
5- Jewish Museum
6- Ruined Synagogue
7- Jewel of Israel Synagogue
8- Beit Hillelba Project (Al-Jawhar House)
9- Beit Strauss Project
10- Israeli Police Center
11- Light of Jerusalem Nur al-Quds Synagogue
12- Light Rail (Cable Car) Project
13- Jewish Synagogue
14- Area Allocated for the Implementation of Sharansky and Rabinowitz's Judaization Plan (Expansion Plan of Al-Buraq Square)
15- Ohel Yitzhak / Tent of Isaac Synagogue
16- Israeli Police Center
17- Jewish Synagogue (Small Wailing Wall)
18- Israeli Police Center
19- Israeli Electronic Security Zone Surrounding Al-Aqsa Mosque
20- Eastern Courtyards Targeted in the Spatial Division Plan of Al-Aqsa Mosque
21- Bab al-Rahma Cemetery
22- Torah/Talmud Garden
23- Jewish Museum
24- Light Rail (Cable Car) Project – Old City Station
25- Horizontal and Vertical Underground Elevator

Figure13. Map showing completed and ongoing Judaization Projects in and around the Al-Aqsa Mosque (Yakub et al., 2023).

Each of these groups represents a different type of transformation and simultaneously signifies a disruption of a fundamental architectural priority: the social and cultural context (Figure 13).

The table below summarizes the major excavation sites, their functions and categories, and their impact on community access and cultural continuity.

Table 1. Excavation Sites, Functions, Categories, and Impacts

Excavation Site	**Function**	**Category**	**Accessibility**	**Cultural/ Social Impact**
Excavations of the Western Wall tunnels (Fig.4-Fig.6)	Synagogues, Tourist sites	Religious and Tourist	Limited	Strengthens selective narratives; weakens shared heritage and undermines cultural use.
Givati Parking Lot Excavations *Kedem* Center (Fig.7)	Tourist complex, planned museum	Tourist and Museum	Access controlled by authorities	Transforms the living space into a curated exhibition; displaces the community narrative
Western Wall Plaza Excavations *(Beit Strauss, Beit Haliba)* (Fig.8-Fig.9)	Religious school, synagogue, exhibition hall	Religious and Tourist	Prohibited	Uses the area for a singular religious identity; erases plural heritage
The excavation site south of Al-Aqsa Mosque (Fig.10-Fig.11)	Davidson Archaeological Park and Museum, City of David National Park	Tourist and Museum	Restricted	Promotes selected narratives; undermines the continuity and identity of the community.
Excavation of the Tower of David (Fig.12)	Tower of David Museum	Museum	Restricted	Transforms the sacred site into a commercial attraction; marginalizes community values.

In conclusion, excavation projects conducted around the Al-Aqsa Mosque are often presented as objective efforts aimed at archaeological preservation. However, these projects are effecting a

more profound transformation: they are converting sites sacred to multiple religions and communities into areas that promote specific narratives at the expense of local groups. These projects not only alter the physical structure of the area but also undermine the social and cultural foundations that give meaning to the architecture. The Al-Aqsa Mosque and its surroundings serve as a living space for worship, education, and community interaction. When excavations lead to the construction of synagogues, tourist sites, museums, or parks, there is a departure from concerns of access, inclusivity, and cultural continuity. This section examined not only the physical changes made, but also the role they play in the community's social life and culture.

The analysis of Israel's excavation around the Al-Aqsa Mosque demonstrates how architecture can serve as a tool for prioritization. In conflict zones, power shapes not only space but also narratives and culture.

DEBATING ARCHITECTURAL PRIORITIES IN THE CONTEXT OF ARCHITECTURAL CRITICISM

Cities can be regarded as arenas where political and social dynamics are intertwined and where spatial order is continually reproduced through these dynamics. Beyond its sanctity for different religions, Jerusalem possesses many sui generis and exceptional features, making it a unique case in which the relationship between the reshaping of urban space and the construction of social identity can be observed most clearly. The excavation activities carried out at Al-Aqsa Mosque constitute concrete evidence of how urban practices extending from past to present have become intertwined with modernization discourse and colonial interests, how urban space reflects social segregation, and how actions aimed at erasing social memory have been enacted (Avcı & Uçar, 2025). The concepts of architecture and cultural heritage derive meaning not only from spatial needs or aesthetic values but also from social identity, political authority, and collective memory. According to Halbwachs (1992), the process by which societies transmit their shared past and values across generations is called collective memory. In this context, Al-Aqsa Mosque can be understood not merely as a place of worship but also as a site of collective memory. The excavations conducted by Israel obstruct this collective narrative of Al-Aqsa, rendering the physical foundations of collective memory contested and triggering struggles over identity and legitimacy through space.

Especially in conflict zones or geographies that have historically witnessed the domination of different communities, cultural and architectural priorities often become contested. At this point, central

questions arise as to whom this heritage belongs and whose identity the architecture reflects. While states construct monumental buildings, religious centers, or new settlement projects to consolidate political power, the priorities of local populations generally revolve around housing, infrastructure services, and the provision of public spaces that enable everyday life. Although cultural heritage is defined as a universal value, it can be reinterpreted in line with the political, social, cultural, religious, or architectural priorities of particular communities. Cultural, social, and architectural priorities are evaluated not only through the structures built, the need for shelter, or urban spaces, but also through political objectives, identity formation, and strategies that shape collective memory. In this respect, architecture has become, beyond a merely physical design process, an important instrument in communities' efforts to sustain their existence, reinforce their quests for legitimacy, and make their identities visible. Over time, Israeli architecture has evolved into an architecture with plans and long-term objectives, some of which are envisioned as centers of civilization. The primary aim here is to transform Palestinian architecture into an "Israeli architecture" that would be recognized worldwide as Israeli. Architecture, essentially a humanistic undertaking, has begun to be used by Israel as a tool of occupation and exploitation (Khalilia, 2014).

In this context, the notion of architecture for the Palestinian people constitutes a domain of resistance for safeguarding their social and cultural existence. In particular, the excavations at Al-Aqsa Mosque—the focus of this article—and the processes of reconstruction following widespread destruction across the region involve not only shelter, the primary objective commonly ascribed to architecture, but also the reproduction of identity and spatial belonging. In situations of war and conflict, spatial policies are frequently deployed for strategic purposes. Accordingly, the relationship among war, genocide, and spatial policies often reflects processes of power, control, and identity formation. The roles assumed by space in these processes can be explained under three headings. The first concerns spaces that become victims: structures deliberately demolished or rendered inaccessible and unusable lose not only their functions but also the historical and cultural memory they carry. Second, space becomes an agent: buildings destroyed with explosives target both the people they shelter and instrumentalize the material fabric as a direct means of destruction. The final role assumed by space in environments of war and conflict is that of witness: the remnants left behind after conflict make the extent of destruction visible and serve as references for collective memory and forensic investigations. This multi-dimensional function is articulated by architectural theorist Bernard Tschumi's statement: "Architecture is defined as much by the actions it witnesses as by the walls it encloses."

This approach indicates that space is not only physical but also an active actor in historical, cultural, and legal terms (Akbalık, 2024).

When Israel's actions in Palestine are evaluated in this context, it becomes apparent that these actions, independent of architectural, cultural, and social priorities, have, whether consciously or unconsciously, served different purposes. Within the Israeli-Palestinian framework, architecture has become not merely the production of physical space but also a domain in which political and cultural meanings are constructed. From Israel's perspective, architecture is largely approached as part of establishing control mechanisms, ensuring security, and building a modern nation-state. The ongoing excavations at Al-Aqsa Mosque have become an instrument that supports these aims. Architectural priorities should be re-examined in conflict zones. The excavations carried out by Israel at Al-Aqsa are not merely an archaeological inquiry; they have amounted to a blow to the community's memory and have raised questions about which past is to be preserved and which is to be rendered invisible.

RETHINKING ARCHITECTURAL PRIORITIES IN CONFLICT ZONES

Architecture can primarily be defined as a production process that serves the benefit of society by bringing together functional and aesthetic values. As in all disciplines, human beings are at the center of the architectural discipline. Architecture exists for the human, that is, the user, and without the user there is no need and consequently no architecture. In addition, architecture enables the act of shelter. Since antiquity, shelter has been one of humanity's unchanging common needs. From past to present, within various movements, this concept has changed many times, and within the discipline of architecture the notions of dwelling and shelter will always continue to be addressed. It is not possible to define architecture solely as a design activity or as a practice that merely enables shelter (Şensoy & Yamaçlı, 2015). As observed in the examples discussed in the article, architecture should be regarded as a field in which societies' identities, memories, and quests for political legitimacy become concrete and visible. Especially in conflict zones, architecture becomes a tool through which identities are represented, and political legitimacy is reproduced. The destruction wrought by conflict targets not only the physical dimension of space but also its symbolic and cultural meaning. In such circumstances, cultural heritage is among the most severely affected domains. In this regard, the excavations carried out by Israel around Al-Aqsa Mosque in Jerusalem stand out as a striking example. Although these works are described as "archaeological research" in official discourse, the Palestinian side and various international institutions interpret them as an

attempt that undermines the integrity of the holy site and seeks to transform collective memory (European Union, 2024). UNESCO keeps the Old City of Jerusalem and its Walls on the List of World Heritage in Danger and underscores the threats posed by this process to cultural heritage (UNESCO, 2023). On 17 May 2023, at its 216th session, the UNESCO Executive Board unanimously adopted a decision concerning the Old City of Jerusalem and its Walls. This decision emphasizes that all Israeli measures aimed at altering the city's character and legal status are null and void. It also calls on Israel to cease its unilateral and unlawful violations and actions targeting Al-Aqsa Mosque, the Old City of Jerusalem, and its walls (UNESCO, 2023; URL-25, 2023).

As seen, in conflict zones such as Palestine, architectural priorities are not confined to function and form. They must also include other elements such as ethics, the preservation of culture, and the safeguarding of memory against political powers. In conflict zones, there is an urgent need to strike a balance among the competing priorities of contending nations. In this context, architecture on the Israeli side has largely acquired priorities within the framework of security, control, and national identity-building. With the ongoing excavations at Al-Aqsa Mosque, architecture has ceased to be a neutral field and has acquired the function of a political instrument. In conflict zones, the priorities of architecture should be to uphold ethical values, protect cultural heritage, and give due importance to societies' spatial needs. Reconsidering architectural priorities in conflict areas requires a holistic approach that encompasses not only technical solutions and functional dimensions but also ethical, cultural, and political responsibilities. This comprehensive perspective plays a critical role in establishing post-conflict peace, repairing collective memory, and easing tensions among different actors.

CONCLUSION

Throughout its history, Palestine has existed as a land regarded as sacred, particularly in religious and cultural terms, and it has been the cradle of many civilizations. These lands, which bear the traces of different religions and cultures, also carry deep meaning for Palestinians. Today, however, the sanctity of Palestine is shaped not only in religious and historical terms but also by a nation's struggle for existence and its battle over identity. Beyond this sanctity, Palestine also bears the scattered traces of difficult political conflicts, occupations, settlement policies, and power struggles. Feelings of identity and belonging have been affected by constantly shifting political dynamics, and these interactions have made the preservation of Palestinian cultural heritage more difficult.

Israel's settlement policies on Palestinian territory involve not only a political conflict but also a cultural struggle. Consequently, Israel's efforts to Judaize Palestine have not only led to cultural erosion but have also brought human rights issues in their wake. It would be an important step for the international community not to remain indifferent to this situation, both to protect cultural heritage and to defend the rights of the Palestinian people. At this point, UNESCO's call on Israel to end its unilateral and unlawful violations and actions targeting Al-Aqsa Mosque, the Old City of Jerusalem, and its walls also serves as evidence of the damage Israel has caused in Palestinian lands. They have demanded that all Judaization projects, including Beit Halaiba and Beit Strauss, be strongly condemned and halted, along with all facility projects such as electric elevators, aerial cable cars, and light rail systems that pass alongside the walls of Jerusalem. These should be addressed on the basis that their very existence is linked to the presence of the occupation and that the threats they pose to the foundations of Al-Aqsa Mosque, which extend beneath and near the walls, are connected to the occupation's above-ground presence. In addressing these issues, the cultural erosion occurring in the Palestinian territories should not be ignored, and the consequences of these policies should be evaluated from a broader perspective.

Alongside these points, another issue set forth by this critical article is architectural priorities in conflict zones. Although it is difficult to speak of architectural priorities in such regions, this critical study has brought different priorities to light. As seen, in conflict zones such as Palestine, architectural priorities are not limited to function and form alone. While Israel uses architecture as a priority to forge a new identity and strengthen its legitimacy, Palestine's priorities are different from this. On the Palestinian side, architecture has been tied more closely to priorities such as preserving identity and sustaining existence. The protection of Al-Aqsa Mosque and other areas has become a critical priority for the continuity of Palestine's social identity. When architectural priority is at issue in Israeli Palestinian relations, debates generally concentrate around certain fundamental matters at the intersection of political, social, and cultural dimensions.

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REIMAGINING INTANGIBLE CULTURAL HERITAGE: NENE HATUN'S LEGACY IN ERZURUM THROUGH A GRAPHIC NOVEL

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ABSTRACT

Intangible cultural heritage includes non-material elements such as oral traditions, rituals, ceremonies, handicrafts, and social practices that maintain a society's cultural identity and continuity. In Erzurum, folk tales, epics, local music, and heroic narratives constitute essential components of this heritage. Among these, the story of Nene Hatun exemplifies intangible cultural heritage, transmitted both through collective memory and historical sites, bridging past and present.

Throughout history, heroes have played a pivotal role in shaping national identities and collective memory. Nene Hatun, who defended Erzurum with extraordinary courage during the Ottoman-Russian War (1877–1878), occupies a distinguished place in Turkish history. Her struggle at Aziziye Fort symbolizes national consciousness and patriotism, and her heroic narrative has been preserved and passed down through generations.

While traditional historical narratives primarily rely on texts, visual storytelling, particularly graphic novels, offers a powerful method for reaching wider audiences. Graphic novels can vividly depict historical figures, cultural contexts, and period architecture, making the past accessible and engaging. Reimagining Nene Hatun's story in this format not only visually supports historical understanding but also contributes to the preservation of cultural heritage. By employing AI-assisted visual techniques, this study portrays Nene Hatun as both a symbol of heroism and a spatial memory bearer, integrating her life story with historically significant sites, thus linking narrative and spatial dimensions of Erzurum's cultural memory.

Keywords: Graphic Novel, Intangible Cultural Heritage, Architectural History, Visual Storytelling, Architectural Preservation.

INTRODUCTION

When it comes to the cultures of cities and the cultural heritage elements to be preserved, architectural works are generally the first that come to mind. However, the intangible cultural heritage of a city is equally important, and since it is not as visible as a physical building, it is more likely to be forgotten or lost. For the city of Erzurum, Nene Hatun is an important figure. Keeping her more than a century-old story alive within the city represents a significant aspect of intangible cultural heritage.

The proposed study aims to reimagine the historical narrative of Nene Hatun, an iconic figure in Turkish history, through the innovative medium of a graphic novel. Nene Hatun is celebrated for her courage, leadership, and spirit of national struggle during the 1877-1878 Ottoman-Russian War, where she rallied the people of Erzurum to defend their city. Her story is deeply embedded in the city's architectural heritage, especially within historical spaces such as the fortress area, mosques, and traditional houses. These spaces and this story reflecting the intangible cultural heritage of Erzurum, carry traces of the past that resonate with the present. This study explores how Nene Hatun's legacy and her contributions to the national struggle are symbolically embodied in the city's architectural fabric, leaving an indelible mark on Erzurum's historical texture.

The aim of this work is to create a graphic novel that retells the life of Nene Hatun while highlighting the historical landmarks of Erzurum. The narrative is developed by collecting and analyzing various sources such as books, newspaper articles, interviews, and photographs, alongside materials that describe the socio-cultural and historical context of 19th-century Erzurum. These resources were used to create a storyboard for the graphic novel, combining summaries and digitally produced graphics. This study seeks to integrate the power of visual storytelling with the architectural spaces that marked Nene Hatun's journey, offering a contemporary interpretation of both historical events and architectural heritage.

Objectives of the study are:

- To reconstruct the heroic story of Nene Hatun in graphic novel format, emphasizing her relationship with the city's historical architecture.
- To contribute to architectural heritage preservation through a modern, visual narrative that brings attention to the socio-cultural and historical context of Erzurum.

- To explore the adaptability of the graphic novel medium in conveying architectural and historical narratives in contemporary formats.

This study employs a mixed-methods approach. Initially, a literature review on Nene Hatun's life and 19th-century Erzurum were conducted, utilizing a variety of sources, including books, newspaper articles, interviews, photographs, and other historical documents. The collected data were then used to develop a storyboard for the graphic novel.

Subsequently, photographic, video, and graphic resources were gathered to transform Nene Hatun's story into a visual narrative. Visual communication design techniques were applied to ensure the integration of images with textual content in a meaningful way. Ultimately, all these materials are synthesized to create a graphic novel that vividly reconstructs Nene Hatun's heroic tale, presenting it to modern audiences in an engaging and accessible format.

Narrating Architecture: Graphic Novels and Historical Space

Recently, graphic novels have gained a prominent place in the field of architectural history. The graphic novel, through the combined construction of text and image, is a hybrid narrative form that can engage the reader on both cognitive and emotional levels. In the literature, this form is regarded not only as a literary and artistic medium but also as a vehicle for social memory, urban history, spatial representation, and critical architectural narrative (Baetens & Frey, 2015).

Le Corbusier was among the earliest architects to explore the potential of comics in communicating design ideas. In projects such as the Ville Contemporaine (1922) and Lettre à Madame Meyer (1925), he employed sequential panels to narrate his concepts, presenting the experience of space from the viewpoint of a visitor. In the 1960s and 70s, Archigram, led by figures like Peter Cook and Warren Chalk, embraced the mechanics of comics—sequence, collage, and visual dynamism—to imagine futuristic urban visions. Projects such as Instant City (1968) and "Amazing Archigram 4: Zoom Issue" made comics both a narrative and representational tool. Later, Norman Foster also used this graphic language as a means of communication: for the Renault Distribution Centre (1983), he commissioned John Batchelor, the famous Eagle magazine illustrator, to produce sectioned axonometric drawings, while for the Willis Faber & Dumas Headquarters (1975) he asked cartoonist Franck Dickens to create humorous strips that familiarized future users with the building. In this way, these three architects from different generations employed comics not only to convey design processes but

also to communicate the spirit of their projects to a wider audience, (Lus Arana & Grennan, 2023).

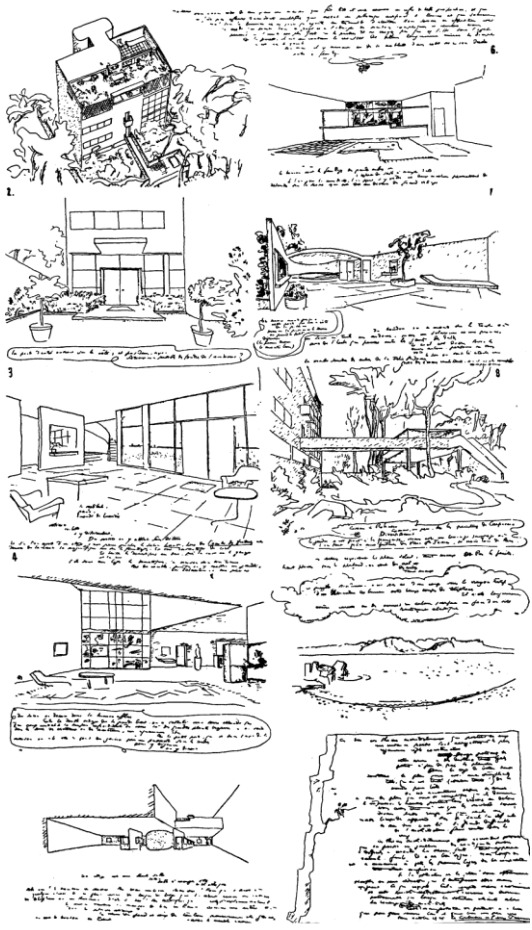


Figure 1. A panel *From Lettre à Madame Meyer* by Le Corbusier, 1925, as cited in Arana, 2023.

Some of the examples from around the world where architects and architecture are represented in graphic novels include:

- Eileen Gray: A House Under The Sun
- Walking in the City with Jane: A Story of Jane Jacobs
- Denise Scott Brown, 2007 Vilcek Prize in Architecture

These examples highlight how graphic novels can creatively represent and amplify the visibility of women architects, showing their ideas, achievements, and influence through alternative media and narrative elements that engage diverse audiences.

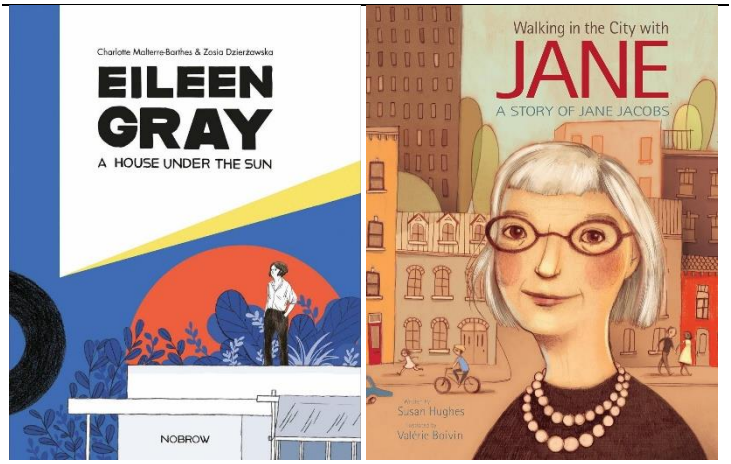


Figure 2. Examples of graphic novels and picture books from the international literature

Within Turkey, examples include:

- Dedekargınoğlu, C., & Şumnu, U. (2024). Sultanahmet'te Var Bir Yılan. Karakarga Yayınları.
- Dedekargınoğlu, C., & Şumnu, U. (2024). Yüzen Köşk'ün Anahtarı. Karakarga Yayınları.
- Kutluoğlu, O., Şumnu, U., & Dedekargınoğlu, C. (2023). Ankara Palas'ın Merdivenleri. Karakarga Yayınları.
- Kutluoğlu, O., & Şumnu, U. (2023). Opera'nın Hayaleti. Karakarga Yayınları.

These graphic novels are creative works that narrate Turkey's significant architectural heritage and historic buildings. Each one presents the story of a specific building or space and the lives of architects in graphic novel format, aiming to make architectural history accessible to a wider audience.

Sultanahmet'te Var Bir Yılan: This work explores the construction and subsequent relocation of the Istanbul Courthouse. Through the projects of architects Sedad Hakkı Eldem and Emin Onat, it examines modern Turkey's architectural understanding and the social impact of this building.

Yüzen Köşk'ün Anahtarı: Focused on architect Seyfi Arkan and the Florya Atatürk Sea Mansion, this graphic novel traces the traces of modernism in 1920s Turkey. It includes Arkan's education and journey to Germany, as well as the mansion's construction process.

Ankara Palas'ın Merdivenleri: Highlights the historical and cultural significance of Ankara Palas, designed by Architect Kemalettin. The work examines the architectural features of the building and the social structure of Ankara during the early Republican period.

Opera'nın Hayaleti: Combines the transformation of the Ankara Exhibition House into the Opera Building with the life story of Şevki Balmumcu. This work explores both the building's transformation and the architect's personal story, discussing the memory and cultural heritage of the space.

These works offer a unique perspective on architectural history and cultural heritage, providing readers with both knowledge and an aesthetic experience.

Nene Hatun and 19th-century Erzurum

Nene Hatun was born in 1857 in the village of Çeperli, located northeast of Erzurum. Her original surname was Kırkgöz, her father was Hüseyin, and her mother was Zeliha. Among her six children (four sons and two daughters), only her son Yusuf survived, while the others passed away due to various causes, such as being martyred during World War I (Uzunyaylalı, 2015).

Nene Hatun is a figure remembered in the national consciousness for her heroism, particularly during the 1877–1878 Ottoman-Russian War (93 Harbi). Archival documents, oral histories, and academic studies emphasize her historical significance; however, most of these narratives are primarily text-based. Studies such as Uzunyaylalı (2015) and Kürkçüoğlu (2014), published by Atatürk University Press, detail Nene Hatun's resistance in Erzurum and evaluate it within both military and social contexts. Nevertheless, these sources provide limited information regarding visual representation or spatial narrative. Existing children's books, moreover, often lack sufficient illustrations or depictions of the related environments.

Table 1. Major Turning Points in Nene Hatun's Life

1857	Nene Hatun was born in the village of Çeperli in Erzurum.
1857–1877	She got married, moved to Ayazpaşa neighborhood in the center of Erzurum, and had children. Her husband was drafted into the military.
1877	Participated in the defense of Aziziye Fort during the Russo-Turkish War (1877–1878).
1952	Honored as the "Mother of the Third Army" (Turkish Armed Forces).
1955	Passed away in Erzurum; buried with national honors.

The Russo-Turkish War of 1877–1878, commonly known as the "War of '93," broke out at a time when the Ottoman Empire was politically, militarily, and socially weakened. Within the framework of Russia's Pan-Slavist policies, the Balkan peoples under Ottoman rule were incited to demand independence. Beginning in 1875, Bulgarians were encouraged by Russian consuls to establish societies that would act against the Ottoman administration (Aktaş, 2019, p. 12). The unrest in the Balkans provided a pretext for European intervention. Following the murder of two European consuls in Salonica, Austria, Russia, and Germany prepared the Berlin Memorandum, which demanded reforms from the Ottoman Empire. However, Britain opposed these decisions, preventing the European powers from forming a common front (Aktaş, 2019, p. 13). At the same time, internal political instability plagued the Ottoman state. The deposition and subsequent death of Sultan Abdülaziz, the short reign of Murad V, and finally the accession of Abdülhamid II created an atmosphere of uncertainty. When Abdülhamid II came to the throne, the Empire was already at war with Serbia and Montenegro, both supported by Russia. These wars strained the Ottoman military capacity and weakened its diplomacy (Engin, 2016, p. 5). To reduce foreign pressure, the Ottoman administration proclaimed the Kanun-i Esasi (Constitution) in 1876, legally recognizing the equality of subjects. However, European powers considered this step insufficient. At the Constantinople Conference of the same year, the reforms proposed by the Ottoman government were rejected, closing off diplomatic options (Aktaş, 2019, p. 14). Eventually, when the Empire refused to accept the 1877 London Protocol, Russia used this as a pretext to declare war on 24 April 1877 (Greene, 2018, p. 211). In conclusion, the Ottoman Empire was drawn into the War of '93 by a combination of factors: Russia's Pan-Slavist expansion in the Balkans, the reform demands of the European powers, internal political instability, and growing diplomatic isolation.

Erzurum, due to its strategic importance during the Ottoman period, hosted numerous military structures. Among these, the most notable is the Aziziye Fort, which became a symbol of resistance against Russian

forces during the 1877–1878 Ottoman-Russian War. Located on Top Mountain, this fort was constructed between 1867 and 1872 under Sultan Abdülaziz. During the 93 Harbi (Russo-Ottoman War), the Russians attempted to seize Erzurum, but the local population, alongside Ottoman soldiers, successfully reclaimed the fort. In addition to Aziziye, Erzurum's eastern defenses included several other forts, such as Mecidiye and Tabakhane Forts, which were strategically positioned to guard important roads and mountain passes. Together, these eastern forts exemplify the Ottoman approach to defensive planning and highlight the role of local terrain in military strategy. Today, these forts remain preserved as symbols of Erzurum's heroic and strategic history, (Küçükuğurlu, 2014 and 2016).



Figure 3. Map of Erzurum during the Ottoman period and the Erzurum forts that witnessed the 1877–1878 Russo-Ottoman War

The victory at Aziziye on the night of 8–9 November 1877 marked a critical turning point in the defense of Erzurum and the embodiment of popular resistance. The Russian army launched a three-pronged attack on the Aziziye and Mecidiye forts, but following the call of Hacı Abdullah Efendi, the muezzin of Ayazpaşa Mosque, local people armed with simple tools marched through Firdevsoğlu Barracks towards Topdağı and joined the defense.

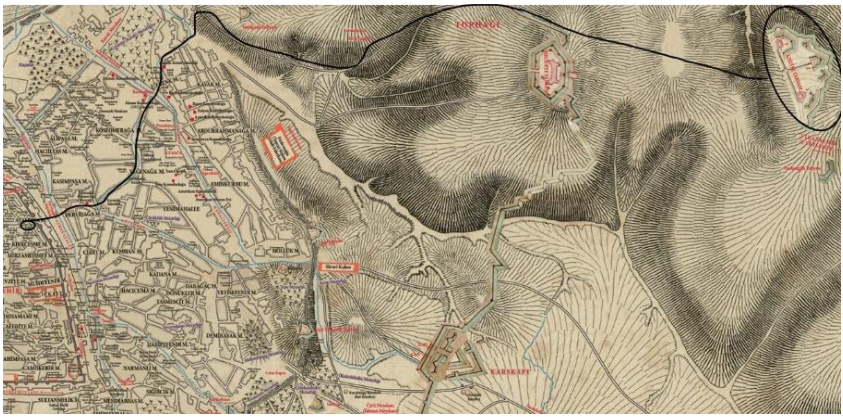


Figure 4. Route of Nene Hatun and the civilian population to Aziziye Fort

After nearly two hours of intense fighting, Russian forces were repelled, and the Aziziye fortifications were reclaimed under the Ottoman flag (Kürkçüoğlu, 2014). This victory not only demonstrated the collective courage of the people but also highlighted the historical significance of individual acts of heroism, such as that of Nene Hatun.

Nene Hatun: An Experiment in Graphic Storytelling

Although there are many printed sources about Nene Hatun, most of them are in the form of novels and stories. In these works, historical facts are often combined with the authors' imagination, and the information provided is sometimes not reliable. When visual sources about Nene Hatun are examined, it is seen that a black-and-white photograph of her was used in newspaper articles; although a few photographs of her taken during the same period exist, the most frequently used image has survived to the present. This photograph was taken shortly before Nene Hatun's death, when she was 96 years old, which makes it difficult to depict her as she appeared at age 20 during the 1877–78 war.

A review of the literature also revealed numerous illustrated children's books and graphics created for stories about Nene Hatun. Many of these images are inaccurate, showing her with unrealistic weapons, such as a rifle, and wearing clothing not typical of Erzurum culture. Furthermore, these representations often depict the city of Erzurum during the 1877–78 war in spring or summer greenery, and portray traditional Erzurum houses as brightly colored—both historically inaccurate. These errors are not limited to stories, novels, and graphics; even history books contain conflicting information. By comparing these sources, the research proceeded using the most reliable information available.



Figure 5. Representations of Nene Hatun and Erzurum's environment from children's books.

Panel 1 – Traditional House in Erzurum (November 1877, Night)

Page 1: The narrow stone streets of Erzurum are dimly illuminated by lanterns, embodying the harsh winter atmosphere. Inside a traditional Erzurum house, stone walls and a swallow-tail wooden ceiling enclose the room, while warm steam rises from the tandır (a clay oven embedded in the ground, used for both heating and cooking in Anatolian houses).

Page 2: Nene Hatun gently rocks her infant in the cradle; her expression conveys both weariness and serenity. The walls are

decorated with copper kitchen utensils, while richly patterned kilims (traditional flat-woven rugs with geometric designs, used as floor coverings or upholstery) cover the sedir (a traditional wooden bench built along the wall, used for seating and resting, often upholstered with rugs or cushions).

Page 3: From the minaret of Ayazpaşa Mosque, the muezzin Abdullah Efendi proclaims: "Aziziye has fallen! All who bear arms, hasten to the fortress!" His voice reverberates through the narrow streets.

Panel 2 – Inner Decision and Preparation

Page 1: Startled by the commotion outside, Nene Hatun looks at the cradle, her hand gripping its edge firmly.

Page 2: She proceeds to the kitchen, seizes a cleaver, and fills her pouch with stones; determination is clearly visible on her face.

Page 3: Leaning over the cradle, she entrusts her child to divine protection before opening the door and stepping into the frigid Erzurum night.

Panel 3 – Streets of Erzurum (November 1877, Dawn)

Page 1: A multitude advances through the narrow streets—women, youth, and elders alike—armed with stones, sticks, and axes. Calls from the minarets echo across the city.

Page 2: A woman from the neighborhood exclaims: "Aziziye has fallen!" The crowd moves toward the Kars Gate, chanting takbir (the Islamic proclamation "Allahu Akbar," meaning "God is Great").

Page 3: The distant thunder of cannons resounds from Aziziye—BOOM! The people, undeterred, continue advancing toward the trenches.

Panel 4 – Beginning of the Clash

Page 1: The populace charges toward the fortifications and Russian soldiers. Stones are hurled, and women swing sticks with determination.

Page 2: Russian troops fire their rifles, yet the advancing crowd shows no sign of retreat.

Page 3: In unison, the people cry out "Allah! Allah!" as the intensity of the battle escalates.

Panel 5 – Moment of the Clash

Page 1: Nene Hatun raises her cleaver and rushes to the front line, followed by the masses like a surging torrent.

Page 2: A close-up captures the chaos of combat—rifle fire, clashing axes, and flying stones. Expressions of anger and determination dominate the scene.

Page 3: As the people storm the trenches, Russian soldiers begin to retreat. Nene Hatun's visage reflects both ferocity and resolve.

Panel 6 – Victory and Silence (November 1877, Morning)

Page 1: As the sun rises above the mountains, Aziziye Fort falls silent. Weapons, stones, and traces of battle lie scattered across the ground.

Page 2: The people embrace one another; women, children, and elders share in the collective joy of victory.

Page 3: Nene Hatun, seated beside the trench, appears exhausted yet dignified. She softly whispers: "We defended our homeland, our very lives…" In the background, the Ottoman flag waves proudly over the fortress.

Although the story is based on factual information, it is impossible to know the exact details of events in 1877 or precisely how the characters spoke. With the emphasis that the purpose of the work is to convey intangible cultural heritage to the reader, dialogues were added to the narrative.

AI-Assisted Experimental Visualizations

This section presents selected AI-assisted visual experiments, illustrating Erzurum's historical streets, Ayazpaşa mosque, interiors, and the heroic narrative of Nene Hatun. At this stage, after comparing the sources of numerous historians, a storyboard was created based on the information obtained. Using this storyboard as a guide, Nene Hatun's story was depicted across 6 panels and 18 pages. Subsequently, for each scene, elements such as traditional Erzurum houses, interior stone walls, gabled roofs, street textures, and landmarks like Ayazpaşa Mosque were attempted to be generated using various AI programs. The most

challenging element to depict was the representation of Nene Hatun herself.



Figure 6. An attempted illustration of a traditional Erzurum house based on a reference image



Figure 7. A realistic-style attempt of a traditional Erzurum house interior.



Figure 8. A representation of Ayazpaşa Mosque, created through AI-based visualization, evoking the atmosphere of the 19th century.

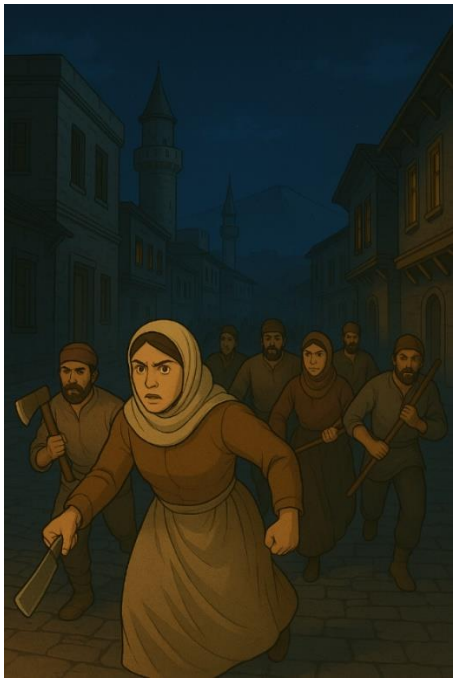


Figure 9. AI-generated representation of Erzurum's Street fabric.

CONCLUSION

This research emphasizes the prioritization of intangible cultural heritage in architecture, which is often overshadowed by the focus on tangible cultural heritage—primarily buildings. By prioritizing intangible cultural heritage in this study, it reflects the unique relationship between historical events, cultural contexts, and architecture. Erzurum's traditional architectural elements, such as the Erzurum houses, Ayaspaşa Mosque, the Castle area, and Aziziye Bastion, are explored in relation to Nene Hatun's life. These sites serve as key historical and cultural components in the graphic novel's visual composition.

As a result, this research presents Nene Hatun's heroic story through a graphic novel, focusing on Erzurum's historical architecture. The study identifies and visualizes four key architectural elements that are integral to Nene Hatun's narrative: the traditional Erzurum house, Ayaspaşa Mosque, the fortress streets, and Aziziye Bastion. These spaces, deeply connected to the cultural and historical fabric of the city, are essential to the visual storytelling of the graphic novel.Furthermore, key architectural features of traditional Erzurum houses, such as swallow dome and tandoor houses, are depicted to reflect the atmosphere of

the period. This work aims to communicate the socio-cultural dynamics of Nene Hatun's era to contemporary audiences using the graphic novel medium, contributing significantly to architectural history, the preservation of cultural heritage, and alternative forms of historical narrative. This approach aims to present both historically documented visual narratives and contemporary graphic design practices together. In this context, the study contributes significantly to architectural history, the preservation of cultural heritage, and alternative forms of historical narration. It illustrates how architectural practices and cultural heritage can transcend physical structures and be rooted in the intangible cultural memory of a place, thus connecting the themes of "cultural and social context," "innovation and creativity," and "adaptability." By focusing on intangible cultural heritage, this study emphasizes a shift in priorities in architectural discourse, suggesting that these aspects should not only be recognized but also prioritized in both historical and contemporary architectural practices.

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PRIORITIES IN SEASONAL TEMPORARY SPACES: A FRAMEWORK FOR CIRCULAR ECONOMY

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ABSTRACT

In recent years, global crises such as the pandemic, climate change, natural disasters, and resource consumption have forced a re-evaluation of priorities in architecture and design. The traditional "take-make-dispose" approach is now seen as an unsustainable system, and instead, a circular economy model based on the principles of reduce, reuse, and recycle is increasingly being adopted in spatial production processes. This study examines how the principles of the circular economy can be applied in summer resort areas where temporally changing spatial usages are observed. Akarca—a neighborhood in Seferihisar, İzmir—is selected as the research area. Within this context, temporary structures such as marketplaces, family tea gardens, cafeterias, mobile vendor zones, and beach objects are examined in terms of their time-space cycles. The existing temporary spaces in Akarca are documented, and their installation-dismantling processes, material usages, and spatial adaptations are analyzed through drawings. Qualitative data collection methods are used in the research; spatial dynamics of the temporary spaces are examined through field observations, spatial analyses, and semi-structured interviews. Through participant observation, the transformations of the spaces during different periods—summer, winter, and spring, as well as weekdays versus weekends and day versus night—are documented. As a result of the study, a design guide prioritizing circularity in design and materials has been developed. This guide aims to provide a model that offers

direction for design, usage, installation, material selection, and storage processes.

Keywords: Circular Economy; Architectural Design Guide; Seferihisar, Seasonal Temporary Spaces; Priorities.

INTRODUCTION

In recent years, global crises—such as the pandemic, climate change, natural disasters, resource consumption, industrial waste, and uncontrolled urbanization—have significantly impacted our relationship with nature and design processes. These challenges have prompted a reevaluation of energy consumption, production methods, and spatial organization across various fields, particularly architecture.

Instead of relying on the traditional linear economy model, which follows a "take-make-dispose" approach, the circular economy model has gained prominence in architecture. This model is based on "reduce, reuse, recycle" principles and views a product's life cycle not as a linear process but as a restorative and regenerative system (Ghisellini, Cialani, and Ulgiati, 2016). The circular economy encompasses several stages: design, production, distribution, repair/consumption, collection and recycling (European Parliament, 2018).

The circular economy is increasingly being discussed across various sectors, including energy, industry, food, and logistics. In architecture and urban planning, it plays a significant role in material selection, extending the lifespan of buildings, adaptive reuse, and waste management. Within this context, seasonal settlements—areas where population and spatial needs change throughout the year—provide unique opportunities to explore the principles of circularity. These settlements, often found along coastlines, are characterized by temporary structures actively used during the summer and mainly left abandoned during the off-season.

Public space furnishings and seasonal objects in these summer settlements are some of this transformation's most visible architectural elements. Typically installed for the summer season, these components are removed in response to changing climatic conditions, becoming an integral part of summer spaces' physical and cultural fabric. Their temporary nature, diverse materials, construction details, and processes of dismantling, storage, and reuse make them ideal for analysis within the framework of circular economy principles.

This study documents urban furnishings in the Akarca Neighborhood, a coastal area in the Seferihisar district of İzmir. It classifies these furnishings by their function, material type, and installation method, and analyzes them through the lens of circular economy principles. Akarca is a significant summer destination near the ancient city of Teos and the center of Sığacık and Seferihisar. Several key events have influenced its development, including the acquisition of Cittaslow status in 2009, earthquakes in 2005 and 2020, and shifts in population due to the pandemic. As a result of these changes, Akarca has gradually transformed from a seasonal settlement into a hybrid residential area. This evolution has made temporary spaces increasingly important and has heightened the demand for structures that can be easily assembled and dismantled over time.

This study explores key questions regarding the design of temporary urban furnishings through the principles of a circular economy. It investigates the materials and methods used in their production and their installation, dismantling, and storage processes. The research is organized around the following core questions: What types of temporal-spatial cycles exist in summer settlements? How can spaces created through linear processes be transformed into circular ones? How can a site-specific system be developed for the design, utilization, installation, material selection, and storage processes within a circular economy context?

This study adopts a qualitative research methodology. Data is collected through observations and semi-structured interviews. The analysis of the data follows the three-stage qualitative data analysis method proposed by Dey (1993), which includes description, classification, and connection. The findings from the observations and interviews reveal how temporary spaces are locally configured, the design and production practices employed, and the motivations behind the choices of materials and labor.

Within the scope of the study, 28 urban furnishings along the Akarca coastline—such as showers, shade structures, trash bins, seating elements, and lifeguard towers—are documented. These elements are then classified and analyzed based on their function, materials, and installation methods. After the classification stage, connections were established to create a design guide for Akarca's temporary urban furnishings based on circular economy principles. This guide aims to enhance the sustainability of temporary spaces in Akarca while aligning with circular practices. It also seeks to offer a critical re-evaluation of design priorities in architecture as a whole. By integrating key design elements such as functionality, aesthetics, sustainability, durability, cost-

effectiveness, adaptability, cultural and social context, and creativity, the guide aspires to create a place-specific, flexible, and sustainable framework for designing temporary structures.

CIRCULAR ECONOMY IN ARCHITECTURE

The circular economy differs from sustainability in that it represents a fundamental shift aimed at reducing environmental impacts and restructuring how resources are utilized. According to the Ellen MacArthur Foundation, the circular economy is based on three key principles: eliminating waste and pollution, keeping products and materials in use, and regenerating natural systems. This approach advocates for a restorative and regenerative system that replaces traditional linear production and consumption models. It involves interconnected processes such as design, production, distribution, use, reuse, repair, recycling, and ultimately reintegrating materials into natural cycles.

The concept of the circular economy has yet to achieve consensus at the international level. There is a lack of agreement on definitions related to the circular economy in the literature (Kirchherr et al., 2018; Hart et al., 2019; Wiarda, Coenen and Doorn, 2023), as well as gaps in methodology for practical implementation (Adams et al., 2017; Gerding, Wamelink and Leclerq, 2021). Additionally, the absence of shared standards across various sectors (Benachio, Freitas and Tavares, 2020) indicates that the circular economy is still evolving. Therefore, it is essential to consider circularity not only from a technical perspective but also in terms of its cultural, social, and governance dimensions.

In recent years, the concept of the circular economy has gained increasing attention in architecture and construction, particularly regarding themes such as material cycles, energy efficiency, reuse, and spatial flexibility. Leising, Quist, and Bocken (2018) focus on reusing building materials, while Pomponi and Moncaster (2017) explore strategies for reducing energy consumption. Additionally, there is a growing body of research on circular material selection (Leising, Quist, and Bocken, 2018), spatial reuse (Geldermans, 2016; Brand, 1995; Lifschutz, 2017), and the overall sustainability of urban environments.

These studies underscore the importance of rethinking architecture to align with circularity principles. This means that architects should focus on form and aesthetics and serve as resource managers and sustainability planners. However, the necessary normative frameworks, practical guidelines, and institutional incentives for this transformation are still underdeveloped. Given that the construction sector generates

over 60% of global waste, applying circular design principles at every stage, from architectural education to building production processes, is crucial.

In Turkey, the concept of a circular economy has gained significant attention, especially since 2019, aligning with the country's emerging sustainability policies (Balbay, Sarıhan, and Avşar, 2021). A notable initiative in this area is the Circular Economy Action Plan (DEEP) project, which is being conducted in collaboration with the European Union from 2022 to 2025. This project aims to analyze Turkey's circularity potential on a sector-by-sector basis and to develop practical implementation strategies.

However, academic publications addressing this topic within architecture remain limited. Orhon (2020) reexamined sustainable architecture through circular economy principles, while Bütün (2021) explored functional transformations in office buildings within this framework. Türkay (2023) focused on the connection between circular urbanism and waste management, and Gündüz and Akpınar (2023) proposed a reinterpretation of Yenişehir Gıda Çarşısı based on circular city principles as part of a studio project at the İzmir Institute of Technology. Despite these contributions, the studies predominantly address circularity in planning, waste management, and materials, leaving practices related to temporary structures and seasonal settlements underexplored.

Many secondary housing and summer settlement studies focus on residential use patterns, spatial organization, and seasonal population flows. However, there is a significant lack of architectural analyses concerning non-residential temporary spaces in these areas, such as beach facilities, showers, shade structures, seating areas, and lifeguard towers. Non-architectural productions partially fill this gap. Exhibitions and publications like "Please Do Not Disturb: An Exhibition on the Concept of Vacation" (Lütfen Rahatsız Etmeyiniz: Tatil Kavramı Üzerine Bir Sergi) (2013), "Summerhouse: The Urbanite's Colony" (Yazlık: Şehirlinin Kolonisi) (2014), "For Sale by Owner: Summer Resort" (Sahibinden Sayfiye) (2014), and "Sea Pleasure in Istanbul" (İstanbul'da Deniz Sefası) (2018) provide visual narratives that explore the aesthetics and sociologies of summer life. However, these works do not employ systematic design criteria such as circularity.

In contrast, the increase in remote working opportunities and the urban-to-rural migration trends that followed the pandemic have transformed summer regions from purely seasonal destinations into year-round residential areas (Toy, Pulat Gökmen, and Büyüktopçu, 2022; Şuta and

Akansel, 2022). This shift has redefined the spatial requirements for non-residential public spaces and temporary structures in these areas. Temporary spaces are no longer just seasonal solutions; they must adapt to evolving user needs by becoming more durable, adaptable, and sustainable.

Given these considerations, evaluating temporary structures in summer settlements through the lens of circular economy principles emerges as a unique and underexplored research area, both in international discourse and within the context of Turkey.

SITE-BASED RESEARCH AND DOCUMENTATION OF TEMPORARY STRUCTURES

Akarca is a coastal neighborhood located about 4 kilometers from the center of Seferihisar, a district in İzmir. It lies along the Gulf of Sığacık and is bordered by the neighborhoods of Sığacık, Camikebir, Hıdırlık, and Tepecik. Since Seferihisar was included in the Cittaslow (Slow City) network in 2009, improvements in quality of life, environmental consciousness, and sustainability have become increasingly evident in the area. These principles have started to shape both urban policies and community habits. During this time, Akarca has transformed from a small coastal settlement into a popular summer destination, mainly due to developments in transportation and infrastructure, which have attracted a significant seasonal population.

During the pandemic, there was a significant movement of people from urban to rural areas, marking a turning point in the spatial and demographic structure of Akarca. Once primarily a seasonal settlement used during the summer months, Akarca has transformed into a hybrid residential area where many people now live year-round.

This rapid change has also highlighted essential services like transportation, healthcare, infrastructure, and food supply deficiencies. To address these challenges, Akarca was granted neighborhood status in 2023. By 2024, plans to expand public transportation services and introduce natural gas connections are expected to further accelerate its transformation from a seasonal holiday destination to a year-round residential community. This shift has resulted in new dynamics and changing land use patterns in the area.

Cyclical fluctuations in population have led to an increased demand for temporary spaces that are set up and taken down at different times. In this context, three comprehensive field studies were conducted. Initial observations in October 2023 revealed that spatial transformations in the area occur in a cyclical pattern. Among the cyclical spaces are

marketplaces, family tea gardens, cafeterias, street vendors, and various commercial structures.

Additionally, seasonal beach facilities—such as umbrellas, tents, showers, sun loungers, playgrounds, and lifeguard towers—are installed during the summer months and dismantled and stored at the end of the season. These temporary structures vary with the seasons and shift based on minor temporal scales, such as weekdays vs. weekends and day vs. night. This multilayered temporality is one of the key focal points of the study.

To document how temporary spaces change throughout the year, comprehensive field studies were conducted during the summer months of July and August 2024 and during the winter months of September and April 2024. Five researchers carried out semi-structured interviews, took photographic documentation, and engaged in measurements and sketching activities.

To enhance the depth of the interviews, a set of 24 questions was developed, focusing on three main themes: the pre-season design and installation process, the in-season usage process, and the post-season dismantling and storage process. While semi-structured interviews facilitate systematic data collection, researchers were also flexible and sometimes deviated from the prepared questions to elicit richer, more nuanced information (Berg, 2004).

As part of the research, interviews were conducted with four local business owners, providing rich and contextually grounded qualitative data regarding material choices, labor costs, logistical conditions, and installing and dismantling processes. The findings revealed that seasonal trends significantly influence aesthetic decisions in design. Wood is the preferred material from nearby districts such as Urla. Business owners reported that 80-90% of the materials can be reused after the season ends. However, economic considerations and experience primarily drive material choices, rather than concerns for environmental sustainability.

The installation process generally begins with two people before the season starts, and this team expands as the season approaches. Specialized equipment is rarely used; the process relies mainly on craftsmanship and experience. During the season, the structures remain in place, with minor deformations repaired by staff. However, no systematic maintenance practice is in place to prolong the lifespan of the materials. Similarly, in the dismantling phase, no formal procedures are followed. Materials are either stored on the central business premises

or, if available, in separate storage facilities. Security is provided through surveillance systems and on-site personnel, but the lack of adequate storage space was consistently identified as the most significant challenge. On average, the dismantling and storage process takes about two months.

All of these processes were supported by detailed observations. According to Karasar (2010), observation is a fundamental qualitative data collection tool that systematically examines events, objects, and situations. During the summer months, researchers were present in the field at various time intervals—on weekdays and weekends, during both day and night—to document the transformation of temporary spaces using photographs, drawings, and sketches. Throughout this process, the researchers acted as "participant observers," engaging with space owners to enhance their observations (Gürbüz and Şahin, 2018).

The collected data were compiled on a shared digital collaboration platform called Miro. In this digital workspace, photographs, architectural sketches, and user insights were analyzed collectively to create detailed "analysis cards" for each temporary structure (Figure 1). These cards included photographs, technical drawings, 3D models, user feedback, and information about the materials and installation details. Additionally, QR codes provided access to 3D assembly and animations. While the visuals highlighted the distinctive characteristics of each structure, user comments were bolstered by direct quotations from the interviews. This multi-layered documentation enabled a systematic and comprehensive analysis and classification of the temporary elements in Akarca.

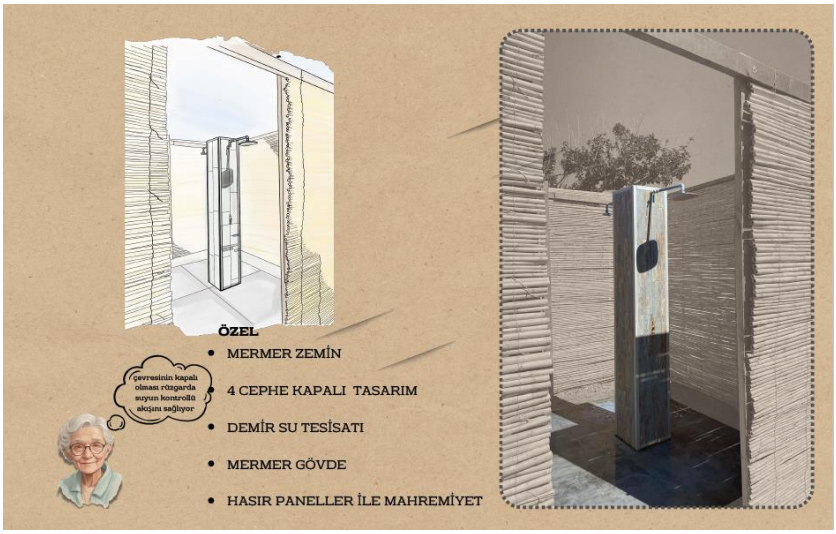


Figure 1. A sample analysis card.

THE EVALUATION OF CIRCULARITY FOR TEMPORARY URBAN FURNITURES

This section analyzes the collected data on temporary urban furniture using Dey's (1993) three-phase model for qualitative data analysis: description, classification, and connection. In the first phase, detailed architectural drawings—such as plans and sections—were created to document the spatial and structural features of the temporary installations observed along the Akarca coastline. This aimed to clarify their setup mechanisms over different timeframes.

In the second phase, the identified structures were analyzed and categorized based on their functions (e.g., showers, shading structures, umbrellas, trash bins, seating units, and lifeguard towers), materials (such as straw, steel, concrete, fabric, iron, and wood), and assembly methods (including interlocking, bolted, welded, and ground-anchored) (Table 1).

In the final phase, these classifications were used to establish connections between the structures, highlighting their similarities and differences concerning functionality, materiality, and assembly/disassembly practices. The resulting typological chart illustrates the characteristics of these temporary structures. It serves as a knowledge base for understanding local design, construction, and reuse practices in Akarca, particularly within circular economy principles.

Table 1. The analysis and classification of urban furnishings.

Shower-1 	Shower-2 	Shower-3 	Shower-4 	Trash bin-1 
Marble, plastic, steel	steel, concrete marble, reed	brick, steel	Marble, ceramic tile	iron pipe metal bucket
Trash bin -2 	Trash bin -3 	Shading-1 	Shading -2 	Shading -3 
Wood, nail	Wood, nail	Wood, straw	Wood, membrane	İron, fabric
Shading -4 	Shading -5 	Shading -6 	Shading -7 	Shading -8 
Metal, fabric, rope	Wood, straw	Metal, fabric, rope	Wood, reed	Iron, plastic
Shading -9 	Shading -10 	Shading -11 	Seating-1 	Seating -2 
Iron, straw	Wood, reed, iron	Wood, reed,	Iron, reed, fabric	Wood, fabric
Seating -3	Seating -4	Seating -5	Seating -6	Lifeguard-1

				
Plastic	Iron, fabric	Wooden pallet	Wood, metal	Wooden pallet
Lifeguard-2 	Lifeguard-3 	Lifeguard-4 		
Wood, reed	Wood	Wood		

This study documented a total of 28 urban furniture elements, which are categorized into five main groups based on their functions: showers (4 units), trash bins (3 units), shading structures (11 units), seating elements (6 units), and lifeguard towers (4 units). This distribution shows that the spatial arrangements along the coastline mainly focus on supporting everyday activities, particularly by providing shade and seating. Notably, the shading structures and seating elements are highlighted for their significant presence and the variety of materials and designs.

The shading structures represent one of the most diverse ones. Four umbrella-type foldable systems provide portability and flexibility for users, while three steel and four wooden structures offer more permanent and rigid options. This variety reflects a hybrid design approach, where fixed and temporary systems coexist. The choice of materials such as steel, wood, straw, and fabrics shows that shading needs are addressed differently based on aesthetic preferences, functional requirements, and climatic conditions.

The showers display a variety of materials and their relationship with the ground. The preference for heavy and rigid structures indicates a focus on durability and permanence rather than portability. Additionally, using hard ground materials like concrete and marble suggests a more fixed spatial connection, which limits flexibility in terms of circularity. Only one shower structure is placed directly on sand, serving as an example of temporary usage practices.

Trash bins are predominantly custom-made or repurposed from waste, showcasing how low-cost and creative design solutions can contribute to sustainability. Seating options vary from ready-made furniture to locally crafted units, each featuring different design languages based on seating positions, orientation towards the view, and suitability for group or individual use. This variation reflects how socio-spatial usage scenarios influence the design approach.

Finally, the lifeguard towers exhibit a notable level of formal similarity. These structures are made from wood and have comparable sizes and structural types, reflecting a consistent design language throughout the area. This uniformity indicates a production practice focused on standardizing functionality. However, it may also result in redundant structures that risk becoming outdated over time.

The documented urban furnishing elements serve specific functions and show notable differences and common trends regarding material selection, construction methods, and structural solutions. Among the 28 identified urban elements, natural and industrial materials are evident. The most frequently used materials include wood, metal or steel, and woven materials like straw and reed. While straw and reed are mainly utilized in shading structures, the combination of wood and metal is particularly prominent in the construction of showers, seating units, and the structural components of shading structures.

Materials such as wooden pallets, straw, reed, nails, and steel are generally reusable or recyclable. In contrast, plastics, tiles, and concrete have a low potential for circularity. Due to diverse material compositions and installation details, these urban structures can be evaluated within the framework of circular economy principles.

Wood is one of the most used materials due to its local availability and sustainability benefits. Its typical installation methods, such as screwing or interlocking systems, make it suitable for disassembly and reassembly cycles. Additionally, being a natural material contributes to a lower environmental impact, although this advantage may be limited without the support of modular systems.

Metal profiles, particularly steel and aluminum, are often chosen for their durability and structural capacity. However, the potential for circularity varies depending on how they are connected; mechanical joints, such as screws, are preferable to welding. These metals are generally not sourced locally, and their production processes result in a higher carbon footprint, making them less favorable from an environmental perspective.

Natural woven materials like straw and reed are commonly utilized for shading structures and overhead covers. While these materials are locally sourced, low-impact, and easily accessible, their assembly systems are temporary and intended for single use. Their vulnerability to moisture and sunlight leads to rapid deterioration, which limits their reusability and reduces their potential for circularity.

Fabric is another material frequently used for shading or temporary coverings. However, it typically has a short lifespan, is prone to tearing, and is usually suitable only for single season use, which makes it a poor candidate for circularity. Moreover, the recycling process for fabric is often economically unviable, resulting in low reuse rates.

The material and design diversity observed within such a limited area highlights the lack of a standardized design approach in the production of summer spaces. Each business develops its solutions based on distinct aesthetic, economic, and functional criteria. Materials with a higher potential for circularity, such as wood and steel, are typically preferred in business-oriented structures. In contrast, single-use or low-durability materials are often utilized in constructions prioritizing low-cost methods or individual initiatives.

Depending on the business owner, urban furniture serving the same function—such as showers—varies significantly in materials and techniques. For example, one may feature a fixed shower system made from welded metal pipes, while another might use a woven straw enclosure or a portable plastic cabin. This situation reflects a local production logic that is fragmented, flexible, and user specific. However, this flexibility presents both opportunities and challenges regarding sustainability and circularity.

When we analyze the findings in the context of the circular economy principles, it becomes clear that structural materials like wood and steel have significant theoretical potential for integration into circular systems. However, this potential is unfulfilled mainly in current practices. One of the main reasons for this is the insufficient emphasis on disassembly, reuse, and repurposing principles during the design and construction phases. For example, steel components that are welded together or structures fixed directly into the ground are not easily dismantled or repurposed at the end of their life cycles. This leads to material waste and a high carbon footprint.

In addition to structural limitations, the lack of adequate storage facilities significantly hinders circularity. Weather-sensitive materials such as wood, straw, and fabric can quickly deteriorate without secure, shaded,

and dry storage areas for preserving materials during the off-season. If these materials are not protected from the sun, humidity, and wind, they degrade rapidly, reducing their potential for reuse and ultimately contributing to waste.

Furthermore, the absence of on-site infrastructure and organizational support for recycling or repurposing exacerbates this problem, often leading to the abandonment or disposal of structural components at the end of their lifecycle. A significant constraint is the prevalence of customized solutions developed by individual businesses according to their specific needs. This fragmented approach complicates the implementation of integrated strategies, such as shared material use, modular systems, or standardization, thereby obstructing the establishment of a comprehensive circular design framework across the area.

On the other hand, not all materials have the same level of environmental impact. Metals like steel and aluminum are favored for their durability; however, their production processes are energy-intensive and result in a high carbon footprint. In contrast, locally sourced wood offers a lower environmental impact and is easier to disassemble and reassemble. Nevertheless, without protection against environmental factors such as sunlight, humidity, and insect infestation, the lifespan of wood can be significantly reduced, which limits its potential for reuse.

Despite these challenges, there are promising trends in the field. Particularly noteworthy are temporary structures created by seasonal users using reclaimed materials. These constructions often incorporate components such as wooden pallets, recycled metal pipes, and repurposed umbrella frames. While these materials have the potential for reuse and modularity, they may lack structural safety, aesthetic quality, and long-term durability. Nonetheless, these examples illustrate that user-driven, low-cost, and locally developed strategies can hold significant promise for circular systems when supported by the right conditions.

Considering these findings, there is a critical need to develop a comprehensive design guide based on circular design principles. This guide should be mindful of local production conditions and support user-driven initiatives. It should include key criteria such as disassemblability, modularity, maintenance strategies, the use of local materials, climate resilience, and reducing carbon footprints.

In addition to promoting environmental sustainability, the guide should encourage a rethinking of core architectural priorities, including aesthetics, functionality, durability, and responsible material management in the production of temporary structures. By doing so, the guide would offer practical solutions and help foster a more conscious and creative design culture in temporary spatial practices.

CONCLUSION

Due to their temporary nature, summer spaces often feature quickly assembled structures that are seasonally functional and constructed using low-cost solutions. Field research conducted in Akarca has revealed a remarkable diversity in material use and construction methods, even within a geographically limited area. This diversity indicates that each business or user develops their production strategy based on distinct aesthetic, economic, and functional priorities.

While some businesses prefer highly durable uniform systems, others creatively reuse available or discarded materials in their sites. This highlights a hybrid construction culture along the coastline, blending local production with user-driven, improvised interventions. Overall, the urban furnishings that constitute Akarca's coastal landscape exhibit a fragmented yet responsive design language that emphasizes functionality and adapts to local needs. Frequently shaped by provisional solutions, these elements present potential and limitations regarding circular design approaches.

Although most existing structures follow a linear production, use, and disposal model, research has identified various practices that challenge this norm, such as reusing discarded materials and employing modular assembly techniques. These examples show that, with the proper guidance and infrastructural support, linear systems can be transformed to embrace the principles of reuse, disassembly, and long-term material stewardship.

The diversity in material usage reflects technical production methods, socio-cultural practices, economic conditions, and varying levels of awareness about circularity. Therefore, future design interventions should be guided by holistic strategies that consider not only structural aspects but also the local context, user habits, and the geographical and climatic conditions of the area. In this regard, the following recommendations stand out:

Development of public-private collaborative infrastructure systems: Businesses often create independent solutions in areas with a strong summer presence, leading to resource wastage and a lack of

coordination. Establishing shared infrastructures such as communal shower systems, modular shading structures, and off-season material storage units—should be a top priority in addressing this issue. Collaborations between local governments and the private sector can facilitate these solutions, reducing costs and enhancing resource efficiency, thereby promoting circular design practices.

Establishment of a local circular material sharing network: A local-scale material bank or sharing network should be established to prevent the seasonal abandonment of materials used in temporary structures. This system can collect discarded pallets, tent frames, and other reusable components, reintegrating them for new purposes. Such a material-sharing network minimizes waste, strengthens community engagement, and fosters a sense of collective responsibility among users.

Implementation of education and awareness programs: Raising environmental awareness among operators and users is crucial for the sustainable application of circular design principles. Organizing local seminars, providing instructional booklets, and hosting community design competitions focused on material selection, maintenance strategies, and demountability can be beneficial. These initiatives help fill knowledge gaps, empower individual creativity, and promote more informed and responsible production practices.

Active inclusion of local users in design processes: In Akarca, many temporary structures are built by individual users. However, these efforts often ad hoc and uncoordinated nature makes it challenging for them to benefit from a shared circular system. Involving users in the design process, incorporating their feedback, addressing their specific needs, and engaging them in collaborative building activities can increase local ownership and significantly enhance the long-term viability of circular strategies.

Development of sharing and rental-based systems: Due to the seasonal nature of Akarca's use, many urban furnishings—such as sun loungers, showers, and shade structures—remain unused for most of the year. This leads to them occupying space, falling into disrepair, and eventually degrading. Implementing sharing or rental systems based on a use-and-return principle could significantly reduce this material burden. These systems would minimize waste associated with individual ownership and enable more users to access amenities using fewer resources, thereby promoting material efficiency and community-based circulation models.

Adoption of a nature-integrated design approach: Akarca's coastal landscape is a holiday settlement deeply connected to its natural surroundings. As a result, temporary structures must enhance, rather than disrupt, this environmental harmony. Currently, many of these structures lack visual integration and ecological sensitivity. Design strategies such as integrating shade elements with existing trees, positioning structures according to natural land gradients, and using elevated lightweight foundations instead of direct ground contact can help create a more responsive relationship with the landscape while preserving the continuity of the natural terrain.

This study emphasizes the need for a comprehensive design guide focused on circular design principles, prioritizing sustainability and spatial adaptability for temporary structures. The proposed guide should offer practical design solutions and incorporate a multi-layered system that involves various stakeholders, including policymakers, users, producers, and material suppliers. It aims to create a cross-scalar network that links material-level decisions to broader policy frameworks.

The guide should serve as a practical and adaptable model throughout the entire lifecycle of temporary spaces, encompassing their design, construction, material selection, usage, and off-season storage. Although it is specifically tailored to the climatic, cultural, and economic context of Akarca, the framework is also intended to apply to other coastal settlements with similar dynamics, providing a valuable strategy to improve temporary architecture's environmental, functional, and aesthetic sustainability.

In conclusion, the diversity of construction methods and user-driven building practices observed in Akarca, combined with circular design principles, contribute to environmental sustainability. They also present the opportunity to rethink seasonal spatial production in more durable, flexible, and resource-conscious ways. This comprehensive approach transforms temporary coastal architecture's fragmented and short-lived production practices into resilient, adaptable, and sustainable systems. Doing so aims to create a lasting connection between circular economy principles and local production methods.

Within this framework, essential architectural priorities—functionality, adaptability, and aesthetics—must be reevaluated. The circular economy should be embraced not merely as a supplementary strategy but as a foundational paradigm that shapes the future of architecture. The case of Akarca illustrates how this transformation can be achieved locally, while also showcasing the vast potential of circular design in creating temporary spaces.

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THE RELATIONSHIP BETWEEN EDUCATION AND SPACE: FUTURE SCENARIOS AND INNOVATIVE APPROACHES

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ABSTRACT

Education is one of the most critical components of social development, and the spaces in which it occurs play a fundamental role in shaping learning processes. In today's rapidly changing world, technological, cultural, and social dynamics demand flexible, adaptable, and innovative educational environments. Traditional models are increasingly insufficient, highlighting the need for new approaches that align pedagogy with spatial design. This study, conducted within the framework of the Futuristic Approaches in Architecture course at Yeditepe University, explores innovative solutions for the future of educational spaces. Six graduate students participated in a three-phase process: (1) current situation analysis, examining existing educational models and learning environments; (2) future scenario generation, where students envisioned how emerging technologies and societal shifts might transform education; and (3) solution development, producing written proposals and 3D visualizations of future-oriented educational spaces. Findings reveal that flexible, technology-integrated, and interdisciplinary learning environments enhance both accessibility and functionality. The proposed solutions emphasize adaptability, collaborative learning, and resilience to changing conditions, particularly in response to experiences gained during the Covid-19 pandemic. Beyond academic knowledge, the process encouraged students to develop creativity, critical thinking, and innovative design skills. The study demonstrates that scenario-based design research can provide valuable insights for both academia and practice, offering strategies and principles to guide the evolution of educational spaces. Ultimately, it argues for a continuous rethinking of how education and space intersect in order to meet future societal needs.

Keywords: Education, Educational Facilities, Learning Space Innovation, Innovative Approaches in Architecture

INTRODUCTION

Education plays a central role in shaping societies, and its effectiveness is deeply influenced by the spaces where it takes place. Learning environments are not merely physical containers but dynamic settings that shape interactions, support pedagogical strategies, and enhance student experiences. In the 21st century, rapid social, cultural, and technological changes have transformed education, creating new demands for flexibility, adaptability, and innovation in educational spaces (Pürlüsoy & Elibol, 2022).

Traditional teaching environments, often designed with rigid structures, are increasingly inadequate in addressing diverse learning needs. Studies emphasize the shortcomings of conventional classrooms and highlight the importance of designing spaces that encourage exploration, research, and creativity (Özden, 2020; İsmailoğlu & Zorlu, 2018). The philosophy of constructivist education, in particular, has shifted attention to spatial qualities that support active and collaborative learning. In this context, flexibility emerges as a crucial design principle, enabling spaces to accommodate different learning modes and adapt to technological advancements (Rzazade Yılmaz & Polat, 2020).

The significance of designing innovative learning spaces has also been underlined by international frameworks. UNESCO (2015) emphasizes that the future of education requires inclusive, learner-centered, and technology-supported environments that respond to diverse cultural and social contexts. Similarly, the OECD Learning Environments for the 21st Century report (OECD, 2013) stresses the importance of flexibility, personalization, and interdisciplinary learning. These perspectives highlight that education and space are inseparable and the architectural qualities of learning environments directly shape engagement, collaboration, and innovation.

Global disruptions, particularly the Covid-19 pandemic, have further accelerated the integration of digital tools into education and reshaped expectations of learning spaces. The rapid transition to online and hybrid formats revealed both the opportunities and limitations of existing educational infrastructures (Bozkurt & Sharma, 2020). Educational institutions were forced to adopt flexible, resilient, and hybrid models that blurred the boundaries between physical and virtual learning. In this process, digital platforms and spatial design increasingly worked in tandem to support accessibility and continuity in education (South, 2017). This has reinforced the argument that future learning

environments must be designed not only for stability but also for adaptability to sudden societal and technological shifts.

Emerging research in architectural education also points to the value of scenario-based approaches in reimagining future learning spaces. As Fisher (2010) argues, educational architecture should anticipate long-term transformations in pedagogy, technology, and culture rather than merely responding to immediate needs. Innovative schools and universities worldwide have begun to implement flexible layouts, collaborative hubs, and immersive technologies, signaling a shift toward environments that are interdisciplinary, participatory, and future-oriented (Oblinger, 2006; Radcliffe et al., 2008).

Against this backdrop, the present study explores how innovative approaches can inform the design of educational spaces. Conducted within the Futuristic Approaches in Architecture course at Yeditepe University, the research engages graduate students in analyzing existing conditions, envisioning possible futures, and proposing design strategies that foster adaptability, inclusivity, and innovation in education. By situating student-driven scenario development within a broader academic and global discourse, the study contributes both theoretical insights and practical design proposals for the future of educational environments.

METHODOLOGY

This study was conducted within the framework of the Futuristic Approaches in Architecture graduate course at Yeditepe University during the 2023–2024 academic year. The methodological approach combined exploratory research, scenario-based design, and participatory studio practices. Six graduate students participated actively in the study, contributing diverse perspectives shaped by their academic and professional backgrounds. The process was structured in three phases: (1) current situation analysis, (2) future scenario generation, and (3) solution development. The study adopted a qualitative and exploratory design research methodology, which is frequently used in architectural and educational research to investigate emerging challenges and opportunities (Groat & Wang, 2013). This approach allowed participants to critically examine the relationship between education and space, while also engaging in future-oriented design thinking. By combining desk research, scenario building, and visual representation, the methodology aimed to bridge theoretical knowledge with creative practice.

Phase 1: Current Situation Analysis

In the first phase, students conducted desk research to examine the current state of education and educational spaces. Academic articles, reports, and case studies were analyzed to identify the strengths, weaknesses, opportunities, and threats of existing educational environments. This phase enabled students to build a comprehensive understanding of how physical, technological, and social dynamics shape learning processes, echoing findings in earlier research on learning space design (Radcliffe et al., 2008; OECD, 2013).

Phase 2: Future Scenario Generation

The second phase focused on developing future scenarios, a method widely used in strategic foresight and design research to anticipate possible developments (Wiek et al., 2006). Students explored potential trajectories of education by considering technological advancements, societal needs, and global challenges such as sustainability and digitalization. Each student generated multiple scenarios envisioning how educational environments might evolve for instance, hybrid learning hubs, community-based learning spaces, or fully virtual campuses. This phase provided a platform for creative and speculative thinking, aligning with the principles of future studies in design (Candy & Dunagan, 2017).

Phase 3: Solution Development

In the final phase, students translated their scenarios into concrete design proposals. These were presented both as written descriptions and through 3D visualizations, enabling conceptual and visual communication. The proposed solutions integrated flexibility, inclusivity, and technological innovation as core design principles. Students emphasized the creation of environments that support collaborative learning, adaptability to changing needs, and resilience in the face of crises such as the Covid-19 pandemic. This phase not only allowed students to apply theoretical knowledge to practice but also fostered innovation skills by engaging them in a reflective design process (Schön, 1983).

The three-phase process demonstrates the potential of combining scenario-based foresight with architectural design pedagogy. By engaging students as co-researchers, the methodology aligns with participatory and constructivist learning approaches, allowing for the generation of diverse and innovative ideas. Furthermore, situating the study within a design studio framework highlights the value of architectural education as a platform for experimental and speculative research on future educational spaces.

RESULTS

The outcomes of the design studio reveal a wide spectrum of imaginative and critical approaches to the future of educational spaces. Each student developed an independent proposal, grounded in a specific theme yet collectively contributing to broader discussions of adaptability, technology, sustainability, and community engagement. The following tables summarize six representative projects, highlighting their aims, solutions, and expected results. By presenting them in a structured format, the variety of perspectives becomes evident: while some focus on the integration of advanced technologies and digital systems, others emphasize architectural typologies, heritage preservation, or disaster resilience. Together, these proposals demonstrate how educational design can serve as a lens for rethinking the interplay between space, society, and pedagogy in future contexts.

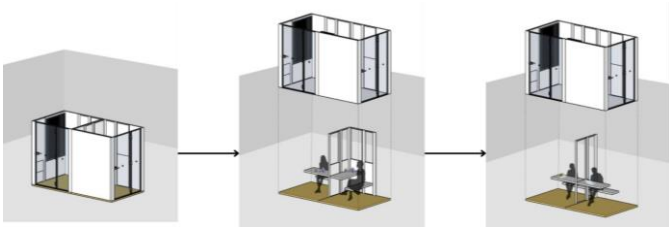
The results of the study emerged from the three-phase process carried out by the participating graduate students. Each phase generated insights into the present condition of educational spaces, possible future trajectories, and innovative design strategies. To systematically present the diversity of student proposals, the outcomes of the studio were organized into a series of tables. Each table summarizes one project in terms of its title, estimated timeframe, core concepts, aims, solutions, expected results, and visual materials. This format was selected to ensure clarity and comparability. By aligning the projects under common categories, the results section makes visible the recurring themes of flexibility, sustainability, resilience, and technological integration that run across the students' works. The following tables summarize the student approaches. The project proposed by student 1 emphasizes the digital dimension of future learning environments, showing how mobile applications can transform underused campus spaces into flexible educational and social hubs.(Table 1)

Table 1. Student 1 project proposal

Title:Student participatory space alternatives Project WGO	Estimated year: 2030
Core Concepts/Scenario Theme: Digital participation, social interaction, unused campus spaces	
Aim	The goal of this study is to enable university students to effectively use waste and unused spaces on campuses, thereby enriching both their social and academic lives.
Solution	A mobile application ("What's Going On – WGO") was designed to identify unused campus areas and allow students to reserve and transform them for study, social, or club activities. The app also supports inter-university collaboration, expanding students' networks.
Expected results	Improved social interaction and reduced isolation among students. More efficient use of underutilized campus spaces. Strengthened collaboration between students and university administration. Contribution to students' personal development, social skills, and future professional readiness.
Visual results	

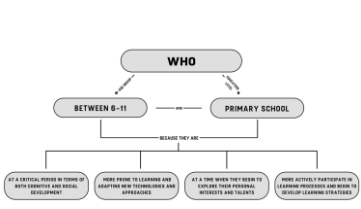
In contrast to Student 1's digital approach, this project highlights architectural flexibility and modularity, focusing on spatial adaptability for project-based learning.(Table 2)

Table 2. Student 2 project proposal

Title: Modular Room/Class Proposal for Future Schools	Estimated year: 2050
Core Concepts/Scenario Theme: Flexibility, modularity, personalization, project-based learning, adaptability	
Aim	To address the inadequacy of traditional school typologies by introducing modular classrooms that adapt to evolving educational needs. The proposal envisions a future education system that emphasizes personalization, project-based learning, and flexibility.
Solution	A modular room system composed of single, double, and quadruple units. Each module integrates movable/foldable walls that transform into furniture and electronic screens for technological support. The system allows reconfiguration according to user needs: individual study, group work, or large project-based activities.
Expected results	Greater flexibility in classroom layouts, breaking the rigidity of corridor-based typologies. Support for individualized and project-based learning experiences. Scalable and adaptable structures that can evolve with changing pedagogical demands. A feasible model for partial or phased implementation in existing school buildings.
Visual results	

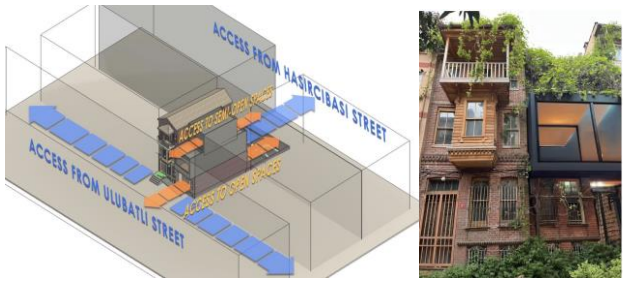
Student 3 introduces a macro-scale urban solution, proposing vertical schools as a response to population growth and land scarcity. This broadens the discussion from modular interiors to entire building typologies. (Table 3)

Table 3. Student 3 project proposal

Title: School Design 100 Years from Now: Future Educational Spaces	Estimated year: 2125
Core Concepts/Scenario Theme: Vertical expansion, transformable spaces, distributed green areas, sustainability, advanced technology	
Aim	To envision future school designs that respond to population growth, urban spatial constraints, and sustainability needs by creating flexible, multifunctional, and technologically integrated environments.
Solution	The proposed concept introduces vertical school buildings with transformable spaces and integrated green areas. Movable walls, retractable furniture, and convertible seating enable multifunctional use of limited urban land. Distributed green spaces—such as roofs, vertical gardens, and terraced landscapes—integrate nature into dense cities. Advanced technologies, including smart classrooms, VR labs, AI-assisted learning, and sustainable systems, enhance both educational and environmental outcomes.
Expected results	Maximized land use efficiency in urban contexts. Flexible and multifunctional spaces adaptable for diverse learning activities. Enhanced student engagement, collaboration, and well-being. Integration of nature and sustainability into educational environments. Improved accessibility, personalization, and effectiveness of learning through technology.
Visual results	 

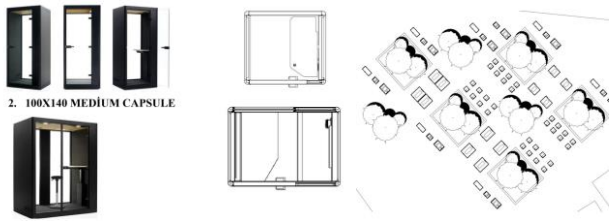
Unlike futuristic typologies, this proposal is grounded in heritage preservation and community engagement, emphasizing sustainable design through adaptive reuse. (Table 4)

Table 4. Student 4 project proposal

Title: Sustainable Educational Architecture for Future: Adaptive Reuse and Community Engagement in Caferağa Mahallesi	Estimated year: Near Future
Core Concepts/Scenario Theme: Sustainability, adaptive reuse, cultural preservation, participatory design, lifelong learning	
Aim	To propose adaptive reuse of existing heritage buildings for educational purposes, creating sustainable, culturally enriching, and community-centered learning environments that respond to both current and future urban challenges.
Solution	The project reimagines two heritage buildings in Caferağa Mahallesi, Kadıköy, through adaptive reuse. One well-preserved structure is restored to serve as a multifunctional indoor educational facility, while a mostly demolished building is transformed into a transparent, open/semi-open educational space with terraces and container-like additions. Participatory design ensures that neighborhood residents are actively involved in decision-making, tailoring facilities to diverse community needs such as childcare, vocational training, business support, and elderly services.
Expected results	Reduced environmental impact by minimizing new construction. Preservation of historical and cultural memory within educational architecture. Stronger community engagement and sense of belonging through participatory design. Lifelong learning opportunities accessible to all age groups. Flexible, multipurpose, and neighborhood-specific educational spaces..
Visual results	

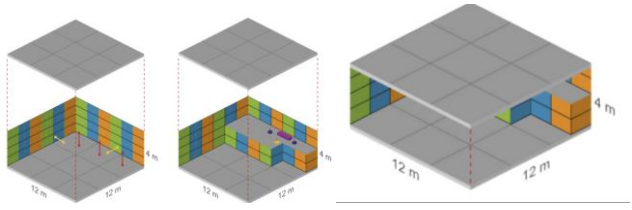
This project contributes a resilience-oriented perspective, envisioning portable capsule classrooms to maintain education during natural disasters, especially earthquakes. (Table 5)

Table 5. Student 5 project proposal

Title: Capsule Education and Reservation System – The Case of Fatih District	Estimated year: Near Future
Core Concepts/Scenario Theme: Disaster preparedness, resilience, capsule education cabins, mobility, flexibility, sustainability	
Aim	To ensure the continuity of education during and after natural disasters (especially earthquakes) by developing capsule-based learning environments and reservation systems that safeguard education infrastructure, support students, and provide rapid recovery solutions.
Solution:	The project proposes a Capsule Education and Reservation System, strategically distributed across Istanbul's Fatih District and along tram lines. Capsules are compact, modular learning cabins equipped with educational materials, VR/AR technologies, and AI-supported learning tools. They can be reserved via an online system, deployed rapidly in case of disaster, and relocated if needed. The cabins provide safe, accessible, and personalized learning spaces for students of all ages.
Expected results	Continuity of education in post-disaster scenarios. Accessibility through distributed capsule locations across the city. Personalized and flexible learning supported by AI, VR, and AR. Psychosocial support and community solidarity after disasters. Rapid normalization and recovery of the education process. Strengthened disaster awareness, preparedness, and resilience in local communities. Alternative learning environments beyond traditional classrooms.
Visual results:	

Shifting the focus to early childhood education, this project explores virtual reality as a tool for professional orientation and play-based learning, bridging technology and pedagogy. (Table 6)

Table 6. Student 6 project proposal

Title: Future Design Proposal with a Focus on Career Choice in Preschool Education	Estimated year: 2045
Core Concepts/Scenario Theme: Preschool education, career choice, play-based learning, virtual reality, professional orientation	
Aim	To create opportunities for preschool children (ages 4–6) to experience different professions realistically and interactively through a virtual experience room, helping them make informed career choices at an early stage.
Solution:	The project proposes a Virtual Experience Room designed for preschool education centers. Using advanced VR technologies (assumed to be developed beyond the need for glasses), the room immerses children in different professional environments through play. The design includes modular panels (walls, floor, ceiling) that can move, reshape, and simulate environmental conditions (odor, warmth, wetness, coldness). This creates adaptable, multisensory learning spaces where children can role-play professions, interact with tools, and develop self-awareness about their skills and interests.
Expected results	Enhanced understanding of professions through interactive and sensory play. Early awareness of children's predispositions, supporting future career orientation. Development of social, emotional, and cognitive skills through role-play. Increased motivation and creativity in preschool learning. Contribution to long-term educational and professional planning.
Visual results:	

Taken together, the six student projects present a diverse spectrum of approaches to the future of education. While some emphasize technological integration (Student 1's app, Student 6's VR design), others foreground spatial adaptability (Student 2's modular classrooms, Student 3's vertical schools). A different cluster of proposals emphasizes sustainability and community (Student 4's adaptive reuse, Student 5's disaster-prepared capsules). Across all, certain recurring themes emerge:

- Flexibility and adaptability as core qualities of future education spaces.
- Integration of technology (AI, VR, mobile systems) into both physical and virtual environments.
- Sustainability and resilience, ensuring educational continuity despite environmental or social challenges.
- Community-centered approaches, from participatory design to disaster recovery support.

This range of proposals reflects how educational design can be envisioned not only as an architectural problem but also as a social, technological, and cultural challenge. Together, they form a multifaceted perspective on the evolving relationship between space, society, and education.

In summary, the projects presented here illustrate the richness and diversity of student perspectives on the future of education. Each proposal responds to contemporary and anticipated challenges through different lenses whether technological, social, spatial, or ecological. Taken together, they highlight a shared recognition of education as a dynamic and adaptive process that must continuously evolve alongside societal transformations. These results provide a foundation for the concluding discussion, where the broader implications for architectural education and future design practices will be addressed.

CONCLUSION

The six student projects collectively underline the urgent need to reconceptualize educational spaces in light of technological advancement, environmental challenges, and shifting social expectations. While their approaches varied—from digital platforms and virtual environments to modular architectures, vertical schools, adaptive reuse, and disaster-resilient capsules—all proposals converged on the recognition that the future of education requires spaces that are flexible, adaptive, and inclusive.

Several key themes emerge from this body of work. First, the integration of advanced technologies such as mobile systems, artificial intelligence, and virtual reality highlights new opportunities for personalization and experiential learning. Second, the spatial rethinking of schools—through modularity, vertical expansion, and transformable environments—demonstrates how architecture can address population growth, urban density, and evolving pedagogical needs. Third, a strong emphasis on sustainability and resilience reflects growing awareness of ecological responsibility and the necessity of continuity in education during times of crisis. Finally, the inclusion of community and participatory perspectives shows how future schools may extend beyond traditional functions to become cultural and social anchors within their neighborhoods.

These findings suggest that the design of future educational environments cannot be limited to a single disciplinary framework. Instead, it requires a multidimensional approach, bringing together architecture, technology, pedagogy, and community engagement. For architectural education, exercises such as this demonstrate the value of speculative and scenario-based design, enabling students to engage critically with complex global issues while envisioning innovative futures.

Looking ahead, future studies might build on these proposals by testing their feasibility in real-world contexts, exploring hybrid solutions that combine technological innovation with socio-cultural sensitivity. By doing so, architectural design can contribute meaningfully not only to the shaping of educational facilities but also to the cultivation of resilient, sustainable, and inclusive societies.

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FROM THRESHOLD TO PRIORITY: THE ESSENTIAL ROLE OF ARCHITECTURAL INTERSECTIONS

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ABSTRACT

Architectural intersections express the interaction of spaces of different characters; they create transition and interaction areas between opposites such as inside-outside, private-public, natural-artificial. They assume an aesthetically and functionally complementary role. Based on the argument that space is not only a physical but also a sensory and contextual experience, these spaces enable the user to adapt between different spatial experiences. Interface deficiencies can negatively affect the user experience; therefore, it is important that the design guides and prepares the user invitingly between different spaces. This study examines the concept of architectural interface through the projects developed by 3rd year students at Istanbul Atlas University Department of Interior Architecture and Environmental Design within the scope of Landscape Design course. The students were asked to design a residence for a well-known person on a plot of land given with certain boundaries; they were expected to develop original design proposals for the interface spaces. Throughout the process, students analysed environmental data, interpreted user needs and produced integrated solutions including architectural details. The results of the study include students' awareness of spatial transitions and relating to the environmental context; exploring the effects of interface design on user experience and developing creative solutions that provide indoor-outdoor integration. In this context, the study aims to contribute to the processing of the interface concept in architectural education.

Keywords: Architectural Interfaces, Boundaries, Spatial Integrity, Design, Transition.

INTRODUCTION

Beyond being an independent volume from the user, space is an area that engages with the human body and mind through physical, psychological, and sociological boundaries. This interaction shapes a sense of belonging, aesthetic perception, and experience, while the organization of space provides the roadmap for this shaping. Spatial organization, generally planned according to function, context, and user-needs, reveals how spaces should be related to one another. In this process of relating, architectural intersections that connect different characterful spaces emerge as a crucial design element (Hillier & Hanson, 1984; Gehl, 2010).

The term "intersection" is defined in dictionaries as "the place where lines, surfaces, and solid bodies converge and meet" (TDK, 2025). Architectural intersections, meanwhile, are the transitional spaces where different design elements and systems of a structure meet; not only with each other but also with the environment, functioning as points of encounter, convergence, or separation (Dirik, 2009; Frampton, 1995; Leatherbarrow & Mostafavi, 2002). These types of intermediate spaces regulate the passage between architectural spaces and provide a ground for how the architectural space will integrate with its surroundings. In short, architectural intersections create functional and aesthetic points of transition, separation, and integration of multi-layered boundaries like natural vs. artificial, urban vs. architectural, open vs. closed, private vs. public (Sennett, 2018; Mehta, 2014).

Within the theoretical frameworks, Norberg-Schulz (1980) argues that the meaning of space is constructed not only through physical elements but also through human experience, cultural context, and the relationships formed with the surrounding environment. In this sense, architectural intersections can be regarded as spatial junctions that constitute the meaning of space. Pallasmaa (2005) emphasizes that spatial perception is not confined to a visual plane but is a holistic phenomenon experienced by the body through all senses; Zumthor (1998) demonstrates how touch, smell, acoustics, and sight enrich the architectural experience. Therefore, intersections are not merely zones of physical/nominal separation but layers of lived experience that concentrate at the thresholds of circulation, encounters, and multisensory engagement (Tuan, 1977; Böhme, 2017).

Architectural intersections act as transitional thresholds between building and nature; interior and exterior; private and public; diverse uses and experiences, establishing continuity as an 'in-between realm' (van Eyck, 1961; Alexander et al., 1977; Lynch, 1960). In these zones, flows

and connections between environments are enabled, contributing to physical coherence as well as perceptual and existential depth. Urban design and public life literature likewise show that thresholds—such as semi-public forecourts, eaves, arcades, and set-back street facades—play a decisive role in socialization, security, and belonging (Gehl, 2010; Carmona, 2019; Alexander et al., 1977).

In the design process, when insufficient attention is given to architectural intersections, spatial integration and interaction weaken. Inadequate interface solutions at internal–external transitions negatively affect the user's perception and experience of the space; issues arise in terms of lighting, acoustics, climatic comfort, and flow continuity (Herzog, 2008; Heschong, 1999; Mostafavi & Leatherbarrow, 1993). Conversely, a thoughtful intersection design moves beyond linear boundaries, inviting the user in and out, evoking the transition, and establishing a dynamic experiential space that transforms the experience (Oğuz & Uzunkaya, 2021; Seamon, 2013).

In this study, the spatial, aesthetic, and functional dimensions of architectural intersections were evaluated through student projects. Design concepts were analysed based on projects carried out in the third year of the Department of Interior Architecture and Environmental Design at İstanbul Atlas University as part of the mandatory "Landscape Design" course. The aim of the study is to open architectural intersections to discussion not merely as transition elements but as an integral component of spatial experience. The goal is to render the role of these special spaces in the relationships among user, context, and spatial arrangement visible and to examine their potential impact on the design process. Qualitative evaluation was conducted through student projects carried out within the context of applied design education; the developed intersection decisions, spatial organization, functional scenarios, and contributions to user experience were assessed via content analysis across stages such as problem definition and user analysis (Yin, 2018; Saldaña, 2021). The study constitutes a case analysis regarding how the concept and planning of architectural intersections are treated within interior architecture and environmental design studio practice.

Design Process

In the "Landscape Design" course, which is part of the third-year curriculum of the Interior Architecture and Environmental Design at İstanbul Atlas University, students are expected to learn the fundamental elements and principles of landscape, the design processes, and landscape components, while also undertaking practical activities that

consider the indoor–outdoor relationship. It is assumed that students who have acquired the foundational infrastructure of interior design in the first and second years reach a level by the third year at which they can establish the relationship between the spaces they design and the surrounding environment. The course requires addressing the interior–exterior relationship holistically through the house and garden and designing transitional spaces that will strengthen this relationship. Accordingly, the course sequence is conducted as a design flow that enables student inquiry and incorporates multidisciplinary concepts.

In the fall semester of 2023–2024, the course lasted 14 weeks and enrolled 28 students. Throughout the course, students learned the fundamental landscape concepts while simultaneously taking on the role of facilitators of an interdisciplinary project.

The flow of the course consisted of the following phases (Figure 1).

Phase 1: Identification of the user profile

- By randomly forming four separate groups in the class, survey questions that should be asked to the employer as the project facilitator were determined. The questions were then discussed among the groups to identify the essential points necessary to analyse the user and the user's needs and desires.
- The course facilitator established 28 distinct limitations related to the user, including gender, marital status, number of children, occupation, illness, etc. Through a lottery, students were randomly assigned a constraint and placed themselves into the user profile they wished to embody. Apart from the limitation, the students were free to define other attributes of the user.
- A second lottery was conducted among the students to assign a project facilitator to each user, creating the "employer–interior designer" pairing.

Phase 2: Determination of design parameters

- The employer–interior designer survey was conducted to derive a design brief based on user characteristics.
- The project area was determined by the course instructor, but the urban location of the site was left to the students' discretion. Students formed groups by their own choosing and conducted site analysis at the chosen location, identifying natural, historical, and cultural data that would influence the design. Based on the data obtained from the site analysis, the second limitation of the study was defined. This pertains to a designated element within the site that necessitates preservation, as it exerts

a critical influence on design decisions, especially those concerning natural (squirrels, endemic plants, ancient trees, ponds, etc.) or built features (fountain, historic remnants, etc.).

Phase 3: Design

- Students, based on the data obtained from user needs and the area, worked on the landscape design for a 2185 square meter site hosting a 238 square meter, single-story house. The house is a 4+1 layout including one master bedroom, two bedrooms, one study room, one open kitchen, and it also features verandas facing two backyards and two front yards.
- The students were asked to develop an outdoor design that would create coherence between the interior and exterior spaces. They were given freedom to manipulate land morphology in the outdoor area as they wished.
- The students were also free to redesign the interior. Accordingly, they were given the opportunity to establish a more fluid and organic connection between the designed interior and exterior spaces. In the interior design, the use of rooms, doors and windows, and verandas could be altered. Constructing or removing a roof, enlarging the house, adding enclosed, semi-open, or open spaces was permitted.

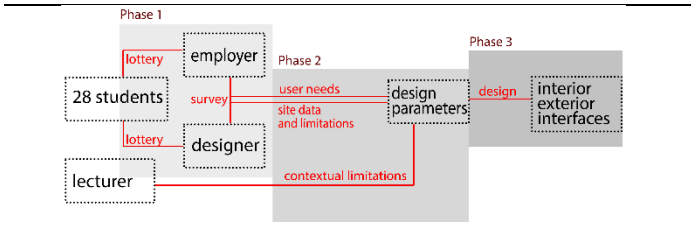


Figure 1. Design Process

Design Outcomes

The limitations selected for evaluation within the scope of the project and the resulting outcomes are as follows:

Project 1: Storage House (Figure 2)

Model Student 1 (MT1), İstanbul-Karaköy, User Limitation: Collector, Site Limitation: Outdoor Sculpture

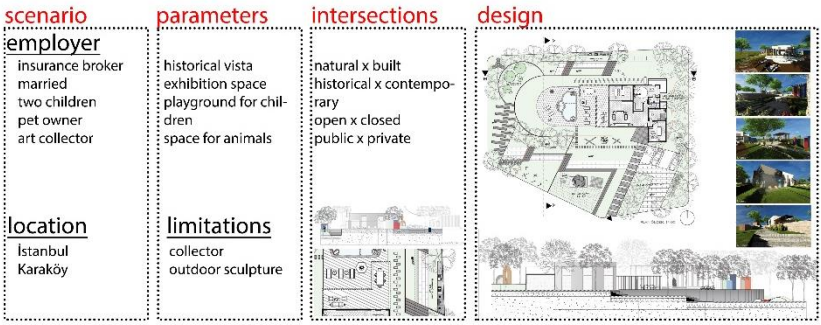


Figure 2. Project 1

Interior Design Project: The interior layout of the residence has been redesigned to include a master bedroom, an additional bedroom, and a hobby room. The kitchen has been enclosed and the front veranda widened, while the verandas belonging to the rear bedrooms have been preserved in their current state.

Landscape Project: In the garden, levels were resolved with one-meter elevated intervals using a set, distributing functions across the entire garden. An outdoor exhibition area was designed around a monument area to be preserved, and the garden includes a swimming pool, sunbathing area, grassy knoll for a children's play area, barbecue area, dog play area, and a parking lot.

Intersection "Veranda and Barbecue Area": The student extended the existing front veranda by configuring it into an L-shaped plan with a timber roof. The front veranda contains seating and a dining table. Extending the front veranda toward the garden integrates interior and exterior functions to form a intersection.

The dining area located on the front veranda serves as a transition between the interior kitchen and the outdoor barbecue area. The veranda and the main floor are at the same level (+5.00), while the barbecue area with an open kitchen is at a lower level (+4.00) to prevent scent and other influences from reaching the veranda. The one-meter level difference is resolved with a staircase, and stepping stones are used between the barbecue area, the front veranda, and the kitchen entrance. Here, the student articulates a sense of unity between the outdoor and indoor configurations; nonetheless, from a functional standpoint, one could contend that the kitchen and the barbecue area ought to be co-located on the same level.

Project 2: Cavity House (Figure 3)

Model Student 2 (MT 2), Göktürk-Uzunkemer, User Limitation: Vegetable and Fruit Cultivation, Site Limitation: Squirrels

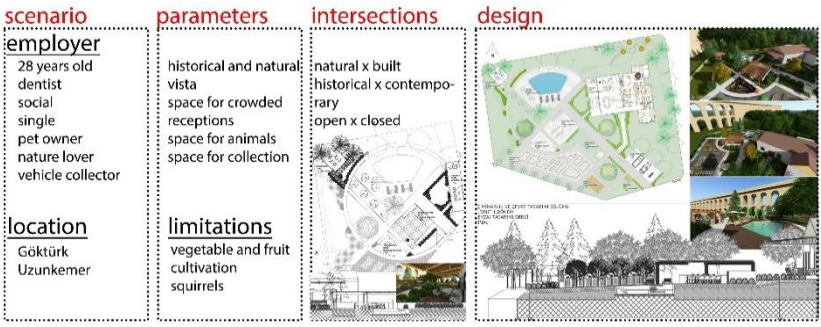


Figure 3. Project 2

Interior Design Project: The interior layout of the dwelling has undergone modification. The study has been converted into a bathroom; the functional allocations of the bedrooms have been revised, and the kitchen and living room spaces have shifted. The student has preserved the existing front and rear verandas in their original condition.

Landscape Project: In the landscape, open spaces are arranged around a circular form accessible from the veranda and the site entrance. At the centre of the garden is a swimming pool, an open kitchen, and a fire pit, while around the circular area there are a winter garden, a greenhouse (with storage), a dog kennel, security, parking, and a squirrel garden.

Intersection "Veranda and Open Kitchen": The student preserves the existing front veranda structure and descends to the garden from two corners of the veranda via staircases. Immediately in front of the veranda, a lawn area is designed to separate the dwelling from the functional zones with pathways and green space. A seating unit is positioned in the front veranda area, establishing a relationship with the living room. The open kitchen area, solved at a lower level of (+4.00) compared to the front veranda at (+5.00), provides access to the garden. This semi-open area, covered only by a roof, features kitchen counters, a dining table, and a bistro on the façade facing the pool. Notably, the student designs the cross-sectional space as a separate area rather than part of the dwelling. Here, the open kitchen is enclosed by a pedestrian path and green space, providing access between garden functions.

Project 3: Pinecone House (Figure 4)

Model Student 3 (MT 3), İstanbul-Sarıyer, User limitation: Twins, Site limitation: Pine Trees

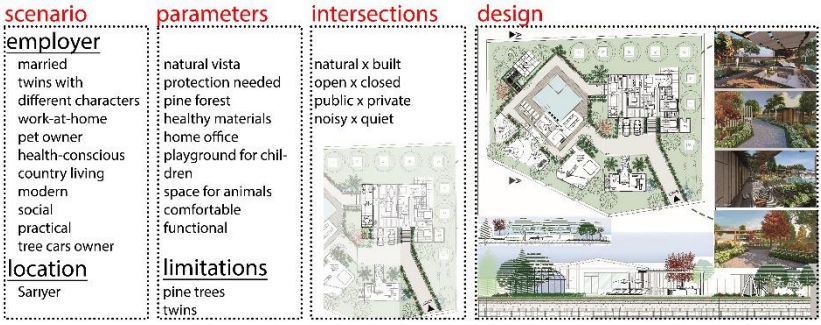


Figure 4. Project 3

Interior Design Project: The interior setting of the dwelling has been modified. The youth rooms have been converted into double bedrooms, bathrooms have been altered, and an additional bathroom has been added adjacent to the study room. Additionally, the kitchen and living room have been reorganized. The front veranda is preserved as is, while the rear veranda has been enlarged.

Landscape Project: The landscape project evolves from the entrance axis toward the building and toward the garden centre with formal lines. At the garden's central core lies a pool, encircled by a sunbathing area, a bistro, an open kitchen, a seating ensemble, and a dining table. Furthermore, in the front yard, a winter garden around the formal hardscape, a playground for children, and in the side yard, an enclosed sports area with a parking area have been designed.

Intersection "Veranda and Green Entrance Axis": In the cross-section, the front veranda at +5.00 has been kept as is, and access down to the garden at +4.00 is provided by stairs. Here, the relationship between garden and the dwelling is cut by the stairs and the green space. Similarly, the veranda is designed to be detached from the interior. A corridor extending from the entrance to the veranda door was designed, complicating the interior solution. The integration between the kitchen and dining areas solved within the interior and the functions solved within the veranda could not be fully realized. Additionally, a wide veranda was created in the rear garden between the parents' bedroom and the double bedroom and integrated with the green space. Moreover, the entrance axis is highlighted with plant landscaping to create a welcoming and navigable atmosphere.

Project 4: The Dance of Brutalism (Figure 5)

Model Student 4 (MT 4), İstanbul-Sarıyer, User limitation: High privacy need, Site limitation: Pine trees

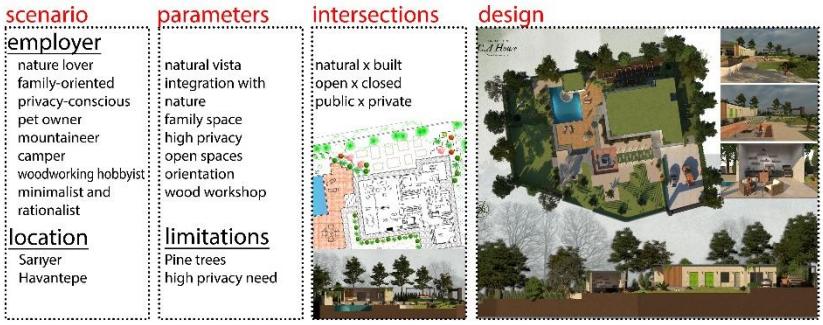


Figure 5. Project 4

The Interior Design Project: The use of interior space within the dwelling has been altered. While the usage of bedrooms has been modified, the study room has been eliminated and a guest room has been added, and the dwelling's entrance axis has been changed. Additionally, the uses of the kitchen and the living room have been revised, and a closed kitchen has been designed. Moreover, the front and rear verandas have been preserved as they were.

Landscape Project: In the landscape project, green mounds and lower-level resting areas are designed by employing different elevation levels of the site. The garden area, resolved in a formal manner, is accessed from the parking area through an undefined transition into the garden and dwelling areas. In the garden, walking paths lead from the resting area to the pool, sunbathing area, and a semi-outdoor kitchen. Additionally, a hobby and rock garden are noticeable in the back garden, while the front garden features lawn mounds forming a children's play area. The most striking part of the landscape project is the combination of elevated green spaces and a free lawn area.

Intersection "Veranda and Hobby Garden": In the project's mid-section, the front and rear verandas are preserved. The front veranda opens to the garden as an extension of the living room and kitchen. The dwelling is enclosed by pedestrian paths. From the veranda, at a one-meter level difference, one descends from +5.00 to +4.00 toward the sunbathing area. Here, the veranda's extension includes a deck, a sunbathing area, and a swimming pool. The front veranda provides a soft transition between the dwelling and the sunbathing area. Additionally, vertical planting is applied to the solid walls facing the garden on the dwelling's

front and side, integrating them with the garden. The rear veranda opens to the hobby garden. The hobby garden becomes a rock garden extending toward the bedroom. Here, no integration is established between the hobby garden and the living room, and the connection with the kitchen is entirely severed. This lack of coherence stems from an inability to conceive the interior and exterior as a unified, integrated space.

Project 5: Pelit Flora (Figure 6)

Model Student 5 (MT 5): İstanbul-Kemerburgaz, User limitation: National rower, Site limitation: Squirrels

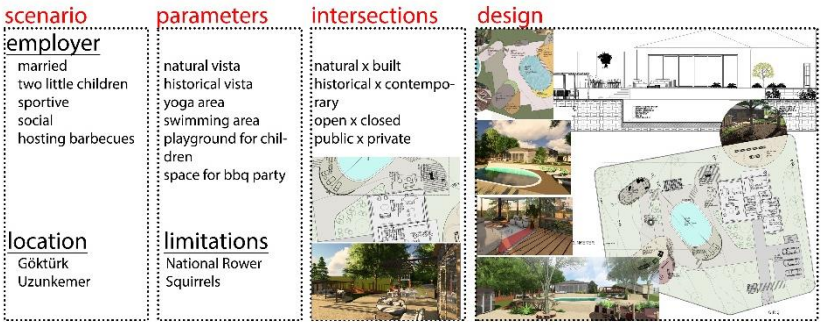


Figure 6. Project 5

Interior Design Project: The use of interior space within the dwelling has been altered. While the master bedroom's usage has been modified, the bathroom usage has also changed accordingly. A yoga area has been added. The front veranda area has been completely removed and incorporated into the open space. In the rear veranda, the smaller veranda has been removed entirely, while the larger veranda has been relocated and integrated with the green space.

Landscape Project: The main entrance leads to a four-way junction that allocates a driveway, dwelling, and garden areas. The garden is designed as a continuation of the dwelling area, with formally and informally organized spaces that are integrated with one another. A separate pedestrian path does not encircle the swimming pool; rather, hardscape elements are designed to function both as circulation routes and as spatial components. Around the swimming pool, a barbecue area, a resting area, a sunbathing area, a conservatory, and a children's garden are located. The rear veranda is associated with a protected squirrel garden.

Intersection "Veranda and Barbecue Area": The project's mid-section comprises the rear veranda area and the barbecue and resting area designed in the front yard. The redesigned rear veranda opens to the green space while establishing a relationship with the squirrel garden. In the front yard, the semi-enclosed veranda is removed, connecting to an open resting area above the living room. Directly adjacent to this ground-level area, a Barbecue Area continues to relate to the interior space. At this point, a direct relationship can be established between the barbecue area and the kitchen.

FINDINGS

In this study, the projects were evaluated using a 1–5 Likert scale across three main criteria. These are: (a) floor-level management and continuity in cross-sections, (b) integration of interior and exterior programs with service flows, and (c) contextual integration. Scoring was performed by two evaluators based on evidence such as plan sections, circulation scenarios, route lengths, and the number of levels/obstacles; any discrepancies were resolved in a brief consensus session. The scores serve as exemplar calibrations.

(a) Floor-level management and continuity: A score of "1" indicates poor accessibility and discontinuities, "3" indicates partial smoothing, and "5" denotes seamless continuity achieved through solutions such as level changes/ramps/intermediate platforms/green amphitheatres.

(b) Functional integration and service flow: A score of "1" describes independent insertions and circuitous routes, "3" indicates partial integration, and "5" corresponds to natural extension with direct, short, barrier-free service flows.

(c) Contextual integration: A score of "1" reflects lack of contextual reflection in the design, "3" signifies selective but not fully backbone-like integration, and "5" represents cases where critical data (habitat, heritage trees, topography) are transformed into an interface backbone. Comparative reading reveals that;

- MS-5 exhibits the highest performance across all criteria. MS-5, which integrates the living room, kitchen, veranda, and barbecue with short, level-aligned routes on a consistent floor, maintains service flow while directing the rear veranda toward the protected squirrel habitat, thereby relocating context to the interface's spatial backbone.
- MS-4 creates a strong threshold at the front interface with decks and green set pieces, delivering a soft continuity in cross-sections and strengthening the contextual fabric with vertical planting on the sealed façades. However, the loose connection between the hobby/rock

landscape in the rear garden and the interior program limits scenario continuity.

- MS-1 establishes a readable threshold through an extended veranda and clear axes; however, the barbecue's solution at the lower level (approximately a one meter difference; dependent on stairs and stepping stones) interrupts the kitchen-outdoor service in every cycle.
- MS-2 designs interface components as independent nodes detached from the dwelling; the green strip and stairs transform the transition into a "self-contained separation."
- MS-3 features a corridor-dependent internal access and a dark boundary between veranda and garden caused by floor level differences, which weakens both cross-section continuity and interior–exterior integration.

Table 1 summarizes the scores across the three criteria.

Table 1. Comparative rubric scores across three criteria.

Intersection	MS1	MS2	MS3	MS4	MS5
Floor-level management and continuity	3	2	2	4	5
Functional integration and service flow	3	2	2	3	5
Contextual integration	3	3	3	4	5
Total	9	7	7	11	15

In this table, MS-5 is the only project where all three conditions determining interface success are satisfied simultaneously; in MS-4 the front interface is strong while the rear interface is weak; in MS-1 the threshold language is strong but the service flow is constrained; in MS-2 and MS-3 the interface operates more as a "border" than a true "threshold." Synthetically, interface performance depends on the coordination of three axes: (i) accessible and smooth transitions across cross-sections, (ii) short, direct, and preferably equally shelved (equal floor) connections for service relationships such as kitchen-barbecue/veranda, and (iii) contextual data being transformed into the guiding backbone of the interface. If any one of these three elements is weakened, overall design performance declines even if strong gestures are present.

CONCLUSION

This study treats architectural interfaces not as a linear boundary between only two areas, but as "living thresholds" that shape movement, integrate programs, and establish meaningful relationships with context. The evaluation of five residential-garden designs

conducted in the third-year Landscape Studio of the Department of Interior Architecture and Environmental Design at Istanbul Atlas University, using a three-criterion rubric, highlights the decisive impact of interface design on spatial unity and user experience. The findings point to four main conclusions.

- First, when architectural intersections shift from "threshold" to "priority," solutions designed within the continuity of function, form, and aesthetics can become a coherent "livelihood infrastructure." The quality of the interface determines spatial legibility. Elements such as verandas, decks, and semi-open kitchens, conceived as extensions of the interior program, soften transitions, clarify circulation, and reinforce a sense of belonging.
- Second, topography and cross-section management are important parameters of interface design. Cross-sections softened by level differences, intermediate platforms, ramps, and stairs enhance both accessibility and service efficiency, promoting better integration of the interface with the main spaces it connects.
- Third, when contextual reading establishes the design backbone of the interface, spatial identity strengthens. Interfaces designed in conjunction with protected habitats and/or built elements increase environmental coherence and multisensory experience.
- Finally, conceptually, the interface offers a robust learning space that integrates interior programming with landscape strategies; it enables designer candidates to tackle issues such as multi-scale thinking, integrating or separating differently themed spaces, and provisioning multiple experiences within the same scenario through research and planning.

The study's limitations include being conducted within a single institution, over a short term, and with a small sample; variability in representation tools and drawing depth due to student involvement; and the potential for evaluator bias. For future work, advancing directions include validating the rubric by weighting it and applying it to different climate/house typologies; studying across varying site sizes and architectural typologies; and integrating methods that directly measure user experience (on-site observation, impression surveys, etc.) into the study.

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SPACE BEYOND SEEING AND TUIAVII'S WAY: A SOUTH SEA CHIEF'S COMMENTS ON WESTERN SOCIETY

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ABSTRACT

Modern architecture largely disregards the multidimensional sensory and bodily aspects of spatial experience by centering on functionality and rationality (Perez-Gomez, 2008). This approach leads to the marginalization of fundamental elements that shape human existential experience in architecture. The human dimension is increasingly overshadowed by technical and numerical parameters; design decisions are confined to measurable criteria such as functionality, aesthetics, sustainability, and technological integration. This study aims to address the problem of sensory deprivation in modern architecture by examining the rich spatial narratives in Erich Scheurmann's work "The Papalagi" (1988). The book is a critical text comparing Western modernity's systematic understanding of space with indigenous communities' holistic spatial perception. The events, which develop through the relationships between a Western missionary and a Pacific Ocean Island community, reveal the profound differences and conflicts between modernity and indigenous spatial configurations. The study will utilize Maurice Merleau-Ponty's phenomenological approach explaining the body-space relationship and Juhani Pallasmaa's multi-sensory architecture theory as a theoretical framework. Accordingly, the holistic spatial perception of indigenous communities and the rationalist configuration of Western modernity will be comparatively analyzed through metaphors; spatial narratives will be examined using the phenomenological reading method. In conclusion, the study demonstrates that neglecting sensory dimensions weakens spatial perception, reduces user satisfaction, and diminishes quality of life. The spatial narratives presented in, "Tuiavii's Way: A South Sea Chief's Comments on Western Society" emphasize the necessity of reconstructing senses and bodily experience in architecture, offering important insights for developing holistic and innovative approaches in design processes.

Keywords: Spatial Perception, Spatial Narrative, Sensory Experience, Modern Architecture, The Papalagi

INTRODUCTION

Architecture, as the fundamental organizational form that surrounds human life, is not merely a shell that meets functional requirements; it is also an experiential field that nurtures the profound relationships between senses, body, and mind. However, in contemporary practice, the prioritization of measurable parameters such as functionality, cost-effectiveness, sustainability, and technological integration brought about by modern architectural practice relegates the human dimensions and priorities of space to a secondary plane. This situation leads to the progressive weakening of multi-layered connections that users establish with space, causing spatial experience to become confined to a superficial and reductionist level (Perez-Gomez, 2008). Yet, sensory elements such as light, shadow, sound, texture, and smell, along with the emotional responses evoked by space in the body, are meaningful components that construct the existential depth of architecture.

Juhani Pallasmaa (2005, p. 22) criticizes the visualized nature of architecture with the statement "our modern culture is ocular-centric, but the dominance of the eye impoverishes the multidimensional experience of space". Similarly, Merleau-Ponty (1945/2012, p. 203) defines the body not merely as an object, but as "the primary site of our comprehension of the world." These two approaches emphasize that space is more than a visual construct; it is a multi-layered phenomenon that is lived and perceived through the body (Öksüz & Canbakal Ataoğlu, 2025). Reclaiming the human dimension in architecture through this phenomenological lens requires a holistic reconsideration of sensory experience. In this context, modern architecture's tendency to marginalize bodily and sensory engagement results not only in aesthetic and functional limitations, but also weakens architecture's capacity to transform human experience. Perez-Gomez (2008, p. 12), who asserts that "Architecture is not merely function and aesthetics; it has the capacity to reveal the poetic dimension of human existence," highlights this transformative potential.

This study aims to address the sensory deprivation problem in modern architecture by examining Erich Scheurmann's book, "Tuiavii's Way: A South Sea Chief's Comments on Western Society" as a source of spatial narrative, approaching the issue from a different perspective through metaphors. Consisting of Samoan chief Tuiavii's critiques of Western societies, this work contains critical observations that juxtapose indigenous communities' holistic and sensory spatial perception against Western modernity's rationalist and reductionist spatial construction. These critical observations, depicted through metaphors such as "stone

boxes", "body-covering sheaths" and "stone crevices" render visible the sensory disconnection of the modern city while simultaneously highlighting the bodily and spatial integrity of traditional ways of life.

The study aims to provide three fundamental contributions by analyzing the spatial narratives in the book through a phenomenological reading framework. First, it will examine Tuiavii's metaphors through a two-layered reading on the axis of social function and sensory experience; this will enable an in-depth interpretation of criticisms directed at Western societies' understanding of space. Second, it will present a comprehensive evaluation of modern architecture's reductionist approach by discussing the order and discipline-producing spatial construct of Western modernity through Tuiavii's criticisms, with its sensory and social dimensions. Finally, based on Tuiavii's observations, it will offer an opportunity to reread the priorities of architecture; spatial senses consisting of components such as light, sound, smell, texture, and atmosphere will be reopened for discussion in architectural theory. In this context, the study emphasizes the necessity of considering architecture not only through functional and aesthetic criteria but also as an experiential field that nourishes bodily, sensory, and cultural integrity.

THEORETICAL BACKGROUND

Modern architecture has progressed along a rationalist trajectory, especially since the 20th century, with the prominence of technological developments and functionality; in this process, the sensory and bodily dimensions of space have been largely overlooked. Villa Savoye (1929-31), designed by Le Corbusier, can be cited as an example of these rationalist structures.

Le Corbusier (1923/1986) defined the house as a 'machine for living in' revealing modern architecture's approach that prioritizes functionality. The white-box form raised on pilotis, together with the grid system and rational plan layout, reduces spatial experience to a matter of functional efficiency and visual order. However, this order relegates the user's body and senses to a secondary plane. In this respect, Villa Savoye can be considered a symbolic expression of how modern architecture's rationalist approach suppresses the senses and limits bodily experience. Yet, the relationship that humans establish with space is too complex and multi-layered to be explained solely through measurable and visual parameters. Therefore, phenomenological and multi-sensory approaches constitute a discussion area that has not lost its relevance for contemporary architectural theory.

Maurice Merleau-Ponty's phenomenology highlights the fundamental role of the body in understanding space. According to Merleau-Ponty, the body is not merely an object but the subject itself that reveals meaning: "My body is a continuous field of existence that encompasses all objects" (Merleau-Ponty, 2012, p. 147). Therefore, space is not a visual backdrop, but an experiential domain apprehended through the simultaneous operation of the senses and enabling existence. From this perspective, space is shown to be not merely an external form, but a phenomenon continually reconstructed through bodily movements, breathing, and sensory responses. Merleau-Ponty's statement, "My body is a window opening onto the world" (2012, p. 203), reflects the essence of this approach. Similarly, Juhani Pallasmaa criticizes the visually centered nature of modern architecture and emphasizes the necessity of a design understanding that considers all the senses of the body. According to Pallasmaa, "our modern culture is governed by the eye, but the monopoly of the eye impoverishes the holistic experience of space" (Pallasmaa, 2005, p. 22). Touch, hearing, smell, and kinesthetic sensations based on bodily movement are carriers of the real existential effects that space evokes in humans. Pallasmaa's approach reveals that the construction of space solely through visual images, especially in modern cities, creates alienation and sensory disconnection in individuals.

This framework contributes to the understanding of not only individual perception but also social and cultural spatial experiences. Heidegger's concept of being-in-the-world (dasein) reminds us that the relationship between humans and space is not merely physical but existential. Heidegger (1971) argues that space is not just a 'container' but a 'place' that determines the meaning and orientations of human existence. This approach transforms architecture from merely a technical activity that organizes functional shelter conditions into one of the fundamental experiences of existence.

Norberg-Schulz's concept of genius loci (spirit of place) complements this discussion. According to Schulz, the fundamental task of architecture is to reveal the identity of a place, or its 'spirit' (Norberg-Schulz, 1980). Elements such as light, shadow, material, relationship with nature, and atmosphere are components that determine the identity of a place. This perspective, articulated with Pallasmaa's emphasis on the senses and Merleau-Ponty's phenomenology of the body, demonstrates the poetic dimension of space not merely as an abstract design object but as an existential phenomenon experienced through the senses.

In conclusion, when Merleau-Ponty's body-centered phenomenology, Pallasmaa's multi-sensory architectural theory, Heidegger's existential

understanding of space, and Norberg-Schulz's genius loci approach are evaluated together, they form a powerful theoretical framework for analyzing the spatial narratives described in Scheurmann's book, "Tuiavii's Way: A South Sea Chief's Comments on Western Society". This theoretical foundation provides the necessary conceptual tools through metaphors within the text to critique the rationalist and reductionist character of modern Western Conception of Space and to compare it with the holistic spatial perception of indigenous communities.

TEXTUAL-SPATIAL NARRATIVE: THE PAPALAGI

Erich Scheurmann's, "Tuiavii's Way: A South Sea Chief's Comments on Western Society", published in the 1980s, is a narrative conveying the observations and criticisms of Samoan chief Tuiavii regarding Western societies. The work makes visible the contrasts between different cultural paradigms by interpreting Western modernity's lifestyles, habits, and particularly spatial constructs from an indigenous perspective. In this respect, the work is not merely a socio-cultural critique but also a powerful source of spatial discourse.

In Tuiavii's language, the modern city, housing order, and life are predominantly depicted through metaphors. These metaphors reveal the character of Western space, which has severed its connection with nature and isolated the human body from sensory integrity. For instance, apartment buildings are defined as "stone boxes". This analogy reflects how modern dwellings, constructed as enclosed volumes adjacent to one another and detached from nature, deprive humans of bodily and sensory diversity (Figure 1). Considering Merleau-Ponty's (2012) approach, which emphasizes that the body's primary connection with the world is established through the senses, these stone boxes demonstrate how modern space weakens existential integrity by limiting the senses.

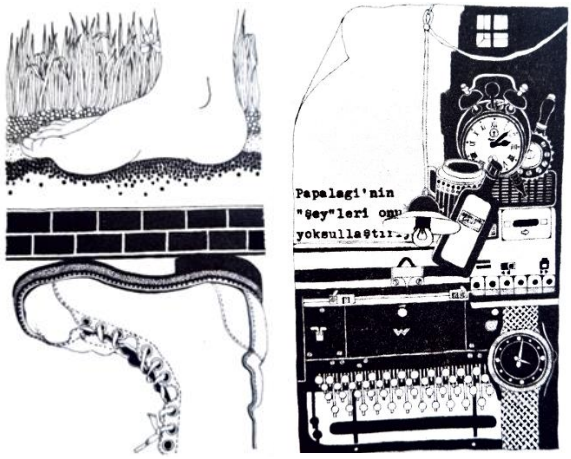


Figure 1. Description of the state of disconnection from nature in the book (Scheurmann, 1988, p.21)

In the book, the clothing habits of Westerners are described as "body-covering sheaths". This metaphor represents not only the practice of clothing but also a cultural habit that distances the body from its naturalness and restricts sensory contact. Tuiavii's critique aligns with Pallasmaa's (2005, p. 22) statement that "our modern culture is governed by the eye, but the monopoly of the eye impoverishes the holistic experience of space". This is because evaluating the body solely through visuality can push the function of other senses into the background.

Tuiavii defines the streets of modern cities as "stone crevices" (Figure 2). This expression reflects the structure of urban spaces that are detached from nature, shaped by mechanical arrangements, and limiting to the human body. When juxtaposed with Heidegger's (1971) view that "space is an experience of being-in-the-world" this metaphor suggests that Western cities cause people to forget their existential roots, confining them within an alienating order.

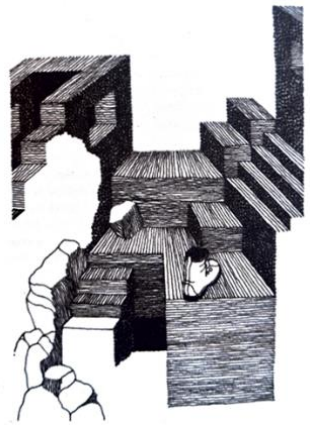


Figure 2. Description of stone crevices in the book (Scheurmann, 1988, p.97).

In Tuiavii's narrative, houses are depicted as "cages", factories as "smoked boxes", and offices as "small stone caves". Transportation networks are defined as "iron roads / stone tracks", while city squares are described as "human clusters". In the description, modern homes are characterized as "stone coffins", and entertainment venues as "dark boxes". Each metaphor compellingly illustrates how Western modernity has homogenized sensory experience and imposed a mechanical order on space, thereby alienating the individual from nature.

In this respect, The Papalagi can be read not merely as a text criticizing Western society, but also as a source that reminds us of alternative values of spatial perception. In Tuiavii's narrative, a conception of space that is integrated with nature and open to bodily and sensory experiences is emphasized. This approach demonstrates that a phenomenological perspective is possible against the reductionist structure of modern architecture. Therefore, the book presents a powerful evocation that space should be conceived not only as a technical construction but also as a cultural, bodily, and sensory field of experience.

METHOD

This study, within the framework of qualitative research, aims to examine the spatial metaphors expressed by Samoan chief Tuiavii in Erich Scheurmann's book, "Tuiavii's Way: A South Sea Chief's Comments on Western Society" and to discuss the sensory and social deficiencies of modern architecture through these metaphors. Qualitative research includes flexible and interpretive methods aimed at deeply

understanding the meaning words of participants or texts (Creswell, 2013). In this direction, the methodological framework of the study is built on two fundamental analytical approaches: phenomenological text analysis and critical discourse analysis. The phenomenological approach focuses on grasping the essence of experiences and revealing the subjective meanings of phenomena (Creswell, 2013). In this study, phenomenological text analysis was used to reveal the sensory, cultural, and existential meanings behind the spatial metaphors that emerge in Tuiavii's expressions. Critical discourse analysis (Fairclough, 1995), on the other hand, considers not only the linguistic but also the social and ideological dimensions of discourses. In this study, critical discourse analysis was used to uncover the implicit criticisms of modern Western societies' spatial practices in Tuiavii's metaphors. Thus, the text was analyzed in the context of modernization ideology and the social effects of architecture. Within the framework of this research approach, the analysis of the text and metaphors was carried out in three stages.

In the first phase, metaphors about Western space in "Tuiavii's Way: A South Sea Chief's Comments on Western Society" text are compiled and classified according to semantic domains. This classification is conducted within a two-layered reading framework. These two layers:

- Social functions – how modern space disciplines the individual through housing, production, transportation, public space, and entertainment practices.
- Sensory experiences – how components such as light, sound, smell, texture, and atmosphere are suppressed or transformed.

In the second phase, metaphors are analyzed from a phenomenological perspective. Here, Maurice Merleau-Ponty's approach to the body-space relationship and Juhani Pallasmaa's emphasis on multi-sensory architecture are used as theoretical foundations. This framework enabled the reading of space not merely as a visual object but as a multi-layered phenomenon experienced through the body.

In the third phase, the social and sensory dimensions of the metaphors are discussed through theoretical expansions such as Lefebvre's (1991) social production of space, Foucault's (1986) concepts of discipline and heterotopia, and Augé's (1995) non-place' approach. This interdisciplinary reading aimed to reveal what kind of epistemological foundations Tuiavii's criticisms offer in terms of architectural theory.

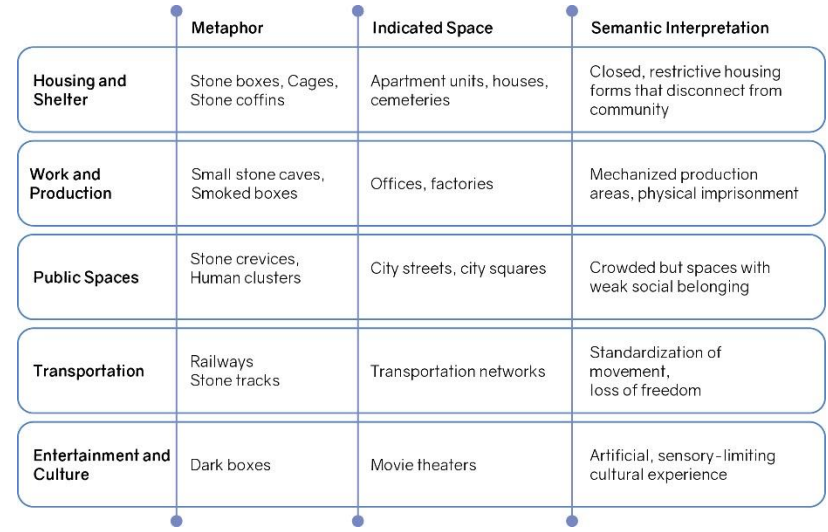
Finally, the findings are supported with tables and diagrams from an analytical perspective; a framework is developed for discussions on the reconstruction of senses and social dimensions in modern architecture. This approach transforms textual metaphors from merely literary elements into analytical tools that allow for a reassessment of the priorities of architectural thought.

FINDINGS

The findings of this study reveal that the metaphors used by Tuiavii in the book, "Tuiavii's Way: A South Sea Chief's Comments on Western Society" to describe Western space are not merely a form of literary expression but also provide a multi-layered analytical opportunity through social functions and sensory experiences. The metaphors presented in the book make visible the aspects of the modern city that discipline the individual, standardize daily life, and suppress sensory diversity, while laying the groundwork for discussing alternative spatial priorities. Thus, Tuiavii's narrative reveals a critical perspective that intersects with theoretical approaches such as Lefebvre's (1991) social production of space, Pallasmaa's (2005) emphasis on multi-sensory space, and Merleau-Ponty's (2012) phenomenology of the body. In this context, Tuiavii's observations not only produce a counter-discourse to the spatial practices of Western modernity but also function as a normative framework for reorganizing priorities in architectural thought. This criticism, expressed through metaphors, provides a powerful epistemological foundation for redefining the hierarchy of values and priorities in architectural design by reminding us that space should be considered together with its social, sensory, and ecological dimensions.

Two-layered reading in Tuiavii's metaphors: social function and sensory experience

The metaphors used by Tuiavii in, "Tuiavii's Way: A South Sea Chief's Comments on Western Society" to critique space in Western thought are not merely descriptive elements, but narratives that enable a two-layered phenomenological textual analysis. The first layer involves reading the metaphors through social functions: how modern space constrains the individual in areas such as housing, work, transportation, public space, and entertainment is made visible. The second layer focuses on sensory dimensions; it reveals which senses each metaphor suppresses or transforms. This approach enables the understanding of space as a multi-layered phenomenon.



	Metaphor	Indicated Space	Semantic Interpretation
Housing and Shelter	Stone boxes, Cages, Stone coffins	Apartment units, houses, cemeteries	Closed, restrictive housing forms that disconnect from community
Work and Production	Small stone caves, Smoked boxes	Offices, factories	Mechanized production areas, physical imprisonment
Public Spaces	Stone crevices, Human clusters	City streets, city squares	Crowded but spaces with weak social belonging
Transportation	Railways Stone tracks	Transportation networks	Standardization of movement, loss of freedom
Entertainment and Culture	Dark boxes	Movie theaters	Artificial, sensory-limiting cultural experience

Figure 3. Spatial and semantic interpretation of Tuiavii's metaphors.

Figure 3 illustrates the metaphors used by Tuiavii in, "Tuiavii's Way: A South Sea Chief's Comments on Western Society"the spaces they reference, and the semantic interpretations of these metaphors. These metaphors demonstrate how space in modern Western thought restricts individuals in contexts of housing, production, public space, transportation, and culture, suppressing individual sensory experiences and weakening social belonging.

Metaphor	Sense it refers to	Semantic Interpretation
Stone boxes	See, touch	Detachment from the sky and social relationships.
Covers that wrap the body	Touch	Prevention of the body's contact with nature.
Stone cracks	Hearing, smell	The hardening of space, the absence of natural flow.
Cages	Multi-sensory	Spatial discipline and control.
Iron rails / stone tracks	Multi-sensory	Standardization of movement.
Fumigated boxes	Smell	Suffocation of nature, industrial pollution.
Small stone caves	Multi-sensory	Confinement of work life to enclosed spaces.
Human clusters	Multi-sensory	Loneliness in crowds, anonymity.
Coffins made of clay	Multisensory	Mechanization of the natural cycle of life by space
Dark boxes	Vision, multi-sensory	Artificial entertainments, production of fake experiences

Figure 4. The senses referenced in Tuiavii's metaphors.

Figure 4 classifies the metaphors used by Tuiavii in, "Tuiavii's Way: A South Sea Chief's Comments on Western Society" according to their associated sensory dimensions and presents the semantic interpretations of these metaphors. Figure 4 demonstrates that modern Western space is criticized not only through physical organization but also through the suppression or limitation of senses such as sight, touch, hearing, and smell. In this context, Tuiavii's metaphors such as "stone boxes", "small stone caves" and "human clusters" make visible the structure of modern space that disconnects the individual from nature, bodily experience, and social relationships. The schema created in this context (Figure 4) provides a phenomenological reading of the metaphors, revealing the disciplinary aspect of modern space that operates through the senses and its alienating effects.

The two-layered analysis conducted within the scope of this study transforms Tuiavii's metaphors from merely literary or descriptive elements into analytical tools that reveal both the social functions of space and its effects on sensory experience. While the classification based on social functions reveals how modern space disciplines the individual through production, transportation, housing, and entertainment mechanisms; the analysis based on sensory dimensions makes visible the effects of this discipline on the body, particularly in the context of the suppression of senses and the restriction of freedom. Thus, Tuiavii's metaphors both produce a powerful social critique questioning

the spatial practices of Western modernity and bring alternative spatial pursuits to the agenda by revealing the phenomenological depth of space. All of these metaphors make visible the structure of modern space that is closed to the senses, suppresses bodily experience, and distances the individual from nature. When evaluated from the perspective of Merleau-Ponty's (2012) phenomenology of the body, it can be said that Tuiavii reveals through criticism and metaphors that space is an existential problem area.

Space of discipline: sensory and social critique of western order

In Tuiavii's observations, the fundamental characteristic of space in Western thought is its structure that disconnects the individual from nature and suppresses sensory diversity. The modern city is constructed with a logic that prioritizes order and functionality; this order standardizes the individual's movement, time, and relationship with space. Waking up at the same time every morning, commuting to work by train or tram, working all day in "small stone caves" (offices), and returning to "stone boxes" (apartments) in the evening confines the individual's daily life to a mechanical rhythm. Tuiavii strikingly describes this: 'The white people shut themselves in boxes, living without seeing the sky' (Scheurmann, 2009). Within this order, space becomes detached from what Heidegger (1971) described as the "being-in-the-world" experience. Elements that make human existence meaningful 'natural light, texture of soil, sound of wind, and flow of water' have been replaced by artificial light, hard surfaces, noise of machines, and enclosed volumes. Pallasmaa's (2005) emphasis on the dominance of the eye is important at this point; for while space in Western thought may appear satisfying with its visually based aesthetic arrangements, other senses such as touch, smell, and hearing are pushed to the background. This finding coincides with the concept of "abstraction of space" expressed by Lefebvre (1991) in The Production of Space. The modern city reproduces social relations on an abstract plane by commodifying them. Tuiavii's characterization of offices as "small stone caves" can be considered a powerful indicator of how capitalist production relations render space alienating.

According to the book, Western space has also transformed interpersonal relationships. Tuiavii's metaphor of "human clusters" indicates that despite the gathering of crowds in modern city squares, genuine sociality cannot be established. This can be read through Foucault's (1986) concept of heterotopia: the city square produces an illusion of togetherness but is actually subject to an isolating and disciplining order. These criticisms deepen with the metaphor of "smoked boxes". Factories hold an important place in Tuiavii's narrative not only as spaces that confine individuals to production processes, but

also as structures that suffocate nature and pollute the atmosphere. When considered with Augé's (1995) concept of "non-places" industrial spaces can be said to produce identity-less areas devoid of experience where belonging cannot be established. When evaluated with Ingold's (2000) dwelling perspective approach, such spaces distance humans from their being-in-the-world state; reducing the natural atmosphere to artificial, toxic, and enclosed environments. Additionally, Sloterdijk's (2004) concept of "atmosphere" makes this alienation visible at an ecological level: modern industrial space produces not only social but also environmental discipline.

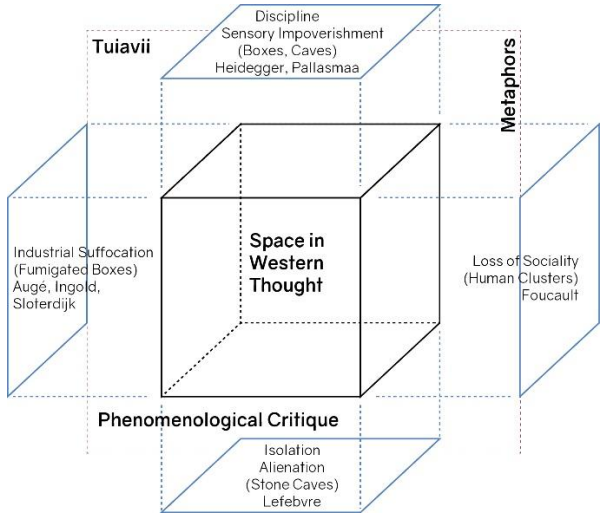


Figure 5. Phenomenological Critique of Western Space.

To comprehensively summarize the concept of Western space; at the center of the above schema (Figure 5) lies the concept of "Western space" surrounded by four fundamental lines of criticism developed through Tuiavii's metaphors: discipline and sensory impoverishment, loss of sociality, abstraction and alienation, and industrial suffocation. This multi-layered analysis enveloping the concept of Western space makes it possible to comprehend Western space not merely as an architectural organization, but as a holistic practice of alienation with its social, sensory, and ecological dimensions.

Consequently, in the book, the concept of Western space is depicted as a structure that disciplines the individual, restricts their senses, and weakens social belonging. This finding can be considered as powerful phenomenological evidence explaining why modern cities are frequently associated with anonymity, loneliness, and alienation.

Re-reading architectural priorities through Tuiavii's critiques

The metaphors expressed in Tuiavii's book, "Tuiavii's Way: A South Sea Chief's Comments on Western Society" contain clues about which priorities should be questioned in architecture, beyond exposing Western space as a disciplinary and sensorially impoverishing mechanism. The metaphor of "stones reaching to the sky" emphasizes how Western architecture produces symbols of power and dominance through verticalization and skyscraper culture; while "railway chains" reveals that transportation emphasizes disciplining rhythms rather than freedom for the individual. "Glass-walled caves" point to the transparent-looking but sensorially closed and alienating nature of modern structures. Additionally, "noise boxes" critically make visible how entertainment spaces envelop the body with sensory excess, while "breathless rooms" critically reveal the severing of connection with nature through climate control (Figure 6).

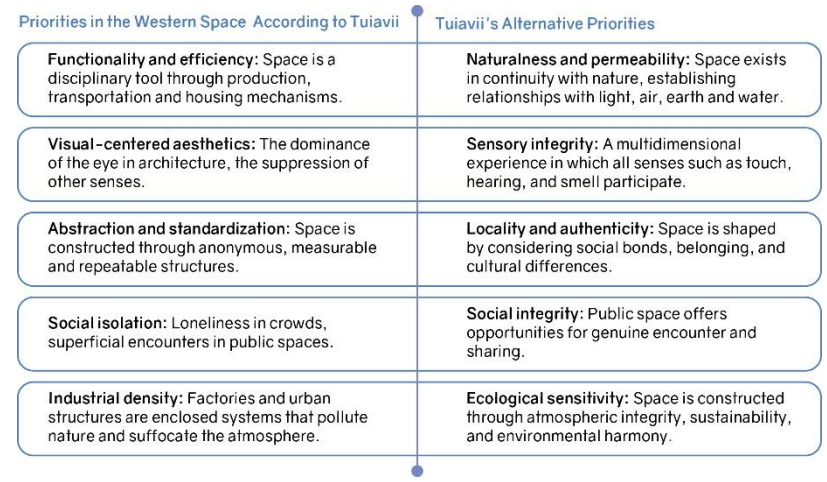


Figure 6. Comparison of Spatial Priorities.

When Tuiavii's critique of Western spaces is read through the metaphors in the book, the priorities that need to be reconsidered in architecture become more visible. The first priority is maintaining continuity with nature; it is evident that the connection of space with light, air, soil, and water should be an essential element of design. The second priority is the holistic participation of the senses; architectural experience cannot be reduced merely to the visual dimension but should be treated as a multidimensional field of experience where senses such as touch, hearing, and smell are equally engaged. The third priority is strengthening social relationships; public spaces should not merely be

places where crowds gather but structures that offer opportunities for genuine encounters, sharing, and generating belonging. The fourth priority is ecological sensitivity; the atmospheric integrity, sustainability, and environmental harmony of space emerge as design criteria that cannot be disregarded. In this context, Tuiavii's text serves as a powerful call to reorganize the hierarchy of values in architectural design and to recenter priorities that have been relegated to the background with modernity.

CONCLUSION

This paper critically evaluates the sensory deprivation in modern architecture by analyzing spatial metaphors in Erich Scheurmann's book, "Tuiavii's Way: A South Sea Chief's Comments on Western Society" from a phenomenological perspective. According to the findings of this analysis developed through Samoan chief Tuiavii's critiques of Western civilization, metaphors such as "stone boxes", "body-covering sheaths" and "stone crevices" reveal the reductionist approach of modern architectural practice and its character that leads humans to sensory deprivation. These metaphors demonstrate how the spatial configuration of Western modernity weakens human connection with nature and with oneself and are explained in a manner consistent with Merleau-Ponty's (1945/2012) phenomenology of the body and Pallasmaa's (2005) multi-sensory architectural approach.

The paper makes three fundamental contributions to architectural thought. First, Tuiavii's metaphors are examined through a two-layered reading along the axes of social function and sensory experience, thus enabling an in-depth interpretation of critiques directed at Western societies' understanding of space. Second, Western modernity's spatial configuration that produces order and discipline is evaluated from a phenomenological perspective, developing a comprehensive critique of modern architecture's reductionist approach. Finally, this analysis, which enables rethinking architectural priorities, demonstrates how spatial senses composed of elements such as light, sound, smell, texture, and atmosphere can be reopened for discussion in architectural thought.

In this context, the critical perspective offered by Tuiavii's metaphors holds significant potential for contemporary architectural practice to rediscover a sensory-based approach. Instead of modern architecture's visually centered nature, an architectural understanding that considers all senses of the body, strengthens connections with nature, and enables users to establish a multi-layered relationship with space should be developed. This approach necessitates rethinking architecture as an

experiential field that nourishes bodily, sensory, and cultural integrity alongside all measurable and visual parameters (Perez-Gomez, 2008).

In conclusion, "Tuiavii's Way: A South Sea Chief's Comments on Western Society" offers a theoretical foundation for the phenomenological analysis of spatial narratives and the reintroduction of sensory-based approaches in architectural thought. In this respect, this study can be considered as a proposition suggesting that the critical perspective presented by Tuiavii's metaphors can make significant contributions to architectural theory and practice.

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TRACING CLASSICAL SYMMETRICAL DESIGN TO MODERN SYMMETRICAL URBANISM: NEGOTIATING AESTHETIC AND FUNCTIONAL PRIORITIES IN ARCHITECTURE

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ABSTRACT

Symmetry has long been a key element of architectural design, applied for reasons ranging from aesthetic considerations to more functional purposes. In this regard, throughout history, the concept of symmetry has been interpreted in various ways, depending on different architectural paradigms. In classical antiquity, when aesthetics and beauty were prioritized in architectural design, symmetry was associated with the ideas of proportion, harmony, beauty, and monumentality that were reflected in the composition of plans and façades. Although the interpretation of symmetrical design changed after the Renaissance, it remained a fundamental architectural principle, serving as a unifying element that created visual harmony and structural stability in buildings. However, a gradual break and paradigm shift occurred in the understanding and application of symmetry from the early modern era. During this period, to align with the demands of the time, symmetry was no longer confined to its traditional notion of axial mirroring meaning. Rather, it was applied through large-scale symmetrical regulation in urban design projects. By examining this transition from aesthetic ideals to functional imperatives, this research argues that the prioritization of functionality in architectural design and urbanism played a central role in shaping the modern interpretation of symmetry. The findings highlight an ongoing transformation of symmetry, evolving from a poetic expression of order and aesthetic experience into a functional application shaped by emerging challenges and design methodologies, spanning from classical architectural theory to modern urbanism.

Keywords: Symmetry, Classical Antiquity, Aesthetic, Architectural Symmetry, Symmetrical Urbanism

INTRODUCTION

The application of symmetry to architectural design is as old as architecture itself. According to archeological records, the quest for symmetry and symmetrical composition in human constructions can be traced back to ancient and even prehistoric times (Hodgson, 2011). As illustrated by Mario Salvadori (2015), intricate symmetrical forms observed in pre-Columbian American, and ancient Egyptian structures, as well as Chinese and Indian architectural methods, are well documented, serving as critical examples. In this regard, over the centuries, regardless of subjective taste and individual goals, numerous theories have been developed to shed light on the correlation between the terms—symmetrical design, harmony, proportion, beauty, and desirable aesthetic qualities. In common and popular understanding, symmetry refers to the property of an object or form, maintaining consistency among its constituent parts when reflected over a line (known as line or mirror symmetry) or through its center (referred to as point symmetry) (Weyl, 1952). Nevertheless, symmetry has a broader definition rather than repeating main forms or mirroring the image of the forms on either side of the medial axis. In this regard, Francis Mauritius Jaeger (1917), one of the leading figures in writing about symmetry, argues: "Symmetrical figures are such as are similar to themselves in more than one way" (Cited in Osborne, 1986, p. 80). What can be inferred is that rather than the exact repetition and duplication, symmetry can be considered as a compositional quality that creates a certain balance. In much the same line, within the framework of scientific discourse, symmetry is defined as a characteristic known as intrinsic symmetry, which renders an object invariant under specific types of transformations, including rotation, reflection, inversion, and other abstract operations (Hon & Goldstein, 2005). Nonetheless, in the architectural realm, various definitions have been attributed to this concept throughout history, including notions such as proportion, mirroring, correspondence, balancing, equality, and periodicity, making it more challenging to come to a consensus on its precise meaning. In spite of these differing views, architects generally agree that symmetry is the most powerful uniting element, as evident in the layout and façade design of buildings (Jadrešin-Milić, 2008; Mehaffy, 2020; Mehaffy & Salingaros, 2021; Meiss, 1998; Park, 2001; Williams, 1999).

In this regard, tracing the implementation of the concept of symmetry in architectural design, the most influential character whose writings serve as the primary source for understanding classical architecture and symmetry was Roman thinker Marcus Vitruvius Pollio and his treatise *De architectura*. Through defining fundamental principles of architecture, he strongly feels that all these principles must be notified to reach

'durability', 'convenience', and 'beauty' (Vitruvius Pollio, 1914, pp. 31–33). In this context, Vitruvius defined symmetry as an agreement and proper proportion derived from nature, upon which architecture relies for its beauty (Vitruvius Pollio, 1914, p. 27). Following Vitruvius, Renaissance architects such as Leon Batista Alberti (1404, 1474), Sebastiano Serlio (1475-1554), and Andrea Palladio (1508-1580) opened new chapters in the implementation of symmetry in the external facades of buildings and in the interior layouts and regulations as well.

It should be mentioned that, since the late Renaissance—particularly prior to the emergence of modern scholarly thoughts presented by figures like Claude Perrault (1613-1688) — the concept of symmetry was predominantly associated with the divine and natural principles, serving as a significant aesthetic ideal in architectural practices. However, a gradual break and paradigm shift occurred in the understanding and application of the concept of symmetry during the early modern when the Roman and Italian traditions were questioned and challenged by the French rationalist and functionalist scholars such as Claude Perrault, Jean-Nicolas-Louis Durand (1760-1834) and Eugène Viollet-le-Duc (1814-1879). In contrast to the classical thoughts, these scholars defined the modern, scientific, and Pythagorean concepts of symmetry as a crucial methodological tool in music and architecture. Following this, in its modern account, as described by Hermann (Weyl, 1952, pp. 3–4) symmetry communicates a feeling of balance and appropriate proportion, representing the harmonious integration of multiple elements into a unified whole.

By defining symmetry as one of the essential principles of architectural design, the rationalists' and functionalists' ideas regarding symmetry continued during the Industrial Revolution and modern movements when the discourse on the application of symmetry expanded to the urban form. In essence, with the culmination of scientific, technological, and industrial advancements during this era and the emergence of new needs, the discussion around the ideal city and its form became the dominant topic. Consequently, new paradigms for the utilization of symmetry evolved as a pattern in urbanism. In this regard, with the emergence of mechanical attitudes toward design and the functionality of gridiron layouts, symmetry was no longer confined to its traditional axial mirroring meaning. Instead, it was employed through large-scale symmetrical regulation, signaling a shift towards broader utilization in urban planning. This change illustrates the impact of modernist ideology on urban planning, as demonstrated by figures such as Baron Haussmann, Le Corbusier, Jacobus Oud, Hendrik Petrus Berlage, and Lucio Costa when symmetrical urbanism emerged as a hallmark of modernist urban design principles. However, the more

complex aspects of symmetry, particularly in the late nineteenth and early twentieth-century modern urbanism, have not received adequate attention in the scholarships. Consequently, this brief introduction prompts us to inquire into the broader historical context: What various connotations have the term "symmetry" encompassed throughout its evolution, and how has it evolved from being primarily an aesthetic element for the buildings to being gradually supplanted by large-scale functional-mechanical urban forms? In this regard, a different point of view is needed to investigate the relationship between the above-mentioned terms and discuss how the idea of symmetry and symmetrical design has oscillated between different subjective tastes. In this regard, the primary objective of this research is to outline a new research agenda by exploring Western architectural literature to uncover a meaningful relationship between symmetry, its perception, and the built environment.

ECHOES OF SYMMETRY: CLASSICAL ANTIQUITY

In architecture, the concept of symmetry is initially linked with the belief that all the forms in nature are symmetrical and beauty is inherently tied to adherence to symmetrical shapes (Hon & Goldstein, 2005). When it comes to its etymology, 'symmetry' originates from the Greek word συμμετρία [symmetria], syn (with) + metron (measure), whose composition suffices to explain its relationship to the works of art and nature, where it signifies correlative measures and congruent dimensions (De Quincy, 1999, p. 241). In architectural practices— particularly during classical antiquity—symmetry stands as unequivocal evidence, prominently employed in classical architecture not only to portray proper proportion and balance but also to represent both secular and sacred power, asserting itself 'irrefutable' (Meiss, 1998, p. 65).

This issue can be traced in Vitruvius and his treatise *De architectura*, which can be assumed as the Bible of European architecture and one of the straightforward texts for its systematic approach and encyclopedic outlook. In his treatise, he comprehensively discussed specific standards of construction and highlighted the significance of the principles of symmetry. In his writings, he tried to scrutinize the construction standards, using the terms *firmitas* (solidity), *utilitas* (utility). Furthermore, he delved into the aesthetic aspects of buildings and architectural designs, which he identified as *venustas* (beauty). According to him, architecture depends on order, symmetry, *eurythmy*, and beauty, and for a better understanding of these concepts, he states that *eurythmy* is beauty and fitness when all the members in work correspond symmetrically (Vitruvius Pollio, 1914, p. 28). Therefore, It makes sense when he writes in Book I, chapter III, that beauty manifests

"when the appearance of the work is pleasing and in good taste, and when its members are in due proportion according to correct principles of symmetry" (Vitruvius Pollio, 1914, p. 32). To better understand the concept of symmetry and *eurythmy* in this classical context, Quatremère de Quincy (1755-1849) states that: "to consider the parallel between the word symmetry and the word *eurythmy*, we could refer the reader to the word proportion, which is the translation and the exact correlation of symmetry" (De Quincy, 1999, p. 241). Hence, in classical terms, symmetry can be called the commensurability of elements, which Vitruvius already discussed as proportionality. The idea of symmetry was consequently translated into the language of architecture through the word *proportio* by Latin people, which means the relationship between the measurements of two objects (De Quincy, 1999). According to Vitruvius, symmetry is establishing proper arrangements between members and the general scheme, ensuring they harmonize with each other:

> "Symmetry is a proper agreement between the members of the work itself, and relation between the different parts and the whole general scheme, in accordance with a certain part selected as standard. Thus in the human body there is a kind of symmetrical harmony between forearm, foot, palm, finger, and other small parts" (Vitruvius Pollio, 1914, p. 28)

Considering the term proper agreement [*conveniens consensus*], symmetry is regarded as a particular type of proportion with predetermined boundaries. Vitruvius exemplified the human body as a central point for the relationship between harmony and symmetrical proportion, utilizing the human body's proportions as a model or ideal archetype to achieve appropriate proportions in the architecture of the buildings. For him, an essential principle of architectural design is arrangement, which means putting things in their appropriate places according to the character of the work. In Book III, he chiefly focuses on these rules, especially the system of the *symmetriae*, in all designs, especially the temples. He extends this idea to the Greek temples and basilica, where, according to him, symmetry may be calculated from the thickness of a column, from a triglyph, or even from a module. He further asserted that establishing the fundamental principles of any temple's design requires the use of symmetry and proportion, as without them, there would be no precise balance between constituent parts (Vitruvius Pollio, 1914, p. 28). Without any doubt, for Vitruvius, underscoring the principles of symmetry was not limited to temples; rather, he had comprehensive ideas about symmetrical design in other public buildings as well as private houses. To illustrate, he displayed some basilicas, which are constructed according to symmetrical design to

represent the greatest dignity and beauty. Tracing this issue in his treatise, particularly in Book VI, chapter III, where he discusses 'The Proportion of Rooms' in private houses and the spatial relation between the *atrium* and *tablinum* and their dimensions, he places a great emphasis on a house in Pompeii, which was constructed according to the rules of symmetry (Vitruvius Pollio, 1914, p. 211).

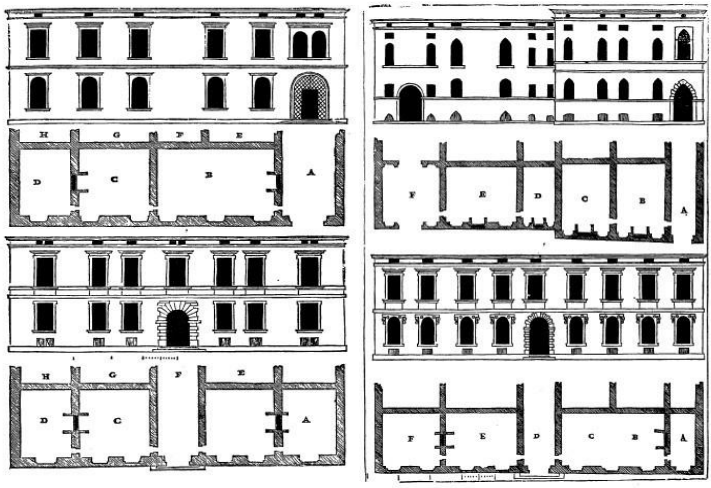
THE EVOLUTION OF SYMMETRY IN RENAISSANCE ARCHITECTURE

The pursuit of balanced composition, aesthetic beauty, and establishing graceful order or harmonious integration of different parts made the concept of symmetry a fundamental principle in Renaissance period art, especially architectural design. Among early Renaissance architects, Leon Batista Alberti (1404, 1474), in his masterpiece, first published posthumously in 1485, shared a similar perspective with classical understanding regarding the concept of symmetry where in his writing on the Greek understanding of beauty he believed that beauty emanates from nature's form (Hendrix, 2011). Nonetheless, for the first time, instead of referring to the term symmetry or the term *symmetria* and emphasizing proportion in defining symmetry (as Vitruvius did), he emphasized the term *correspondence*. He added that true beauty only exists when both lateral halves 'correspond' perfectly in every aspect, and the elements on the right must correspond precisely to those on the left in every respect (Alberti, 1988, p. 29, 168, 289). By way of illustration, in book Nine, Alberti addresses the essential components that underpin all we do. Drawing from the basic standards of nature, he explores the concept of *collocatio*, which refers to position, arrangement, and proportion (Alberti, 1988, pp. 422–424). Like Vitruvius, who emphasized the symmetrical proportions defining the beauty of the human form as well as architectural structures, Alberti similarly underscored the aesthetic appeal of buildings anchored in well-balanced proportions. Nonetheless, beyond the concept of *collocatio* something greater emerges from the mutual correlation and interdependence of these elements, adding a remarkable sheen to the surface of beauty. Alberti refers to this component as *concinnitas* (see Alberti, 1988, p. 421), which according to Tavernor (1999), refers to balance, harmony, and symmetry in the buildings (Tavernor, 1999, pp. 43–44). In this regard, for Alberti, artists are the ones who understand that all details and ornaments in their works of art must appear as twins (*gemella videantur*) (Selzer, 2015, p. 236). Hence, parallel to Alberti's main concern of finding an aesthetic formula, he presents an independent principle (later termed symmetry), including identical elements of equal measurement.

In much the same line, Sebastiano Serlio (1475-1554) was another Renaissance architect who discussed the concept of symmetry in a very casual manner by referencing the Vitruvian principles of order, proportion, and symmetry in his designs and describing their importance in his treatises. For this sake in his fourth book, when discussing the design of the city gate, he frequently emphasized "*per servar la simmetria*" (for the sake of symmetry) to establish overall balance and proportion (Serlio, 2005, pp. 260–261). Furthermore, in his sixth and Seventh books, which are well-known as the first written texts introducing all the habitations and styles of the buildings while distinguishing them according to socioeconomic classes (poor, middle class, and wealthy), symmetry was an indispensable element in the construction of buildings. Particularly, Serlio considered it imperative demand to apply symmetrical principles as the symbol of wealth and affluence.

In his Seventh book, he primarily addressed the character of order and façade, clearly distinguishing between elements categorized as simple and confused in façades. According to him, simple but well-conceived elements in the façades are always more praiseworthy than those that are complex and 'confused' (Serlio, 1996, p. 276). For him, adherence to symmetry in designs was one of the factors in creating a simple and well-conceived façade. In this regard, in his Seventh book, he illustrated this issue by presenting examples of remodeling and renovation of private houses, with the aim of achieving symmetry (Serlio, 1996, pp. 322–326). He underscored that, despite its costliness, such remodeling attempts were associated with wealth and opulence. He illustrated that despite the outward appearance of luxury, specified houses often fell short of architectural excellence due to asymmetrical features such as irregularly spaced windows or off-center entrances. As a result, these dwellings' asymmetrical architectural elements made them aesthetically inferior to their neighbor houses. In this regard, in an effort to match the architectural standards set by neighboring residences characterized by meticulous design and adherence to symmetry, the homeowners in the motioned examples sought to enhance the aesthetic appeal of their dwellings' exterior while minimizing both cost and disruption to existing structures. The layout of the house in **Figure 1**, is demarcated by points A, B, C, and D at its center, with additional areas designated as E, R, G, and H positioned further inward. To minimize disruption, the homeowner adopted the following strategy: erecting a wall within the Sala B area and incorporating a centrally aligned passage, denoted as F, with a door situated therein. Although the refurbishment aimed at establishing symmetry throughout the entire structure resulted in unevenly placed windows on the exterior, this asymmetry may be seen as a kind of harmonic discord, akin to the dynamics inherent in music. The second example exemplifies a bolder

approach to adhering to symmetry where the affluent homeowner, shown in **Figure 2**, undertook extensive remodeling to achieve a symmetrical facade, even encroaching upon public land to expand the property. This dedication to symmetry went beyond simple façade modifications and included inner wall reassignments, window form and location changes, and the central implantation of the front door into the building's structure. An important consideration is that the main motivation behind changing the interior plans was the establishment of symmetry in their outlook and façades. In other words, Serlio, in his designs, made no effort to compose symmetrical interior plans. However, when it comes to Andrea Palladio (1508-1580), another famous Renaissance architect, he painstakingly adhered to the symmetrical principles in his sketches and designs, which manifested itself in the composition of the symmetrical plans alongside the façade (**Figure 3)**.



Figures 1 & 2. Remodeling the interior plan and façade of the building to make them symmetrical, Source: (Serlio, 1996)

Highly inspired by Vitruvian traditions, Palladio argued in his Quattro Libri that the rules of architecture are inherently derived from laws of nature. Similarly, he believed that beauty also originates from nature, and in order to represent various aspects of beauty, he implemented harmonic proportions and adhered to rules of symmetry. Palladio (1997, p. 3) drew inspiration for this compositional style from the remnants of the Roman buildings and Vitruvius's recommendations, which emphasized that various elements of a well-designed building should maintain perfect symmetrical harmony with the overall structure (Vitruvius Pollio, 1914, p. 73). Palladio, as stated by Rybczynski (2003), had a preference for

symmetry driven by aesthetic considerations. However, what distinguished him from other Renaissance architects was his meticulous adherence to the principles of symmetry not only in the exterior (facade) but also in their interior layouts (plan), where one side of the plan mirrored the other. In this regard, the symmetrical plans and the composition of chambers as well as taut geometry of façades have resulted in the "inflexible biaxial symmetry of plan and elevation" (Rybczynski, 2003, p. 139). By way of illustration, Palladio, in his first book, emphasized that to preserve symmetry throughout the structure, rooms or sections should be situated symmetrically on both sides of the corridor and entrance. This means that the chambers or sections on the right should match and correspond to those on the left (Palladio, 1997, p. 53). Hence, symmetry for Palladio appears to encompass both correspondence (as demonstrated by Alberti) and proportion (as demonstrated by Vitruvius). This issue can be seen in his earlier designs, such as Villa Godi, Villa Valmarana, and Villa Pisani, where symmetry is meticulously integrated into both façades and plans. Symmetry in these projects stemmed from geometric proportioning, adapting circles and squares to represent both harmonic correspondence and beauty in an exemplary manner. In much the same vein, Villa Rotonda, with its extreme symmetry, can be considered the epitome of Renaissance architecture and its adherence to symmetry where he designed four façades, each adorned with porticos, accentuating symmetry, balance, and uniformity (**Figure 4)**. An important aspect of the design of this villa is that Palladio not only ensured symmetry in the four sides of the façade and subordinated decorative motifs but also prioritized symmetry in its interior plan and spatial experiences. An important consideration to keep in mind is that, his adherence to Vitruvian principles, particularly the application of symmetry, extended also to his public building designs. An important example of this issue is Palazzo Chiericati (1551-54), where, as Summerson (1963, p. 62) states, the main front echoes Vitruvius' description of the galleries of a Forum while simultaneously expressing the inward symmetries of a grand house.

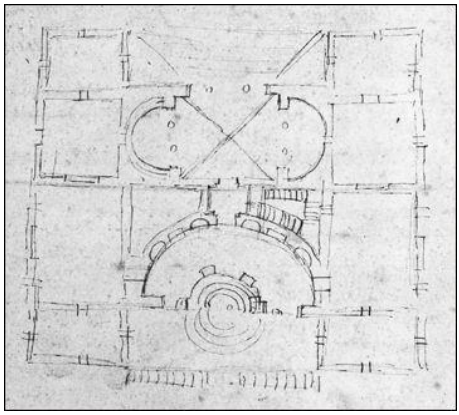


Figure 3. Palladio's first sketches during the design of Villa Pisani, 1541, Source: RIBA Palladio collection XVII)

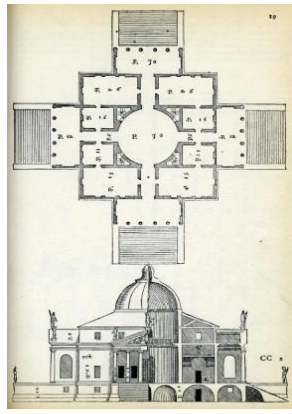


Figure 4. Villa La Rotunda designed by Andrea Palladio, Source: (Palladio, 1997)

Doubtlessly, Palladio stood as one of the most influential characters of the Renaissance era, and his ideas regarding the symmetrical plans and façades disseminated throughout Europe under the designation of Palladian features, serving as a prototype for other architects. A notable example of this issue can be seen in England under the motto of English Palladianism, where Palladian features emerged as the predominant characteristics of the buildings designed during this period. The Palladian influence was brought to England by many architects, predominantly by Indigo Jones (1573-1652), Richard Boyle (Earl of Burlington) (1694-1753), and William Kent (1685-1748). They emphasized Palladian entrance courts and colonnades, with the extreme symmetry of the façades that served as the main design feature. A notable monumental example of Palladianism in England includes Chiswick House London (1729), designed by Richard Boyle, the Queen's House in Greenwich by Inigo Jones, and Holkham by William Kent. Further illustrating Palladio's influence in England, William Kent's Holkam serves as the particular instance where Palladio's villa of Leonardo Mocenigo was quite inspirational for Kent (**Figure 5**). In designing the Ground plan of Holkham, Kent, in some manner, imitated the design methods employed in the villa of Leonardo Mocenigo by incorporating four symmetrical wings attached to the central building (**Figure 6**).

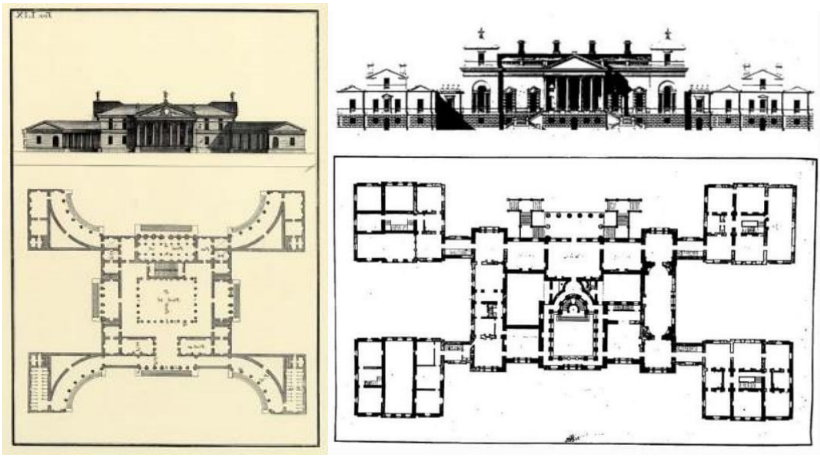


Figure 5: The front view and the plan of Leonardo Mocenigo villa designed by Andrea Palladio, Source: https://bit.ly/2TITTM7 (date of access: 05/03/2024)

Figure 6: The front view and the ground plan of Holkam designed by William Kent, Source: (Wittkower, 1974)

THE DAWN OF MODERN SYMMETRY: A LEGACY OF REVOLUTIONARY ARCHITECTURE

The concept and scope of symmetry have continued to be enlarged over time, with the symmetrical rules being heavily stressed in the design of late Renaissance structures and gardens, which frequently included particular, comprehensible geometric forms illustrated by simplicity and symmetry. Nonetheless, following scrutiny of symmetry and its evolution from classical antiquity to the Renaissance and early modern era, it is clear that the motivations behind its employment and the aesthetic significance of symmetry underwent a gradual transformation within the context of architectural design. Despite Renaissance architecture striving to revive classical elements such as symmetry and classical order, subsequent periods including the late Renaissance, baroque, and early modern era, embraced an aesthetic ethos characterized by anti-naturalistic and rational principles.

In this context, one of the influential scholars in the (re)definition of the concept of symmetry was Claude Perrault (1613-1688), who is well-known for his contributions to the design of the east facade of the Louvre in Paris and his stringent criticism of classicism (see Herrmann, 1973). By criticizing traditional theories, Perrault tried to revolutionize architecture and its theoretical underpinnings, and he adamantly rejected the idea that human activities, including science and architecture, should be

grounded in universally accepted [traditional] rules and divine revelation. In his treatise, he declared that architecture does not achieve its ultimate perfection unless it progresses along a path of ever-increasing rationalization. In this regard, he attempted "to replace Vitruvian principles with recognition of architecture as a social and political institution" (Picon, 2000, p. 33). When addressing the concept of symmetry, Perrault made a clear distinction between the ancient notion of *symmetria* and the French usage of *symmetrie*. In this approach, there was a concentrated effort to differentiate modern architectural sensibilities from those of antiquity, thereby assigning symmetry a distinct connection that deviated from classical interpretation.

By radically criticizing the classical theories, particularly Vitruvius's understanding of proportion and symmetry, Perrault's scientific discourse on symmetry neither derived from the divine source nor the human body. In contrast to his contemporaries like his colleague Nicolas-François Blondel (1618–1686), who believed the source of symmetry and beauty to be divine— where nature served as the paragon— Perrault emphasized the time-dependent agreements regarding the beauty and the concept of symmetry. His theory was based on three fundamental principles: the richness of materials, the precision of propriety, and general symmetry, all of which engendered an unmistakable and striking beauty (Perrault, 1993):

> "There are two kinds of proportion. One, difficult to discern, consists in the proportional relationship between parts, such as that between the size of various elements, either with respect to one another or to the whole … other kind of proportion, called symmetry, is very apparent and consists in the relationship the parts have collectively as a result of the balanced correspondence of their size, number, disposition, and order" (Perrault, 1993, p. 50)

Considering his scientific and educational background in physics, Perrault's definition of symmetry can be regarded as the first instance of the modern concept of symmetry, which became the source of inspiration for mathematicians like Adrien-Marie Legendre (1752–1833), who dealt with this concept within a scientific framework. Aligned with his perspective, modern interpretations of symmetry emphasize it more as a mathematical characteristic without an inherent aesthetic component. As mentioned previously, while Vitruvius compared the design of the buildings to the human body, Perrault asserted that symmetry entails a relationship indicating correspondence along a certain axis between two distinct elements in the overall assembly (Perrault, 1993, p. 50). Referring to the human face, each set of

components (such as eyes or ears) must be equidistant from the center and situated at the same level to maintain symmetry. Hence, a face is considered symmetrical when each of its component pieces is organized symmetrically, contributing to the overall correspondence harmony. According to this revolutionary understanding, the symmetry of a structure might include a façade with a central door and two equal-sized windows spaced equally apart from the vertical axis that runs through the center of the door. Nonetheless, it is essential to recognize that even if the windows line up symmetrically, they do not perfectly mirror one another (Perrault, 1692).

Given Perrault's arguments about the concept of symmetry, the following century saw continued debate among French revolutionary architects, with figures such as Jean-Nicolas-Louis Durand (1760-1834) supporting Perrault's ideas and visionary architects like Étienne-Louis Boullée. By way of illustration, in the late eighteenth century, parallel to political upheavals and the French Revolution, radical changes in architects' way of thinking occurred, and some of the French architects articulated critical theories about architecture. During this period, the sensation emerging from elementary volumes and the functional elements of architecture were particularly the main concerns of Revolutionary architects for the changed society after the revolution.

In the early years, Étienne-Louis Boullée in *Essai sur l'art* talked about elementary volumes and visionary creation. In his 'Architecture, Essay on Art', he defined symmetry, regularity, and variety, which were paramount in the chief beauty of architecture (Boullée, 1976). To illustrate better, he quoted Montesquieu (1759), stating: "Symmetry is pleasing because it is the image of clarity and because the mind, which is always seeking understanding, easily accepts and grasps all that is symmetrical" (Boullée, 1976, p. 86). Although Montesquieu's investigation primarily centered on the sources of mental pleasure rather than symmetry itself, he regarded symmetry as a balancing element that facilitates perception. He elaborates that symmetry is intrinsically visually pleasant since similar arrangements enable quick comprehension and lower cognitive load (Montesquieu, 1759, p. 279). Considering Montesquieu's viewpoint, Boullée was skeptical of Perrault's ideas, and the crucial consideration in his visionary theory was that, according to him, architecture derives from volumes, which in turn derive from nature. According to him, the order must be evident in all compositions based on symmetry. In much the same line, he argued that: "symmetrical compositions are true and pure" and even the slightest deviation from symmetry is intolerable (Boullée, 1976, p. 87). Thus, with adherence to classical thoughts, Boullée ultimately aligned himself with the group that believes architecture derives from nature.

However, Jean-Nicolas-Louis Durand criticized Boullé's ideas and his master Jacques-François Blondel. Jean-Nicolas-Louis Durand was among the French architects who were known as revolutionary architects in France, seeking liberation from traditional architectural conventions. Similar to Perrault, who rejected the classical principles, revolutionary architects like Durand criticized the traditional architectural proportion as dogma due to the lack of a rational foundation (Jacoby, 2013; Picon, 2000). He emerged as a prominent architect who focused on the new systemization of architecture, delineating a clear separation between the objective and subjective elements in his method of composition to differentiate between science and art (Madrazo, 1994, p. 14). Initially skeptical of Vitruvius' thoughts regarding the imitation of proportions of the orders in the human body, Durand ultimately concluded that they could have never been imitated in that manner. In much the same vein, he criticized Marc-Antoine Laugier's hut theory and refused the idea that nature and the human body are the models of imitation for architecture (Durand, 2000). A central concern of Durand's theory was économie (economy), which he had progressively tried to articulate within the framework of his treatise.

The concept of économie, in Durand's perspective, went beyond financial concerns to include a more general sense of usefulness, efficiency, and sensible resource allocation in architectural design. Durand explained that economy is a core idea in his design paradigm, alongside characteristics such as symmetry, regularity, and simplicity, which were the general principles in the overall design process (Durand, 2000, p. 88). With this in mind, he raised a confrontation between beauty and economy, contending that it is unnecessary, and even dangerous, for architecture to prioritize aesthetic pleasure. In contrast to classical and early Renaissance architects, who comprehend the concept of symmetry as an inseparable component of beauty, Durand regarded symmetry as an essential element of the economy, stating that symmetrical and regular buildings are more economical (Durand, 2000, p. 85).

Similar to Perrault, who emphasized the rationalization of architecture through a modern way of thought, Durand also attempted to advance his theory for the systemization of architecture with logical steps. Parallel to the attempts to develop the science of architecture during the eighteenth century, Durand sought to epitomize his theoretical framework as a means to attain comprehensive architectural knowledge. Notably, the plans drawn by Durand exhibited a pronounced inclination toward symmetry, organized around a central, axial base. The adaptation of grid layout and the axes of symmetry can

be seen as a focal point in organizing the functional part of the building and in general, defining its overall compositional integrity **(Figure 7)**. Considering his approach to composition, choosing a geometric form, such as a square, to represent the objective aspect marks the first step in the composition process.

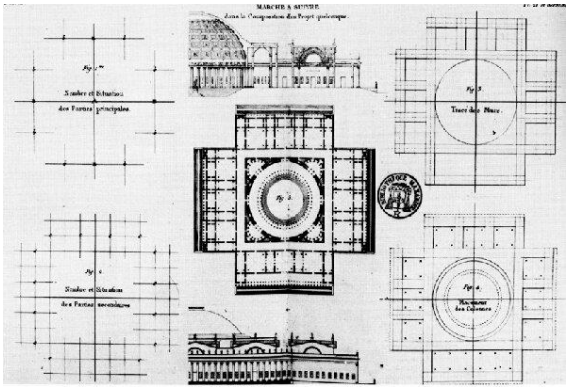


Figure 7. Durand's symmetrical composition, Source: (Durand, 2000)

Following Durand, Eugène Viollet-le-Duc (1814-1879), another influential architect in France, chiefly focused on the outward appearance of buildings while placing significant emphasis on functionality and the logic of rational construction. According to him, the design of a building should start with the plan and the interior, culminating in the exterior as the final phase (Viollet-le-Duc, 1990b). This approach could be extended to Luis Durand's theory and his rational thinking in designing buildings; however, in contrast to Durand or English contemporaries like John Ruskin, who called symmetry a "painful necessity" in architecture (Ruskin, 1889), Viollet-le-Duc was interested in consciously deviating from symmetrical composition. This inclination was evident, especially in his restoration work, where he sought to maintain the historical authenticity of buildings while introducing modern innovations. The following quote from Viollet-le-Duc illustrates his way of thinking regarding symmetrical design:

> "When the tenor of the program lends itself to symmetrical arrangements, it would be puerile not to take advantage of it; for we cannot be blind to the fact that circumstances often present themselves in which a symmetrical disposition is a satisfaction to the mind and to the eye… . However, this may be , it would seem reasonable never to sacrifice absolute requirements, or rather arrangements that ought to comply

> with those requirements, to symmetry... a bad arrangement is a nuisance felt constantly, while the pleasure a symmetrical arrangement produces is soon forgotten." (Viollet-le-Duc 1990b, p. 254)

He ultimately rejected the notion of identical façades in buildings, even employing identical windows for rooms with different functions (Viollet-le-Duc, 1990a, pp. 254–255). From this line, it can be inferred that the functionality for him has precedence over the aesthetic factors. In this regard, he stated: "While rational design is not necessarily beautiful, a beautiful building is necessarily rational, thus, asymmetry in façade design and irregularity in massing should be accepted without qualm" (Viollet-le-Duc, 1990a, p. 13). What is discernible from the discussion surrounding Durand, Viollet-le-Duc, and their contemporaries is that as the transition towards the modern era unfolded, the aesthetic understanding of symmetry gave way to a more conscious emphasis on its functional and constructive aspects in the architectural design. Despite this transition, during this period, a symmetrical way of thinking in architectural design also manifested itself through large-scale urban design projects.

SHIFTING PERSPECTIVES FROM SYMMETRICAL ARCHITECTURE TO SYMMETRICAL URBANISM

Considering the employment of symmetry in town planning practices, this concept became closely associated with the idea of ideal cities, which was frequently discussed in Renaissance and Baroque town planning. As critical examples, Filarete's plan of Sforzinda and Jacques Perret's several town plans epitomize this Renaissance ideal, as social and religious thinkers envisioned cities with balanced and symmetrical layouts. In the following century, the rapid, radical, and untamable socio-spatial and socio-cultural upheavals of the Industrial Revolution, coupled with significant shifts in the production, labor, and transportation networks, resulted in the emergence of new needs and new methods of town planning impinged to the new needs and desire in the urban life. In this regard, the integration of classical ideals of harmony and balance into urban planning and design led to an emphasis on utility and balanced regulation, resulting in a more mechanistic interpretation of symmetry that prioritized functional considerations over aesthetic concerns.

Traces of rationalist-functionalist planning in this period can be seen in Claude-Nicolas Ledoux's plan for Chaux, an industrial town in France, designed in 1755. The symmetrical layout of the town was intended to be oval, with the administrator's center positioned in the middle. In much

the same vein, surrounding this central hub, there were industrial structures, utilized for processing brine from neighboring salt mines. Furthermore, a greenbelt area reserved for parks, gardens, and public spaces surrounded the whole city complex, with worker housing around the industrial center in the oval periphery. This geometric precision and symmetrical layout of the industrial city, with divided functions and distinct areas, garnered many adherents, particularly during the early modern era. It should be mentioned that it was also fueled by the rapid rise of population and migration from rural areas to large cities, which led to numerous urban challenges, prompting the emergence of modern town planning between 1830 and 1850. Even though the application of perfect axial symmetry in modern urbanism may be questioned, there was a noticeable trend in the proposed urban planning projects towards adopting axial symmetry or creating well-balanced asymmetrical urban layouts—especially when we define symmetry in its modern context as balance. Following this, throughout the Nineteenth and Twentieth Centuries, the adherence to strict axial symmetry or balanced asymmetry was evident in visionary urban plans such as Baron Georges-Eugene Haussmann's renovation plan for Paris in 1853, Garden City by Ebenezer Howard in 1898 or La Ville Radieuse by Le Corbusier in 1924.

Among several projects mentioned, Haussmann's renovation project stands out as a prime example of pragmatism which, due to the inconveniences experienced in the industrialized city, notably sanitary problems, his proposed urban layout emerged as a cornerstone of reforms in nineteenth-century France. Haussmann started his rational planning by widening the old and narrow streets. In addition, new boulevards and new buildings were arranged in a symmetrical plan. By embracing traditional concepts of symmetry and regularity, he took pride in creating monumental focal points in the scale of the new boulevards and squares (Benevolo, 1977b, p. 78). As a result, the narrow, meandering alleys and medieval heart of Paris were replaced by wide boulevards, a revolutionary development that, according to Leland Roth, was somewhat reminiscent of the axial layout observed in Sixtus V's restoration of Rome (Roth, 2013, p. 529). Haussmann pioneered the application of modern symmetrical layout to the larger scale of a city by emphasizing horizontal lines and integrating them into principles of geometry and symmetry. In light of this, Benevolo (1977a) stated that Haussmann's efforts were an extension of Baroque complexes on a grander scale while maintaining the same concentration on symmetry and regularity, *culte de l'axe* (cult of the axis). Although Haussmann's plan did not strictly adhere to bilateral symmetry, he embraced the traditional principles of symmetry and regularity by designing buildings with consistent height ratios and uniform façade along the same axis of

key thoroughfares and squares, aiming to mask irregularities in the large-scale layout. Afterward, his strategies were disseminated throughout Europe, serving as the prototype and common practice for new urban planning projects such as those seen in Barcelona and Stockholm, respectively.

The scientific and technological breakthroughs of the early 20th century profoundly impacted urban planning and design. This period emphasized carefully constructed coherence in socio-spatial configurations, with an emphasis on harmony, balance, and coordination. (Akkerman, 2000). In this regard, while leading figures of modern architecture like Le Corbusier abandoned rigid symmetry as a method of designing buildings, they maintained an adherence to symmetry in the context of large-scale urban design projects **(Figure 8)**. This mechanical paradigm can be seen in Le Corbusier's Maison Citrohan, where his steadfast belief in the house as a "machine for living" exemplifies the 20th century's integration into the more mechanical and functional paradigm of classical science (Frampton, 1992, p. 153). Subsequently, considering the concept of symmetry in this era, there was a notable shift from emphasizing symmetrical façades or plans to symmetrical layouts and more coherent urban forms. Similarly, on a larger scale, the modern city embraced this paradigm by employing symmetry, order, and harmony to enhance the quality of life for its inhabitants, driven by a pursuit of efficiency. It should be mentioned that this adherence to symmetry and balance was evident not only in the practical implementation of projects but also in the utopian visions of urbanism crafted by designers. In 1925, Le Corbusier generated debate with his vision for the contemporary city, proposing the Plan Voisin—an ideal modern city designed for the center of Paris—following the symmetrical layout of Ville Contemporaine in 1922. Despite featuring various types of buildings, including skyscrapers, multi-story houses, and villas, his Plan Voisin rigorously adhered to symmetry characterized by octagonal and diagonal streets. In other words, very similar to the utopian plans of the Renaissance, the ideal order for Le Corbusier was illustrated through strict application of symmetry and symbolic geometry (Benevolo, 1977b, p. 440; Curtis, 1996, p. 87). As proposed, a massive network of straight roads was to be integrated into the conventional street system, and a large piece of the rive droite was to be demolished in order to make room for a symmetrical layout of linear and cruciform skyscrapers. Furthermore, within this functional-mechanical plan, the modern notion of distinct zoning for residential quarters, commercial, recreational, and business areas was integrated through a standardized symmetrical system.

As symmetry evolved into a rational and functional idea within the new urban planning strategies, Jacobus Oud, a Dutch architect, proposed numerous symmetrical plans for different districts in Rotterdam, simultaneous with Le Corbusier's Plan Voisin (Seeumpornroj, 2018). One important example of his proposed layouts was the plan for the Mathenesse district in Rotterdam, where Oud implemented symmetry in response to the irregular patch of ground on the southern side. In essence, his solution for this case involved retaining certain axes of symmetry that basically tended to asymmetry. The Mathenesse district was structured in a triangle shape, featuring a highly formularized symmetrical layout, which served as a purely external form of control strategically employed to mitigate the irregularity of the ground (Benevolo, 1977b, p. 460). An important consideration in this project was the incorporation of plastered one and two-story buildings adorned with black and white elements, aimed at establishing a sense of symmetry, balance and harmony within the whole composition.

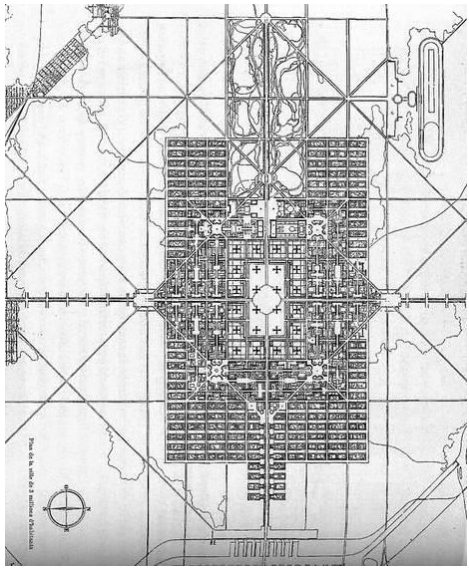


Figure 8. Le Corbusier's layout of *Ville Contemporaine* in 1922. Source: (Benevolo, 1976 b)

Having discussed European cities, with a broader perspective, American town planning has also experienced a significant transformation by adapting the concept of symmetry and its principles in their design. The concept of American symmetrical gridiron planning dates back to the late eighteenth century when it was first implemented in the capital by

Thomas Jefferson. This concept was established through the Land Ordinance of 1785 and the establishment of the new territories, which were to be subdivided "according to a grid corresponding to meridians and parallels" (Benevolo, 1977a, p. 205). As Benevolo argued in this context, establishing a connection between European and American town planning, requires recognizing that Jefferson's adoption of 'symmetry' and 'taste', rooted in classical European culture, bore a resemblance to the academic intention that Barron Haussmann applied in Paris a century later (Benevolo, 1977a, p. 205). This concept of planning continued to the early nineteenth century when America's economy was based on agriculture and a moderate degree of industrialization. In this regard, scholars such as Augustus Woodward in 1807 and Alexander Ralston in 1821 tried to promote the symmetrical composition and native concept of gridiron street layout to other important industrial cities like Detroit and Indianapolis, respectively. In both cities, the designers applied the modern sense of symmetry in urbanism wherein, although individual elements did not necessarily correspond or mirror those on the opposite side of the axis, the whole layout represented the balance and symmetry aligned with contemporary functions inherent to urban life **(Figure 9 & 10)**.

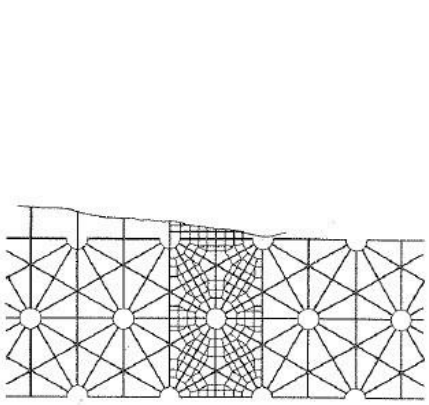


Figure 9. The diagram of Woodward's plan for Detroit in 1807, Source: (Benevolo, 1976 a)

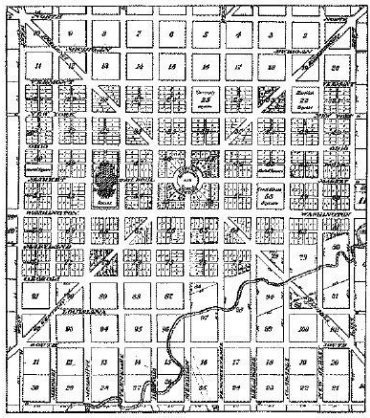


Figure 10. Ralston's plan for Indianapolis in 1821, Source: (Benevolo, 1976 a)

In considering the adaptability of symmetrical design in shaping the urban landscape of American cities, it is noteworthy that this approach was not confined to Europe and the United States; indeed, designers in

South America, particularly in Brazil, embraced symmetrical design principles as a hallmark of modern urbanism's functionality. In Brazil, following Getulio Vargas's Revolution in 1930, the political elite tended to avant-garde artists who had been marginalized due to their opposition to the previous regime (Benevolo, 1977b, p. 750). One such figure was Lucio Costa, who was the director of the School of Fine Arts at Rio De Janerio and became renowned for his symmetrical plan for Brasilia. Costa laid out a north-south axis in his plan to accommodate a modern motorway. With adherence to symmetry and visual harmony, the primary focus of Costa in this project was to ensure balanced access to transportation, equal distribution of housing and job opportunities, and responsive consideration of the community's requirements within the modern urban landscape. Recognizing the minor axis' celebratory aspect, Costa attempted to retain symmetry in the two arms of the principal axes. This bilateral symmetry imbues the entire construction with a vaguely zoomorphic nature, which was most likely intended for symbolic purposes. **(Figure 11)**

The exploration of symmetry and symmetrical urban composition even continued in the contemporary era with several urban design projects— such as Astana (Nur-Sultan), the administrative city center of Putrajaya in Malaysia, and the planning of downtown Dubai— serving as important examples of innovative application of symmetrical principles. In these mentioned examples, the concept of symmetry is integrated with modern technologies and different sustainable design strategies to address contemporary urban challenges. Nonetheless, this study focuses on the key examples from the early modern era, where symmetry played a crucial role in organizing functional urban life in response to the emerging political upheavals of their times.

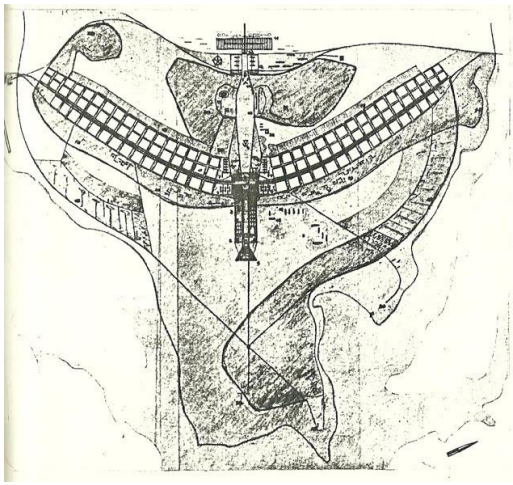


Figure 11. Original sketch of Plano-Piloto, Brasilia by Lucio Costa in 1957, Source: (Costa, 1958)

CONCLUSION

This research tried to illustrate the evolution of symmetry in architecture and to analyze the fundamental shift in priorities from aesthetic ideals to more functional imperatives. In this vein, the exploration of symmetry in art and architecture remains rich with possibilities; yet, this research has highlighted a key gap: the oscillation of this concept among various theoreticians, who either embraced its application or purposefully avoided its implementation in their design. In this regard, the primary objective of this research was to gain a clearer understanding of how scholars and architects defined symmetry and integrate it into their work, both in the small-scale architecture of individual buildings and on a larger scale in urban design.

As demonstrated in the previous sections, the field of architecture is dominated by various schools of thought, stemming from classical antiquity, the Renaissance, and the modern era. Having discussed this concept through the lens of classical antiquity and early Renaissance as primary points of reference, it has been narrated as an essential principle of classical order –believed to be derived from nature and the human body— as a means to reach beauty in architecture. In other words, symmetry was regarded as a compulsory element in successful art and architecture, as it was assumed to be an essential factor in establishing 'proportion', 'harmony', 'correspondence', and 'balance' among all parts. Nevertheless, when it comes to the modern era, it has been implemented beyond aesthetic motivations, being applied as a

mathematical and rational factor to address functional and constructive dimensions. Architects and scholars who adhered to this perspective, such as Violet Le Duc, were utterly against the application of symmetry, believing it sacrificed the functions of different parts. Hence, it is fair to say that whether guided by biological signals for perceiving beauty, driven by the necessity for architectural products to be easily understood and provide pleasurable experiences, or influenced by modern perspective, emphasizing mechanical functionality, the concept of symmetry has remained the crucial principle in the repertoire of architects and urban designers.

An important consideration is that, beyond aesthetic, functional, and economic motivations, symmetry has also been adapted as the representational tool and apparatus, serving ideology by symbolizing power through monumental and symmetrical architectural designs. Prominent examples of this issue can be seen in the state buildings designed and constructed during the Nazi regime in Germany. Applying strict symmetry with classical orders to buildings like 'The House of German Art' or 'Zeppelinfeld' resulted in an instant sense of monumentality, serving the immediate effect of ideological power, as noted by William Curtis. Of course, these are but a few examples from many.

Nonetheless, in modern and contemporary contexts, symmetry has been reinterpreted under the pressures of functionality, efficiency, and large-scale urban organization. If we consider architecture's priorities as dynamic systems shaped by today's technology, and environment, the use of symmetry should not be regarded as a fixed principle but as an important element continually adapted to contemporary context. These ongoing transitions demonstrate that neither architectural priorities nor principles like symmetry remain static; rather, they are continually negotiated in response to shifting design paradigms. To buttress this conclusion further, this research tried to broaden the understanding of symmetry and symmetrical design within the context of modern urbanism. During this era, the symmetrical town-planning concept was applied by the designers who tried to rationalize town-planning amidst the modern movements and to address the evolving societal needs following the Industrial Revolution. The research aimed to illustrate that modern urbanism, exemplified by Haussmann's renovation project in Paris or Le Corbusier's Plan Voisin, incorporated several principles of symmetrical layouts through the Tabula rasa approach to planning and design. Nonetheless, this kind of symmetry neither adhered to the classical meaning of proportion nor the scientific and mathematical concept of mirrored imagery. Indeed, the symmetrical and balanced modern urban design embodied the mechanistic

paradigm of traditional symmetry. This break from traditional principles indicated a shift in architectural thoughts towards prioritizing functionality over pure aesthetics, which, unlike the unconscious application of symmetry as a mere aesthetic factor, it was consciously adapted in devised urban layouts to meet the new needs of modern society. This further emphasizes how symmetry has evolved over time as a dynamic and adaptable concept in architecture and urban planning, influenced by changes in society and technology.

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PARTICIPATORY DESIGN MEETS SPACE SYNTAX: RETHINKING PRIORITIES IN USER CENTERED SPATIAL PRODUCTION

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ABSTRACT

Architecture, as both a cultural and spatial practice, has long confronted the question of whose needs and voices shape the built environment. In recent decades, user-centeredness has become a key priority, particularly through participatory design processes that invite users to contribute to the shaping of space. This paper explores how such participatory approaches, when combined with analytical tools like space syntax, can redefine architectural priorities by linking democratic engagement with evidence-based evaluation. The study emphasizes the significance of participatory design in architectural processes, aiming to demonstrate that spaces shaped collaboratively with their users can achieve greater efficiency and functionality. Within this framework, three methods were employed: spatial configuration analyses of university buildings, semi-structured surveys, and participatory workshops with architecture students at Düzce University. Findings show that students' spatial usage patterns are strongly influenced by spatial configuration rather than user intention. While participatory workshops revealed critical needs such as improved circulation, social areas, and spatial legibility, space syntax analyses confirmed these issues through measurable parameters. Overall, the study highlights the complementary nature of participatory design and space syntax: user perspectives make needs explicit, while spatial analysis tests their validity. Together, they provide a robust framework for producing more human-centered, rational, and socially sustainable environments.

Keywords: Participatory Design, Space Syntax, Spatial Configuration, Architectural Priorities, User-Centered Spatial Analysis

INTRODUCTION

Participatory design processes aim to actively involve users in design by informing, consulting, and engaging them through various methods such as surveys, models, and workshops (Wilcox, 1994; Arnstein, 1969; Rowe & Frewer, 2004). Beyond being a technical tool, participatory design redefines architectural priorities by emphasizing transparency, equality, and horizontality in decision-making (Sanoff, 2022; Hofmann, 2025). It has been applied in diverse contexts, from post-disaster reconstruction (Çetin & Tarçın Turgay, 2025) to child-centered spaces (Baek & Lee, 2008) and smart cities (Erkek, 2023), illustrating its capacity to align design outcomes with user needs and expectations.

At the same time, users constantly adapt the spaces they inhabit, while spatial configurations themselves shape behavior and interaction. Space syntax, as a method for analyzing these configurations, reveals the underlying social order of space (Hillier & Hanson, 1984; Hillier et al., 2007). It demonstrates how integration, connectivity, and circulation patterns influence both accessibility and social sustainability (Burton, 2003; Bramley et al., 2006). In this sense, space syntax highlights another set of architectural priorities: those embedded in the very logic of spatial form.

Bringing participatory design and space syntax together allows experiential insights and spatial metrics to converge. While participatory methods articulate user needs, space syntax tests their spatial validity, enabling priorities to be reconsidered in both qualitative and quantitative terms (Fladd, 2017; Karimi, 2012). The aim of this study is to integrate participatory design with space syntax to uncover priorities in user-centered architectural design processes. Within this framework, the research is guided by three questions:

1. To what extent do the spatial configurations of existing classrooms meet current needs, and how do students perceive these spaces?
2. What kinds of interventions can students propose for classrooms and social areas within participatory design principles?
3. Is there a relationship between participatory design and space syntax analyses, and through which parameters is this relationship shaped?

In summary, participatory design and space syntax represent two complementary perspectives on architectural priorities: one highlighting user agency and collective authorship, the other revealing the structural logic of space. Integrating these approaches offers a framework to evaluate how user expectations and spatial performance converge or

diverge in practice. Within this context, the present study focuses on three educational buildings at Düzce University, analyzing them through both participatory methods and syntactic measures. The following sections present the theoretical background of the two approaches, the research design and methodology, and the findings that illuminate how user perceptions and spatial structures together shape new priorities in architecture.

RESEARCH BACKGROUND

For the purposes of this research and given the above introduction in the search for more inclusive and effective design practices, two approaches have emerged as particularly influential in shaping contemporary architectural discourse: participatory design and space syntax analysis. While one centers on user experiences, values, and agency, the other focuses on spatial logic, configuration, and empirical validation. This section introduces both frameworks by outlining their respective priorities, followed by a discussion on their convergence.

Priorities in Participatory Design: A User-Centered Framework

Participatory design is grounded in the belief that users are not merely end recipients of space but active co-creators. Emerging from democratic design movements in the early 1970s, this approach has evolved to prioritize human agency, equity, and context-based interaction in spatial production (Ref). Its primary concerns can be classified as follows:

- User Needs as Design Drivers: Spaces are shaped around what users identify as important, functional, or meaningful in their daily experiences (Hofmann, 2025.; Sanoff, 2022).
- Satisfaction and Well-being: The approach assumes that spaces designed with user input will be more satisfying and emotionally resonant (Sanya, 2016).
- Empowerment and Transparency: Participatory processes strive to flatten hierarchical structures between designer and user, facilitating collaborative authorship (Greenbaum & Loi, 2012).
- Process over Product: Emphasis is placed on *how* design decisions are made, not just *what* is built. The process itself becomes a site of learning, negotiation, and agency.
- Pluralism and Heterogeneity: Embracing cultural, disciplinary, and cognitive diversity is seen not as a hindrance, but as a strength that enhances innovation (Smith & Iversen, 2018).
- Reflexivity and Iteration: Effective participatory design involves continuous feedback loops, allowing for real-time adaptations and long-term flexibility.

These priorities reflect a value-laden model of design—one where space is understood as a **social construct** shaped by subjective experience, collective memory, and emotional investment.

Priorities in Space Syntax: A Spatial Logic Perspective

Space syntax, developed by Hillier and Hanson (1984), represents a methodological shift toward understanding the spatial configuration of built environments and how they influence social behavior. Rather than subjective intention, it relies on quantifiable relationships between spatial elements. Its core priorities include:

- Configurational Analysis of Space: Focuses on the geometric and topological relationships between spaces—how spaces connect, integrate, and control flow (Hillier, 1996).
- Predictive Modeling of Movement and Interaction: Identifies likely patterns of circulation, encounter, and visibility based on layout (Hillier et al., 2007).
- Evidence-Based Evaluation: Offers measurable insights into how spatial qualities (e.g., integration, connectivity, control) influence functional and social outcomes.
- Social Sustainability through Spatial Structure: Suggests that space itself can promote or hinder social cohesion, accessibility, and equality (Burton, 2003; Bramley et al., 2006).
- Objectivity and Scalability: Can be applied to a wide range of scales, from buildings to cities, allowing for comparative studies and large-scale planning.

Space syntax reframes the built environment as a system of relations, where physical layout can be optimized to support intended patterns of use, social interaction, or accessibility—independent of aesthetic or symbolic design intentions.

Converging Priorities: Where Participatory Design Meets Space Syntax

At first glance, participatory design and space syntax may appear to operate in entirely different epistemological realms: one rooted in human experience, the other in spatial configuration. However, their convergence offers fertile ground for redefining architectural priorities in more holistic and grounded terms. Their relationship can be understood in the following ways:

- Experience vs. Structure: Participatory design reveals *what* people want or feel about space; space syntax explains *how* space enables or hinders those preferences.

- Perception vs. Configuration: Users might report discomfort in narrow corridors or isolated rooms—space syntax can verify whether those spaces are poorly integrated or lack connectivity.
- Intuition vs. Measurement: Even when users are unaware of spatial theories, they often design intuitive proposals that align with syntactic principles (Karimi, 2012)—revealing an implicit connection between lived experience and spatial logic.
- Agency vs. Evidence: Participatory methods empower users to influence design; space syntax provides empirical tools to assess whether those designs perform as intended.
- Validation Loop: The integration allows for *feedback-informed design*, where subjective proposals are tested through objective analysis—creating a dialogue between desire and feasibility.

In short, participatory design fills the qualitative gap in spatial analysis by articulating needs, while space syntax addresses the quantitative gap in user-centered design by measuring spatial effectiveness. Together, they offer a mutually reinforcing approach that acknowledges both social meaning and spatial performance.

This study adopts the above integrative lens to investigate how participatory design processes and space syntax analysis can inform one another and reshape spatial priorities in architectural practice. Through a case study on selected educational buildings at Düzce University, the research aims to analyze how user-generated proposals perform spatially and how spatial metrics reflect or challenge user preferences. The following section outlines the research design, detailing the participatory workshops, perception-based surveys, and spatial configuration analyses that form the methodological backbone of this study.

METHODOLOGY

In alignment with the dual focus of this study—centered on participatory engagement and spatial configuration analysis—a mixed-method research design was adopted. This methodological framework aims to bridge user-centered insight with spatial performance metrics, thereby offering a comprehensive understanding of how participatory proposals perform both experientially and spatially. Accordingly, the research unfolded in two main interconnected stages including space syntax analysis where spatial configuration maps are also created and focus group studies on user perception and followed by the third stage where the conclusion has been drawn on their systematic comparison. Given

the defined hybrid methodology above, this study adopted a case study approach and three buildings located at Duzce university campus have been selected as testbeds, namely the Mehmet Akif Ersoy Central Lecture Halls (A), the Faculty of Forestry (B), and the Studio Building (C).

The first stage focused on the spatial logic of these three case study buildings. J-Graphs (justified permeability graphs) were generated both from the main entrances and from social spaces, to examine how circulation and classrooms relate to communal areas. J-Graph analysis reveals fundamental relationships between spatial functions independent of numerical data, mapping depth levels from a given starting point (Mohamed, Kronenberg, & Łaszkiewicz, 2024). Step depth, defined as the number of transitions needed to cover the system, was also calculated (Nes & Yamu, 2021). Using DepthmapX software, Visibility Graph Analysis (VGA) and Agent Tools produced **connectivity maps** and **agent maps**. In addition, values for **Choice, Connectivity, Step Depth, Integration [HH], Control and Controllability** were calculated using the Convex Maps function. Scatter plots were used to examine relationships such as **legibility (INCO=**Integration (IN) vs. Connectivity (CO)) and **accessibility** (INCH=Integration (IN) vs. choice (CH)). According to Hillier & Hanson (1984), systems with IN–CO > 0.45 indicate ease of wayfinding and high visual dominance. Integration values were interpreted via **Relative Asymmetry (RA)** and **Real Relative Asymmetry (RRA)** to standardize results independent of spatial dimensions (Hillier & Hanson, 1984; Gökce & Kaya, 2020). An RRA between 0.4–0.6 reflects strong integration, while values approaching or exceeding 1 indicate segregation. Control values (Ctrl) were also examined: values >1 signify high control over movement, while values <1 reflect low control, indicating whether specific spaces dominate circulation (Hillier & Hanson, 1984).

The second stage employed participatory methods with undergraduate students of the Department of Architecture at Düzce University. A total of 34 students participated in **semi-structured surveys and focus group studies**, as they are both primary users of the buildings and potential designers capable of critically assessing spatial qualities. Participants reported on frequency and purpose of use (classrooms, group work, faculty meetings, extracurricular activities), spatial satisfaction (location, accessibility, aesthetic compatibility, usability, technological adequacy, legibility), and supporting factors (cafés, dining areas, open/semi-open seating, transport proximity, connectivity of social/common areas).

Finally, outcomes of the space syntax analyses, and the participatory evaluations were compared. Each stage provided complementary forms of data—qualitative and quantitative—enabling a multi-layered

evaluation of spatial priorities from the perspectives of both users and the built environment within the context of Duzce University campus buildings of which are mainly used by the architecture students.

INTRODUCTION TO CASE STUDY

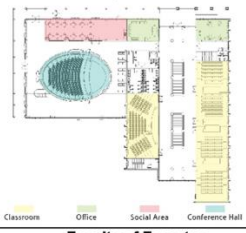
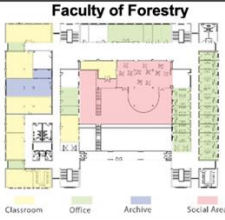
Düzce University was established in 2006 as a separate institution from Abant İzzet Baysal University, with its roots in the 1976 Istanbul Technical University Sakarya Faculty of Engineering. Today, the university comprises 14 faculties, 1 graduate school, 1 college, and 10 vocational schools, along with more than 30 research centers, a technology park, and a university hospital (Güneş & Gökce, 2022). The primary campus is located in Konuralp and includes academic, administrative, cultural, and social facilities, such as the Faculty of Forestry (1994), the Mehmet Akif Ersoy Central Lecture Halls (2005), the Faculty of Engineering (2008), the Faculty of Science and Letters (2006), sports and cultural venues, research centers, cafés, and dormitories (Düzce Üniversitesi İletişim ve Tanıtım Koordinatörlüğü, 2024).

As mentioned in methodology section above, within this campus, three educational buildings regularly used by architecture students were selected as the case study: the **Mehmet Akif Ersoy Central Lecture Halls (Building A)**, the **Faculty of Forestry (Building B)**, and the **Studio Building (Building C)**. In 2019, the Department of Architecture relocated from its former site to the Konuralp Campus, and since then students have been equally exposed to all three buildings. While the Mehmet Akif Ersoy Central Lecture Halls primarily accommodate theoretical courses, the Studio Building supports design studios and practical work, and the Faculty of Forestry functions as a dual-purpose facility for both theoretical and applied courses.



Figure 1. Case Study location map at Düzce University Campus

Table 1. Information About Buildings

	Sample floor plan/Ground floor	Properties	
Building (A) (2016)	Mehmet Akif Ersoy Central Lecture Halls 	Function	Classrooms Offices Conference hall Canteen
		Number of Floor	5
		Floor Area (m^2)	2120m^2
Building B (2005)	Faculty of Forestry 	Function	Conference Hall Canteen Classrooms
		Number of Floor	5
		Floor Area (m^2)	3915m^2
Building C (2005)	Architectural Studio Building 	Function	Social Area Cafeteria Classrooms Library
		Number of Floor	5
		Floor Area (m^2)	2395m^2

Although all three buildings contain classrooms, their social and common areas differ. The Faculty of Forestry and the Mehmet Akif Ersoy Central Lecture Halls both include cafés, while the Studio Building, though lacking a café, provides open seating areas. Additional non-classroom seating is also available around Buildings A and B. These variations offered a valuable opportunity to investigate how spatial configuration, and social facilities influence students' choices, behaviors, and satisfaction. Accordingly, space syntax analyses and spatial configuration mappings were carried out for each building, followed by focus group studies to evaluate students' perceptions, usage patterns, and priorities. Figure 1 illustrates the locations of the three selected buildings. Buildings A and B were completed in 2005, while Building C became operational in 2016.

The Architecture Department was relocated on the Üskübü campus during its establishment but moved to the Konuralp campus in 2019. On this campus, the Mehmet Akif Ersoy Central Lecture Halls, the Faculty of Forestry, and the Dining Hall Building constitute the three main buildings

where architecture students attend classes. It has been determined that architecture department undergraduate students, on average, spend 39 hours per semester in Mehmet Akif Ersoy Central Lecture Halls, 133 hours on average in the Faculty of Forestry, and 65 hours on average in the Studio Building. In the following sections, to ease the understanding of the aimed comparative analyses, the Mehmet Akif Ersoy Central Lecture Halls will be denoted as Building A; the Faculty of Forestry as Building B; and the Studio Building as Building C. The years these buildings began to be used, and their functions are shown in Table 1.

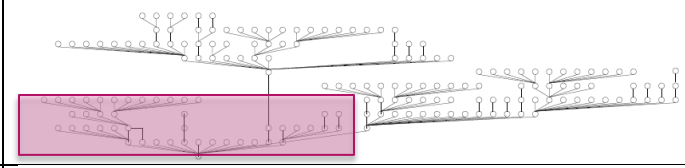
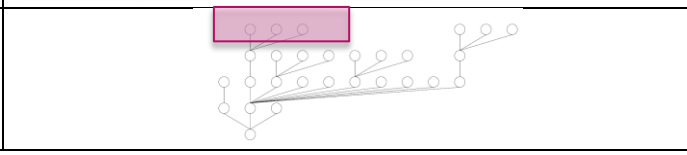
FINDINGS

The findings of this study are structured in two complementary dimensions: the spatial logic of the selected campus buildings as revealed by space syntax analyses, and the user experiences articulated through focus group studies. While the syntactic measures provide evidence-based insights into accessibility, legibility, and functional integration, the participatory evaluations highlight how students perceive, navigate, and appropriate these environments. The comparison of the two datasets allows for a more nuanced understanding of how spatial structures align—or fail to align—with user priorities.

Space syntax analysis

The J-Graph analyses based on the main entrance doors of the three buildings (Table 2) demonstrate significant differences in configurational depth and integration. Building A (Mehmet Akif Ersoy Central Lecture Halls) represents the deepest and therefore most segregated structure, whereas Building C (Studio Building) is the least deep and the most integrated. Buildings A and C thus exhibit relatively more coherent topological configurations, while Building B (Faculty of Forestry) emerges as the most segregated. These findings resonate with Hillier and Hanson's (1984) argument that greater spatial depth reduces permeability and circulation potential, thereby constraining social interaction.

Table 2. J-Graph Analysis

Buildings	Based on Central Entrance J-Graph with Focus Area
A	
B	
C	

The VGA connectivity maps and gate count analyses (Table 3) further illuminate these patterns. In Buildings A and B, circulation corridors emerge as the most integrated and accessible central spaces, followed by conference halls, classrooms, and offices. Restrooms and secondary spaces rank last in terms of accessibility. In Building C, however, the social area functions as the most integrated and accessible space, followed by classrooms, while circulation areas rank lowest. This distinction highlights the different spatial logics at play: while A and B prioritize movement between classrooms, C structurally promotes collective use and informal gathering. In line with Burton (2003) and Bramley et al. (2006), this demonstrates how the spatial configuration of Building C actively supports social sustainability by embedding opportunities for interaction at the heart of the plan.

Legibility and accessibility measures (

Table 4) also reveal striking contrasts. Only Building C exceeds the IN–CO threshold of 0.45, suggesting high visual dominance and relative ease of wayfinding. By contrast, Buildings A and B fall below this benchmark, which indicates difficulties in orientation and circulation. Moreover, accessibility (IN–CH) is highest in Building C, marking it as the most

permeable and frequently chosen space, while Building B records the lowest values. These results align with Karimi's (2012) claim that legible spatial structures facilitate smoother user appropriation, whereas low legibility can hinder spatial belonging.

Table 5 presents a detailed comparison of Choice, Connectivity, Control, Integration [HH], RA, RRA, and Step Depth values across classrooms and social areas. In all three buildings, classrooms exhibit higher control values and function as the most private spaces, while social areas consistently represent the least controlled zones. This aligns with their functional logic, yet important variations appear in terms of accessibility. In Buildings A and B, classrooms are relatively more integrated into circulation, while in Building C they are the most distant and least accessible. This paradox is meaningful: although Building C's classrooms are less accessible, its social spaces are highly integrated, creating a spatial configuration that privileges collective interaction over classroom privacy. Such a balance illustrates what Smith and Iversen (2018) describe as the dual necessity of supporting both focused academic activities and informal social encounters in educational environments.

Table 3. VGA and Agent Analysis

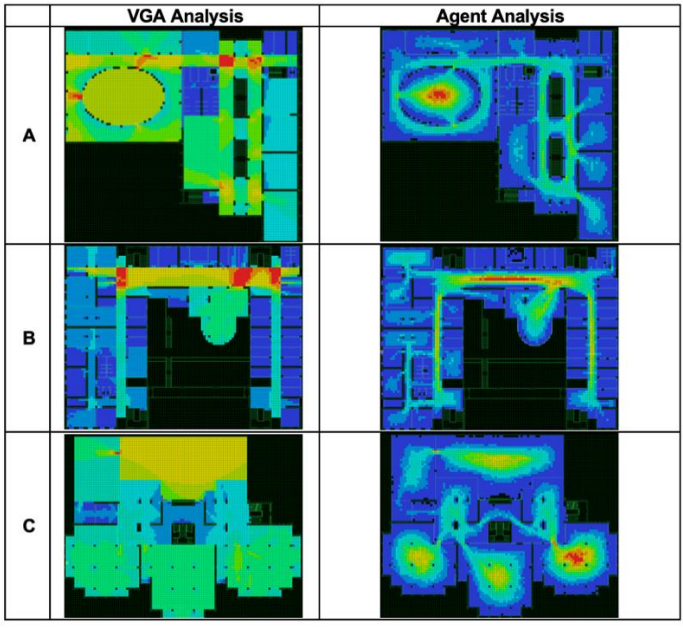


Table 4. Accessibility and Legibility Analysis

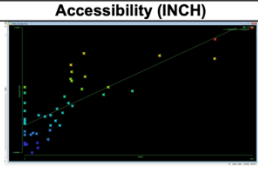
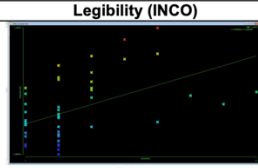
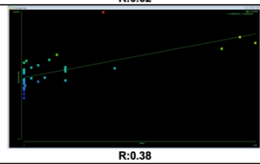
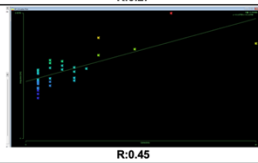
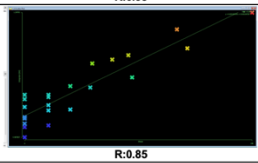
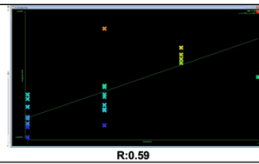
	Accessibility (INCH)	Legibility (INCO)
A	 R:0.62	 R:0.27
B	 R:0.38	 R:0.45
C	 R:0.85	 R:0.59

Table 5. Syntactical measures of Buildings A, B and C

		Connectivity	Control	Integration	RA	RRA	Step Depth
A	Social Area	1	0.2	0.94	0.15	1.05	0
	Class 1	1	125	0.70	0.20	1.41	2
	Class 2	1	125	0.70	0.20	1.41	2
	Class 3	1	125	0.70	0.20	1.41	2
	Class 4	1	125	0.70	0.20	1.41	2
	Class 5	1	125	0.70	0.20	1.41	2
B	Social Area	1	0.11	1.30	0.10	0.76	1
	Class 1	1	0.25	0.79	0.16	1.25	1
	Class 2	1	0.08	1.43	0.13	0.69	2
	Class 3	1	0.08	1.43	0.13	0.69	2
C	Social Area	1	0.5	0.4	0.47	2.45	0
	Class 1	1.8	0.97	0.652	0.264	1.494	5
	Class 2	1.75	0.96	0.65	0.225	1.45	5
	Class 3	1.83	1	0.60	0.31	1.67	5

Taken together, the space syntax results reveal that configurational properties strongly shape how each building mediates circulation, accessibility, and interaction. While Buildings A and B reproduce more traditional, segregated patterns that prioritize classrooms, Building C

presents a structurally integrated model where social spaces occupy a central role in the spatial logic of the building.

Focus Group Studies Evaluation

The focus group study included 34 participants, comprising 18 female and 16 male undergraduate architecture students, whose age mostly range between 18–24 and over 85% of which have spent at least 3 years on campus. Their dual role as primary users and future designers offered a critical vantage point for assessing both functional adequacy and the experiential qualities of campus spaces.

Table 6. Participant Information

Number of participants	Gender		Age Range		Number of years spent on campus					
34	Female	Male	18-24	25-34	1	2	3	4	5	6 +
	18	16	31	3	2	3	7	14	7	1

A thematic analysis of the evaluations (Table 7) revealed both common and building-specific patterns. Across all three buildings, students emphasized recurring issues such as the lack of adequate social spaces, difficulties in circulation and wayfinding, insufficient technological infrastructure, and a weak sense of belonging. These concerns mirror Sanoff's (2022) assertion that participatory processes often bring to light latent needs related not only to function but also to identity, empowerment, and emotional resonance in space.

Distinctive issues were also reported for each building. Building A (Mehmet Akif Ersoy Central Lecture Halls) was associated with unsuitable amphitheater classrooms, limited social/common areas, and problematic circulation at entry points. Building B (Faculty of Forestry) was criticized for its confusing plan layout, insufficient lighting and ventilation, and inadequate insulation, alongside perceptions of a weak institutional image. Building C (Studio Building), while appreciated for its openness and accessibility, raised concerns about hygiene, odor, lack of dedicated ownership of studios, and inadequate equipment such as drawing tables, seating, and power outlets. Word cloud analyses of student responses (Table 8) further visualized these emphases, highlighting "social space," "circulation," "light," and "belonging" as the most recurrent terms, thereby reinforcing the textual findings through frequency-based visualization.

Table 7. Focus group studies evaluation

CATEGORY	MEHMET AKIF ERSOY CENTRAL LECTURE HALLS	FACULTY OF FORESTRY	STUDIO BUILDING
COMMON THEMES	• Lack of social spaces • Distance/accessibility problems • Spatial belonging issues • Inadequate wayfinding	• Lack of social spaces • Insufficient lighting • Confusing layout • Identity/belonging issues	• Need for social areas • Lack of diverse working spaces • Odor-related discomfort (toilets, food) • Studio access and sense of ownership
DISTINCTIVE THEMES	• Unsuitability of amphitheater classrooms • Staircase structure and missing entrances • Outdoor amenities needed (e.g., café, garden)	• Use of shelters as classrooms • Cold indoor environment and poor insulation • Criticism of institutional image	• Studios should be exclusive to architecture students • Inconvenient toilet locations Reorganization suggested for the self-service area
LIGHTING & VENTILATION	• Not strongly emphasized	• Lack of natural light, dark classrooms, poor ventilation	• Strong demand for brightness, openness, and natural light
CIRCULATION & ACCESS	• Limited entry points, inadequate access routes	• Wayfinding is difficult, circulation paths are confusing	• Circulation between toilets and studios causes discomfort
SOCIAL & COMMON AREAS	• Very limited; strong student demand for café, seating, and outdoor zones	• Inadequate, especially in basement and isolated areas	• Multi-purpose use requested: dining + studying + gathering
SENSE OF BELONGING	• Shared spaces hinder personal ownership	• Feeling of temporary use, weak spatial attachment	• Conflict between common and private areas (e.g., studio access)
FURNITURE / PHYSICAL EQUIPMENT	• Limited emphasis (stairs, seating)	• Desks not suitable for drawing • Low comfort	• Old desks, unstable chairs Lack of power outlets
TECHNOLOGY & EQUIPMENT	• Minimal emphasis	• Weak internet connection, outdated tech infrastructure	• Strong demand for technology (sound, projection systems, outlets)

Location within the campus emerged as a decisive factor in preference formation. Building A was favored for its proximity to the main entrance, Building B for its closeness to both the entrance and bus stops, and Building C for its accessibility to bus stops. Yet, despite these locational advantages, satisfaction with technological continuity and social facilities remained low across all cases. This finding suggests that contextual positioning cannot compensate for deficiencies in spatial performance—a nuance that underlines the importance of integrative design approaches that combine configuration with user amenities.

The comparison of focus group data with syntactic measures (Table 9) reveals strong points of convergence. Building A's limited circulation and weak classroom–social area connection correspond directly with its low INCO and INCHO values. Similarly, Building B's functional mixture coupled with spatial segregation aligns with its mid-range syntactic

scores, reflecting a structural bias toward individual rather than collective use. Building C, by contrast, exhibits low spatial segregation and high integration, confirmed by elevated INCO and INCHO values. Students reported that this quality enabled them to use the building not only for academic but also for social activities, thereby demonstrating the link between integration and social sustainability emphasized by Burton (2003).

Table 8. Specialized Word Cloud Analyses

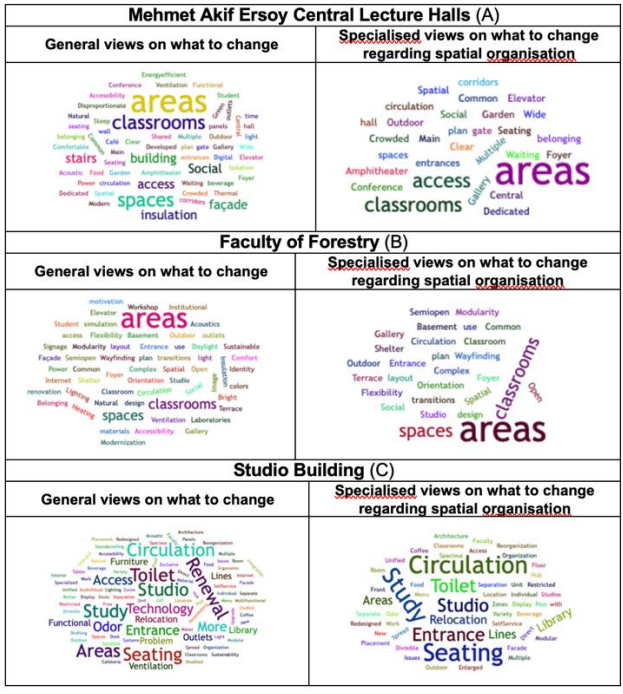


Table 9. User Evaluation and Space Syntax Analysis

	Circulation	Functional layout	Inter-functional relationship	Scale and Spatial Hierarchy	IN CH	IN CO
A	Restricted circulation	Lack of social area	Weak social space-classroom relationship	Lack of visual hierarchy	0.62	0.27
		Spatial Disconnection	Weak entrance perception			
B	Complex plan layout	Not a proper space for classroom	Intertwined spaces	Weak sense of direction	0.38	0.45

	Weak entrance perception	Not enough social area	Not a proper space for social area		
C	Not spatial separation		Uncertain hierarchy of functions	0.85	0.59
	Intertwined spaces		Low legibility		
	Noise				

Nevertheless, discrepancies also emerged. While syntactic analysis identified Building C's classrooms as less accessible, students still expressed strong preference for the building due to its open plan, integrated social spaces, and location. This divergence highlights the interpretive dimension of user perception: spatial structures may predispose certain patterns, but experiential appropriation can modify or even counteract these tendencies. As Karimi (2012) notes, user judgments often align intuitively with configurational logics, yet their lived practices can introduce alternative valuations that purely syntactic metrics might overlook.

In summary, the focus group results underscore that user satisfaction is determined not only by objective measures of legibility, accessibility, and integration, but also by subjective factors such as comfort, belonging, and contextual positioning. When paired with syntactic analysis, these findings demonstrate how participatory methods make user needs explicit, while spatial analysis validates—or problematizes—them. This integration provides a more robust basis for design decisions that aim to be both rational and human centered.

DISCUSSION

The combined evaluation of syntactic measures and user perceptions reveals that spatial structure and lived experience are deeply intertwined, yet not always perfectly aligned. On the one hand, significant overlaps were observed: students' recurring concerns with insufficient circulation, disconnected functions, and lack of social areas (focus group results) are directly confirmed by low integration and connectivity values in Buildings A and B. Conversely, the strong integration of social spaces in Building C corresponds to its frequent use for both academic and extracurricular activities. These findings provide empirical support for Hillier's (1996) argument that spatial integration is a primary determinant of movement and interaction.

On the other hand, certain divergences also emerged. For example, while syntactic analysis identified classrooms in Building C as relatively inaccessible, students nonetheless preferred this building due to its integrated social zones, openness, and proximity to transport nodes. This

illustrates that configurational performance alone cannot fully account for user preferences; instead, experiential and contextual factors play a decisive role. As Sanoff (2007, 2022) and Hofmann (2025) emphasize, participatory design reveals dimensions of spatial use—such as belonging, comfort, and ownership—that are not always visible in purely syntactic analysis.

From a methodological perspective, this study demonstrates the value of integrating participatory design with space syntax. Participatory methods make user priorities explicit, surfacing both functional needs (e.g., technological infrastructure, furniture, circulation) and experiential dimensions (e.g., identity, belonging, comfort). Space syntax, in turn, tests the spatial validity of these claims through objective measures of integration, legibility, and accessibility. Together, they create a validation loop in which subjective concerns can be objectified, while quantitative metrics are contextualized within lived experience. This duality addresses what Karimi (2012) describes as the implicit dialogue between user intuition and spatial configuration.

The synthesis of findings thus highlights three critical implications for architectural practice and education:

- **Social spaces as structural anchors:** The high integration of social areas in Building C demonstrates how their placement within a spatial configuration can enhance both academic and social functions, aligning with Burton's (2003) notion of spatial structure for social sustainability.
- **Legibility as a determinant of belonging:** Buildings A and B, despite functional adequacy, were perceived as less user-friendly due to low legibility and complex circulation, confirming that wayfinding ease (Hillier & Hanson, 1984) contributes to students' sense of spatial ownership.
- **The necessity of methodological hybridity:** Neither participatory feedback nor syntactic analysis alone suffices to capture the complexity of spatial experience. Their integration offers a more holistic framework for evidence-based yet human-centered design.

In sum, the discussion demonstrates that user-centered architectural priorities emerge not from singular perspectives but from the dynamic interplay between configurational logic and lived practice.

CONCLUSION

This study has examined how participatory design and space syntax can be integrated to reveal architectural priorities in user-centered spatial

production. Through a case study of three educational buildings at Düzce University, the research demonstrated that user experiences and spatial configurations are deeply interconnected, yet their alignment is neither automatic nor uniform.

The findings highlight three major conclusions. First, **spatial integration plays a decisive role in shaping user behavior and preference**. Building C, with its integrated social areas, emerged as the most socially sustainable environment, supporting both academic and extracurricular activities. Conversely, the segregated circulation of Building A restricted its use to classroom functions, while Building B's functional diversity was undermined by low legibility and limited social amenities. These variations reinforce Hillier's (1996) proposition that spatial integration determines patterns of movement and interaction.

Second, **user perceptions illuminate dimensions of space that syntactic analysis alone cannot capture**. Students emphasized needs for social interaction, identity, belonging, and technological continuity—concerns that extend beyond configurational logic. While space syntax confirmed structural limitations such as weak circulation or low legibility, participatory evaluations revealed how these limitations translate into dissatisfaction, discomfort, or disconnection in practice. This supports Sanoff's (2022) and Hofmann's (2025) arguments that participatory processes foreground experiential and affective priorities in design.

Third, **the integration of participatory methods and syntactic measures provides a robust methodological framework**. Participatory design articulates user needs, while space syntax tests their spatial validity, creating a feedback-informed loop that bridges subjectivity and objectivity. This dual approach ensures that design decisions are not only rational and evidence-based but also human-centered and socially sustainable. As Karimi (2012) suggests, the convergence of intuitive user insights with empirical analysis enriches the design process and strengthens architectural outcomes.

Practically, the study underscores the importance of designing educational environments with integrated social spaces, legible circulation, and supportive infrastructure. These factors not only enhance academic performance but also foster a sense of community and belonging among students. Methodologically, the research contributes by demonstrating the value of hybrid approaches in architectural analysis, suggesting that future studies should expand this integration across different building typologies and scales.

In conclusion, architectural priorities cannot be reduced to either structural logic or user perception alone. They emerge from their **dynamic interplay**, where spatial configuration sets the conditions for movement and interaction, and participatory engagement reveals how those conditions are experienced, contested, and redefined. This integrative perspective offers a pathway toward more inclusive, evidence-based, and socially resilient architectural practices.

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HISTORY / DISCOURSE / DESIGN

TRACING PRIORITIES THROUGH AWARDS: THE CASE OF KENAN YAVUZ ETHNOGRAPHY MUSEUM

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ABSTRACT

Architectural priorities refer to the criteria emphasized in design and evaluation, encompassing functionality, aesthetics, sustainability, durability, cultural context, and innovation. These priorities are not fixed but change over time and across projects, with awards serving as significant indicators of such evolving dynamics. This study examines architectural priorities through the awards granted to the Kenan Yavuz Ethnography Museum, questioning which values are emphasized in award processes and which remain overlooked. Rather than considering awards solely as recognition mechanisms, the research positions them as analytical tools to reveal the values and approaches privileged in contemporary architectural practice. The museum, located in Bayburt, Türkiye, has been recognized nationally and internationally for its efforts in preserving and reinterpreting rural cultural heritage. It received the Silletto Grand Prize from the European Museum Forum in 2021, the Europa Nostra Cultural Heritage Award in 2022, the Turkish Ministry of Culture and Tourism Special Award in 2022, and the BIG SEE Grand Prix Award in 2023. These awards highlighted its contributions to rural development, social engagement, and the reinterpretation of tradition through contemporary design. However, critical analysis suggests that issues of spatial continuity and contextual integrity were insufficiently addressed in award justifications. Adopting a qualitative methodology, the study applies a grounded theory approach to examine jury reports, award statements, and evaluation documents. The findings indicate that awards tend to prioritize cultural heritage representation, social benefit, rural development, and aesthetic originality, while overlooking certain contextual challenges. The study concludes that award practices in architecture should expand beyond aesthetics and innovation to incorporate long-term social benefit, sustainability, and contextual sensitivity, thereby shaping more comprehensive architectural priorities.

Keywords: Priorities, Museum, Award, Kenan Yavuz Ethnography Museum, Critical Analysis

INTRODUCTION

Architectural awards have significant and multi-layered effects both on architectural representation (that is, how architecture is presented, evaluated, and communicated to society) and on perceptions (how architecture is understood by the public, professionals, and users). These awards not only make successful practices visible but also serve as strong indicators of which values are prioritized.

Previous studies demonstrate that awards promote architectural achievements to the public, highlight certain values and design approaches, enhance professional prestige, and play a symbolic role in city branding (Chatzichristou & Kranos, 2020; Roudbari, 2017; Liao, Jing & Lee, 2022; Owen & Lorrimar-Shanks, 2015; Tempestini, 2025; Salama & El-Ashmouni, 2020; Salama, 2008; Khan, 2020). However, it is also emphasized that there may be mismatches between the criteria highlighted in award evaluations and actual architectural values, and that awards sometimes reinforce elitism and Western-centric approaches (Wijetunge et al., 2025; Owen & Lorrimar-Shanks, 2015). Furthermore, the economic impacts of awards, their role in producing social visibility, and their contribution to perception management through media are widely discussed in the literature (Liao, Jing & Lee, 2022; Tempestini, 2025; Roudbari, 2017).

Within this general framework, a recent case where the mechanisms of representation, perception, and prioritization in awards can be concretely observed, is the Kenan Yavuz Ethnography Museum. Established to preserve and reinterpret rural cultural heritage, this museum has, within a short period, gained recognition both nationally and internationally by winning several prestigious awards. Among these are the Silletto Prize by the European Museum Forum in 2021, the Europa Nostra Cultural Heritage Award in 2022, the Turkish Ministry of Culture and Tourism Special Award in 2022, and the BIG SEE Grand Prix Award in 2023, which all contributed to the museum's international visibility and emphasized its role in rural development.

The awards granted to the museum provide an important field of inquiry for understanding how architectural values, representations of cultural heritage, and social benefits are evaluated within award criteria. On the other hand, when read from a critical perspective, it becomes evident that issues such as spatial continuity and contextual sensitivity remain in the background.

In this context, the main aim of this study is to question which priorities are encouraged and which criteria are marginalized in architectural

awards, using the case of the Kenan Yavuz Ethnography Museum. Accordingly, the study seeks to answer the following questions:

- Which architectural, cultural, and social values are highlighted and which are overlooked in award discourses in the case of the Kenan Yavuz Ethnography Museum?
- What strengths and weaknesses do these discourses reveal in terms of spatial continuity and contextual sensitivity?
- How do architectural awards shape the modes of representation and public perception of museums?
- From a critical perspective, is it possible to rethink award processes in terms of social benefit and long-term cultural sustainability?

In line with these questions, the study argues that award mechanisms should not be limited to foregrounding aesthetics and innovation. For a more comprehensive evaluation, community benefit, contextual sensitivity, and spatial continuity should also be incorporated into award criteria.

METHOD

This study adopts a qualitative research design based on the grounded theory approach. The aim is to examine which values are prioritized and which are overlooked in architecture through the awards granted to the Kenan Yavuz Ethnography Museum, and to develop a conceptual framework for understanding the functioning of award mechanisms. The scope of the study is limited to official reports, statements, and documents concerning the awards received by the museum. Internal jury deliberations or the personal views of museum actors could not be directly accessed.

The analysis of the data was conducted through a three-stage coding process consistent with grounded theory methodology:

Open Coding

- Key concepts and recurring themes in the texts were identified and coded as first-level categories (Table 2).

Axial Coding

- Relationships between open codes were established, grouping similarities and differences around thematic axes. At this stage, the connections between the values prioritized by the awards

and the elements marginalized in the narratives were revealed (Table 3-4).

Selective Coding

- Findings were integrated around a central theme, and a two-dimensional analytical framework was developed, consisting of "priorities made visible in award discourses" and "elements overlooked in award discourses (Table 5).

At the end of the coding process, the data were evaluated through a two-step analysis that comparatively examined the values emphasized in award reports and the aspects that were neglected.

Award Discourses and Priorities: The Case of Kenan Yavuz Ethnography Museum

The Kenan Yavuz Ethnography Museum is a private institution located in Beşpınar Village, Demirözü District of Bayburt, Türkiye. Officially recognized as a museum in 2019, it has been acknowledged with several national and international awards since 2021 (Table 1). In 2021, it received the Silletto Prize from the European Museum Forum (EMYA), which honored the museum's emphasis on local community participation and its contribution to revitalizing rural social and economic life through cultural projects rooted in village heritage. In 2022, the museum was granted the Special Award of the Turkish Ministry of Culture and Tourism, positioning it among the institutions that significantly contribute to the preservation and promotion of the nation's cultural heritage. In the same year, it was awarded the European Heritage Award / Europa Nostra Award by Europa Nostra and the European Union, recognizing its efforts to safeguard and promote both tangible and intangible cultural heritage of Bayburt and Anatolia through interactive experiences designed in collaboration with local communities. Finally, in 2023, the museum received the BIG SEE Grand Prix Award in Tourism Design, which commended its creative storytelling, visitor experience, and the collaborative design process with the local community.

Table 1. National and International Awards of the Kenan Yavuz Ethnography Museum

Awards ---------- Kenan Yavuz Ethnography Museum		
Award	Year	Description
BIG SEE Grand Prix Award – Tourism Design Award	2023	Aims to preserve and revitalize the tangible and intangible cultural heritage of Bayburt and Anatolia by offering visitors interactive experiences and ensuring collaboration with the local community during the design process. -Identity as creative storytelling and experience
Ministry of Culture and Tourism Special Award	2022	Determined by jury evaluation, this award recognizes and encourages communities or institutions that serve Turkey's cultural heritage and art world with dedication.
EUROPA NOSTRA – European Union Cultural Heritage Award	2022	Highlights the museum's efforts to preserve and revive the tangible and intangible cultural heritage of Bayburt and Anatolia by offering visitors interactive experiences designed and presented in collaboration with the local community. -Citizen participation and raising awareness
European Museum of the Year Award (EMYA) / Silletto Prize	2021	Highly successful in ensuring local community involvement, and equally strong in demonstrating how cultural projects based on village heritage can revitalize rural social and economic life.

Each of the awards received by the Kenan Yavuz Ethnography Museum is shaped by distinct criteria and evaluation mechanisms, reflecting unique processes of recognition. The EMYA / Silletto Prize, organized by the European Museum Forum, follows a multi-stage evaluation process. Applications are submitted on an international platform, detailed dossiers and supporting materials are reviewed, and independent jury members conduct site visits to deepen the assessment (European Museum Forum, n.d.-a). Moreover, the Silletto Prize acknowledges profound, continuous, and empowering engagement between the museum and its stakeholders, positioning the institution as a central

reference point for local, national, or global communities (European Museum Forum, n.d.-b). Within this framework, criteria such as innovation, community participation, sustainability, and narrative integrity are emphasized, allowing the museum to be evaluated not only in its local context but also within the international norms of contemporary museology.

The Europa Nostra: European Union Cultural Heritage Award is jointly managed by the European Commission and Europa Nostra, with evaluation focusing on aspects such as digital submissions, community participation, sustainability, and conservation practices. The award process is structured around five main categories: conservation & adaptive reuse, research, education, training & skills, citizens engagement & awareness-raising, and heritage champions (Europa Nostra Awards, 2022). Supported by site visits conducted by jury members from different countries, the process plays a key role in reshaping museum narratives according to both universal conservation standards and local participation measures.

The Special Award of the Turkish Ministry of Culture and Tourism functions as a national-level mechanism, aiming to encourage works, practices, and initiatives that contribute to the advancement of Turkish culture and arts while generating value at both national and international levels (Republic of Turkey, Ministry of Culture and Tourism, 2016). Evaluations are carried out by commissions including ministry experts, and results are announced through official ceremonies. In this respect, the award serves as an instrument that idealizes the museum within the axes of national identity, local development, and social impact.

The BIG SEE Grand Prix – Tourism Design Award, on the other hand, is an international platform that highlights innovative cultural projects. Applications are submitted digitally with visual documentation, and evaluations are conducted based on criteria such as innovation, design, originality, social sensitivity, and functionality (BIG SEE, n.d.).

Table 2. Open Coding of Highlighted Values and Overlooked Aspects in Award Reports

Highlighted Values and Overlooked Aspects in Award Reports-*Open Coding*			
Highlighted Values Codes	Overlooked Aspect Codes	Award	Person - Statement - Source
[rooted] [local tradition] [spirit] [heritage] [awareness] [revitalization] [change] [connection] [potential]	[idealized community spirit] [exaggerated representation of family identity] [transformative / performative presentation of memory] [discourse of positive change]	2021 EMYA Silletto Prize	Marlen Mouliou (Chair of the EMYA 2021 Jury) "Kenan yavuz ethnography museum, winner of the silletto 2021 award, is a private family initiative with firm roots in its local community spirit. Located in a remote village in the northeast of turkey, it stands out as a connector with local traditions, memories, and realities, but also as a potential accelerator of positive changes for the community by establishing greater public awareness of the richness of village heritage and potential of cultural projects to revitalise villages and their communities" (european museum forum, 2021, p.6).
[return to roots] [local community] [inclusion] [success]	[normative construction of local/heritage] [instrumentalized participation of the community] [selective rural revitalization] [award-oriented validation]		**Carol Jackson** (Trustee, Silletto Trust) "…the museum which has won this award although young in age has managed to find very effective ways to advocate the conscious return to local roots and heritage. It is very successful in engaging. Its local community and is equally forceful in demonstrating how cultural projects which build on the richness of village heritage can regenerate rural social and economic life. the Silletto Prize 2021 goes to the K. Yavuz Ethnography Museum Beşpınar, Turkey. Very many congratulations" (**European Museum Forum** 2021, **May 6,** 1:35:14–1:36:05).
[inspiring] [story] [family] [cultural center] [construction]	[idealization of family and emotional ties] [individual achievement] [social approval and collective enthusiasm] [exaggerated narrative]		Jouetta van der Ploeg (Member of the European Museum Forum) "I want to thank you very much for your inspiring and passionate story. It is truly a wonderful story, thank you so much. I will for one definitely go and visit your museum, that's for sure and I think a lot of us in the audience as well I mean you have such a loving family, and it's exceptional to build a cultural center together with your family. Your father started it's exceptional, but does it challenges as well working with your family?" (European Museum Forum, 2022, 24:32–25:05).

Table 2. Continued

Highlighted Values Codes	Overlooked Aspect Codes	Award	Person - Statement - Source
[initiative] [cultural heritage] [awareness] [local community] [collection] [population] [rural area]	[generalization of success] [glorification of community participation] [presentation as a prototype and object of comparison]	2022 EUROPA NOSTRA European Union Cultural Heritage Award	EUROPA NOSTRA Jury "This grassroots initiative has enjoyed great support from its surrounding community and has succeeded in raising awareness of the value of the cultural heritage to this part of Turkey. Special attention was paid to empowering the local community in the cultural activities and the building of the collection. This is a strong example for other rural areas which have suffered population decline" (European Heritage Awards / Europa Nostra Awards, 2022).
[authentic] [traditional texture] [harmonious] [experiential tourism] [new perspective]	[discourse of originality] [emphasis on normative conformity] [innovative orientation]	2023-BIG SEE Grand Prix Award (Tourism Design Award)	Bigg See Platform "THE KENAN YAVUZ ETHNOGRAPHY MUSEUM HAS BEEN AWARDED THE TOURISM DESIGN GRAND PRIX FOR ITS AUTHENTIC CHARACTER, DISTINCTIVE DESIGN, HARMONIOUS INTEGRATION WITH THE TRADITIONAL TEXTURE OF ANATOLIA, AND FOR BRINGING A NEW PERSPECTIVE TO CULTURE AND EXPERIENTIAL TOURISM" (Yavuz, 2024: 417).
[authentic] [culture] [rural-to-urban migration] [bridge between past and present] [local development] [contribution] [working with people]	[reduction to economic success] [instrumentalization of collective participation] [fixation of representation through awards]	2022 Ministry of Culture and Tourism Special Award	Republic of Turkey, Ministry of Culture and Tourism "By contributing to the economic development of the region in which it is located, working together with the local people to enhance economic growth and quality of social life, and presenting unique examples in experiential tourism that earned an important international award, the Kenan Yavuz Ethnography Museum has become another of our institutions deemed worthy of this prestigious prize" (Republic of Turkey, Ministry of Culture and Tourism, 15 December 2022).

Table 2. Continued

Highlighted Values Codes	Overlooked Aspect Codes	Award	Person - Statement - Source
[quality of social life] [experiential tourism] [international] [award]	[identification of space with national identity] [representation and dramatization of the migration theme] [presentation of personal story as a social model] [excessive glorification through uniqueness]	2022 Ministry of Culture and Tourism Special Award	President Recep Tayyip Erdoğan "Our Kenan Yavuz Ethnography Museum is an original project that rests its back on the Çoruh River, turns its face to the East, and sinks its roots into the fertile soil of Anatolia, reflecting the culture of Bayburt in the most beautiful way. The museum vividly brings before our eyes the issue of rural-to-urban migration in all its dimensions and, in this respect, also serves as a bridge between past and present. This beautiful museum, which demonstrates the loyalty of our brother Kenan Yavuz to the land where he was born and raised, I hope will serve as an example to other entrepreneurs and businesspeople with similar life stories. I visited, toured, and spoke with him. Truly, Bayburt had never seen such a work before. I congratulate everyone who contributed to the ethnography museum for their contributions to our national culture and to the development of the Bayburt region" (Republic of Turkey, Ministry of Culture and Tourism, 2023, 04:43–05:57).

When the discourses of award platforms are examined, it becomes evident that the Kenan Yavuz Ethnography Museum is attributed with multiple layers of meaning. Award statements portray the museum as an institution rooted in local traditions and community, reinforcing a sense of belonging, while simultaneously highlighting its role in preserving cultural heritage, transmitting memory, and bridging the past with the present. Moreover, the awards emphasize the museum's position as a dynamic actor that stimulates transformation and revitalization in rural areas, distinguishing itself through its original design and its harmony with the traditional fabric. Creating social awareness, contributing to rural development, promoting experiential tourism, and presenting an

inspiring story of entrepreneurship are also among the values frequently underlined in the award justifications (Table 3).

Table 3. Axial Coding of Highlighted Values in Award Reports

Highlighted Values in Award Reports ---------- *Axial Coding* *Relationships Between Concepts and Categories*	
Sub-Categories Formed by Concepts	Main Categories Resulting from Relationships Between Concepts
rooted, local tradition, local community, return to roots, inclusion, family, success, spirit, story	[Grounding in Roots and Local Community]
heritage, memory, connection, bridge between past and present, cultural heritage, preservation, story, spirit, construction, collection	[Heritage, Continuity and Transmission of Memory]
revitalization, potential, regeneration, change, transformation, creating impact, migration, population, rural area, local development, contribution, working with people, quality of social life	[Transformation, Revitalization and Reconstruction]
authentic, design, distinctive design, harmonious, traditional texture, culture, cultural center, construction, initiative, collection	[Authenticity, Design and Harmony]
awareness, cultural and social awareness, inspiring, impact, new perspective, award, success	[Awareness and Social Impact]
rural area, rural-to-urban migration, local development, population, contribution, quality of social life, working with people, experiential tourism, development	[Rural Development and Experience]
initiative, success, contribution, story, award	[Entrepreneurship and Success Story]

The study demonstrates that while award platforms highlight certain values in their evaluation of the Kenan Yavuz Ethnography Museum, they simultaneously overlook some critical dimensions (Table 4). Community and family are presented as an idealized model of togetherness, stripped of plural and contradictory dynamics; the museum's narrative is reduced from everyday lived experiences to a visual and performative success story.

Moreover, the museum is represented less through its unique identity than as a "model" or "prototype" shaped by the standards of award platforms. The emphasis on economic development and experiential tourism frames the museum as an actor subjected more to market dynamics than to cultural continuity. Discourses of innovation and originality, meanwhile, are transformed into normative rhetoric that aligns with pre-established criteria, rather than offering critical substance.

In conclusion, the award discourses reframe the museum not as a plural space of memory attentive to social diversity, contextual specificity, and cultural continuity, but rather through selective, instrumental, and normative representations.

Table 4. Axial Coding of Overlooked Aspect in Award Reports

Overlooked Aspect in Award Reports ---------- *Axial Coding*	
Relationships Between Concepts and Categories	
Sub-Categories Formed by Concepts	Main Categories Resulting from Relationships Between Concepts
idealized community spirit, exaggerated representation of family identity, instrumentalization of community participation, exaggerated narrative, social approval and collective enthusiasm, idealization of family and emotional ties	[Idealization of Community and Family]
transformative/performative presentation of memory, detachment of memory from social reality, discourse of positive change, generalization of success, instrumentalization of transformation	[Subordination of Memory to Effect and Visuality]
normative construction of locality/heritage, award-oriented validation, turning into a model, prototyping, presentation as prototype and object of comparison, generalization of success, presentation of personal story as a social model	[Normative Representations and Modelling]
awareness, cultural and social awareness, inspiring, impact, new perspective, award, success	[Economic Instrumentalization and Experience-Oriented Representation]
reduction to economic success, social development discourse, emphasis on experiential tourism, fixation of representation through awards	[Rural Development and Experience]
discourse of originality, innovative orientation, emphasis on normative conformity	[Selective Innovation and Normative Originality]

The selective coding process revealed two main dimensions in the award discourses concerning the Kenan Yavuz Ethnography Museum. The prioritized values are clustered under the theme of "normative excellence and the image of collective transformation" (Table 5). Awards highlight the museum through an idealized sense of community, intergenerational transmission of memory, rural revitalization, architectural originality, and inspiring success stories. This emphasis represents the museum as a model of harmony, innovation, and cultural continuity.

Conversely, the overlooked aspects converge around the theme of "the invisibility of plural realities and critical dimensions" (Table 5). Award

discourses push issues of social diversity and conflict into the background, reduce memory to a performative and visualized narrative, and transform the museum into a normative prototype exposed to economic and tourism-oriented instrumentalization. Furthermore, the emphasis on originality and innovation is redefined according to external standards, rather than emerging from context-specific critical evaluations.

Table 5. Selective Coding Findings: Highlighted Values and Overlooked Aspects

Highlighted Values and Overlooked Aspects in Award Reports ---------- *Selective Coding*		
Analysis Dimension	Core Theme	Explanation
Highlighted Values	Normative Excellence and the Image of Collective Transformation	In award discourses, the museum is elevated through references to *idealized community spirit, family attachment, cultural heritage continuity, rural development, unique design, and inspiring success stories*. These discourses transform the museum into a model representation of harmony, innovation, and cultural continuity.
Overlooked Aspects	The Invisibility of Plural Realities and Critical Dimensions	In award discourses, *social diversity and conflicts are pushed into the background, memory is reduced to a performative/visual narrative, the museum is framed as a normative prototype, and economic-tourism driven instrumentalizations* are emphasized. Originality and innovation are also defined according to external standards rather than context-specific critical evaluations.

This dual-axis evaluation demonstrates that award platforms elevate the museum as a symbol of collective achievement and cultural renewal; yet, at the same time, they overlook the complex socio-spatial realities of the local context, its economic dependencies, and the plural forms of memory it embodies.

CONCLUSION

The analysis of the Kenan Yavuz Ethnography Museum reveals that architectural award processes are shaped not only by aesthetic criteria but also by social, cultural, and economic values. EMYA, Europa Nostra, BIG SEE, and national awards in Turkey have celebrated the museum through values such as "local community spirit", "family initiative", "cultural heritage preservation", "rural development", and "authenticity". In doing so, the awards have contributed to transforming the museum into a symbol of both local identity and international visibility.

However, when critically assessed, several limitations emerge. Award criteria often produce representations built upon idealized notions of community and selective heritage narratives, while social differences, local contradictions, and multilayered spatial experiences remain marginalized. Similarly, although spatial continuity and contextual sensitivity are emphasized, these values are frequently rearticulated in line with the normative expectations of award platforms, leaving limited room for critical diversity. Moreover, the application and evaluation mechanisms of awards act as strong external filters: while enabling the museum to gain international recognition, brand value, and visibility, they simultaneously shape its narrative within a framework increasingly aligned with global norms and market mechanisms. The exhibition of awards within the museum, their display in ceremonies, and their constant circulation further objectify the museum's narrative, transferring it into a performative field of representation.

These findings highlight that architectural awards function as powerful instruments in directing the representational strategies and public perception of museums, yet they also reproduce specific normative patterns. Therefore, award processes should be re-evaluated not only through short-term achievements or visual performances but also through long-term cultural sustainability, social inclusivity, and plural memory representations. Such an approach would enable architectural awards to foster professional excellence while simultaneously supporting cultural diversity and social benefit, ultimately serving a more inclusive role within architectural practice.

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THE PRIORITY OF PLACE IN ARCHITECTURE: REFLECTIONS OF GEOLOGICAL HERITAGE ON ARCHITECTURAL DESIGN

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ABSTRACT

Geological heritage refers to the totality of geological formations, fossils, and natural processes that bear witness to the Earth's billions of years of formation and transformation. This heritage carries significant value not only from the perspective of the natural sciences but also within the contexts of history, culture, and architecture. The aim of this study is to examine visitor centers located within geological heritage sites and to reveal, through a qualitative research approach, the significance and value of "place-specific" design in architecture. In doing so, the study seeks to open a discussion on the importance of considering site characteristics and natural formations as guiding priorities in the architectural design process. In this context, the Zonguldak Caves Visitor Center designed in Zonguldak, one of the prominent cities in Türkiye in terms of cave geology, has been taken as a case study. This building stands out as a noteworthy practice with regard to the spatial representation of geological heritage, its integration with topography, and the use of local materials. Within the scope of the study, the Zonguldak Caves Visitor Center is examined in comparison with the Đalovića Pećina Visitor Center (Montenegro) and the Carlsbad Caverns Visitor Center (USA), both situated in similar contexts, as well as the Thingvellir National Park Visitor Center (Iceland), located in a distinct geological setting. Through this comparison, the study analyzes how architectural design interacts with "place" in terms of geological context, material use, integration with topography, and the spatial experiences it offers.

Keywords: Architectural Design; Place Specific Design; Visitor Centers; Geological Heritage; Zonguldak.

INTRODUCTION

Throughout history, the natural environment has been a fundamental factor shaping human settlements, socio-cultural development, and architectural production. Geological formations, topography, and climatic conditions have not only provided vital resources but have also laid the groundwork for the emergence of unique spatial productions. Within this broad natural environment, geological heritage stands out as an area that preserves traces of the Earth's billions of years of formation and transformation. Examining visitor centers located in these areas allows for an evaluation of the impact of the natural environment on architecture, as well as an interpretation of their contribution to the understanding of heritage.

A considerable body of research has been conducted on geological heritage (Marschalko et al., 2013; Alves, 2013; Gordon, 2018). Although studies focusing on the relationship between geological heritage and architecture remain limited (Tatum et al., 2017; Botha, 2013), most of these works emphasize the reflections of the natural environment in architectural design. Visitor centers, in particular, represent a relatively recent topic of interest in architectural platforms within the scope of geological heritage and architecture, yet they remain underexplored in the literature. For instance, Rubenstein (2012) examined visitor centers in U.S. National Parks, analyzing their role in mediating the interaction between nature and humans. In another study, Sukosi (2014) investigated the design of the Shofuso Japanese House visitor center, focusing on how new constructions can be integrated into historic sites and contribute to their context. Similarly, Ababneh et al. (2014) addressed the visitor management process and infrastructural deficiencies of the Umm Qais Visitor Center. Finally, there is also a study emphasizing the role of visitor centers in urbanization (Kärrholm, 2016). With respect to the Zonguldak Caves Visitor Center, only a limited number of studies exist (Turan, 2022); however, no scholarly work has specifically examined visitor centers in the context of geological heritage and architecture with a focus on the priority of place. In response to the displacement seen in architecture due to globalization, this approach emphasizes the priority of place within the context. This perspective is important for evaluating the relationship established between design and place in visitor centers within geological heritage sites (Koçyiğit & Gorbon, 2016). This gap in the literature constitutes both a significant research deficiency and the primary motivation of this study.

The aim of this research is to investigate visitor centers located in geological heritage sites from an architectural perspective, to evaluate

these structures through the lens of place and natural context, and to uncover the ways in which they engage with the unique natural characteristics of their sites. The study primarily analyzes the Zonguldak Caves Visitor Center and, for comparative purposes, considers international examples that establish similar spatial relationships: the Đalovića Pećina Visitor Center (Montenegro), the Carlsbad Caverns Visitor Center (USA), and the Thingvellir National Park Visitor Center (Iceland). Designed as a qualitative research, the study draws upon findings obtained through literature review, on-site observations and documentation, content analysis of technical drawings, and photographic recording. Within this framework, the research aims to contribute to the literature by presenting an original perspective on the relationship between architecture and "place" in geological heritage sites, while also establishing a platform for discussion that may guide future design and research in this field.

VISITOR CENTERS AT THE INTERSECTION OF GEOLOGICAL HERITAGE AND ARCHITECTURE

Geological heritage is a form of natural heritage that encompasses elements of geodiversity with scientific, educational, aesthetic, and cultural value, whether in situ or ex situ. It represents the transformations of the natural environment over time and contributes to the understanding of Earth's history, thus requiring preservation and valorization (Brilha, 2016). Architecture, on the other hand, is a mode of engaging with the natural, social, and cultural environment through the production of space (Alangoya, 2015). Understanding architecture is possible not only through its visible form, but by reaching its source and essence (Aydınlı, 2003). In this context, the interaction architecture establishes with nature extends beyond the physical features of place and reaches into its geological past. Across the world, numerous examples illustrate how geological heritage can serve not only for preservation and promotion but also as a guiding principle for architecture. Machu Picchu, constructed by the Inca civilization, exemplifies this approach, as it employed local granite rocks both as architectural material and as a structural foundation. This use of rock reflects an adaptation to geological formations and an integration with topography (Protzen, 1993; Wright & Valencia Zegarra, 2000). Another example is found in Rudofsky's Architecture Without Architects (1964), which discusses the volcanic formations of the Göreme Valley and their transformation into inhabitable spaces. Such cases demonstrate that the inherent texture of nature, its changing conditions, and temporal processes should not be regarded as destructive forces, but rather as significant resources for architectural design.

In this respect, designs aimed at communicating geological heritage to society often take the form of visitor centers, geopark facilities, walking trails, observation points, and open-air museums. These structures contribute to the experience of the natural heritage in which they are situated. Among them, visitor centers are the primary spaces that shape this experience (Healy et al., 2016). From an architectural perspective, they not only serve to inform visitors functionally but also embody the identity of the natural landscape in which they are located. Through site-specific design principles, such as the use of local materials and adaptation to topography, these structures facilitate the interpretation of natural heritage (Frampton, 1983). Accordingly, visitor centers act as threshold spaces, both functionally and spatially, mediating between the user and the natural environment.

MATERIALS AND METHODS

This study is qualitative research focusing on visitor centers constructed within geological heritage sites, with selected examples from around the world. As a result of a review of both printed and digital sources in Türkiye, 37 visitor centers were identified. Among these, the Zonguldak Caves Visitor Center was chosen for detailed examination, as it represents a recently constructed facility and offers a distinguished architectural example. The selected site provides significant data that allow for the simultaneous investigation of geological formations and architectural design. This local case was then evaluated in a comparative analysis alongside three international visitor centers located in similar contexts.

In the first stage of the research, an extensive review of visual and textual sources available in the international architectural literature was conducted. For the Turkish case, on-site observations and documentation were carried out to produce original visual data. For the centers in Canada, the United States, and Iceland, visual and spatial analyses were conducted using resources such as Google Earth imagery, topographic maps, and geological maps. Based on the data obtained, the four visitor centers were comparatively assessed according to the following criteria:

1. Location and year of construction
2. Natural context
3. Architectural form
4. Relationship with the geological formation
5. Accessibility of the visitor center to the geological site
6. Adaptation to topographic features of the terrain
7. Environmentally respectful design approach

8. Compatibility of the building scale with human and environmental scale
9. Use of natural lighting and daylight
10. Use of local materials

The first five criteria were defined directly in line with the scope of the study, while the last five were based on the "place-specific design criteria" established by Yıldız Kuyrukçu and Alkan (2019). Ultimately, the findings of this research not only reveal the relationship between architectural interventions in geological heritage sites and place-specific design approaches but also contribute to an international understanding of the importance of architecture in the preservation, promotion, and sustainability of natural heritage. Furthermore, the study provides a valuable resource for future design practices in this field.

FINDINGS

Zonguldak Caves Visitor Center (Türkiye)

Zonguldak is one of the provinces located along the Black Sea coast of Türkiye, distinguished by its extensive geological formations. The region contains one of the country's most significant cave systems, with a total of 22 caves (Western Black Sea Development Agency, 2018). Within the system known as the Zonguldak Geopark, two caves are open to tourism, one of which is the Gökgöl Cave. Situated along the Zonguldak–Ankara highway in the Üzülmez district of the city, this active dripstone cave lies on the eastern slope of the Erçek Stream valley. Located approximately five kilometers from the city center, the cave has a total length of 3,350 meters, of which 875 meters are accessible to visitors (Karadeniz et al., 2009). Dating back to 372–328 million years ago, the formation of stalactites and stalagmites within the cave continues to this day. The cave also contains an underground river, whose discharge increases during rainy periods (Governorate of Zonguldak, n.d.) (Figure 1.).



Figure 1. View from inside Gökgöl Cave (Okutan, 2025, Personal Archive)

The first explorations of the cave were carried out in 1976 by geologist Temuçin Aygen together with British speleologists (Turan, 2022). Its geological survey was prepared and reported in 1994 by Nazik, Mengi, Özel, Bircan, and Beydeş (Nazik et al., 1994). The cave was opened to tourism in 2001 (Karadeniz et al., 2009); however, after being flooded in 2014, it was closed to visitors until 2016, during which time renovation works were undertaken (Governorate of Zonguldak, n.d.). Following the completion of these adjustments, the cave was reopened for tourism, and in 2021 a visitor center was constructed at its entrance (Yalın Mimarlık, n.d.).



Figure 2. Aerial view of the Visitor Center (Yalın Mimarlık, n.d.)

The Zonguldak Caves Visitor Center, designed by Yalın Architecture, is a structure conceived with an approach that acknowledges the presence of the natural formation and is shaped in harmony with nature (Figure 2.). It not only provides information to visitors but also enables them to establish a conscious interaction with the cave and its surroundings. As the project's lead architect, Ömer Selçuk Baz, explains (Yalın Mimarlık, n.d.):

> *"From the earliest stages of the design process, our aim was to establish as direct and unique a relationship as possible with the front of Gökgöl Cave and its immediate surroundings, where the building would be located. The architectural approach of the Zonguldak Caves Visitor Center was to develop a coherent architectural language that could exist without competing with the astonishing presence of a natural formation that has taken its current form after millions of years of natural processes."*

The Zonguldak Caves Visitor Center consists of an entrance hall, information panels, a multipurpose hall, a cafeteria, a gift shop, and administrative units, covering a total area of 700 m² in a linear form (Yalın Mimarlık, n.d.). In its spatial layout, the cave entrance axis was taken as

the primary reference, and the building masses were positioned parallel to the topography. Considering the sloping terrain and the environmental characteristics of the cave, the units were placed directly opposite the cave and toward the east. To the west, the main entrance, seating area, and gift shop are located; this section was arranged with open and semi-open spaces to preserve views of the natural landscape (Figure 3.).

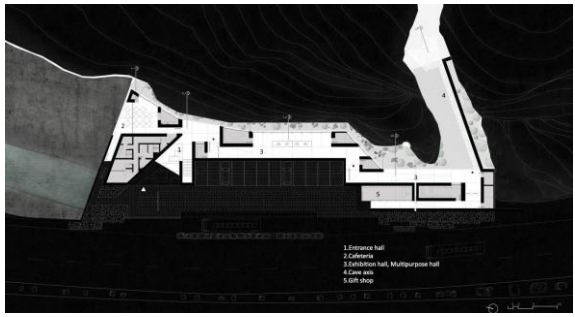


Figure 3. Plan of the Zonguldak Caves Visitor Center (Yalın Mimarlık, n.d.)

The spatial layout of the building is emphasized by a distinct transitional axis that directs visitors toward the cave entrance. Along this axis, information panels, lighting elements, wayfinding details, and exhibition components both spatially prepare and inform visitors about the Gökgöl Cave, thereby integrating them into the cave experience. The information panels also include references to other significant caves in Zonguldak, fostering a comprehensive awareness of the region's geological heritage (Figure 4.).

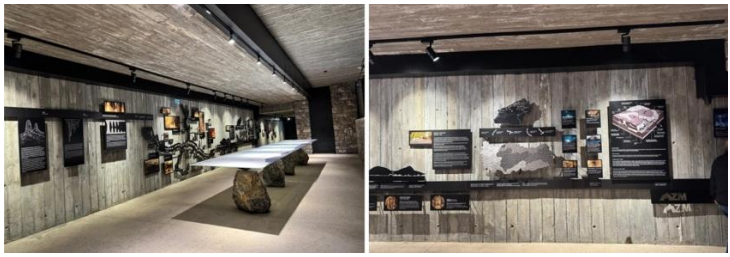


Figure 4. Information boards and exhibition room (Okutan, 2025, Personal Archive)

To achieve harmony with the natural landscape, the building was designed with a horizontal configuration and integrated into the mountainous topography through stepped elevations. This strategy

enables the design to become part of the landscape rather than dominating it and can be regarded as one of the key indicators of place-specificity. The use of stone on the exterior façade establishes both a visual and contextual unity between the building, the cave, and its surroundings, while also emphasizing the importance placed on local materials. In addition, this material choice provides sustainability benefits in terms of ease of maintenance and climatic durability (Figure 5.).



Figure 5. Material details and topographical compatibility of the Zonguldak Caves Visitor Center (Okutan, 2025, Personal Archive)

In the walls and floors, concrete was left in its raw state, without any surface treatment or cladding (Figure 6.). This approach enabled the building to adopt a simple and unmediated aesthetic language while establishing a visual and spatial connection with the surrounding natural rock formations and cave texture. The preference for natural and unfinished surfaces within the constructed space highlights the building's weight, density, and tactile qualities, thereby enhancing spatial awareness (Frampton, 1983). This design choice not only simplifies the spatial experience but also directs users toward a more sensitive perception of geological heritage. Strategically placed slits in the ceilings and walls allow natural light to enter the interior in a controlled manner, enabling users to experience the emotional dimension of the space (Figure 6.). These openings reference the cave atmosphere without disrupting the structural integrity of the mass. Through the permeability created by the architectural relationship of solid and void, light acquires a meaningful emphasis (Holl, 2000).



Figure 6. Corridor connecting to the cave (Okutan, 2025, Personal Archive)

At the transition from the building to the cave, a steel canopy structure was designed instead of a massive volume. This structure, detached from the building itself, symbolizes the orientation toward the cave and clearly emphasizes its monumental entrance. At this threshold between the building and the cave, the natural and the constructed were deliberately combined. On the ground, stone paving was applied in one section while the natural path was preserved in another. As visitors pass beneath the steel canopy, they simultaneously experience the natural rock and mountain texture on the left and a stone wall on the right, thus encountering the coexistence of the artificial and the natural. Similarly, when viewed from the cave back toward the building, the spatial composition evokes the sensation of re-entering the cave. This balance allows the architecture to support the cave experience without breaking away from its context, engaging visitors through sensory, scientific, and physical dimensions. Ultimately, throughout the entire structure, the equilibrium between the natural and the man-made has been carefully maintained (Figure 7.).



Figure 7. Entrance to Gökgöl Cave from the structure and entrance to the structure from the cave (Okutan, 2025, Personal Archive)

Đalovića Pećina Visitor Center (Montenegro)

The Đalovića Pećina Cave is located within the boundaries of Đalovići Village, approximately 20 kilometers from the town of Bijelo Polje in Montenegro. The first exploration and mapping efforts of the cave began in 1987, carried out by the Speleology Section of the Belgrade Mountaineering Association. Following further studies conducted by Czech speleologists in the early 2000s, the total length of the cave reached 14 kilometers by 2009. The cave constitutes a complex underground system composed of multi-level channels and galleries. Its galleries reach ceiling heights of more than 30 meters and feature a 50-meter-long lake, crystal chambers, and rare speleothem formations (Sirotek, 2009) (Figure 8.). The cave entrance is located along the Bistrica Riverbed. Access to the site is provided by road from Bijelo Polje to Đalovići Village, followed by a walking route along the Bistrica River (Show Caves, n.d.).



Figure 8. Đalovića Pećina Caves (Speleomeduza, n.d.)

The Đalovića Pećina Visitor Center is located near Bijelo Polje, in Đalovići Village, along the banks of the Bistrica River (Moravec, 2017). The center does not provide direct access to the cave; instead, it functions as the starting point of a cable car system designed to transport visitors toward the cave (Figure 9.). Designed as a single-story structure, the building covers a total area of 500 m² and includes exhibition and presentation halls, a cafeteria, a gift shop, technical units, and offices. Positioned between the river and the mountainous topography, the building was divided into two parts to respond to both landscapes and was designed with a "grouped form" concept (Archdaily, 2025) (Figure 10.).

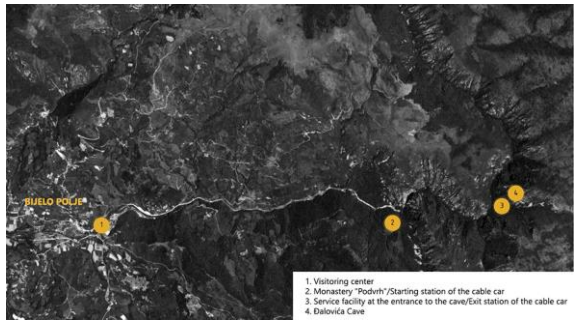


Figure 9. Contextual map of the cave and the visitor center (Archdaily, 2025)

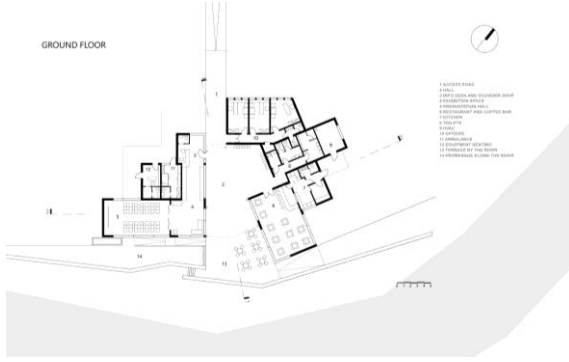


Figure 10. Plan of the visitor center (Archdaily, 2025)

Considering that the building does not establish direct contact with the cave, its massing movements suggest lines oriented to provide views in every direction, creating the impression of a structure in search of the cave. Although physically distant from the geological heritage itself, the design approach considers the spirit of the place, its topography, nature, and texture; this approach is reinforced using simple and understated materials (Figure 11.). While acknowledging the grandeur of its surrounding natural environment, the visitor center asserts its own presence with a pure and minimal language, expressed most clearly through its white walls (Archdaily, 2025).



Figure 11. Mass view of the visitor center (Archdaily, 2025)

Carlsbad Caverns National Park Visitor Center (USA)

Carlsbad Caverns National Park is in the state of New Mexico, United States. This geological heritage site contains more than 120 caves, including the Carlsbad Caverns themselves. It was designated a national park in 1930 and inscribed on the UNESCO World Heritage List in 1995 (UNESCO, 1995). The Carlsbad Caverns were formed approximately 265 million years ago and extend over a length of more than 48 kilometers. Within the cave system lies the Big Room, the largest cave chamber in North America (National Park Service, n.d.) (Figure 12.).



Figure 12. View of the Big Room, Carlsbad Cavern (National Park Service, n.d.)

The visitor center was planned as a two-story building in 1953 and completed in 1959 (National Park Service, n.d.). Located at the starting point of the descent route to the cave, the structure reflects traces of modernist architecture and serves the functions of providing information and guidance about the cave. Its horizontally extended, large-volume mass demonstrates both durability and adaptation to the cave system

with light-colored local stone cladding, suitable for the desert climate (Figure 13.).



Figure 13. Carlsbad Caverns National Park Service Visitor Center (Bourn, 2018)

Access to the cave is provided in two different ways: via the natural walking route and through an elevator located within the visitor center (Bourn, 2018). After experiencing the center, visitors can descend several meters below the surface without leaving the building. This feature demonstrates a successful architectural approach in terms of accessibility. The interior organization is shaped in accordance with this scheme: entrance hall, exhibition areas, multipurpose halls, elevator, and cave entrance. Thus, the building functions as a threshold space for users between the surface and the cave formation. The use of wood, metal panels, and natural tones in the interior reflects the continuity of materials and colors from the exterior façade into the indoor spaces, thereby offering an integrated spatial experience (Figure 14.).



Figure 14. Interior view of the visitor center (Google Earth, 2025; Bourn, 2018)

Thingvellir National Park Visitor Center (Iceland)

Thingvellir National Park is located approximately 49 kilometers east of Reykjavik, the capital of Iceland, and covers an area of 24,000 hectares where the divergence between the Eurasian and North American tectonic plates can be observed on the surface. Of this, 9,270 hectares are protected under the UNESCO World Heritage List. Lake Þingvallavatn forms the park's southern

boundary (Figure 15.). Thingvellir National Park was also the site of Iceland's open-air parliamentary assembly, Alþing, which convened there from AD 930 to 1798. The high cliffs and rift valley provided a natural setting for this historic process, while the area simultaneously presents cultural and natural heritage through its traces of early settlements, the Thingvellir Church, and the lake ecosystem (UNESCO, 2004).



Figure 15. Thingvellir National Park (Thingvellir, n.d.a)

The Thingvellir Visitor Center was designed by Reykjavik-based Gláma-Kím Architects and opened to the public in 2004. The building was conceived in simple, orthogonal forms inspired by the agricultural and religious structures of the region. The design is divided into two parts: the main building housing the exhibition areas and a concrete mass accommodating the wet spaces. To minimize intervention in the geological heritage and natural environment, the structure was planned as a single-story building, with copper cladding used on the exterior façade. The primary reason for this material choice was its ability to gradually change color over time, thereby creating a harmonious integration with the surrounding green topography (Figure 16-17.) (Archidose, 2003).



Figure 16. Thingvellir National Park Visitor Center entrance and exhibition corridor (Thingvellir, n.d.b)



Figure 17. Thingvellir National Park Visitor Center within its natural context (Thingvellir, n.d.b)

DISCUSSION

The findings of this qualitative research reveal how the priority of "place" is reflected in architectural design within geological heritage sites, as demonstrated through four visitor center examples (Table 1.). Each building has developed distinct architectural strategies shaped by its geographical, cultural, and geological context, resulting in spaces unique to their respective topographies. This outcome stems from prioritizing the essence of place in design (Relph, 1976).

Constructed in 2021, the Zonguldak Caves Visitor Center is the primary case study of this research and distinguishes itself by its successful integration into the mountainous topography and preservation of the natural silhouette. Through its linear axis leading toward the cave entrance, the center prepares users for the cave experience both physically and cognitively. In comparison, the Đalovića Pećina and Thingvellir examples direct attention to geological heritage through strategies of contextual harmony and holistic siting within the environment. By contrast, the Carlsbad Caverns Visitor Center, with its large-scale, independent mass and modernist–functionalist design, demonstrates how architecture can risk disregarding the spirit of place. This condition aligns with Frampton's (1983) theory of critical regionalism, which asserts that architecture that ignores local context and the genius loci may produce alienating and meaningless spaces. In terms of materiality, all four centers prioritize the use of local and natural materials. In the cases of Carlsbad, Zonguldak, and Đalovića Pećina, such choices reinforce the integration of architecture with its natural environment. In Thingvellir, copper cladding, gradually changing color over time, achieves harmony with the surrounding green topography.

The four visitor centers examined in this study establish interactions between users and geological heritage through different spatial

strategies. The Zonguldak Caves Visitor Center prepares visitors for the cave experience through an interplay of open and enclosed spaces aligned with the cave entrance. Despite being located at a distance from the cave, the Đalovića Pećina Visitor Center fosters awareness of geological heritage through its exhibition spaces and relationship with the surrounding landscape. Carlsbad Caverns Visitor Center, positioned at the upper level of the cave, provides direct access and initiates the visitor experience within the center itself through its extensive informational functions. Thingvellir National Park Visitor Center, while not directly engaging with tectonic fissures, establishes a cognitive connection with geological heritage through its orientation toward the landscape and the use of visual, auditory, and experiential exhibitions. The building demonstrates a dominant stance over the geological formations and the natural environment at the surface.

These findings demonstrate that all the examined structures were conceived with a design approach respectful of their unique natural, cultural, and topographic settings. Through their contextual integration and the emotional bond, they foster with visitors, the buildings transform physical space into meaningful "place" (Tuan, 1977). As Frampton emphasized (1983), place-specific architecture adopts the unique conditions of the site, such as topography, climate, and local materials, as primary design inputs. Visitor centers are thus conceived not merely as functional spaces, but as threshold environments where visitors encounter the spirit of place. This approach makes it possible to grasp what Norberg-Schulz (1980) referred to as the "task of place" in architecture, enabling the building to become part of its whole and thereby protecting the natural environment.

Table 1. Comparative analysis of the four visitor centers located in geological heritage sites according to the selected criteria.

	1. Zonguldak Caves Visitor Center	**2.Đalovića Pećina Visitor Center**	**3.Carlsbad Caverns National Park Visitor Center**	**4.Thingvellir National Park Visitor Center**
1.Location/Date	Türkiye/2021	Montenegro/2022	ABD/1959 2007(renovation)	Iceland/2004
2.Natural Context	Cave and mountainous area	Cave and valley	Cave	Tectonic rifts and volcanic lava fields
3.Architectural form	Linear axis leading to the cave	Pavilion-like form; indoor and outdoor spaces intertwined.	Horizontally stretched modernist plan	Linear plan facing the view
4.Relationship with geological structure	Orientation towards the cave, reference to the morphology of the cave	No physical contact with geological heritage, spatial reference	Location at the upper level of the cave, access from the interior	Location extending to the geological fault system
5. Access to geological heritage	Located at the entrance to the cave	One-hour walk, cable car system	Walkway, elevator inside the building	Connection to walking trails
6.Conformity with the topography of the terrain	A form integrated into the topography with materials that follow the slope and blend with the natural texture.	Settlements that do not conflict with the topography, a simple design language	Using materials appropriate to the natural texture, Form that dominates and observes the topography	Linear structure form dispersed to adapt to the terrain, using materials appropriate to the natural texture
7.Nature-friendly design approach	Minimal intervention approach to nature	Form sensitive to the natural environment and the cave	Making nature visible is a priority	A contextual approach that preserves visual continuity in the natural environment
8.Compatibility of the scale of the structure with the environment and human scale	A balanced mass; entrances and circulation suitable for human scale.	Mass and circulation appropriate to the site and user scale	Large-scale mass; limited harmony with the environment and human scale.	An environmentally compatible, human-scale natural spatial design.
9. Natural lighting and the use of daylight	Emphasis on daylight in entry areas; artificial lighting support indoors.	Limited natural light entering the interior	Largely dependent on artificial lighting; limited use of natural light.	Maximum daylight utilization with large glass surfaces
10s. Use of local materials	Natural stone, local material	Local stone, wood, white walls	Natural stone and materials suitable for desert climates	Copper plating, modern materials

This study focuses on why structures designed in different geographies and periods remain unique to their locations: an architectural approach that remains faithful to the spirit and texture of place, reinterpreting it without overshadowing it. Ultimately, the study arrives at the conclusion that "the priority of architecture is the priority of place."

CONCLUSION

The comparative analysis conducted in this study reveals that the primary design concern of architectural structures situated within natural heritage sites is achieving harmony with the surrounding topography. Despite being in diverse geographical and climatic contexts, all four visitor centers examined demonstrate a commitment to place-specific design principles. Their contextual approaches, preference for local materials, and respect for natural heritage are the defining characteristics that set them apart. Visitor centers thus function not merely as facilities for knowledge transfer, but as threshold spaces mediating between humans and nature, enriching the visitor experience while making cultural values visible.

The central aim of this study is to explore the priority of "place" and the influence of place-based design approaches on architectural solutions within geological heritage sites, analyzed through the lens of visitor centers. Accordingly, the spatial configurations of the four selected centers, their methods of referencing environmental data, material characteristics, relationship with topography, and contributions to the visitor experience were examined and compared in detail through plans, visuals, and mapping data. The findings highlight that visitor centers are not only informative structures but also transitional spaces that prepare and guide visitors as they enter the natural environment, while simultaneously reflecting the identity of the place. The analysis demonstrates that these buildings prioritize the identity of the site before their own physical presence and seek to belong to the natural environment in which they are situated.

One of the starting points of this research is the limited number of studies in the architectural literature addressing geological heritage and visitor centers. Therefore, this study holds the potential to guide future investigations. It emphasizes the importance of architectural interventions in geological heritage sites that prioritize the priority of place, focus on spatial configurations that raise awareness, adopt natural material usage, and center visitor experience in their design strategies. Nevertheless, the study has certain limitations, including the restricted number of cases analyzed and difficulties in accessing some documents. Future research should aim to deepen the findings by

incorporating a broader sample, user surveys, and long-term observations.

INFORMATION NOTE

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A DISCUSSION ON THE COMMON SPACE OF THE TANDOOR: TRADITIONAL PRACTICES WITHIN MODERN HOUSING IN NUSAYBIN

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ABSTRACT

Under the influence of modernization processes and contemporary neoliberal policies, public spaces in modern cities are increasingly shrinking, becoming homogenized, inward- looking, and socially impermeable. Many such spaces are treated as detached from place- and time-bound practices and incorporated into design and planning policies. Within this framework, this study examines the tandoors- constructed and used by residents in the planned TOKİ housing settlement in Nusaybin, Mardin- as examples of "common space" emerging under neoliberal urbanization (Stavrides, 2016).

The study employs an explanatory sequential mixed-methods design, combining quantitative analysis to document, map, and classify the spatial distribution and typologies of tandoors with qualitative research, including in-depth interviews and participant observation with women users, to understand their socio-cultural context and related social practices.

The tandoor, a traditional cooking tool significant in many cultures, is approached not through traditional–modern, local–universal, or private–public dichotomies but from a holistic perspective. Within this study, it is conceived not as a fixed object but as a socio-spatial practice framed by Bergson's "duration" (1911) and Deleuze & Guattari's "becoming" (1980).

This study aims to guide strategies in architectural design and planning. Understanding the potential of practices like the tandoor, which generate difference and collective space within homogenizing urban structures, is essential. It emphasizes the necessity of prioritizing adaptable, flexible, and communal spaces that support collective practices in design and planning disciplines.

Keywords: Tandoor, Modern Housing, Common Space, Gender, Becoming

INTRODUCTION

Within the phenomenon of the modern city, perspectives shaped by local–global, modern–traditional, and private–public dichotomies have devalued place- and time-bound practices. Many culturally and socially embedded practices have been excluded by homogenizing structures of modern life. After 1980, the global impact of neoliberal policies transformed cities into market-oriented spaces (Harvey, 2013), where housing production and public spaces became instruments of capital accumulation (Stavrides, 2016).

This study explores the socio-spatial interval produced by informally constructed tandoors within TOKİ housing projects in Nusaybin, Mardin. Rather than a nostalgic element of the past, the tandoor is regarded as a contemporary example of common space. As an informally organized everyday practice, it fosters collective production, solidarity, and interaction while sustaining memory and offering a critical ground against local–global, modern–traditional, and private–public dichotomies.

The study area is located in the center of Nusaybin, Mardin. Situated on the Syrian border, the district has been directly affected by political developments. The 2015–2016 conflicts caused severe destruction, after which TOKİ constructed mass housing. The research sample consists of tandoors built informally by residents in these settlements.

The transformation driven by modernization processes and neoliberal policies has diminished the visibility of place- and time-bound practices in cities. Informal productions of everyday life are often neglected or excluded within homogenizing spatial arrangements. The TOKİ housing projects built after the destruction in Nusaybin exemplify this process. Yet, the tandoors informally constructed by residents transcend spatial uniformity, creating new socio-spatial possibilities. These practices highlight unanticipated uses of housing areas and the collective production of new forms of publicness, demonstrating that space is shaped not only by planned design but also by everyday user practices.

In this context, the tandoor, as a local, traditional, and collective practice, provides an important ground for critically engaging with urban spaces shaped by modernization and neoliberal policies. The resulting spatiality highlights not only authority-regulated public space but also common space, continuously reconstructed through residents' practices of shared production, exchange, and solidarity. Thus, the study considers tandoor practices as a contemporary example of everyday

collective space production that challenges the uniform spatialities produced by neoliberal urban policies.

The Spatial and Cultural Archaeology of the Tandoor

Known by various names such as tandoor and tabouna, the tandoor is an earth-based cooking space spanning a wide region from Mesopotamia to Central Asia and India (Leach, 2004; Samuel, 1995; Harlan, 1992). Spanning a wide region from Mesopotamia to Central Asia, the tandoor is a key element of earth-based cooking culture. Archaeological evidence traces similar structures back to the 3rd millennium BCE (Samuel, 1995; Leach, 2004). In Anatolia, it has been used continuously from the Hittites to the present (Naumann, 1985) and remains a living cultural practice today, with economic significance through rural use and commercial distribution to major cities such as Istanbul and Ankara.

Although the term "tandoor" does not appear in Mesopotamian and Harappan cooking structures, archaeological evidence shows these early installations—upright-walled ovens, hearths, or pot-shaped cooking vessels—share structural similarities with tandoors. In Uruk settlements, open-fire cooking took place in circular structures, while Harappan sites feature designated cooking areas within settlements (Samuel, 1995; Leach, 2004).

Although not explicitly called "tandoors," these structures can be considered archaic forms of tandoors based on their function, materials, and spatial organization. Archaeologically, the earliest examples are found in Uruk and Harappan cultures, dating back to the 3rd millennium BCE.

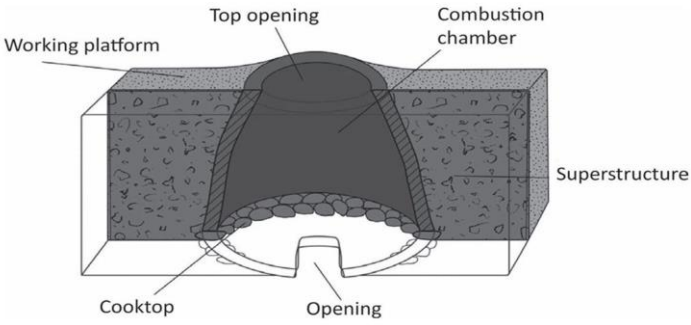


Figure 1. Tandoor Drawing (Casucci, 2023, p.54).

The structure of the tandoor consists of a wide opening at the top, a small opening at the bottom, a working platform, a structural body, a combustion chamber, and a cooking surface (Figure 1).

The tandoor has been used in Anatolia since ancient times. Tandoor structures from the Hittites, dating between the 15th and 17th centuries BCE, have been documented (Figure 2). Archaeological evidence shows that from the Neolithic period, hearths and ovens were used for cooking, heating, or sacrificial fires, while tandoors served similar cooking and heating purposes in more limited spaces (Naumann, 1985).



Figure 2. Tandoor from the Hittite Period (Casucci, 2023, p.55).

Today, tandoors are still produced and used in many settlements, especially in rural areas of eastern and southeastern Turkey. They retain economic value and serve both as a product and a means of production.

The location of tandoors varies according to the diversity of urban and rural housing architecture. Some are situated inside the kitchen within the house, some in courtyard tandoor houses under a canopy, and others outside within the neighborhood fabric. Monumental tandoor spaces in traditional Erzurum houses have parallels in Bayburt houses (Uçar, 1998). Beyond Erzurum and Bayburt, tandoors are also found in

houses across Kars, Ağrı, Iğdır, Erzincan, Malatya, Elazığ, Muş, Bitlis, and Van.

The tandoor is not merely a cooking structure or tool, but a spatial projection of the ontological relationship with earth; the soil serves both as a building material and as a carrier of cultural memory (Ingold, 2000). Structurally, through earth's dual role as producer and container, the tandoor exceeds its functional use as a cooking device, serving as a ritual and social organization space with intrinsic spatial value. This perspective necessitates considering the tandoor beyond its physical form. It is shaped by the relationship with the earth and can be understood as a space where our connection to place, everyday production practices, and collective memory are materialized. In this context, the built environment is produced not only physically but also experientially. In vernacular architecture literature, this approach intertwines cultural meanings with locality and material continuity. Paul Oliver expresses this notion: "The use of earth as a building material is not simply a matter of expediency or poverty, but often of deep cultural significance, rooted in ideas of belonging, continuity and cosmology" (Oliver, 2003, p. 112). From this perspective, the tandoor can be seen not merely as an economic or functional solution, but as a spatial manifestation of cultural belonging and continuity with the place.

Nusaybin TOKİ Housing and Tandoor Use

The study focuses on the TOKİ housing area in Nusaybin, Mardin, built between 2015 and 2016 near the Syrian border. While the city center consists of modern apartment buildings, the TOKİ housing holds a distinct, privileged position.

Nusaybin's proximity to the Syrian border has exposed the district to political actions. Conflicts in 2015–2016 caused extensive destruction. Following this, TOKİ constructed mass housing in the damaged areas. The study sample comprises the areas identified in the Ministry of Environment and Urbanization's Plan Explanation Report as Phase 1, Section 1, and Phase 1, Section 2, representing the TOKİ housing area (Figure 3).

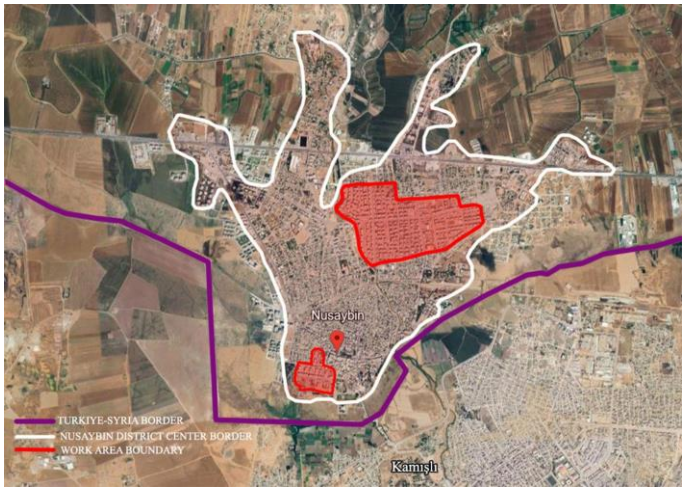


Figure 3. The district center of Nusaybin, with the red area indicating the study site.

The district consists partly of traditional detached houses, partly of apartment buildings, and largely of mass housing constructed by TOKİ after the 2015–2016 destruction. These developments transformed the district, accelerating its shift from rural to urban. Tandoors, which withstand this rapid change and allow the continuation of traditional bread-making practices, have persisted within these spaces.

Tandoor use is widespread in rural areas of Nusaybin. These tandoors are generally scaled to align with the detached houses in the settlement. They typically feature a metal sheet covering, which protects both the tandoor and its fuel from adverse weather conditions (Figure 4).



Figure 4. The photographs respectively show tandoors located in courtyards, on street fronts, and within the neighborhood.

Tandoors hold a significant place in the lives of women, who play a central role in bread production in the district. Recognizing this, the

municipality implemented the "Tandoor Houses Project" between 2009 and 2013. The project aimed to enable women to engage in collective production based on equal distribution while preserving local values. A tandoor house was built in each neighborhood, enhancing women's social and economic participation and contributing to family income through tandoor bread. Constructed using local katori stones, most tandoor houses were destroyed during the 2015–2016 conflicts. One surviving tandoor house, shown in the photographs below, has remained intact to the present (Figure 5).

Within the urban transformation project including the TOKİ housing, no tandoors were originally incorporated. Existing tandoors in these residences have been constructed by homeowners with permission from the municipality (Demir & Kılıç, 2024).



Figure 5. Tandoor produced within the Tandoor Houses Project.

The study area with TOKİ blocks comprises Phase 1, Section 1, including Abdulkadirpaşa, Yenişehir, Fırat, and Dicle neighborhoods, and Phase 1, Section 2, including part of Kışla and Zeynelabidin neighborhoods. There are a total of 5,051 TOKİ units. Additionally, 90 tandoors were identified: 85 in Phase 1, Section 1 and 5 in Phase 1, Section 2 (Figures 6 and 7).



Figure 6. It shows the tandoor structures in the TOKİ units within Phase 1, Section 1 Planning Area.

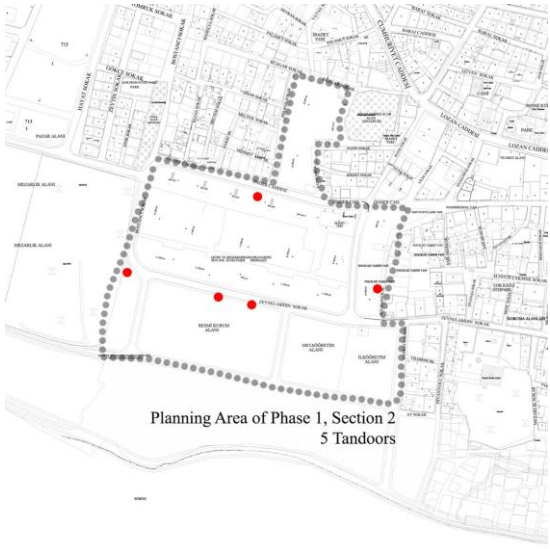


Figure 7. It shows the tandoor structures in the TOKİ units within Phase 1, Section 2 Planning Area.

The placement of tandoors among the TOKİ blocks does not follow a specific order. They are scattered throughout the area and are

generally located along the periphery of the site where the TOKİ blocks are situated (Figure 8).



Figure 8. It shows the tandoor structures located along the periphery.

Most tandoors, located along the periphery, are occasionally found in the gaps between blocks (Figure 9). Notably, they are positioned to foster social interaction with the street (Figure 10). Although their arrangement lacks strict order, it is not random. Placement is influenced by usage frequency and neighborly relations, creating social network nodes where women can see and call to each other. In high-use areas, two tandoors are sometimes built side by side (Figure 11).



Figure 9. 10. 11. Tandoor arrangements.

The physical form of tandoors shows they are traditionally made of earth and later coated with cement for durability. Some have a covering, while others do not.

COMMON SPACE ORGANIZED AROUND THE TANDOOR

The tandoor is not merely a place for baking bread; it is a space where women contribute to household income, stay informed about each other's lives, and build networks of solidarity. Collective bread-making practices provide opportunities for communication, support, and socialization. Observations recorded a woman roasting and selling eggplants at the tandoor, contributing to her family's budget (Figure 12), illustrating the visibility and economic value of women's labor.



Figure 12. User roasting eggplants at the tandoor.

Tandoor use is often directly linked to women's social organization. Cooking bread and meals together fosters conversation, awareness of each other's lives, and solidarity. This network not only reuses the space but continuously reproduces it. In regulated housing areas like TOKİ, the persistence of traditional practices such as baking bread and roasting vegetables highlights the tension between modern housing design and traditional production culture.

In this sense, the tandoor holds an important place in collective memory. Its use by visitors from other cities or countries extends this memory into broader social contexts. Cooking at the tandoor follows no mechanical timeline; it embodies emotional and social time. The dough's fermentation, the wood's burning, and the flow of conversation produce qualitative time, reflecting Bergson's (1911) concept of "la durée."

Tandoors are often located outside the house or in shared spaces, positioning them at the threshold between private and public domains. Women reorganize daily life around the tandoor, where the bread they produce serves not only as food but also as a carrier of cultural continuity. While baking, women simultaneously cultivate tandoor-related culture, making the space central to collective memory. One participant noted contributing regularly to the family budget by fulfilling tandoor orders (Figure 13). The tandoor's role in local cuisine is significant: roasting eggplants and peppers, baking tandoor bread, and preparing festive pastries are essential elements of regional identity (Figures 14–15). Participants emphasized, "The taste of tandoor bread is irreplaceable; even on rainy days, we retrieve it from the freezer," illustrating how traditional flavors sustain memory under modern storage conditions.



Figure 13. 14. 15. It illustrates the relationship between the tandoor and production.

The integration of the tandoor into modern housing fabric invites a discussion of its spatio-temporal existence. Bergson's concept of "duration" resists homogeneous, measurable time, emphasizing qualitative, affective temporality. Deleuze's notion of "becoming" spatializes this perspective, framing the tandoor not as a fixed object but as a continuously reproduced space of becoming (Deleuze, 1966; Grosz, 2001). In this sense, the tandoor constitutes a nonlinear, layered, and simultaneous spatio-temporal experience.

Within urban spaces homogenized by modernization and neoliberal policies, the tandoor emerges as a locus of everyday resistance. Against TOKİ's planned, standardized, and abstract spatial logic, life around the tandoor produces a "lived space" (Lefebvre, 2014), forming a porous threshold between private (home) and public (neighborhood), challenging modernity's rigid spatial categories (Stavrides, 2016).

Most importantly, this everyday practice is constructed by women. While modernization often confines them within domestic spaces, the tandoor enables their participation in production and visibility in the public sphere. The informal publicness women establish around the tandoor lies outside Habermas's rational-masculine public sphere ideal. Instead, it exemplifies Fraser's (1990) "counter-public," where marginalized groups negotiate needs, share experiences, and weave solidarities through commoning. Resonating with Lefebvre's (1984) notion of resistance to homogenizing practices of everyday life, the tandoor emerges as a space of "becoming" (Deleuze & Guattari, 1980), simultaneously private and public.

CONCLUSION

Within modern constructions, the persistence of traditional and local practices is often labeled "nostalgic" or "exotic." Such categorizations render many place-bound practices timeless and devalued within modern lifestyles. Practices deemed incompatible with modernity are thus marginalized, as in the case of the "tandoor," despite their own social contexts and relational networks. In this study, the tandoors constructed by participants within modern housing are not approached as remnants, nostalgic objects, or outdated forms, but rather as situated and current socio-spatial productions. This holistic perspective becomes essential for recognizing and analyzing local practices that modern structures tend to erase or homogenize.

Modernization processes and contemporary neoliberal policies have produced increasingly narrow, isolated, and homogenized public spaces lacking social permeability. Since the 1980s, global "neoliberal housing policies" have transformed many Turkish cities into market-oriented spaces, where housing functions less as shelter and more as capital-driven assets (Harvey, 2013; Stavrides, 2016). TOKİ housing exemplifies what Harvey (2012) terms "accumulation by dispossession," reflecting neoliberal urbanization practices that commodify and homogenize space in Turkey.

Since the 1980s, global "neoliberal housing policies" have transformed many Turkish cities into market-oriented spaces. TOKİ, as a state-led yet corporatized institution, produces block-based, insular urban zones. Within this planning logic, socio-cultural structures tied to local context and climate are excluded from design processes. The constructed housing emphasizes shelter but is primarily shaped by market values rather than social needs (Harvey, 2013; Stavrides, 2016). Key determinants of this market value include modern infrastructure systems and compatible equipment, while the delineation of private property

boundaries functions as another measurable and commodified dimension.

David Harvey's (2012) notion of "accumulation by dispossession" illustrates how neoliberal urbanization commodifies space, reducing collective, socio-cultural, and locally embedded factors—such as topography and climate—into standardized forms. These modernized standards foster spatialities that isolate individuals and diminish social permeability. Consequently, neoliberal economies generate effects that restrict encounters and interactions while reinforcing social divisions and class-based separations.

In this regard, the tandoors built by residents within the Nusaybin TOKİ housing complex—subject of this study—occupy the intersection of modern/traditional, public/private, micro/macro-economic, and local/global dualities within modern urban formations, thereby providing a critical ground for discussing the permeability of such boundaries. The tandoor practice within the Nusaybin TOKİ settlement can be understood as a counter-position emerging from everyday life, generating publicness, solidarity, commoning, and difference within spatialities homogenized, trivialized, and commodified by modernity.

In this context, based on the data obtained so far, this study demonstrates that within the Nusaybin TOKİ housing complex, the tandoor—traditionally considered a simple object—persists as a resilient "becoming" space (Deleuze & Guattari, 1980) within the homogenizing structures of modern urbanization and neoliberal transformations. The tandoor functions not merely as a cooking tool but, in Lefebvre's (1991) terms, as a "lived space" continuously reproduced and transformed by its users. Its presence at the public-private interface aligns with Stavrides' (2016) notions of "permeable thresholds" and "common space," blurring boundaries between private and public spheres. This practice creates a counter-public (Fraser, 1990) for women migrating from rural areas who lack modern equipment and are otherwise excluded from social life.

The study also highlights how tandoors generate unexpected and organic relations, producing common spaces that challenge the standardized housing approaches rooted in Harvey's (2012) "property-based capital accumulation," which often render everyday, spontaneous practices invisible. By revealing Jacobs's (1961) "informal street life" and informal practices, tandoors create unanticipated common spaces within TOKİ housing, otherwise designed as homogeneous commodities.

This study provides significant insights for the disciplines of architectural design and planning. It emphasizes the necessity of understanding space not merely as a physical or economic object, but as a substrate where social and cultural practices, as well as collective memory, are produced. Common spaces that are adaptable, flexible, and supportive of community practices should be prioritized within architectural design and planning disciplines.

Common spaces also serve as sites of social rehabilitation, providing a foundation for the formation of solidarity networks among individuals. Ensuring that each person can exist productively and visibly within public spaces is a critical issue that should be considered within the disciplines of architecture and planning.

This study is an in-depth case analysis at the scale of a single district (Nusaybin), and the research process is ongoing. By examining similar traditional practices in different cities and cultures, the extent to which these findings are universal can be tested. The study aims to deepen spatial analyses and map social networks. Its findings are intended as a resource for urban transformation and cultural policies. The tandır demonstrates a micro-cosmos that resists modernity's dichotomies (private/public, modern/traditional, individual/community) and shows the possibility of more fluid, human-centered spatialities. Through spatial practices, it produces common space, collectivity, and memory. Architecture and planning should learn from these everyday acts of resistance and seek ways to design space as a lived environment.

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HISTORY / DISCOURSE / DESIGN

TRACING PRIORITIES THROUGH AWARDS: THE CASE OF KENAN YAVUZ ETHNOGRAPHY MUSEUM

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ABSTRACT

Architectural priorities refer to the criteria emphasized in design and evaluation, encompassing functionality, aesthetics, sustainability, durability, cultural context, and innovation. These priorities are not fixed but change over time and across projects, with awards serving as significant indicators of such evolving dynamics. This study examines architectural priorities through the awards granted to the Kenan Yavuz Ethnography Museum, questioning which values are emphasized in award processes and which remain overlooked. Rather than considering awards solely as recognition mechanisms, the research positions them as analytical tools to reveal the values and approaches privileged in contemporary architectural practice. The museum, located in Bayburt, Türkiye, has been recognized nationally and internationally for its efforts in preserving and reinterpreting rural cultural heritage. It received the Silletto Grand Prize from the European Museum Forum in 2021, the Europa Nostra Cultural Heritage Award in 2022, the Turkish Ministry of Culture and Tourism Special Award in 2022, and the BIG SEE Grand Prix Award in 2023. These awards highlighted its contributions to rural development, social engagement, and the reinterpretation of tradition through contemporary design. However, critical analysis suggests that issues of spatial continuity and contextual integrity were insufficiently addressed in award justifications. Adopting a qualitative methodology, the study applies a grounded theory approach to examine jury reports, award statements, and evaluation documents. The findings indicate that awards tend to prioritize cultural heritage representation, social benefit, rural development, and aesthetic originality, while overlooking certain contextual challenges. The study concludes that award practices in architecture should expand beyond aesthetics and innovation to incorporate long-term social benefit, sustainability, and contextual sensitivity, thereby shaping more comprehensive architectural priorities.

Keywords: Priorities, Museum, Award, Kenan Yavuz Ethnography Museum, Critical Analysis

INTRODUCTION

Architectural awards have significant and multi-layered effects both on architectural representation (that is, how architecture is presented, evaluated, and communicated to society) and on perceptions (how architecture is understood by the public, professionals, and users). These awards not only make successful practices visible but also serve as strong indicators of which values are prioritized.

Previous studies demonstrate that awards promote architectural achievements to the public, highlight certain values and design approaches, enhance professional prestige, and play a symbolic role in city branding (Chatzichristou & Kranos, 2020; Roudbari, 2017; Liao, Jing & Lee, 2022; Owen & Lorrimar-Shanks, 2015; Tempestini, 2025; Salama & El-Ashmouni, 2020; Salama, 2008; Khan, 2020). However, it is also emphasized that there may be mismatches between the criteria highlighted in award evaluations and actual architectural values, and that awards sometimes reinforce elitism and Western-centric approaches (Wijetunge et al., 2025; Owen & Lorrimar-Shanks, 2015). Furthermore, the economic impacts of awards, their role in producing social visibility, and their contribution to perception management through media are widely discussed in the literature (Liao, Jing & Lee, 2022; Tempestini, 2025; Roudbari, 2017).

Within this general framework, a recent case where the mechanisms of representation, perception, and prioritization in awards can be concretely observed, is the Kenan Yavuz Ethnography Museum. Established to preserve and reinterpret rural cultural heritage, this museum has, within a short period, gained recognition both nationally and internationally by winning several prestigious awards. Among these are the Silletto Prize by the European Museum Forum in 2021, the Europa Nostra Cultural Heritage Award in 2022, the Turkish Ministry of Culture and Tourism Special Award in 2022, and the BIG SEE Grand Prix Award in 2023, which all contributed to the museum's international visibility and emphasized its role in rural development.

The awards granted to the museum provide an important field of inquiry for understanding how architectural values, representations of cultural heritage, and social benefits are evaluated within award criteria. On the other hand, when read from a critical perspective, it becomes evident that issues such as spatial continuity and contextual sensitivity remain in the background.

In this context, the main aim of this study is to question which priorities are encouraged and which criteria are marginalized in architectural

awards, using the case of the Kenan Yavuz Ethnography Museum. Accordingly, the study seeks to answer the following questions:

- Which architectural, cultural, and social values are highlighted and which are overlooked in award discourses in the case of the Kenan Yavuz Ethnography Museum?
- What strengths and weaknesses do these discourses reveal in terms of spatial continuity and contextual sensitivity?
- How do architectural awards shape the modes of representation and public perception of museums?
- From a critical perspective, is it possible to rethink award processes in terms of social benefit and long-term cultural sustainability?

In line with these questions, the study argues that award mechanisms should not be limited to foregrounding aesthetics and innovation. For a more comprehensive evaluation, community benefit, contextual sensitivity, and spatial continuity should also be incorporated into award criteria.

METHOD

This study adopts a qualitative research design based on the grounded theory approach. The aim is to examine which values are prioritized and which are overlooked in architecture through the awards granted to the Kenan Yavuz Ethnography Museum, and to develop a conceptual framework for understanding the functioning of award mechanisms. The scope of the study is limited to official reports, statements, and documents concerning the awards received by the museum. Internal jury deliberations or the personal views of museum actors could not be directly accessed.

The analysis of the data was conducted through a three-stage coding process consistent with grounded theory methodology:

Open Coding

- Key concepts and recurring themes in the texts were identified and coded as first-level categories (Table 2).

Axial Coding

- Relationships between open codes were established, grouping similarities and differences around thematic axes. At this stage, the connections between the values prioritized by the awards

and the elements marginalized in the narratives were revealed (Table 3-4).

Selective Coding

- Findings were integrated around a central theme, and a two-dimensional analytical framework was developed, consisting of "priorities made visible in award discourses" and "elements overlooked in award discourses (Table 5).

At the end of the coding process, the data were evaluated through a two-step analysis that comparatively examined the values emphasized in award reports and the aspects that were neglected.

Award Discourses and Priorities: The Case of Kenan Yavuz Ethnography Museum

The Kenan Yavuz Ethnography Museum is a private institution located in Beşpınar Village, Demirözü District of Bayburt, Türkiye. Officially recognized as a museum in 2019, it has been acknowledged with several national and international awards since 2021 (Table 1). In 2021, it received the Silletto Prize from the European Museum Forum (EMYA), which honored the museum's emphasis on local community participation and its contribution to revitalizing rural social and economic life through cultural projects rooted in village heritage. In 2022, the museum was granted the Special Award of the Turkish Ministry of Culture and Tourism, positioning it among the institutions that significantly contribute to the preservation and promotion of the nation's cultural heritage. In the same year, it was awarded the European Heritage Award / Europa Nostra Award by Europa Nostra and the European Union, recognizing its efforts to safeguard and promote both tangible and intangible cultural heritage of Bayburt and Anatolia through interactive experiences designed in collaboration with local communities. Finally, in 2023, the museum received the BIG SEE Grand Prix Award in Tourism Design, which commended its creative storytelling, visitor experience, and the collaborative design process with the local community.

Table 1. National and International Awards of the Kenan Yavuz Ethnography Museum

Awards ---------- Kenan Yavuz Ethnography Museum		
Award	Year	Description
BIG SEE Grand Prix Award – Tourism Design Award	2023	Aims to preserve and revitalize the tangible and intangible cultural heritage of Bayburt and Anatolia by offering visitors interactive experiences and ensuring collaboration with the local community during the design process. -Identity as creative storytelling and experience
Ministry of Culture and Tourism Special Award	2022	Determined by jury evaluation, this award recognizes and encourages communities or institutions that serve Turkey's cultural heritage and art world with dedication.
EUROPA NOSTRA – European Union Cultural Heritage Award	2022	Highlights the museum's efforts to preserve and revive the tangible and intangible cultural heritage of Bayburt and Anatolia by offering visitors interactive experiences designed and presented in collaboration with the local community. -Citizen participation and raising awareness
European Museum of the Year Award (EMYA) / Silletto Prize	2021	Highly successful in ensuring local community involvement, and equally strong in demonstrating how cultural projects based on village heritage can revitalize rural social and economic life.

Each of the awards received by the Kenan Yavuz Ethnography Museum is shaped by distinct criteria and evaluation mechanisms, reflecting unique processes of recognition. The EMYA / Silletto Prize, organized by the European Museum Forum, follows a multi-stage evaluation process. Applications are submitted on an international platform, detailed dossiers and supporting materials are reviewed, and independent jury members conduct site visits to deepen the assessment (European Museum Forum, n.d.-a). Moreover, the Silletto Prize acknowledges profound, continuous, and empowering engagement between the museum and its stakeholders, positioning the institution as a central

reference point for local, national, or global communities (European Museum Forum, n.d.-b). Within this framework, criteria such as innovation, community participation, sustainability, and narrative integrity are emphasized, allowing the museum to be evaluated not only in its local context but also within the international norms of contemporary museology.

The Europa Nostra: European Union Cultural Heritage Award is jointly managed by the European Commission and Europa Nostra, with evaluation focusing on aspects such as digital submissions, community participation, sustainability, and conservation practices. The award process is structured around five main categories: conservation & adaptive reuse, research, education, training & skills, citizens engagement & awareness-raising, and heritage champions (Europa Nostra Awards, 2022). Supported by site visits conducted by jury members from different countries, the process plays a key role in reshaping museum narratives according to both universal conservation standards and local participation measures.

The Special Award of the Turkish Ministry of Culture and Tourism functions as a national-level mechanism, aiming to encourage works, practices, and initiatives that contribute to the advancement of Turkish culture and arts while generating value at both national and international levels (Republic of Turkey, Ministry of Culture and Tourism, 2016). Evaluations are carried out by commissions including ministry experts, and results are announced through official ceremonies. In this respect, the award serves as an instrument that idealizes the museum within the axes of national identity, local development, and social impact.

The BIG SEE Grand Prix – Tourism Design Award, on the other hand, is an international platform that highlights innovative cultural projects. Applications are submitted digitally with visual documentation, and evaluations are conducted based on criteria such as innovation, design, originality, social sensitivity, and functionality (BIG SEE, n.d.).

Table 2. Open Coding of Highlighted Values and Overlooked Aspects in Award Reports

Highlighted Values and Overlooked Aspects in Award Reports-*Open Coding*			
Highlighted Values Codes	Overlooked Aspect Codes	Award	Person - Statement - Source
[rooted] [local tradition] [spirit] [heritage] [awareness] [revitalization] [change] [connection] [potential]	[idealized community spirit] [exaggerated representation of family identity] [transformative / performative presentation of memory] [discourse of positive change]	2021 EMYA Silletto Prize	Marlen Mouliou (Chair of the EMYA 2021 Jury) "Kenan yavuz ethnography museum, winner of the silletto 2021 award, is a private family initiative with firm roots in its local community spirit. Located in a remote village in the northeast of turkey, it stands out as a connector with local traditions, memories, and realities, but also as a potential accelerator of positive changes for the community by establishing greater public awareness of the richness of village heritage and potential of cultural projects to revitalise villages and their communities" (european museum forum, 2021, p.6).
[return to roots] [local community] [inclusion] [success]	[normative construction of local/heritage] [instrumentalized participation of the community] [selective rural revitalization] [award-oriented validation]		**Carol Jackson** (Trustee, Silletto Trust) "…the museum which has won this award although young in age has managed to find very effective ways to advocate the conscious return to local roots and heritage. It is very successful in engaging. Its local community and is equally forceful in demonstrating how cultural projects which build on the richness of village heritage can regenerate rural social and economic life. the Silletto Prize 2021 goes to the K. Yavuz Ethnography Museum Beşpınar, Turkey. Very many congratulations" (**European Museum Forum** 2021, **May 6,** 1:35:14–1:36:05).
[inspiring] [story] [family] [cultural center] [construction]	[idealization of family and emotional ties] [individual achievement] [social approval and collective enthusiasm] [exaggerated narrative]		Jouetta van der Ploeg (Member of the European Museum Forum) "I want to thank you very much for your inspiring and passionate story. It is truly a wonderful story, thank you so much. I will for one definitely go and visit your museum, that's for sure and I think a lot of us in the audience as well I mean you have such a loving family, and it's exceptional to build a cultural center together with your family. Your father started it's exceptional, but does it challenges as well working with your family?" (European Museum Forum, 2022, 24:32–25:05).

Table 2. Continued

Highlighted Values Codes	Overlooked Aspect Codes	Award	Person - Statement - Source
[initiative] [cultural heritage] [awareness] [local community] [collection] [population] [rural area]	[generalization of success] [glorification of community participation] [presentation as a prototype and object of comparison]	2022 EUROPA NOSTRA European Union Cultural Heritage Award	EUROPA NOSTRA Jury "This grassroots initiative has enjoyed great support from its surrounding community and has succeeded in raising awareness of the value of the cultural heritage to this part of Turkey. Special attention was paid to empowering the local community in the cultural activities and the building of the collection. This is a strong example for other rural areas which have suffered population decline" (European Heritage Awards / Europa Nostra Awards, 2022).
[authentic] [traditional texture] [harmonious] [experiential tourism] [new perspective]	[discourse of originality] [emphasis on normative conformity] [innovative orientation]	2023-BIG SEE Grand Prix Award (Tourism Design Award)	Bigg See Platform "THE KENAN YAVUZ ETHNOGRAPHY MUSEUM HAS BEEN AWARDED THE TOURISM DESIGN GRAND PRIX FOR ITS AUTHENTIC CHARACTER, DISTINCTIVE DESIGN, HARMONIOUS INTEGRATION WITH THE TRADITIONAL TEXTURE OF ANATOLIA, AND FOR BRINGING A NEW PERSPECTIVE TO CULTURE AND EXPERIENTIAL TOURISM" (Yavuz, 2024: 417).
[authentic] [culture] [rural-to-urban migration] [bridge between past and present] [local development] [contribution] [working with people]	[reduction to economic success] [instrumentalization of collective participation] [fixation of representation through awards]	2022 Ministry of Culture and Tourism Special Award	Republic of Turkey, Ministry of Culture and Tourism "By contributing to the economic development of the region in which it is located, working together with the local people to enhance economic growth and quality of social life, and presenting unique examples in experiential tourism that earned an important international award, the Kenan Yavuz Ethnography Museum has become another of our institutions deemed worthy of this prestigious prize" (Republic of Turkey, Ministry of Culture and Tourism, 15 December 2022).

Table 2. Continued

Highlighted Values Codes	Overlooked Aspect Codes	Award	Person - Statement - Source
[quality of social life] [experiential tourism] [international] [award]	[identification of space with national identity] [representation and dramatization of the migration theme] [presentation of personal story as a social model] [excessive glorification through uniqueness]	2022 Ministry of Culture and Tourism Special Award	President Recep Tayyip Erdoğan "Our Kenan Yavuz Ethnography Museum is an original project that rests its back on the Çoruh River, turns its face to the East, and sinks its roots into the fertile soil of Anatolia, reflecting the culture of Bayburt in the most beautiful way. The museum vividly brings before our eyes the issue of rural-to-urban migration in all its dimensions and, in this respect, also serves as a bridge between past and present. This beautiful museum, which demonstrates the loyalty of our brother Kenan Yavuz to the land where he was born and raised, I hope will serve as an example to other entrepreneurs and businesspeople with similar life stories. I visited, toured, and spoke with him. Truly, Bayburt had never seen such a work before. I congratulate everyone who contributed to the ethnography museum for their contributions to our national culture and to the development of the Bayburt region" (Republic of Turkey, Ministry of Culture and Tourism, 2023, 04:43–05:57).

When the discourses of award platforms are examined, it becomes evident that the Kenan Yavuz Ethnography Museum is attributed with multiple layers of meaning. Award statements portray the museum as an institution rooted in local traditions and community, reinforcing a sense of belonging, while simultaneously highlighting its role in preserving cultural heritage, transmitting memory, and bridging the past with the present. Moreover, the awards emphasize the museum's position as a dynamic actor that stimulates transformation and revitalization in rural areas, distinguishing itself through its original design and its harmony with the traditional fabric. Creating social awareness, contributing to rural development, promoting experiential tourism, and presenting an

inspiring story of entrepreneurship are also among the values frequently underlined in the award justifications (Table 3).

Table 3. Axial Coding of Highlighted Values in Award Reports

Highlighted Values in Award Reports ---------- *Axial Coding* *Relationships Between Concepts and Categories*	
Sub-Categories Formed by Concepts	Main Categories Resulting from Relationships Between Concepts
rooted, local tradition, local community, return to roots, inclusion, family, success, spirit, story	[Grounding in Roots and Local Community]
heritage, memory, connection, bridge between past and present, cultural heritage, preservation, story, spirit, construction, collection	[Heritage, Continuity and Transmission of Memory]
revitalization, potential, regeneration, change, transformation, creating impact, migration, population, rural area, local development, contribution, working with people, quality of social life	[Transformation, Revitalization and Reconstruction]
authentic, design, distinctive design, harmonious, traditional texture, culture, cultural center, construction, initiative, collection	[Authenticity, Design and Harmony]
awareness, cultural and social awareness, inspiring, impact, new perspective, award, success	[Awareness and Social Impact]
rural area, rural-to-urban migration, local development, population, contribution, quality of social life, working with people, experiential tourism, development	[Rural Development and Experience]
initiative, success, contribution, story, award	[Entrepreneurship and Success Story]

The study demonstrates that while award platforms highlight certain values in their evaluation of the Kenan Yavuz Ethnography Museum, they simultaneously overlook some critical dimensions (Table 4). Community and family are presented as an idealized model of togetherness, stripped of plural and contradictory dynamics; the museum's narrative is reduced from everyday lived experiences to a visual and performative success story.

Moreover, the museum is represented less through its unique identity than as a "model" or "prototype" shaped by the standards of award platforms. The emphasis on economic development and experiential tourism frames the museum as an actor subjected more to market dynamics than to cultural continuity. Discourses of innovation and originality, meanwhile, are transformed into normative rhetoric that aligns with pre-established criteria, rather than offering critical substance.

In conclusion, the award discourses reframe the museum not as a plural space of memory attentive to social diversity, contextual specificity, and cultural continuity, but rather through selective, instrumental, and normative representations.

Table 4. Axial Coding of Overlooked Aspect in Award Reports

Overlooked Aspect in Award Reports ---------- *Axial Coding*	
Relationships Between Concepts and Categories	
Sub-Categories Formed by Concepts	Main Categories Resulting from Relationships Between Concepts
idealized community spirit, exaggerated representation of family identity, instrumentalization of community participation, exaggerated narrative, social approval and collective enthusiasm, idealization of family and emotional ties	[Idealization of Community and Family]
transformative/performative presentation of memory, detachment of memory from social reality, discourse of positive change, generalization of success, instrumentalization of transformation	[Subordination of Memory to Effect and Visuality]
normative construction of locality/heritage, award-oriented validation, turning into a model, prototyping, presentation as prototype and object of comparison, generalization of success, presentation of personal story as a social model	[Normative Representations and Modelling]
awareness, cultural and social awareness, inspiring, impact, new perspective, award, success	[Economic Instrumentalization and Experience-Oriented Representation]
reduction to economic success, social development discourse, emphasis on experiential tourism, fixation of representation through awards	[Rural Development and Experience]
discourse of originality, innovative orientation, emphasis on normative conformity	[Selective Innovation and Normative Originality]

The selective coding process revealed two main dimensions in the award discourses concerning the Kenan Yavuz Ethnography Museum. The prioritized values are clustered under the theme of "normative excellence and the image of collective transformation" (Table 5). Awards highlight the museum through an idealized sense of community, intergenerational transmission of memory, rural revitalization, architectural originality, and inspiring success stories. This emphasis represents the museum as a model of harmony, innovation, and cultural continuity.

Conversely, the overlooked aspects converge around the theme of "the invisibility of plural realities and critical dimensions" (Table 5). Award

discourses push issues of social diversity and conflict into the background, reduce memory to a performative and visualized narrative, and transform the museum into a normative prototype exposed to economic and tourism-oriented instrumentalization. Furthermore, the emphasis on originality and innovation is redefined according to external standards, rather than emerging from context-specific critical evaluations.

Table 5. Selective Coding Findings: Highlighted Values and Overlooked Aspects

Highlighted Values and Overlooked Aspects in Award Reports ---------- *Selective Coding*		
Analysis Dimension	Core Theme	Explanation
Highlighted Values	Normative Excellence and the Image of Collective Transformation	In award discourses, the museum is elevated through references to *idealized community spirit, family attachment, cultural heritage continuity, rural development, unique design, and inspiring success stories*. These discourses transform the museum into a model representation of harmony, innovation, and cultural continuity.
Overlooked Aspects	The Invisibility of Plural Realities and Critical Dimensions	In award discourses, *social diversity and conflicts are pushed into the background, memory is reduced to a performative/visual narrative, the museum is framed as a normative prototype, and economic-tourism driven instrumentalizations* are emphasized. Originality and innovation are also defined according to external standards rather than context-specific critical evaluations.

This dual-axis evaluation demonstrates that award platforms elevate the museum as a symbol of collective achievement and cultural renewal; yet, at the same time, they overlook the complex socio-spatial realities of the local context, its economic dependencies, and the plural forms of memory it embodies.

CONCLUSION

The analysis of the Kenan Yavuz Ethnography Museum reveals that architectural award processes are shaped not only by aesthetic criteria but also by social, cultural, and economic values. EMYA, Europa Nostra, BIG SEE, and national awards in Turkey have celebrated the museum through values such as "local community spirit", "family initiative", "cultural heritage preservation", "rural development", and "authenticity". In doing so, the awards have contributed to transforming the museum into a symbol of both local identity and international visibility.

However, when critically assessed, several limitations emerge. Award criteria often produce representations built upon idealized notions of community and selective heritage narratives, while social differences, local contradictions, and multilayered spatial experiences remain marginalized. Similarly, although spatial continuity and contextual sensitivity are emphasized, these values are frequently rearticulated in line with the normative expectations of award platforms, leaving limited room for critical diversity. Moreover, the application and evaluation mechanisms of awards act as strong external filters: while enabling the museum to gain international recognition, brand value, and visibility, they simultaneously shape its narrative within a framework increasingly aligned with global norms and market mechanisms. The exhibition of awards within the museum, their display in ceremonies, and their constant circulation further objectify the museum's narrative, transferring it into a performative field of representation.

These findings highlight that architectural awards function as powerful instruments in directing the representational strategies and public perception of museums, yet they also reproduce specific normative patterns. Therefore, award processes should be re-evaluated not only through short-term achievements or visual performances but also through long-term cultural sustainability, social inclusivity, and plural memory representations. Such an approach would enable architectural awards to foster professional excellence while simultaneously supporting cultural diversity and social benefit, ultimately serving a more inclusive role within architectural practice.

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THE PRIORITY OF PLACE IN ARCHITECTURE: REFLECTIONS OF GEOLOGICAL HERITAGE ON ARCHITECTURAL DESIGN

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ABSTRACT

Geological heritage refers to the totality of geological formations, fossils, and natural processes that bear witness to the Earth's billions of years of formation and transformation. This heritage carries significant value not only from the perspective of the natural sciences but also within the contexts of history, culture, and architecture. The aim of this study is to examine visitor centers located within geological heritage sites and to reveal, through a qualitative research approach, the significance and value of "place-specific" design in architecture. In doing so, the study seeks to open a discussion on the importance of considering site characteristics and natural formations as guiding priorities in the architectural design process. In this context, the Zonguldak Caves Visitor Center designed in Zonguldak, one of the prominent cities in Türkiye in terms of cave geology, has been taken as a case study. This building stands out as a noteworthy practice with regard to the spatial representation of geological heritage, its integration with topography, and the use of local materials. Within the scope of the study, the Zonguldak Caves Visitor Center is examined in comparison with the Đalovića Pećina Visitor Center (Montenegro) and the Carlsbad Caverns Visitor Center (USA), both situated in similar contexts, as well as the Thingvellir National Park Visitor Center (Iceland), located in a distinct geological setting. Through this comparison, the study analyzes how architectural design interacts with "place" in terms of geological context, material use, integration with topography, and the spatial experiences it offers.

Keywords: Architectural Design; Place Specific Design; Visitor Centers; Geological Heritage; Zonguldak.

INTRODUCTION

Throughout history, the natural environment has been a fundamental factor shaping human settlements, socio-cultural development, and architectural production. Geological formations, topography, and climatic conditions have not only provided vital resources but have also laid the groundwork for the emergence of unique spatial productions. Within this broad natural environment, geological heritage stands out as an area that preserves traces of the Earth's billions of years of formation and transformation. Examining visitor centers located in these areas allows for an evaluation of the impact of the natural environment on architecture, as well as an interpretation of their contribution to the understanding of heritage.

A considerable body of research has been conducted on geological heritage (Marschalko et al., 2013; Alves, 2013; Gordon, 2018). Although studies focusing on the relationship between geological heritage and architecture remain limited (Tatum et al., 2017; Botha, 2013), most of these works emphasize the reflections of the natural environment in architectural design. Visitor centers, in particular, represent a relatively recent topic of interest in architectural platforms within the scope of geological heritage and architecture, yet they remain underexplored in the literature. For instance, Rubenstein (2012) examined visitor centers in U.S. National Parks, analyzing their role in mediating the interaction between nature and humans. In another study, Sukosi (2014) investigated the design of the Shofuso Japanese House visitor center, focusing on how new constructions can be integrated into historic sites and contribute to their context. Similarly, Ababneh et al. (2014) addressed the visitor management process and infrastructural deficiencies of the Umm Qais Visitor Center. Finally, there is also a study emphasizing the role of visitor centers in urbanization (Kärrholm, 2016). With respect to the Zonguldak Caves Visitor Center, only a limited number of studies exist (Turan, 2022); however, no scholarly work has specifically examined visitor centers in the context of geological heritage and architecture with a focus on the priority of place. In response to the displacement seen in architecture due to globalization, this approach emphasizes the priority of place within the context. This perspective is important for evaluating the relationship established between design and place in visitor centers within geological heritage sites (Koçyiğit & Gorbon, 2016). This gap in the literature constitutes both a significant research deficiency and the primary motivation of this study.

The aim of this research is to investigate visitor centers located in geological heritage sites from an architectural perspective, to evaluate

these structures through the lens of place and natural context, and to uncover the ways in which they engage with the unique natural characteristics of their sites. The study primarily analyzes the Zonguldak Caves Visitor Center and, for comparative purposes, considers international examples that establish similar spatial relationships: the Đalovića Pećina Visitor Center (Montenegro), the Carlsbad Caverns Visitor Center (USA), and the Thingvellir National Park Visitor Center (Iceland). Designed as a qualitative research, the study draws upon findings obtained through literature review, on-site observations and documentation, content analysis of technical drawings, and photographic recording. Within this framework, the research aims to contribute to the literature by presenting an original perspective on the relationship between architecture and "place" in geological heritage sites, while also establishing a platform for discussion that may guide future design and research in this field.

VISITOR CENTERS AT THE INTERSECTION OF GEOLOGICAL HERITAGE AND ARCHITECTURE

Geological heritage is a form of natural heritage that encompasses elements of geodiversity with scientific, educational, aesthetic, and cultural value, whether in situ or ex situ. It represents the transformations of the natural environment over time and contributes to the understanding of Earth's history, thus requiring preservation and valorization (Brilha, 2016). Architecture, on the other hand, is a mode of engaging with the natural, social, and cultural environment through the production of space (Alangoya, 2015). Understanding architecture is possible not only through its visible form, but by reaching its source and essence (Aydınlı, 2003). In this context, the interaction architecture establishes with nature extends beyond the physical features of place and reaches into its geological past. Across the world, numerous examples illustrate how geological heritage can serve not only for preservation and promotion but also as a guiding principle for architecture. Machu Picchu, constructed by the Inca civilization, exemplifies this approach, as it employed local granite rocks both as architectural material and as a structural foundation. This use of rock reflects an adaptation to geological formations and an integration with topography (Protzen, 1993; Wright & Valencia Zegarra, 2000). Another example is found in Rudofsky's Architecture Without Architects (1964), which discusses the volcanic formations of the Göreme Valley and their transformation into inhabitable spaces. Such cases demonstrate that the inherent texture of nature, its changing conditions, and temporal processes should not be regarded as destructive forces, but rather as significant resources for architectural design.

In this respect, designs aimed at communicating geological heritage to society often take the form of visitor centers, geopark facilities, walking trails, observation points, and open-air museums. These structures contribute to the experience of the natural heritage in which they are situated. Among them, visitor centers are the primary spaces that shape this experience (Healy et al., 2016). From an architectural perspective, they not only serve to inform visitors functionally but also embody the identity of the natural landscape in which they are located. Through site-specific design principles, such as the use of local materials and adaptation to topography, these structures facilitate the interpretation of natural heritage (Frampton, 1983). Accordingly, visitor centers act as threshold spaces, both functionally and spatially, mediating between the user and the natural environment.

MATERIALS AND METHODS

This study is qualitative research focusing on visitor centers constructed within geological heritage sites, with selected examples from around the world. As a result of a review of both printed and digital sources in Türkiye, 37 visitor centers were identified. Among these, the Zonguldak Caves Visitor Center was chosen for detailed examination, as it represents a recently constructed facility and offers a distinguished architectural example. The selected site provides significant data that allow for the simultaneous investigation of geological formations and architectural design. This local case was then evaluated in a comparative analysis alongside three international visitor centers located in similar contexts.

In the first stage of the research, an extensive review of visual and textual sources available in the international architectural literature was conducted. For the Turkish case, on-site observations and documentation were carried out to produce original visual data. For the centers in Canada, the United States, and Iceland, visual and spatial analyses were conducted using resources such as Google Earth imagery, topographic maps, and geological maps. Based on the data obtained, the four visitor centers were comparatively assessed according to the following criteria:

1. Location and year of construction
2. Natural context
3. Architectural form
4. Relationship with the geological formation
5. Accessibility of the visitor center to the geological site
6. Adaptation to topographic features of the terrain
7. Environmentally respectful design approach

8. Compatibility of the building scale with human and environmental scale
9. Use of natural lighting and daylight
10. Use of local materials

The first five criteria were defined directly in line with the scope of the study, while the last five were based on the "place-specific design criteria" established by Yıldız Kuyrukçu and Alkan (2019). Ultimately, the findings of this research not only reveal the relationship between architectural interventions in geological heritage sites and place-specific design approaches but also contribute to an international understanding of the importance of architecture in the preservation, promotion, and sustainability of natural heritage. Furthermore, the study provides a valuable resource for future design practices in this field.

FINDINGS

Zonguldak Caves Visitor Center (Türkiye)

Zonguldak is one of the provinces located along the Black Sea coast of Türkiye, distinguished by its extensive geological formations. The region contains one of the country's most significant cave systems, with a total of 22 caves (Western Black Sea Development Agency, 2018). Within the system known as the Zonguldak Geopark, two caves are open to tourism, one of which is the Gökgöl Cave. Situated along the Zonguldak–Ankara highway in the Üzülmez district of the city, this active dripstone cave lies on the eastern slope of the Erçek Stream valley. Located approximately five kilometers from the city center, the cave has a total length of 3,350 meters, of which 875 meters are accessible to visitors (Karadeniz et al., 2009). Dating back to 372–328 million years ago, the formation of stalactites and stalagmites within the cave continues to this day. The cave also contains an underground river, whose discharge increases during rainy periods (Governorate of Zonguldak, n.d.) (Figure 1.).



Figure 1. View from inside Gökgöl Cave (Okutan, 2025, Personal Archive)

The first explorations of the cave were carried out in 1976 by geologist Temuçin Aygen together with British speleologists (Turan, 2022). Its geological survey was prepared and reported in 1994 by Nazik, Mengi, Özel, Bircan, and Beydeş (Nazik et al., 1994). The cave was opened to tourism in 2001 (Karadeniz et al., 2009); however, after being flooded in 2014, it was closed to visitors until 2016, during which time renovation works were undertaken (Governorate of Zonguldak, n.d.). Following the completion of these adjustments, the cave was reopened for tourism, and in 2021 a visitor center was constructed at its entrance (Yalın Mimarlık, n.d.).



Figure 2. Aerial view of the Visitor Center (Yalın Mimarlık, n.d.)

The Zonguldak Caves Visitor Center, designed by Yalın Architecture, is a structure conceived with an approach that acknowledges the presence of the natural formation and is shaped in harmony with nature (Figure 2.). It not only provides information to visitors but also enables them to establish a conscious interaction with the cave and its surroundings. As the project's lead architect, Ömer Selçuk Baz, explains (Yalın Mimarlık, n.d.):

> *"From the earliest stages of the design process, our aim was to establish as direct and unique a relationship as possible with the front of Gökgöl Cave and its immediate surroundings, where the building would be located. The architectural approach of the Zonguldak Caves Visitor Center was to develop a coherent architectural language that could exist without competing with the astonishing presence of a natural formation that has taken its current form after millions of years of natural processes."*

The Zonguldak Caves Visitor Center consists of an entrance hall, information panels, a multipurpose hall, a cafeteria, a gift shop, and administrative units, covering a total area of 700 m² in a linear form (Yalın Mimarlık, n.d.). In its spatial layout, the cave entrance axis was taken as

the primary reference, and the building masses were positioned parallel to the topography. Considering the sloping terrain and the environmental characteristics of the cave, the units were placed directly opposite the cave and toward the east. To the west, the main entrance, seating area, and gift shop are located; this section was arranged with open and semi-open spaces to preserve views of the natural landscape (Figure 3.).

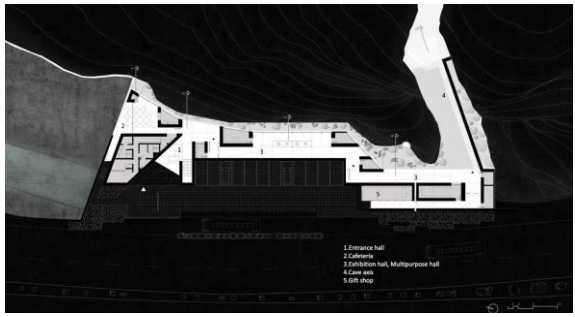


Figure 3. Plan of the Zonguldak Caves Visitor Center (Yalın Mimarlık, n.d.)

The spatial layout of the building is emphasized by a distinct transitional axis that directs visitors toward the cave entrance. Along this axis, information panels, lighting elements, wayfinding details, and exhibition components both spatially prepare and inform visitors about the Gökgöl Cave, thereby integrating them into the cave experience. The information panels also include references to other significant caves in Zonguldak, fostering a comprehensive awareness of the region's geological heritage (Figure 4.).

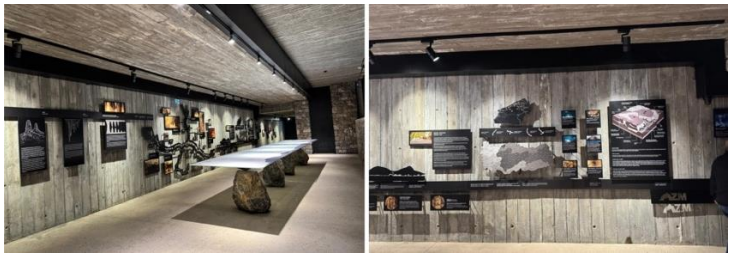


Figure 4. Information boards and exhibition room (Okutan, 2025, Personal Archive)

To achieve harmony with the natural landscape, the building was designed with a horizontal configuration and integrated into the mountainous topography through stepped elevations. This strategy

enables the design to become part of the landscape rather than dominating it and can be regarded as one of the key indicators of place-specificity. The use of stone on the exterior façade establishes both a visual and contextual unity between the building, the cave, and its surroundings, while also emphasizing the importance placed on local materials. In addition, this material choice provides sustainability benefits in terms of ease of maintenance and climatic durability (Figure 5.).



Figure 5. Material details and topographical compatibility of the Zonguldak Caves Visitor Center (Okutan, 2025, Personal Archive)

In the walls and floors, concrete was left in its raw state, without any surface treatment or cladding (Figure 6.). This approach enabled the building to adopt a simple and unmediated aesthetic language while establishing a visual and spatial connection with the surrounding natural rock formations and cave texture. The preference for natural and unfinished surfaces within the constructed space highlights the building's weight, density, and tactile qualities, thereby enhancing spatial awareness (Frampton, 1983). This design choice not only simplifies the spatial experience but also directs users toward a more sensitive perception of geological heritage. Strategically placed slits in the ceilings and walls allow natural light to enter the interior in a controlled manner, enabling users to experience the emotional dimension of the space (Figure 6.). These openings reference the cave atmosphere without disrupting the structural integrity of the mass. Through the permeability created by the architectural relationship of solid and void, light acquires a meaningful emphasis (Holl, 2000).



Figure 6. Corridor connecting to the cave (Okutan, 2025, Personal Archive)

At the transition from the building to the cave, a steel canopy structure was designed instead of a massive volume. This structure, detached from the building itself, symbolizes the orientation toward the cave and clearly emphasizes its monumental entrance. At this threshold between the building and the cave, the natural and the constructed were deliberately combined. On the ground, stone paving was applied in one section while the natural path was preserved in another. As visitors pass beneath the steel canopy, they simultaneously experience the natural rock and mountain texture on the left and a stone wall on the right, thus encountering the coexistence of the artificial and the natural. Similarly, when viewed from the cave back toward the building, the spatial composition evokes the sensation of re-entering the cave. This balance allows the architecture to support the cave experience without breaking away from its context, engaging visitors through sensory, scientific, and physical dimensions. Ultimately, throughout the entire structure, the equilibrium between the natural and the man-made has been carefully maintained (Figure 7.).



Figure 7. Entrance to Gökgöl Cave from the structure and entrance to the structure from the cave (Okutan, 2025, Personal Archive)

Đalovića Pećina Visitor Center (Montenegro)

The Đalovića Pećina Cave is located within the boundaries of Đalovići Village, approximately 20 kilometers from the town of Bijelo Polje in Montenegro. The first exploration and mapping efforts of the cave began in 1987, carried out by the Speleology Section of the Belgrade Mountaineering Association. Following further studies conducted by Czech speleologists in the early 2000s, the total length of the cave reached 14 kilometers by 2009. The cave constitutes a complex underground system composed of multi-level channels and galleries. Its galleries reach ceiling heights of more than 30 meters and feature a 50-meter-long lake, crystal chambers, and rare speleothem formations (Sirotek, 2009) (Figure 8.). The cave entrance is located along the Bistrica Riverbed. Access to the site is provided by road from Bijelo Polje to Đalovići Village, followed by a walking route along the Bistrica River (Show Caves, n.d.).



Figure 8. Đalovića Pećina Caves (Speleomeduza, n.d.)

The Đalovića Pećina Visitor Center is located near Bijelo Polje, in Đalovići Village, along the banks of the Bistrica River (Moravec, 2017). The center does not provide direct access to the cave; instead, it functions as the starting point of a cable car system designed to transport visitors toward the cave (Figure 9.). Designed as a single-story structure, the building covers a total area of 500 m² and includes exhibition and presentation halls, a cafeteria, a gift shop, technical units, and offices. Positioned between the river and the mountainous topography, the building was divided into two parts to respond to both landscapes and was designed with a "grouped form" concept (Archdaily, 2025) (Figure 10.).

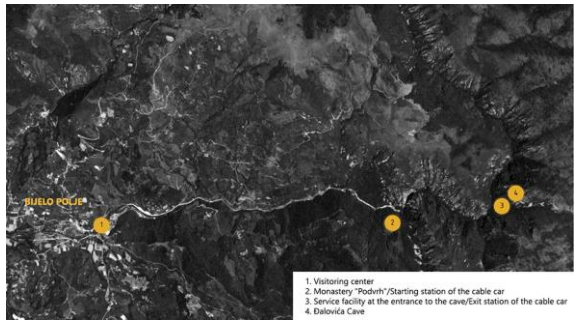


Figure 9. Contextual map of the cave and the visitor center (Archdaily, 2025)

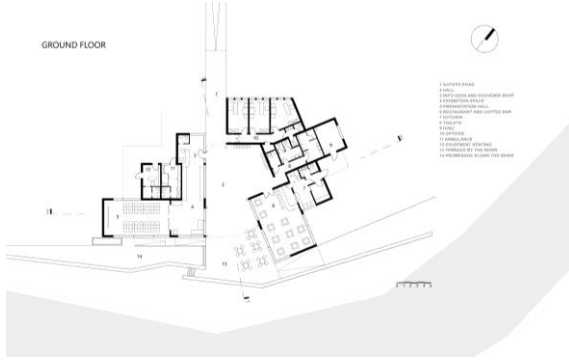


Figure 10. Plan of the visitor center (Archdaily, 2025)

Considering that the building does not establish direct contact with the cave, its massing movements suggest lines oriented to provide views in every direction, creating the impression of a structure in search of the cave. Although physically distant from the geological heritage itself, the design approach considers the spirit of the place, its topography, nature, and texture; this approach is reinforced using simple and understated materials (Figure 11.). While acknowledging the grandeur of its surrounding natural environment, the visitor center asserts its own presence with a pure and minimal language, expressed most clearly through its white walls (Archdaily, 2025).



Figure 11. Mass view of the visitor center (Archdaily, 2025)

Carlsbad Caverns National Park Visitor Center (USA)

Carlsbad Caverns National Park is in the state of New Mexico, United States. This geological heritage site contains more than 120 caves, including the Carlsbad Caverns themselves. It was designated a national park in 1930 and inscribed on the UNESCO World Heritage List in 1995 (UNESCO, 1995). The Carlsbad Caverns were formed approximately 265 million years ago and extend over a length of more than 48 kilometers. Within the cave system lies the Big Room, the largest cave chamber in North America (National Park Service, n.d.) (Figure 12.).



Figure 12. View of the Big Room, Carlsbad Cavern (National Park Service, n.d.)

The visitor center was planned as a two-story building in 1953 and completed in 1959 (National Park Service, n.d.). Located at the starting point of the descent route to the cave, the structure reflects traces of modernist architecture and serves the functions of providing information and guidance about the cave. Its horizontally extended, large-volume mass demonstrates both durability and adaptation to the cave system

with light-colored local stone cladding, suitable for the desert climate (Figure 13.).



Figure 13. Carlsbad Caverns National Park Service Visitor Center (Bourn, 2018)

Access to the cave is provided in two different ways: via the natural walking route and through an elevator located within the visitor center (Bourn, 2018). After experiencing the center, visitors can descend several meters below the surface without leaving the building. This feature demonstrates a successful architectural approach in terms of accessibility. The interior organization is shaped in accordance with this scheme: entrance hall, exhibition areas, multipurpose halls, elevator, and cave entrance. Thus, the building functions as a threshold space for users between the surface and the cave formation. The use of wood, metal panels, and natural tones in the interior reflects the continuity of materials and colors from the exterior façade into the indoor spaces, thereby offering an integrated spatial experience (Figure 14.).



Figure 14. Interior view of the visitor center (Google Earth, 2025; Bourn, 2018)

Thingvellir National Park Visitor Center (Iceland)

Thingvellir National Park is located approximately 49 kilometers east of Reykjavik, the capital of Iceland, and covers an area of 24,000 hectares where the divergence between the Eurasian and North American tectonic plates can be observed on the surface. Of this, 9,270 hectares are protected under the UNESCO World Heritage List. Lake Þingvallavatn forms the park's southern

boundary (Figure 15.). Thingvellir National Park was also the site of Iceland's open-air parliamentary assembly, Alþing, which convened there from AD 930 to 1798. The high cliffs and rift valley provided a natural setting for this historic process, while the area simultaneously presents cultural and natural heritage through its traces of early settlements, the Thingvellir Church, and the lake ecosystem (UNESCO, 2004).



Figure 15. Thingvellir National Park (Thingvellir, n.d.a)

The Thingvellir Visitor Center was designed by Reykjavik-based Gláma-Kím Architects and opened to the public in 2004. The building was conceived in simple, orthogonal forms inspired by the agricultural and religious structures of the region. The design is divided into two parts: the main building housing the exhibition areas and a concrete mass accommodating the wet spaces. To minimize intervention in the geological heritage and natural environment, the structure was planned as a single-story building, with copper cladding used on the exterior façade. The primary reason for this material choice was its ability to gradually change color over time, thereby creating a harmonious integration with the surrounding green topography (Figure 16-17.) (Archidose, 2003).



Figure 16. Thingvellir National Park Visitor Center entrance and exhibition corridor (Thingvellir, n.d.b)



Figure 17. Thingvellir National Park Visitor Center within its natural context (Thingvellir, n.d.b)

DISCUSSION

The findings of this qualitative research reveal how the priority of "place" is reflected in architectural design within geological heritage sites, as demonstrated through four visitor center examples (Table 1.). Each building has developed distinct architectural strategies shaped by its geographical, cultural, and geological context, resulting in spaces unique to their respective topographies. This outcome stems from prioritizing the essence of place in design (Relph, 1976).

Constructed in 2021, the Zonguldak Caves Visitor Center is the primary case study of this research and distinguishes itself by its successful integration into the mountainous topography and preservation of the natural silhouette. Through its linear axis leading toward the cave entrance, the center prepares users for the cave experience both physically and cognitively. In comparison, the Đalovića Pećina and Thingvellir examples direct attention to geological heritage through strategies of contextual harmony and holistic siting within the environment. By contrast, the Carlsbad Caverns Visitor Center, with its large-scale, independent mass and modernist–functionalist design, demonstrates how architecture can risk disregarding the spirit of place. This condition aligns with Frampton's (1983) theory of critical regionalism, which asserts that architecture that ignores local context and the genius loci may produce alienating and meaningless spaces. In terms of materiality, all four centers prioritize the use of local and natural materials. In the cases of Carlsbad, Zonguldak, and Đalovića Pećina, such choices reinforce the integration of architecture with its natural environment. In Thingvellir, copper cladding, gradually changing color over time, achieves harmony with the surrounding green topography.

The four visitor centers examined in this study establish interactions between users and geological heritage through different spatial

strategies. The Zonguldak Caves Visitor Center prepares visitors for the cave experience through an interplay of open and enclosed spaces aligned with the cave entrance. Despite being located at a distance from the cave, the Đalovića Pećina Visitor Center fosters awareness of geological heritage through its exhibition spaces and relationship with the surrounding landscape. Carlsbad Caverns Visitor Center, positioned at the upper level of the cave, provides direct access and initiates the visitor experience within the center itself through its extensive informational functions. Thingvellir National Park Visitor Center, while not directly engaging with tectonic fissures, establishes a cognitive connection with geological heritage through its orientation toward the landscape and the use of visual, auditory, and experiential exhibitions. The building demonstrates a dominant stance over the geological formations and the natural environment at the surface.

These findings demonstrate that all the examined structures were conceived with a design approach respectful of their unique natural, cultural, and topographic settings. Through their contextual integration and the emotional bond, they foster with visitors, the buildings transform physical space into meaningful "place" (Tuan, 1977). As Frampton emphasized (1983), place-specific architecture adopts the unique conditions of the site, such as topography, climate, and local materials, as primary design inputs. Visitor centers are thus conceived not merely as functional spaces, but as threshold environments where visitors encounter the spirit of place. This approach makes it possible to grasp what Norberg-Schulz (1980) referred to as the "task of place" in architecture, enabling the building to become part of its whole and thereby protecting the natural environment.

Table 1. Comparative analysis of the four visitor centers located in geological heritage sites according to the selected criteria.

	1. Zonguldak Caves Visitor Center	**2.Đalovića Pećina Visitor Center**	**3.Carlsbad Caverns National Park Visitor Center**	**4.Thingvellir National Park Visitor Center**
1.Location/Date	Türkiye/2021	Montenegro/2022	ABD/1959 2007(renovation)	Iceland/2004
2.Natural Context	Cave and mountainous area	Cave and valley	Cave	Tectonic rifts and volcanic lava fields
3.Architectural form	Linear axis leading to the cave	Pavilion-like form; indoor and outdoor spaces intertwined.	Horizontally stretched modernist plan	Linear plan facing the view
4.Relationship with geological structure	Orientation towards the cave, reference to the morphology of the cave	No physical contact with geological heritage, spatial reference	Location at the upper level of the cave, access from the interior	Location extending to the geological fault system
5. Access to geological heritage	Located at the entrance to the cave	One-hour walk, cable car system	Walkway, elevator inside the building	Connection to walking trails
6.Conformity with the topography of the terrain	A form integrated into the topography with materials that follow the slope and blend with the natural texture.	Settlements that do not conflict with the topography, a simple design language	Using materials appropriate to the natural texture, Form that dominates and observes the topography	Linear structure form dispersed to adapt to the terrain, using materials appropriate to the natural texture
7.Nature-friendly design approach	Minimal intervention approach to nature	Form sensitive to the natural environment and the cave	Making nature visible is a priority	A contextual approach that preserves visual continuity in the natural environment
8.Compatibility of the scale of the structure with the environment and human scale	A balanced mass; entrances and circulation suitable for human scale.	Mass and circulation appropriate to the site and user scale	Large-scale mass; limited harmony with the environment and human scale.	An environmentally compatible, human-scale natural spatial design.
9. Natural lighting and the use of daylight	Emphasis on daylight in entry areas; artificial lighting support indoors.	Limited natural light entering the interior	Largely dependent on artificial lighting; limited use of natural light.	Maximum daylight utilization with large glass surfaces
10s. Use of local materials	Natural stone, local material	Local stone, wood, white walls	Natural stone and materials suitable for desert climates	Copper plating, modern materials

This study focuses on why structures designed in different geographies and periods remain unique to their locations: an architectural approach that remains faithful to the spirit and texture of place, reinterpreting it without overshadowing it. Ultimately, the study arrives at the conclusion that "the priority of architecture is the priority of place."

CONCLUSION

The comparative analysis conducted in this study reveals that the primary design concern of architectural structures situated within natural heritage sites is achieving harmony with the surrounding topography. Despite being in diverse geographical and climatic contexts, all four visitor centers examined demonstrate a commitment to place-specific design principles. Their contextual approaches, preference for local materials, and respect for natural heritage are the defining characteristics that set them apart. Visitor centers thus function not merely as facilities for knowledge transfer, but as threshold spaces mediating between humans and nature, enriching the visitor experience while making cultural values visible.

The central aim of this study is to explore the priority of "place" and the influence of place-based design approaches on architectural solutions within geological heritage sites, analyzed through the lens of visitor centers. Accordingly, the spatial configurations of the four selected centers, their methods of referencing environmental data, material characteristics, relationship with topography, and contributions to the visitor experience were examined and compared in detail through plans, visuals, and mapping data. The findings highlight that visitor centers are not only informative structures but also transitional spaces that prepare and guide visitors as they enter the natural environment, while simultaneously reflecting the identity of the place. The analysis demonstrates that these buildings prioritize the identity of the site before their own physical presence and seek to belong to the natural environment in which they are situated.

One of the starting points of this research is the limited number of studies in the architectural literature addressing geological heritage and visitor centers. Therefore, this study holds the potential to guide future investigations. It emphasizes the importance of architectural interventions in geological heritage sites that prioritize the priority of place, focus on spatial configurations that raise awareness, adopt natural material usage, and center visitor experience in their design strategies. Nevertheless, the study has certain limitations, including the restricted number of cases analyzed and difficulties in accessing some documents. Future research should aim to deepen the findings by

incorporating a broader sample, user surveys, and long-term observations.

INFORMATION NOTE

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A DISCUSSION ON THE COMMON SPACE OF THE TANDOOR: TRADITIONAL PRACTICES WITHIN MODERN HOUSING IN NUSAYBIN

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ABSTRACT

Under the influence of modernization processes and contemporary neoliberal policies, public spaces in modern cities are increasingly shrinking, becoming homogenized, inward- looking, and socially impermeable. Many such spaces are treated as detached from place- and time-bound practices and incorporated into design and planning policies. Within this framework, this study examines the tandoors- constructed and used by residents in the planned TOKİ housing settlement in Nusaybin, Mardin- as examples of "common space" emerging under neoliberal urbanization (Stavrides, 2016).

The study employs an explanatory sequential mixed-methods design, combining quantitative analysis to document, map, and classify the spatial distribution and typologies of tandoors with qualitative research, including in-depth interviews and participant observation with women users, to understand their socio-cultural context and related social practices.

The tandoor, a traditional cooking tool significant in many cultures, is approached not through traditional–modern, local–universal, or private–public dichotomies but from a holistic perspective. Within this study, it is conceived not as a fixed object but as a socio-spatial practice framed by Bergson's "duration" (1911) and Deleuze & Guattari's "becoming" (1980).

This study aims to guide strategies in architectural design and planning. Understanding the potential of practices like the tandoor, which generate difference and collective space within homogenizing urban structures, is essential. It emphasizes the necessity of prioritizing adaptable, flexible, and communal spaces that support collective practices in design and planning disciplines.

Keywords: Tandoor, Modern Housing, Common Space, Gender, Becoming

INTRODUCTION

Within the phenomenon of the modern city, perspectives shaped by local–global, modern–traditional, and private–public dichotomies have devalued place- and time-bound practices. Many culturally and socially embedded practices have been excluded by homogenizing structures of modern life. After 1980, the global impact of neoliberal policies transformed cities into market-oriented spaces (Harvey, 2013), where housing production and public spaces became instruments of capital accumulation (Stavrides, 2016).

This study explores the socio-spatial interval produced by informally constructed tandoors within TOKİ housing projects in Nusaybin, Mardin. Rather than a nostalgic element of the past, the tandoor is regarded as a contemporary example of common space. As an informally organized everyday practice, it fosters collective production, solidarity, and interaction while sustaining memory and offering a critical ground against local–global, modern–traditional, and private–public dichotomies.

The study area is located in the center of Nusaybin, Mardin. Situated on the Syrian border, the district has been directly affected by political developments. The 2015–2016 conflicts caused severe destruction, after which TOKİ constructed mass housing. The research sample consists of tandoors built informally by residents in these settlements.

The transformation driven by modernization processes and neoliberal policies has diminished the visibility of place- and time-bound practices in cities. Informal productions of everyday life are often neglected or excluded within homogenizing spatial arrangements. The TOKİ housing projects built after the destruction in Nusaybin exemplify this process. Yet, the tandoors informally constructed by residents transcend spatial uniformity, creating new socio-spatial possibilities. These practices highlight unanticipated uses of housing areas and the collective production of new forms of publicness, demonstrating that space is shaped not only by planned design but also by everyday user practices.

In this context, the tandoor, as a local, traditional, and collective practice, provides an important ground for critically engaging with urban spaces shaped by modernization and neoliberal policies. The resulting spatiality highlights not only authority-regulated public space but also common space, continuously reconstructed through residents' practices of shared production, exchange, and solidarity. Thus, the study considers tandoor practices as a contemporary example of everyday

collective space production that challenges the uniform spatialities produced by neoliberal urban policies.

The Spatial and Cultural Archaeology of the Tandoor

Known by various names such as tandoor and tabouna, the tandoor is an earth-based cooking space spanning a wide region from Mesopotamia to Central Asia and India (Leach, 2004; Samuel, 1995; Harlan, 1992). Spanning a wide region from Mesopotamia to Central Asia, the tandoor is a key element of earth-based cooking culture. Archaeological evidence traces similar structures back to the 3rd millennium BCE (Samuel, 1995; Leach, 2004). In Anatolia, it has been used continuously from the Hittites to the present (Naumann, 1985) and remains a living cultural practice today, with economic significance through rural use and commercial distribution to major cities such as Istanbul and Ankara.

Although the term "tandoor" does not appear in Mesopotamian and Harappan cooking structures, archaeological evidence shows these early installations—upright-walled ovens, hearths, or pot-shaped cooking vessels—share structural similarities with tandoors. In Uruk settlements, open-fire cooking took place in circular structures, while Harappan sites feature designated cooking areas within settlements (Samuel, 1995; Leach, 2004).

Although not explicitly called "tandoors," these structures can be considered archaic forms of tandoors based on their function, materials, and spatial organization. Archaeologically, the earliest examples are found in Uruk and Harappan cultures, dating back to the 3rd millennium BCE.

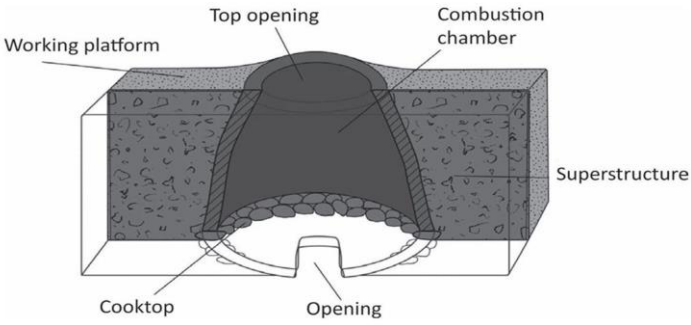


Figure 1. Tandoor Drawing (Casucci, 2023, p.54).

The structure of the tandoor consists of a wide opening at the top, a small opening at the bottom, a working platform, a structural body, a combustion chamber, and a cooking surface (Figure 1).

The tandoor has been used in Anatolia since ancient times. Tandoor structures from the Hittites, dating between the 15th and 17th centuries BCE, have been documented (Figure 2). Archaeological evidence shows that from the Neolithic period, hearths and ovens were used for cooking, heating, or sacrificial fires, while tandoors served similar cooking and heating purposes in more limited spaces (Naumann, 1985).



Figure 2. Tandoor from the Hittite Period (Casucci, 2023, p.55).

Today, tandoors are still produced and used in many settlements, especially in rural areas of eastern and southeastern Turkey. They retain economic value and serve both as a product and a means of production.

The location of tandoors varies according to the diversity of urban and rural housing architecture. Some are situated inside the kitchen within the house, some in courtyard tandoor houses under a canopy, and others outside within the neighborhood fabric. Monumental tandoor spaces in traditional Erzurum houses have parallels in Bayburt houses (Uçar, 1998). Beyond Erzurum and Bayburt, tandoors are also found in

houses across Kars, Ağrı, Iğdır, Erzincan, Malatya, Elazığ, Muş, Bitlis, and Van.

The tandoor is not merely a cooking structure or tool, but a spatial projection of the ontological relationship with earth; the soil serves both as a building material and as a carrier of cultural memory (Ingold, 2000). Structurally, through earth's dual role as producer and container, the tandoor exceeds its functional use as a cooking device, serving as a ritual and social organization space with intrinsic spatial value. This perspective necessitates considering the tandoor beyond its physical form. It is shaped by the relationship with the earth and can be understood as a space where our connection to place, everyday production practices, and collective memory are materialized. In this context, the built environment is produced not only physically but also experientially. In vernacular architecture literature, this approach intertwines cultural meanings with locality and material continuity. Paul Oliver expresses this notion: "The use of earth as a building material is not simply a matter of expediency or poverty, but often of deep cultural significance, rooted in ideas of belonging, continuity and cosmology" (Oliver, 2003, p. 112). From this perspective, the tandoor can be seen not merely as an economic or functional solution, but as a spatial manifestation of cultural belonging and continuity with the place.

Nusaybin TOKİ Housing and Tandoor Use

The study focuses on the TOKİ housing area in Nusaybin, Mardin, built between 2015 and 2016 near the Syrian border. While the city center consists of modern apartment buildings, the TOKİ housing holds a distinct, privileged position.

Nusaybin's proximity to the Syrian border has exposed the district to political actions. Conflicts in 2015–2016 caused extensive destruction. Following this, TOKİ constructed mass housing in the damaged areas. The study sample comprises the areas identified in the Ministry of Environment and Urbanization's Plan Explanation Report as Phase 1, Section 1, and Phase 1, Section 2, representing the TOKİ housing area (Figure 3).

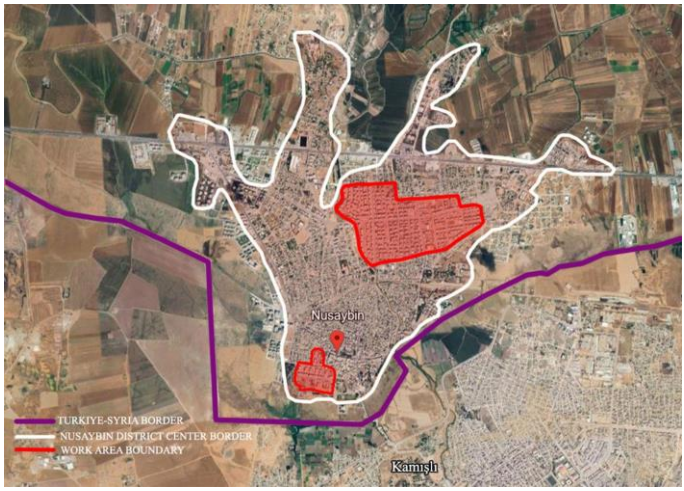


Figure 3. The district center of Nusaybin, with the red area indicating the study site.

The district consists partly of traditional detached houses, partly of apartment buildings, and largely of mass housing constructed by TOKİ after the 2015–2016 destruction. These developments transformed the district, accelerating its shift from rural to urban. Tandoors, which withstand this rapid change and allow the continuation of traditional bread-making practices, have persisted within these spaces.

Tandoor use is widespread in rural areas of Nusaybin. These tandoors are generally scaled to align with the detached houses in the settlement. They typically feature a metal sheet covering, which protects both the tandoor and its fuel from adverse weather conditions (Figure 4).



Figure 4. The photographs respectively show tandoors located in courtyards, on street fronts, and within the neighborhood.

Tandoors hold a significant place in the lives of women, who play a central role in bread production in the district. Recognizing this, the

municipality implemented the "Tandoor Houses Project" between 2009 and 2013. The project aimed to enable women to engage in collective production based on equal distribution while preserving local values. A tandoor house was built in each neighborhood, enhancing women's social and economic participation and contributing to family income through tandoor bread. Constructed using local katori stones, most tandoor houses were destroyed during the 2015–2016 conflicts. One surviving tandoor house, shown in the photographs below, has remained intact to the present (Figure 5).

Within the urban transformation project including the TOKİ housing, no tandoors were originally incorporated. Existing tandoors in these residences have been constructed by homeowners with permission from the municipality (Demir & Kılıç, 2024).



Figure 5. Tandoor produced within the Tandoor Houses Project.

The study area with TOKİ blocks comprises Phase 1, Section 1, including Abdulkadirpaşa, Yenişehir, Fırat, and Dicle neighborhoods, and Phase 1, Section 2, including part of Kışla and Zeynelabidin neighborhoods. There are a total of 5,051 TOKİ units. Additionally, 90 tandoors were identified: 85 in Phase 1, Section 1 and 5 in Phase 1, Section 2 (Figures 6 and 7).



Figure 6. It shows the tandoor structures in the TOKİ units within Phase 1, Section 1 Planning Area.

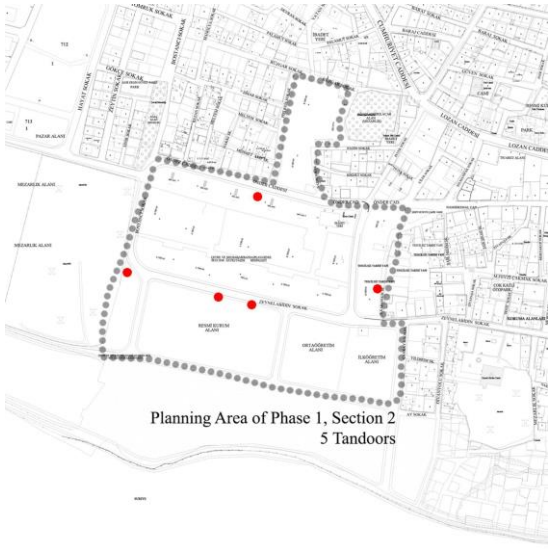


Figure 7. It shows the tandoor structures in the TOKİ units within Phase 1, Section 2 Planning Area.

The placement of tandoors among the TOKİ blocks does not follow a specific order. They are scattered throughout the area and are

generally located along the periphery of the site where the TOKİ blocks are situated (Figure 8).



Figure 8. It shows the tandoor structures located along the periphery.

Most tandoors, located along the periphery, are occasionally found in the gaps between blocks (Figure 9). Notably, they are positioned to foster social interaction with the street (Figure 10). Although their arrangement lacks strict order, it is not random. Placement is influenced by usage frequency and neighborly relations, creating social network nodes where women can see and call to each other. In high-use areas, two tandoors are sometimes built side by side (Figure 11).



Figure 9. 10. 11. Tandoor arrangements.

The physical form of tandoors shows they are traditionally made of earth and later coated with cement for durability. Some have a covering, while others do not.

COMMON SPACE ORGANIZED AROUND THE TANDOOR

The tandoor is not merely a place for baking bread; it is a space where women contribute to household income, stay informed about each other's lives, and build networks of solidarity. Collective bread-making practices provide opportunities for communication, support, and socialization. Observations recorded a woman roasting and selling eggplants at the tandoor, contributing to her family's budget (Figure 12), illustrating the visibility and economic value of women's labor.



Figure 12. User roasting eggplants at the tandoor.

Tandoor use is often directly linked to women's social organization. Cooking bread and meals together fosters conversation, awareness of each other's lives, and solidarity. This network not only reuses the space but continuously reproduces it. In regulated housing areas like TOKİ, the persistence of traditional practices such as baking bread and roasting vegetables highlights the tension between modern housing design and traditional production culture.

In this sense, the tandoor holds an important place in collective memory. Its use by visitors from other cities or countries extends this memory into broader social contexts. Cooking at the tandoor follows no mechanical timeline; it embodies emotional and social time. The dough's fermentation, the wood's burning, and the flow of conversation produce qualitative time, reflecting Bergson's (1911) concept of "la durée."

Tandoors are often located outside the house or in shared spaces, positioning them at the threshold between private and public domains. Women reorganize daily life around the tandoor, where the bread they produce serves not only as food but also as a carrier of cultural continuity. While baking, women simultaneously cultivate tandoor-related culture, making the space central to collective memory. One participant noted contributing regularly to the family budget by fulfilling tandoor orders (Figure 13). The tandoor's role in local cuisine is significant: roasting eggplants and peppers, baking tandoor bread, and preparing festive pastries are essential elements of regional identity (Figures 14–15). Participants emphasized, "The taste of tandoor bread is irreplaceable; even on rainy days, we retrieve it from the freezer," illustrating how traditional flavors sustain memory under modern storage conditions.



Figure 13. 14. 15. It illustrates the relationship between the tandoor and production.

The integration of the tandoor into modern housing fabric invites a discussion of its spatio-temporal existence. Bergson's concept of "duration" resists homogeneous, measurable time, emphasizing qualitative, affective temporality. Deleuze's notion of "becoming" spatializes this perspective, framing the tandoor not as a fixed object but as a continuously reproduced space of becoming (Deleuze, 1966; Grosz, 2001). In this sense, the tandoor constitutes a nonlinear, layered, and simultaneous spatio-temporal experience.

Within urban spaces homogenized by modernization and neoliberal policies, the tandoor emerges as a locus of everyday resistance. Against TOKİ's planned, standardized, and abstract spatial logic, life around the tandoor produces a "lived space" (Lefebvre, 2014), forming a porous threshold between private (home) and public (neighborhood), challenging modernity's rigid spatial categories (Stavrides, 2016).

Most importantly, this everyday practice is constructed by women. While modernization often confines them within domestic spaces, the tandoor enables their participation in production and visibility in the public sphere. The informal publicness women establish around the tandoor lies outside Habermas's rational-masculine public sphere ideal. Instead, it exemplifies Fraser's (1990) "counter-public," where marginalized groups negotiate needs, share experiences, and weave solidarities through commoning. Resonating with Lefebvre's (1984) notion of resistance to homogenizing practices of everyday life, the tandoor emerges as a space of "becoming" (Deleuze & Guattari, 1980), simultaneously private and public.

CONCLUSION

Within modern constructions, the persistence of traditional and local practices is often labeled "nostalgic" or "exotic." Such categorizations render many place-bound practices timeless and devalued within modern lifestyles. Practices deemed incompatible with modernity are thus marginalized, as in the case of the "tandoor," despite their own social contexts and relational networks. In this study, the tandoors constructed by participants within modern housing are not approached as remnants, nostalgic objects, or outdated forms, but rather as situated and current socio-spatial productions. This holistic perspective becomes essential for recognizing and analyzing local practices that modern structures tend to erase or homogenize.

Modernization processes and contemporary neoliberal policies have produced increasingly narrow, isolated, and homogenized public spaces lacking social permeability. Since the 1980s, global "neoliberal housing policies" have transformed many Turkish cities into market-oriented spaces, where housing functions less as shelter and more as capital-driven assets (Harvey, 2013; Stavrides, 2016). TOKİ housing exemplifies what Harvey (2012) terms "accumulation by dispossession," reflecting neoliberal urbanization practices that commodify and homogenize space in Turkey.

Since the 1980s, global "neoliberal housing policies" have transformed many Turkish cities into market-oriented spaces. TOKİ, as a state-led yet corporatized institution, produces block-based, insular urban zones. Within this planning logic, socio-cultural structures tied to local context and climate are excluded from design processes. The constructed housing emphasizes shelter but is primarily shaped by market values rather than social needs (Harvey, 2013; Stavrides, 2016). Key determinants of this market value include modern infrastructure systems and compatible equipment, while the delineation of private property

boundaries functions as another measurable and commodified dimension.

David Harvey's (2012) notion of "accumulation by dispossession" illustrates how neoliberal urbanization commodifies space, reducing collective, socio-cultural, and locally embedded factors—such as topography and climate—into standardized forms. These modernized standards foster spatialities that isolate individuals and diminish social permeability. Consequently, neoliberal economies generate effects that restrict encounters and interactions while reinforcing social divisions and class-based separations.

In this regard, the tandoors built by residents within the Nusaybin TOKİ housing complex—subject of this study—occupy the intersection of modern/traditional, public/private, micro/macro-economic, and local/global dualities within modern urban formations, thereby providing a critical ground for discussing the permeability of such boundaries. The tandoor practice within the Nusaybin TOKİ settlement can be understood as a counter-position emerging from everyday life, generating publicness, solidarity, commoning, and difference within spatialities homogenized, trivialized, and commodified by modernity.

In this context, based on the data obtained so far, this study demonstrates that within the Nusaybin TOKİ housing complex, the tandoor—traditionally considered a simple object—persists as a resilient "becoming" space (Deleuze & Guattari, 1980) within the homogenizing structures of modern urbanization and neoliberal transformations. The tandoor functions not merely as a cooking tool but, in Lefebvre's (1991) terms, as a "lived space" continuously reproduced and transformed by its users. Its presence at the public-private interface aligns with Stavrides' (2016) notions of "permeable thresholds" and "common space," blurring boundaries between private and public spheres. This practice creates a counter-public (Fraser, 1990) for women migrating from rural areas who lack modern equipment and are otherwise excluded from social life.

The study also highlights how tandoors generate unexpected and organic relations, producing common spaces that challenge the standardized housing approaches rooted in Harvey's (2012) "property-based capital accumulation," which often render everyday, spontaneous practices invisible. By revealing Jacobs's (1961) "informal street life" and informal practices, tandoors create unanticipated common spaces within TOKİ housing, otherwise designed as homogeneous commodities.

This study provides significant insights for the disciplines of architectural design and planning. It emphasizes the necessity of understanding space not merely as a physical or economic object, but as a substrate where social and cultural practices, as well as collective memory, are produced. Common spaces that are adaptable, flexible, and supportive of community practices should be prioritized within architectural design and planning disciplines.

Common spaces also serve as sites of social rehabilitation, providing a foundation for the formation of solidarity networks among individuals. Ensuring that each person can exist productively and visibly within public spaces is a critical issue that should be considered within the disciplines of architecture and planning.

This study is an in-depth case analysis at the scale of a single district (Nusaybin), and the research process is ongoing. By examining similar traditional practices in different cities and cultures, the extent to which these findings are universal can be tested. The study aims to deepen spatial analyses and map social networks. Its findings are intended as a resource for urban transformation and cultural policies. The tandır demonstrates a micro-cosmos that resists modernity's dichotomies (private/public, modern/traditional, individual/community) and shows the possibility of more fluid, human-centered spatialities. Through spatial practices, it produces common space, collectivity, and memory. Architecture and planning should learn from these everyday acts of resistance and seek ways to design space as a lived environment.

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THE DISTRIBUTION OF THE SENSIBLE IN BEIRUT'S VERTICAL SETTLEMENTS: SYRIAN DISPLACEMENT AND SPATIAL AGENCY

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ABSTRACT

Spatial adaptation by displaced populations is a widespread phenomenon of migrant urbanism, attributed to supporting survival strategies and community resilience. Yet, these adaptations remain confined to accounts of their resourcefulness or criticised as violations, without an understanding of how and why they emerge in displacement conditions. Existing narratives that link spatial modification to housing scarcity, legal precarity, and architectural constraints are ultimately insufficient. This paper investigates spatial adaptation by Syrian migrant families and their patterns through extensive documentation of the abandoned Wizarat Al Iqtissad building in Beirut. As displaced households establish residence within deteriorating urban infrastructure, they subsequently reorganise space, intensifying the transformation of built environments. This paper draws attention to the impact of cyclical mobility on the intensity and distribution of spatial modifications. It invokes the concept of "informal governance arenas" to argue that residents not only passively occupy space but are enacting performative codes as they collectively negotiate spatial adaptations in a self-regulatory process.

Keywords: Jacques Rancière; Urban Informality in Beirut; Spatial Adaptation of Syrian Migrants; Community Formation; Spatial Transformation.

> I do not take the phrase 'community of sense' to mean a collectivity shaped by some common feeling. I understand it as a frame of visibility and intelligibility that puts things or practices together under the same meaning, which shapes thereby a certain sense of community. A community of sense is a certain cutting out of space and time that binds together practices, forms of visibility, and patterns of intelligibility. (Rancière, 2009a. p.31)

INTRODUCTION

In 2022, global displacement reached unprecedented levels, with approximately 60.9 million people forcibly displaced, representing a 60% increase from the previous year (Clark, 2023). Of these, conflict accounted for 28.3 million displacements, whilst intensifying climate events displaced an additional 32.6 million (Internal Displacement Monitoring Centre [IDMC], 2023). This crisis has exposed fundamental urban unpreparedness, as many urban areas remain "unprepared for rapid influxes of migrants", with numerous cities already lacking adequate social services, infrastructure, and public safety for their growing populations (Nagle Alverio et al., 2025, p. 2).

Lebanon exemplifies these urban displacement pressures. Hosting over 1.5 million Syrian refugees since 2011, the country has witnessed significant strain on urban infrastructure, particularly in Beirut, where formal housing remains largely inaccessible to displaced populations due to legal restrictions and economic barriers (Kikano et al, 2021). Syrian refugees face prohibitions on formal employment, restrictions on property ownership, and limited access to official housing assistance, forcing many into precarious informal settlements or overcrowded urban areas (Fouad et al, 2021). Within this context, examining how displaced populations adapt existing urban structures offers insights into both immediate survival strategies and broader questions about urban resilience.

By focusing on purpose-built refugee accommodation or humanitarian architecture, this paper investigates the informal occupation and modification of abandoned buildings through what Rancière (2013a) terms "the distribution of the sensible" (partage du sensible). This concept forms the foundation for understanding what this research defines as sensible architecture—architectural design derived from social reality that encompasses "the sensible order that parcels out places and forms of participation in a common world" (Rancière, 2013a, p. 85). The French term partage signifies both the division of places into parts and the sharing of lived experience, making visible the binaries of social order: what is visible and invisible, inclusive and exclusive, assimilated and

incorporated in emerging urban communities. This theoretical lens reveals how migrants' spatial practices challenge dominant narratives of habitability by making previously invisible communities and their adaptive strategies visible within urban discourse.

These sensible architectures manifest most clearly in what this paper terms vertical camps—multi-storey abandoned buildings spontaneously occupied by displaced populations and regulated through informal governance rather than humanitarian agencies or governmental oversight (Samhan & Boano, 2025). Such sites are conceptualised as reinhabitation: the transformation of "makeshift" homes (Jordan & Minca, 2023) and "transitional spaces" into permanent community places (Bakonyi & Chonka, 2023). These territories constitute "multiple incremental and transformative acts with the ultimate purpose to hold and resist marginalisation" (Boano & Astolfo, 2020, p. 555). This reinhabitation process embodies what Simone (2023, p. 3) describes as "a plethora of registers, apertures, potentialities and an ontology of indeterminacy" that functions as "a locus of continuous rebellion" against exclusion from formal urban systems.

The connection between Rancière's sensible distribution and reinhabitation theory reveals how spatial practices become political acts. When displaced communities occupy abandoned structures, they engage in what Lancione and Simone (2021) term "dwelling as difference"—producing affirmative strategies for learning, navigating, and governing architectural priorities that challenge professional assumptions about appropriate habitation. This process is "not a matter of possibility, but a spontaneous occurrence" enabling forcibly displaced groups' spatial and social survival, whilst political endurance develops within informal urban contexts (Boano et al., 2024, p. 6).

This paper makes three contributions to architectural and displacement studies by bridging these theoretical frameworks. First, it demonstrates how Rancière's political philosophy can inform architectural analysis of spatial practices that challenge dominant narratives of habitability. Second, it documents previously unexamined adaptation strategies within vertical settlements, revealing how displaced communities collectively reshape multi-storey structures for community living. Third, it proposes a methodological approach for architects to learn from the spatial innovations of marginalised communities, rather than imposing external solutions, addressing what Rakowitz (2013, p. 45) identifies as architecture's lost "political potential" that has been "overwhelmed by economic realities."

Paradoxically, whilst armed, political, social, and economic conflicts create transformative opportunities for architectural innovation (Abenia, 2015), this potential has been suppressed under social, economic, and political apathy. This paper counters such apathy by examining the Wizarat Al Iqtissad building in Beirut's Hamra district, where migrant households have spontaneously occupied this abandoned 13-storey structure. This vertical camp exemplifies what Lancione (2020, p. 3) describes as spaces that appear uninhabitable and "render their inhabitants not really or fully human" due to professionals' and authorities' failure to provide affordable, safe living environments. The inhabitation occurs within "wider structural forms of violence, including patriarchy, racism, class exploitation, and, of course, deprivation of shelter" (Lancione, 2020, p. 3), making it a critical site for understanding how sensible architecture emerges from conditions of extreme marginalisation.

From August 2024 to May 2025, a research team conducted a qualitative case study using a methodology that engaged with participants and documented the building's transformation, capturing households' perspectives on informal vertical settlement. This approach allows for inductive development of theoretical insights about future housing practice (Creswell & Creswell, 2018), specifically tracing how social action and economic disparity produce possibilities for sensible architecture. The methodology identifies what Curien (2024, p. 55) calls "the epistemological effects of this commitment" to learning from marginalised spatial practices, addressing three key questions: What spatial adaptation strategies do Syrian migrants employ in vertical settlements? How do these reinhabitation strategies challenge conventional architectural futurity? How can documentation of informal spatial practices inform more responsive humanitarian and architectural interventions?

Through analysing these dynamics, the paper reveals how inhabitation becomes fragmented and reimagined through adaptation to extreme living conditions, ultimately arguing for architects' accountability in proposing the appropriation of existing buildings rather than generating resource-intensive new construction. The research demonstrates how documented reinhabitation practices can provide guidelines for transforming housing provision towards more socially responsive architectural objectives, enabling excluded and invisible communities to step beyond stigmatisation through the very act of making their adaptive strategies visible within architectural discourse.

Complementary principles of humanism in architecture are "the tendency to project the image of our functions into concrete forms" as

the basis of "creative design" and "the tendency to recognise, in concrete forms, the image of those functions" as the basis of "critical appreciation." (Scott 1999, p.213.)

LITERATURE REVIEW

The intersection of displacement, urban space, and architectural practice has generated substantial scholarship across multiple disciplines, yet significant gaps remain in understanding how displaced populations actively reshape urban environments through spatial practices. This literature review examines four interconnected domains—spatial politics theory, urban displacement dynamics, informal settlement practices, and humanitarian architecture—to establish the theoretical framework for investigating Syrian migrants' occupation of abandoned buildings in Beirut.

Theoretical Context: The Politics of Space and Visibility

Jacques Rancière's conceptualisation of politics as "the invention of sensible forms and material structures for a life to come" (2017, p. 12) provides the theoretical foundation for understanding how spatial practices by displaced populations challenge dominant urban orders. Central to Rancière's philosophy is the concept of "the distribution of the sensible" (partage du sensible), which determines what can be seen, heard, thought, and done within a given social order (Rancière, 2013a). This distribution establishes the boundaries between the visible and invisible social settings, the included and excluded families, thereby structuring possibilities for political participation.

Applied to spatial analysis, Rancière's ideas reveal how seemingly mundane acts of occupation and modification can function as political interventions. Shaw (2015) argues that Rancière's aesthetic regime "seeks to change the sensible fabric of social relations rather than seizing institutional power" (p. 150), whilst Wenger (2020) demonstrates how spatial practices can introduce "new subjects and new objects in the common public space," rendering visible what was previously marginalised (p. 1). This theoretical lens suggests that when displaced populations occupy abandoned buildings, they are not merely solving housing problems but actively challenging the sensible distribution that renders them invisible within urban discourse.

However, existing applications of Rancière's theory to architectural contexts remain largely theoretical, with limited empirical investigation of how the distribution of the sensible operates through specific spatial practices. This paper addresses this gap by examining how migrants' spatial modifications of abandoned structures constitute what can be

termed "sensible architecture"—building practices that make visible alternative possibilities for urban habitation while challenging dominant narratives of appropriate spatial use.

Urban Displacement and Housing Exclusion in Lebanon

Lebanon's experience hosting over 1.5 million forcibly displaced Syrians since 2011 provides a critical context for examining how exclusion from formal housing systems generates alternative spatial practices. The scale of this displacement—creating the highest refugee per capita concentration worldwide (Brun et al., 2022)—has exposed fundamental limitations in both humanitarian responses and urban housing systems. With 75% of Syrian displaced households living in extreme poverty and inhabiting Beirut's informal urban areas and abandoned buildings (UN Inter-Agency Coordination Lebanon, 2024), conventional approaches to refugee accommodation have proven inadequate.

Syrian refugees face systemic exclusion from formal housing markets through legal restrictions, including prohibitions on formal employment, restrictions on property ownership, and limited access to official housing assistance (Fouad et al, 2021; Kikano et al., 2021). Brown et al. (2015) identify how these exclusions create cascading challenges such as informal land acquisition, conflict-driven resettlement, housing rights advocacy, insecure tenure, and gender discrimination. Crawford (2013) argues that such insecure tenure represents "a pervasive manifestation of urban inequality," yet conventional responses have focused on expanding humanitarian housing projects rather than understanding the adaptive strategies employed by displaced populations themselves.

This exclusion occurs within a context of significant housing stock underutilisation. Pietrostefani (2022) documents "an incomparable quantity of unlet and unsold" apartment buildings in Beirut, whilst Mazzetto et al. (2024) indicate that up to 20% of built accommodation units across all neighbourhoods remain uninhabited. This paradox, simultaneous housing crisis and abundance of unused structures, suggests that displacement housing problems are not primarily about scarcity but about systems of access and exclusion that prevent displaced populations from inhabiting available spaces.

Informal Settlement as Spatial Practice

Recent scholarship has moved beyond viewing informal settlements as merely a response to housing shortages, instead examining how displaced populations actively reshape urban environments through spatial practices. Feng and Zhu (2022) observe that displacement "frequently creates opportunities for occupying abandoned buildings

and spaces" that involve "active spatial modification rather than passive accommodation." This perspective challenges conventional framings of displaced populations as passive recipients of humanitarian assistance.

The concept of reinhabitation offers a more nuanced understanding of these practices. Rather than temporary occupation, reinhabitation involves what Boano and Astolfo (2020, p. 555) describe as "multiple incremental and transformative acts with the ultimate purpose to hold and resist marginalisation." This process encompasses both spatial and social transformation, as displaced communities create not merely shelter but sites of community formation and political resistance. Stoetzer's (2018) concept of "ruderal spaces"—environments that emerge spontaneously in places considered hostile to life—provides additional theoretical tools for understanding how abandoned buildings become sites of reinhabitation. Drawing from ecological terminology, Stoetzer argues that ruderal communities develop in marginal spaces and depend on "edge effects and the juxtaposition of contrasting environments in one ecosystem" (p. 297). Applied to urban contexts, this concept illuminates how abandoned buildings function as urban margins that can be transformed through collective inhabitation.

However, existing scholarship on reinhabitation remains largely theoretical, with limited empirical analysis of specific spatial practices. Stanganelli et al. (2023) provide a functional definition of abandoned structures as buildings "halted before completion, forsaken due to prohibitive maintenance costs, or evacuated during armed conflicts," but there is insufficient documentation of how these structures are actually transformed through occupation. This empirical gap limits understanding of the specific spatial strategies through which reinhabitation occurs.

Humanitarian Architecture and Its Limitations

Contemporary humanitarian architecture has emerged as a field concerned with addressing housing crises through emergency response and post-conflict reconstruction, yet its effectiveness in urban contexts remains questionable. Clarke and Darcy (2014) argue that humanitarian architects frequently ground their responses in "subjective and socially constructed interpretations of reality," necessitating greater attention to qualitative research evidence and lived experience.

The evolution of humanitarian accountability can be traced through broader developments in humanitarian practice. Whilst humanitarian accountability gained prominence during the 1990s and was formalised at the 2016 World Humanitarian Summit through the Charter for Change initiative, emphasising locally-led responses (Jaspars & Hilhorst, 2021;

Sholler et al., 2024), architectural practice has been slow to incorporate these principles.

Sanyal (2024) identifies a critical limitation: whilst humanitarian architecture "predominantly focuses on urban communities," architectural practice has "largely failed to incorporate lessons from humanitarian actors or acknowledge its social accountability for housing migrants." This failure manifests in design practices that predominantly serve elite interests rather than addressing the needs of displaced populations. Furthermore, humanitarian architecture's emphasis on temporary, purpose-built solutions may overlook the spatial innovations already occurring within displaced communities. Tassinari (2018) calls for "design for social innovation" rather than relinquishing spatial shaping to politicians and economists (p. 255), yet there remains insufficient documentation of how displaced populations themselves engage in spatial innovation. This represents a significant missed opportunity for architectural learning and challenges assumptions about where spatial expertise resides.

Whilst existing scholarship has examined humanitarian architecture, informal settlement, and spatial politics separately, there remains limited research connecting these domains through empirical analysis of specific sites of displacement. Most critically, there is insufficient documentation of the specific spatial practices through which displaced populations transform abandoned buildings into sites of habitation and community formation.

This paper addresses these gaps by examining Syrian migrants' occupation of the Wizarat Al Iqtissad building in Beirut through Rancière's sensible politics. Rather than prescribing solutions for displacement accommodation, the research investigates existing spatial practices to understand how informal strategies emerge when formal housing systems exclude displaced populations. By focusing on a single building as a site of collective adaptation, the paper offers insights into the micro-politics of informal settlement and the spatial strategies that emerge under conditions of urban marginality.

The research contributes to scholarship on migrant urbanism by documenting how displaced populations actively reshape built environments whilst negotiating uncertain legal status. More broadly, it challenges humanitarian architecture's emphasis on purpose-built solutions by revealing the architectural innovations already occurring within displaced communities, thereby suggesting alternative approaches to urban displacement that recognise and support existing spatial practices rather than replacing them with external interventions.

Politics occurs when those who 'have no' time take the time necessary to front up as inhabitants of a common space and demonstrate that their mouths really do emit speech capable of making pronouncements on the common which cannot be reduced to voices signalling pain. (Rancière & Corcoran, 2009. p.24)

METHODOLOGY

This paper employs a qualitative case study design to examine Syrian migrants' spatial adaptation practices within the Wizarat Al Iqtissad building in Beirut. The research adopts an ethnographic approach that prioritises participants' lived experiences and spatial narratives as the primary source of data about informal settlement practices. Jacques Rancière's concept of "the distribution of the sensible" provides an analytical lens for interpreting how spatial modifications challenge dominant assumptions about legitimate urban inhabitation.

The research was conducted in the Wizarat Al Iqtissad building, a 13-storey abandoned housing block in Beirut's Hamra district that has been informally inhabited by Syrian migrant families since 2014. Participants were selected using purposive sampling to ensure representation across different periods of residence and household compositions. The sample included 14 participants representing households with varying lengths of residence, from four months to approximately ten years, comprising both family units and single migrant workers. Sample size was determined through theoretical saturation principles, with data collection ceasing when no new themes emerged regarding spatial adaptation practices across different household types and residence durations (Guest et al., 2006).

Data collection occurred between August 2024 and January 2025 using multiple qualitative methods. Semi-structured interviews explored participants' experiences of spatial modification, community relationships, and daily life within the building. Photo-elicitation sessions involved participants photographing significant spaces within their apartments and common areas, followed by discussions about spatial meanings. Questionnaires gathered demographic information and housing histories.

Participant observation followed systematic protocols (Salmona & Kaczynski, 2024) involving twice-weekly visits over six months, with each visit lasting 1-2 hours during different times of day to capture varying spatial uses. Observations were documented through detailed fieldnotes focusing on spatial arrangements, modifications, social interactions, and daily routines. A structured observation template

recorded spatial configurations, material modifications, and social activities, ensuring consistent data collection across visits.

Researcher Positionality and Reflexivity

As an international researcher with privileged legal status and economic position, I acknowledge significant power imbalances with participants experiencing legal precarity and economic hardship. My position as an outsider to both Lebanese society and the Syrian refugee experience required particular sensitivity to avoid extractive research practices (Hilaire, 2023). Regular reflection sessions with Arabic-speaking research assistants helped identify potential biases, cultural misinterpretations, and navigate complex cultural dynamics. Reliance on research assistants for linguistic mediation created additional layers of interpretation that required careful consideration. Class, nationality, and legal status differences remained significant factors requiring ongoing reflexive attention throughout data collection and analysis.

Ethical approval by the Ethical Board of the American University of Beirut was obtained with particular attention to vulnerable population guidelines. All participants provided informed consent in Arabic, with emphasis on voluntary participation and withdrawal rights. The sampling strategy prioritised households with longer residence periods initially, then included recently arrived families to examine temporal dimensions of spatial adaptation.

Data analysis employed Braun and Clarke's (2006) reflexive thematic analysis, with initial coding focused on spatial practices, community relationships, and adaptation strategies. All interviews were conducted in Arabic, recorded with permission, and transcribed by bilingual research assistants with translation accuracy verified through back-translation of selected excerpts. The analysis recognises that spatial concepts may carry different cultural meanings, requiring careful interpretation across linguistic contexts.

The research also occurred during a specific period of Lebanon's economic crisis and the 2024 Israeli bombing of Beirut, which may have intensified both spatial constraints and adaptive strategies in ways that might not reflect practices under different conditions. Additionally, the focus on spatial modifications meant that other dimensions of community formation, such as economic networks, educational arrangements, or healthcare strategies, received limited attention, potentially overlooking important aspects of how displaced populations create liveable communities.

Human beings are tied together by a certain sensory fabric, a certain distribution of the sensible, which defines their way of being together; and politics is about the transformation of the sensory fabric of "being together" (Rancière, 2009b. p.56).

CASE STUDY: RUDERAL PLACES IN THE HIGHRISE

The Wizarat Al Iqtissad building, constructed in the late 1950s during Lebanon's development boom, emerged as a desirable living location as the Hamra neighbourhood became the new business centre. Since the Lebanese Civil War (1975-1999), property records show contested ownership, with a Syrian retiree serving as caretaker, known among families as "the de facto building owner" (August 2024, interview). Whilst few occupants are his relatives, most households secured apartments through word of mouth. They all paid a monthly rent of 300 US$ to the building gatekeeper and reported fears of forceful eviction. Two building managers verbally dictated rental terms to tenants, including duration of stay, regardless of apartment conditions. The caretaker lets the underground car park to local employees and leases space behind the building to an informal electricity supplier's three large generators, whose noise residents have to tolerate. Occupants object to the supplier selling energy to the entire block, including 2.5 Amps/apartment.

The original design featured studios and one-bedroom apartments on the first five floors, with larger two- to three-bedroom units above. Current migrant modifications include first- and second-floor workers' dormitories housing six men per room. Upper floors contain two-bedroom apartments with increasing tenant density; observations reveal multiple families sharing units to split rent, averaging five to seven occupants per room (Figure 1). Most apartments contain only mattresses and lack proper kitchens or bathrooms, compelling households to create makeshift facilities in hallways or room corners. Households modified and deteriorated walls and floors using recycled foil, wallpaper, and paint layers. Most units lack formal furniture; thus, occupants utilise recycled pieces covered with cloth for hygiene. Bedrooms typically contain floor-placed mattresses or stored rollaway blankets for daily activities. Following the building's abandonment and complete interior dismantling, including all doors, windows, flooring, and kitchen/bathroom facilities, families invested in the toilet function and improvised a kitchen in its original location.

It is clear that proletarian does not designate any occupation whatever, at most the vaguely defined state of the poverty-stricken manual labourer, which in any case, is not appropriate to the accused. But, within revolutionary politics, Blanqui gives the same word a different

meaning: a profession is a profession of faith, a declaration of membership of a collective. (Jacques, R., & Julie, R. (1999). Disagreement: Politics and philosophy. Trans. Julie Rose. Minneapolis: University of Minnesota Press. p.8)

SENSIBLE ARCHITECTURE DERIVED FROM URBAN INFORMALITIES

Spatial Adaptations and Community Formation

The findings from the Wizarat Al Iqtissad building reveal how Syrian migrant households adapt abandoned apartments to meet residential needs through systematic spatial modifications. Whilst acknowledging the precarious conditions faced by Syrian migrants in Lebanon, including periodic raids by Lebanese General Security Forces that result in temporary detention of male residents, this analysis focuses on the spatial strategies employed within the building itself.

The most significant finding concerns households' systematic modification of apartment layouts to accommodate residential functions. Participants reported removing internal partitions to create flexible living spaces that serve multiple purposes throughout the day. Balconies were frequently converted into cooking areas whilst original kitchen spaces were repurposed for food storage, reflecting adaptations to limited space and infrastructure constraints (Figure 1). These modifications address practical needs such as child safety, accommodating extended families, and creating functional flexibility within the constraints of building design.

These spatial adaptations demonstrate what can be understood as incremental place-making practices that transform the building's intended function. Rather than passively occupying existing spaces, households actively reshape their environments to better suit their needs and circumstances. This process involves both individual household modifications and collective negotiations over shared spaces and resources.

Mobility Patterns, Social Organisation and Spatial Rights

We identified cyclical mobility patterns within the building, with families typically moving between apartments every two to three years. This mobility is driven by several factors: changing household size requiring more or less space, disputes over resource sharing such as water storage and electricity consumption, and the arrival of new inhabitants requiring accommodation. These movements primarily involve male workers who initially occupy the first two floors, inhabiting 15 people per room, and

subsequently arrange the occupation of apartments for family members to join them.

This internal mobility pattern suggests that the building functions as a transitional housing system rather than permanent accommodation. Households use their residence within the building as a platform for seeking more stable housing arrangements, though such alternatives remain largely inaccessible due to de facto building owners' restrictions and economic constraints. The cyclical nature of these movements indicates that families develop sophisticated strategies for navigating spatial limitations within the building. It also reveals informal governance structures that emerge to manage resource allocation and conflict resolution. Whilst these structures operate outside formal institutional frameworks, they enable collective inhabitation and community formation within the building. The research observed how households negotiate shared use of common areas, coordinate infrastructure improvements, and mediate disputes without external intervention.



Figure 1. Spatial limits and modification by households. Source: Author, 2025.

Despite legal restrictions that limit Syrian refugees' freedom of movement and access to employment, residents of the Wizarat Al Iqtissad building maintain connections to broader urban spaces in Beirut. The research documented how families use specific public areas, including the Corniche waterfront promenade, Sanayeh Park, and two coffee shops in the Hamra district. The building's location in Hamra, a central district of Beirut, enables this urban engagement, whilst the abandoned status of the structure provides relatively secure accommodation outside formal housing markets. This positioning allows residents to maintain urban connections whilst remaining largely invisible to authorities, though this invisibility is fragile and subject to periodic disruption through security raids.

The presence of Syrian families in the building and their use of public urban spaces can be understood through Rancière's (1999) concept of a disruption of the established urban matrix, challenging the police's determination of who can legitimately occupy which spaces and under

what conditions. When marginalised groups infiltrate urban spaces, they make visible previously hidden forms of exclusion and challenge assumptions about who belongs where in the city. The philosopher calls these activities "blaberon [harmful or pernicious] the interruption of the normal functioning of time", creating a parallel city in the occupied building by linking different dreams and realities, past and future, mobility and immobility (Fajardo, 2022, p.3). This theoretical interpretation is aligned with the motto which appeared at the demonstrations of the French jobless movement in the mid-90s: we're not a surplus, we're a plus" (Žižek, 2004, p.72). I conclude that built environments should be considered as dashboards for reinhabitation that allow "the other non-urban-dwelling population" to identify alternative and affordable shelters within a hostile urban setting (Grange and Gunder, 2018, p.389). Instead of designing objects[1] and treating habitat as a tool for resolving the housing crisis, we propose to incrementally transform already existing urban tissue with occupation tactics and reinhabitation, strategies which should be supported by professionals.

Politics, indeed, is not the exercise of, or struggle for, power. It is the configuration of a specific space, the framing of a particular sphere of experience, of objects posited as common and as pertaining to a common decision, of subjects recognised as capable of designating these object and putting forward arguments about them. (Jacques, R., & Steven, C. (2009). Aesthetics and its Discontents. Trans. Corcoran Steven. Cambridge: Polity Press. p.24)

CONCLUSION

This ethnographic investigation of Syrian migrants' occupation of the Wizarat Al Iqtissad building in Beirut contributes to scholarship on displacement and urban informality by demonstrating how spatial practices function as political interventions that challenge dominant urban orders. The research advances understanding of informal settlement beyond survival strategies, revealing how displaced populations exercise spatial agency through what this study terms "sensible architecture"—building practices that make visible alternative possibilities for urban habitation.

[1] We use Bruno Latour's distinction between object and thing through the transcendent Heideggerian fourfold and a constructing argument for understanding millionfold of things. Please see: Latour, B. (2004). Why has critique run out of steam? From matters of fact to matters of concern. Critical inquiry, 30(2), 225-248.

The application of Rancière's "distribution of the sensible" to architectural analysis yields three significant theoretical insights. First, the framework reveals how mundane spatial modifications constitute political acts that disrupt established hierarchies of urban belonging. When households systematically reconfigure abandoned apartments, adding partitions to create privacy zones or converting balconies into cooking areas, they engage in what Rancière terms "dissensual" interventions that introduce new subjects and spatial possibilities into Beirut's urban commons. Second, the cyclical mobility patterns observed within the building (households relocating every 2-3 years) challenge static conceptualisations of informal settlement, demonstrating instead the sophisticated spatial strategies displaced populations develop for navigating constraints and conflicts. Third, the emergence of informal governance structures operating parallel to formal housing systems illustrates how spatial practices generate alternative forms of urban community organisation that remain largely invisible to authorities.

These findings extend Boano and Astolfo's (2020) conceptualisation of inhabitation by documenting specific mechanisms through which "incremental and transformative acts" occur in vertical settlements. While previous scholarship on informal settlement has focused predominantly on horizontal expansion in peripheral areas, these findings reveal how vertical abandoned structures enable different spatial practices that maximise limited footprints through intensive modification and cyclical reoccupation. The research also complicates Stoetzer's (2018) notion of "ruderal spaces" by showing how abandoned buildings function not merely as marginal environments but as sites of sophisticated community formation that challenge conventional boundaries between formal and informal urbanism.

However, the research also reveals tensions within informal spatial practices that require critical examination. While household modifications demonstrate adaptive capacity, they sometimes occur at the expense of building safety and structural integrity, raising questions about the sustainability of intensive spatial modification. The cyclical mobility patterns, whilst reflecting sophisticated spatial strategies, also indicate ongoing displacement within displacement, suggesting that even informal settlements may not provide stable housing solutions for the most precarious populations.

Furthermore, the informal governance structures, while enabling collective inhabitation, operate through exclusionary mechanisms that mirror broader patterns of urban marginalisation. Access to preferred apartments often depends on social networks, economic resources, and length of residence, creating internal hierarchies that contradict

idealistic framings of informal settlement as inherently egalitarian. These contradictions highlight the need for a nuanced analysis that recognises both the innovative capacity and the structural constraints of informal spatial practices.

Several methodological limitations affect the interpretation and transferability of these findings. The focus on a single building over a limited timeframe may not capture longer-term spatial adaptations or responses to changing external conditions. My position as an international researcher, despite efforts to build rapport through Arabic-speaking assistants, inevitably shaped participants' narratives and potentially limited access to more sensitive aspects of community dynamics or conflicts.

The findings suggest three specific implications for urban planning and humanitarian response. First, rather than focusing exclusively on purpose-built refugee accommodation, urban authorities might develop frameworks for recognising and regularising occupation of abandoned structures, potentially through temporary use permits that acknowledge both housing needs and property rights. Second, humanitarian organisations could redirect resources from constructing new facilities toward supporting infrastructure improvements in existing informal settlements, including basic services and safety modifications that enhance habitability without displacing residents.

Third, architectural education and practice could benefit from systematic engagement with informal spatial knowledge, potentially through collaborative design processes that learn from rather than replace existing adaptive strategies. However, implementing such approaches would require significant shifts in legal frameworks governing refugee rights, property ownership, and building regulations—changes that may prove politically difficult given Lebanon's complex sectarian politics and economic constraints.

This study opens several productive avenues for future investigation. Comparative research examining vertical informal settlements across different urban contexts could reveal how building typologies, legal frameworks, and local governance structures shape spatial adaptation strategies. Longitudinal studies tracking spatial modifications and community formation over extended periods would provide insights into the sustainability and evolution of informal settlement practices.

The findings demonstrate that informal settlement practices constitute sophisticated forms of spatial knowledge that challenge conventional approaches to understanding both displacement and urban

development. Rather than viewing such practices as temporary solutions awaiting formal intervention, this research suggests they represent alternative approaches to urban habitation that warrant serious consideration within architectural and planning discourse. However, supporting such practices requires acknowledging both their innovative capacity and their structural limitations, whilst working towards policy frameworks that recognise displaced populations' spatial agency without romanticising the conditions of precarity within which such agency emerges.

Additionally, research examining the perspectives of property owners, local authorities, and humanitarian organisations could illuminate the broader urban politics within which informal spatial practices operate. Finally, investigation of how informal settlement practices connect to wider urban networks, including labour markets, educational systems, and healthcare provision, would provide a more comprehensive understanding of how displaced populations create liveable communities within conditions of legal precarity.

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RELATIONSHIP BETWEEN BODY AND ARCHITECTURE: CHANGING BODY PERCEPTION, BEYOND THE BODY

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ABSTRACT

By tracing the evolving relationship between the human body and architectural production, this research explores how the measurement and perception of the body have transformed throughout architectural history, offering a reinterpretation aligned with contemporary understandings of corporeality. Proceeding within an anthropomorphic framework, the study examines the impact of bodily proportions and representations on architectural design and production across historical contexts. Beginning with Vitruvius' definition of ideal proportions, the discussion extends through Filarete's human-centered approach in the Renaissance, Vidler's critique of body-space relations in the modern era, and Peter Zumthor's emphasis on sensory experience, ultimately culminating in the contemporary architectural perspective.Throughout history, the body has shifted from symbolizing perfection to being fragmented, mechanized, or reduced to the dimensions of individual limbs, yet it has consistently played a central role in architectural production. The study's methodology conceptually classifies the body architecture relationship under two main categories: (i) the body as a rational and proportional measure, and (ii) the body as a cognitive and experiential process. Following the presentation of this conceptual framework, historical examples and contemporary practices are analyzed to illustrate how these classifications have been reflected in architectural production. This approach not only enables a critical reassessment of past architectural paradigms but also introduces a new perspective to contemporary architectural discourse. By revisiting the forgotten body space relationship, the research highlights the body's role as a design reference and shows how bodily experience shapes spatial meaning, fostering a more conscious and holistic architectural approach.

Keywords: Body; Building; Space; Anthropomorphism in Architecture; Anthropomorphy of Body

INTRODUCTION

Throughout history, the human body has served as a primary reference point for understanding, measuring, and shaping the built environment. From the earliest stages of life, humans perceive and organize the world through their own bodies, using the hand, arm, and foot as the first tools of measurement and interpretation (Kent Bloomer, Charles Moore, 1977) . As Pallasmaa (2011) emphasizes, we experience the world through our entire physical being seeing, touching, and moving and this sensory engagement positions the body as the center around which spatial experiences are organized. In architectural history, the relationship between the body and design has evolved significantly. In the classical period, as reflected in Vitruvius' De Architectura, the ideal male body symbolized perfection and order, shaping architectural proportions and spatial hierarchies (Uluğ, 1996). The Renaissance reinforced this view through geometric precision and anthropometric ideals, as seen in Cesare Cesariano's interpretations of Vitruvian principles, while developments in military medicine and anatomy further established the body as an "organism" informing architectural concepts (Erkenez, S., & Ciravoğlu, A, 2020). However, the Industrial Revolution and modern socio-cultural transformations gradually destabilized this static perception of the body. As gender roles shifted, wars altered urban and architectural forms, and technological innovations reshaped everyday life, architecture moved beyond the purely geometric body toward anthropomorphic approaches emphasizing sensory and experiential dimensions.

The relationship between architecture and the human body has long served as a fundamental reference point throughout history. Today, however, this relationship is undergoing a profound transformation. No longer perceived as a standardized or idealized entity, the human body is increasingly understood as a dynamic and mutable construct, continuously reshaped by social, cultural, and technological forces (Şahin, 2020) . This paradigm shift compels architecture to engage not only with the body's physical dimensions but also with its cognitive, sensory, and emotional dimensions. Modern spatial design no longer seeks to conform to a singular notion of bodily perfection; instead, it aims to accommodate diverse and multifaceted bodily experiences. This shift calls for a new approach in architectural practice one that regards the body not merely as a passive user of space but as an active producer of spatial meaning. Within this context, the present study undertakes a comparative analysis of how bodily references have been conceptualized in architecture across different historical periods.

The anthropomorphic approach reveals how architectural design has shifted from proportion-based idealizations toward experiential and abstract interpretations. Among the central questions addressed are the social, political, and technological forces driving this transformation. For Renaissance architects, the perfect proportions of the human body symbolized universal order. Cesare Cesariano's interpretations of Vitruvian geometry, for instance, demonstrate how Renaissance architects projected the body's ideal form as a sacred model for architecture. Yet, by the early twentieth century, the modernist critique began to challenge this idealized conception of the body. Theorists such as Anthony Vidler interrogated the body space relationship, revealing the body not merely as a tool for measurement but as a site of anxiety, illness, and alienation. This critical perspective paved the way for architects such as Peter Zumthor to focus on sensory and atmospheric experience, redefining the body as a mechanism for perception and meaning rather than as a purely physical instrument. Contemporary architectural practice has taken this evolution even further. Groups like Coop Himmelb(l)au deliberately distance themselves from bodily references through fragmented and abstract forms, raising the question of whether the body still occupies a central position in architectural production. The study critically examines whether abstract and cognitive processes have begun to overshadow corporeal frameworks, suggesting the emergence of a new architectural paradigm that designs not only physical spaces but also cognitive and emotional experiences.

Ultimately, this research offers a contemporary perspective on the evolving relationship between body and architecture. By tracing how each historical period has redefined this connection, it explores how these reinterpretations may shape future architectural thought. The study argues that the multilayered contemporary understanding of the body enhances architecture's potential to create more inclusive, responsive, and human-centered spaces. In doing so, it invites architects and theorists to draw inspiration from the past while envisioning new ways of architectural production that respect the body's complex and dynamic nature.

Anthropomorphy and the Body

Architecture is a dynamic discipline that is both shaped by and transformative of its surrounding environment. These interactions emerge across diverse contexts and subjects, including humans, nature, animals, the built environment, and culture. Among these, the human body carrying its systems and proportions has historically served as one of the oldest and most fundamental reference points for architectural

production. This perspective has enabled a wide spectrum from architects to architectural theorists and various social groups to interpret buildings and their components as direct symbolic reflections of the human body (Zöllner, 2011). Accordingly, this study approaches the relationship between the body and architecture within an anthropomorphic framework. Anthropomorphism was conceptualized to describe doctrines that attribute human formal elements (such as the hand, foot, eye, and body) to divine beings (Sönmez F., Nart s., 2022). The attribution of human qualities to non-human entities arises fundamentally from the attempt to define and interpret the unknown through familiar, known phenomena. Accordingly, the human body being the entity most familiar to humans themselves has naturally become a reference point in the process of constructing and reproducing the surrounding environment through the proportions, measurements, and relational structures it provides. From an anthropological perspective, the human body can be understood as a holistic measure that enables individuals to shape their environment in accordance with the laws of nature to which they themselves belong & (Antoszczyszyn, M., Januszkiewicz, K. & Paszkowska-Kaczmarek, N, 2024) . This measure sometimes informs the shaping of architectural forms by referencing the body's holistic structure, while at other times it serves as a medium for translating the body's internal functions and dynamics into the built environment through systemic logic. Hence, the anthropomorphic metaphor assumes two distinct modes of expression: first, the form or image of the body itself; and second, its numerical or abstract translation into measurements and geometric figures (Zöllner, 2014) . Both modes of interpretation have evolved throughout history, shaped by the prevailing social and cultural paradigms of each period, and reconfigured under the influence of major societal events.

Consequently, the anthropomorphic conception of the body in architecture has undergone continuous transformation, serving as a foundational reference for architectural production across eras. As a result, the built environment has always reflected the human conception of the body prevalent in the period of its creation. Thus, the body has been regarded not only as a physical entity or symbolic form but also as a medium enabling diverse interactions. This recognition has paved the way for approaches that initially emphasized the body's proportions and later its representations as central themes in architectural thought.

Body As Measure: A Rational and Proportional Approach

The tradition of measuring based on parts of the human body such as the finger, foot, elbow, cubit, and span or actions such as the handbreadth, fist, fathom, and step has persisted throughout history and

continues to exist today (İzgi, 1999). The earliest examples in which the human body's geometric structure and proportions were employed to shape the built environment can be observed in prehistoric cave paintings, where handprints and the compositions following them reflect this approach. Before the title of "architect" emerged, individuals referred to as engineers, carpenters, or administrators obtained measurements for construction directly from the human body its finger, palm, arm, and foot (Lugli, 2015).However, the earliest systematic and written account of this approach appears in Vitruvius' treatises. By defining specific proportions of the human body and translating them into architectural dimensions, Vitruvius established the groundwork for using the body as a reference point in shaping the built environment. As Vitruvius states in his work: "without symmetry and proportion, no temple can have a regular plan; that is, it must have a precise relation between its parts, as in the case of a well-shaped man" (Vitruvius, 2015).This perspective reflects not only an effort to standardize bodily measurements but also to create a unified system based on the "ideal body," thereby fostering a shared architectural language within its historical context. In the Classical period, the human body was mathematically represented, with the idealized male body becoming the principal determinant of architectural production (Baştabak, 2008) . Within this framework, Vitruvius introduced the concepts of Homo ad circulum and Homo ad quadratum the human body inscribed within a circle and a square opening new intellectual avenues for medieval scholars through his articulation of ideal bodily proportions. In the subsequent periods, figures such as Leonardo da Vinci, Francesco di Giorgio Martini, and Filarete visualized their own bodily analogies based on Vitruvius's foundational definitions. Contrary to the geometric and proportional emphasis dominant in earlier approaches, Filarete (1400–1469/70) paid little attention to the strict relationship between measurement and geometry, instead directing his focus toward anthropomorphism (Riavis, 2020). Until this point, architecture had largely been shaped by the proportions and, occasionally, by the varied postures of the ideal human body. However, Filarete introduced a new perspective by describing the building as a "truly living human," thereby diverging from the conventional proportional paradigm. This shift must be understood within the broader socio-cultural context of the Renaissance, a period marked by humanism, scientific curiosity, and a renewed focus on the individual as the center of intellectual and artistic inquiry. The Renaissance spirit fostered not only advancements in art and science but also a holistic understanding of humans as both physical and metaphysical beings. Within this climate, Filarete's approach emphasized that buildings, like humans, undergo processes such as nourishment, illness, and ultimately death suggesting that architecture, too, possesses a temporal and existential dimension (Terim, 2021).

From an anthropomorphic perspective, this outlook revealed that architecture was not solely concerned with the visible, external form of the body but also with its internal, functional, and experiential systems. The body was no longer perceived merely as a shell of flesh; rather, it was recognized as a living, breathing organism with interconnected systems an idea that Filarete metaphorically extended to architectural production itself (Terim, 2021) . In his essay Filarete's Body, it is noted that Filarete advanced anthropomorphism as a seemingly naïve yet fundamentally complex argument for explaining every dimension of architecture, ultimately leading him to describe the architect as a maternal figure: just as the birth of a living man depends on a woman, so too does the existence of a building depend on the architect, who approaches it with maternal care and creativity (Terim, 2021). Consequently, architectural thought began moving beyond the notion of the body as a set of external proportions toward inquiries into its ontological and systemic dimensions. This transition paved the way for perceiving architectural works themselves as living organisms with internal mechanisms and lifecycles, reflecting the Renaissance ambition to reconcile art, science, and human experience within a unified framework.

In the subsequent period, Francesco di Giorgio Martini (1439–1501) adopted a similar yet distinct perspective, asserting that the origins of measurement and symmetry in architecture were rooted not only in the external form of the human body but also in its skeletal structure (Merrill, erfection in rule or a license to innovate? Early modern architects read Vitruvius book 3.1., 2024) (Figure 1a). This approach introduced the idea that anthropomorphic interpretations should not be confined solely to the body's outward appearance; rather, its internal systems could also serve as sources of proportion, thereby adding a new dimension to the anthropomorphic paradigm.The Renaissance, with its philosophical orientation that placed the human being at the center of the universe, witnessed significant advancements not only in art and architecture but also in anatomy, astronomy, and mathematics. During this era, the human body was regarded as a reflection of divine order, with the perfection of bodily proportions interpreted as a means of attaining the sacred. Martini's interpretations of the Vitruvian Man and his proportional systems played a decisive role in the design of religious buildings of the period; references to the sacred through the human body re-established the connection between the body and the divine in architectural thought. By linking the built environment to references drawn from the human body, Martini revealed one of the fundamental orientations of architectural design. With Vitruvius, the body had become the proportional foundation of temples; with Francesco di Giorgio Martini, it evolved into a model for shaping the urban scale

including cities, fortifications, and castles thereby materializing the relationship between the body and its internal systems within a broader spatial framework (Başţabak, 2008).

During the same period, Leonardo da Vinci studied Vitruvius' descriptions of proportions with the aim of grounding the analogies established through the human body in mathematical standards, thereby seeking to idealize measurements (Pekdaş, 2019). However, the image itself bears little direct relevance to architecture. Leonardo's studies on anatomy and human measurements, recorded both visually and textually, differ significantly from the proportions cited by Vitruvius (Merrill, 2023). One of the most distinctive features of his approach, in addition to the placement of the body within a square and a circle, was the incorporation of movement into the drawing (Figure 1b). Through this innovation, the body was no longer interpreted merely as a two-dimensional unit of measurement but rather as a dynamic entity comprehensible within three dimensions. In the following years, the Milanese researcher and architect Cesare Cesariano, in connection with his study of Vitruvius' proportional figure, discussed a set of measurement tools required for obtaining precise anthropomorphic measurements for architectural designs and for determining the dimensions of buildings under construction. Based on these instruments, Cesariano emphasized that the units of measurement needed for surveying both land and buildings were directly derived from the human body (Zöllner, 2011) (Figure 1c). This assertion demonstrates that, from an anthropomorphic perspective, even the most fundamental elements of architectural design were referenced to the human body, revealing it

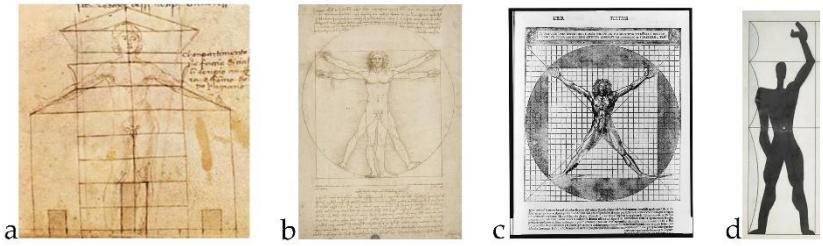


Figure 1 a, b, c, d. Human Body Proportions (Francesco di Giorgio Martini. Vitruvian Man. 1470, Leonardo da Vinci. Vitruvius Adamı.1452, Cesare Cesariano. Vitruvian man.1521, Le Corbusier.Modular.1940

not only as a source of measurement but also as a constitutive element shaping the meaning and order of architectural space. Thus, the human body emerged as a living paradigm in architecture, informing not only concepts of scale, proportion, and symmetry but also the holistic identity of the built form itself.

By the 1940s, amid a changing world order, evolving societal needs, and advancing technologies, Le Corbusier developed the "Le Modulor" model. Following the advent of industrialization, the concept of mass production had already initiated new inquiries into the applicability of anthropomorphic proportions (Zöllner, 2011). Within this framework, Corbusier argued that the measurement systems and proportions employed in the prewar period had become insufficient for addressing the demands of the emerging postwar order and thus required a reevaluation of the human body and its proportions in relation to contemporary conditions. Observing that the distance between floor and ceiling typically ranged from 2.10 to 2.20 meters corresponding to the height of a man with arms raised Corbusier regarded this dimension as inherently aligned with human scale. This notion resulted in the conception of a standardized, anthropomorphic yet abstracted human figure, rather than a direct representation of the human body (Lorenzo-Palomera, J., Fuentes-Pérez, C., & Aranda-Jiménez, Y., 2022). Corbusier proposed that the measurements defined by the Modulor system were universal and could therefore be employed as the basis for architectural standards. In his view, the Modulor was to function as a normative system providing rules for all projects, offering different combinations and proportions to ensure that masons, carpenters, and joiners, when determining dimensions, could rely on a common standard.

Regardless of the diversity of the resulting products, they would, through this system, achieve a coherent and harmonious integration (Cohen, 2014). This anthropomorphic measurement system followed the approach of Ernst Neufert, whose BAUENTWURFSLEHRE also sought to establish a standardized architectural language rooted in the human body. However, a key distinction emerges between the two: while Neufert adopted a more "pragmatic" approach by providing architects and builders with directly applicable dimensions, Le Corbusier embraced an "idealist" stance, elevating the human body to the source of universal proportions and envisioning the entire built environment within a holistic system grounded in these measurements. From an anthropomorphic perspective, both initiatives positioned the human body as the foundational source of measurement and the organizing principle of spatial order. Thus, the Modulor system not only redefined the role of the human body in architectural standardization but also marked a turning point in the historical trajectory of anthropometric approaches, bridging traditional ideals with the demands of modernity. (Figure 1d)

The Body as A Thought Process: Experiential Approach

The concept of the body has undergone continuous conceptual transformation throughout history, spanning from the earliest intellectual activities of individuals to the production of the built environment. In antiquity, the body was primarily interpreted through its visible form and idealized proportions, serving as an anthropomorphic measure. In contrast, in the contemporary era, it has maintained its conceptual richness through phenomenological perspectives that emphasize sensory perception, experiential awareness, and bodily consciousness (Linxue Li, Qi Zhang, Meiting He, 2019). Following the proportional anthropomorphic approaches, several philosophers and architects began to explore the body's contributions to space and the built environment beyond mere measurements. A notable example of this shift can be found in Merleau-Ponty's perspective on the body. He regarded the body not merely as a physical entity but as the carrier of perceptions and experiences, arguing that analyzing movement alongside bodily actions and external spatial conditions offers a more comprehensive understanding of its nature. Accordingly, Merleau-Ponty examined the body's relationship with its surroundings through tactile, visual, and kinetic dimensions (Merleau-Ponty, 1945) . From this standpoint, the anthropomorphic framework expands beyond viewing the body as a simple organism defined by measurements, linking it instead to consciousness and perceptual experience (Linxue Li, Qi Zhang, Meiting He, 2019) .During a period when the concept of the body began to be understood through both its internal sensations and external unity, the devastation of World War II radically transformed this notion. Beyond claiming millions of lives, the war also obliterated environmental and urban cohesion. In this context, while Le Corbusier's approach based on scale and standardization offered a rational solution to the urgent postwar housing crisis, movements such as Coop Himmelb(l)au's deconstructivism produced architectural forms as metaphors for the fragmented and traumatized body left in the aftermath of war. This shift reveals that the body was no longer perceived merely as a unit of measurement but emerged as an artistic medium expressing psychological and social trauma (Vidler, 1990). Within this framework, the concept of anthropomorphism became associated with inherently human actions such as fragmentation and reassembly. Architecture thus came to represent not only the act of constructing wholeness but also the processes of disintegration and disruption as extensions of the human body. Consequently, architectural form no longer symbolized the sole pursuit of unity but also reflected the experience of postwar trauma.

Within these approaches, the gradual disappearance of the Renaissance body is considered by Vidler to be a dangerous phenomenon. The dissolution of a singular, standardized conception of the body and the erasure of its boundaries, he argues, represent a threat that could destabilize the very foundations of architecture (Urun, 2022). Vidler observes that while the anthropomorphic approach extends from the corporeal to the psychological and gradually broadens in scope, it also carries with it a distinct sense of loss and absence. He interprets this feeling as the consequence of moving away from the body's archaic, almost tactile projection of its full biological power (Vidler, 1990). This unsettling sense of loss, according to Vidler, paved the way for the emergence of the psychological body in architecture. In contrast to the Renaissance ideal body, which sought harmony and unity, the modern architectural body appears fragmented, dispersed, and traumatized. Architectural forms thus no longer express themselves solely through proportion and symmetry but also through a language of unease, estrangement, and anxiety. The building ceases to function merely as a shell serving the body; instead, it becomes an externalization of its mental state and even an element that influences it. Consequently, modern architecture has developed an aesthetic language that, rather than pursuing perfection, reveals the body's inner complexity and fragility, at times even expressing its suffering. Much like medicine examines the body through multiple disciplinary lenses, architecture too has begun to explore the body's contributions to the built environment through diverse perspectives. In addition to bodily representations that increasingly distance themselves from scale and proportion, Pallasmaa argues that the built environment should transcend mere visual perception and engage all the senses of the body. While understanding architectural scale often involves the unconscious measurement of objects or buildings against the body, Pallasmaa relates the built environment and spatial experience to sensory dimensions such as hearing, smell, touch, movement, and balance (Pallasmaa, 2011). He speaks of an architecture that goes beyond the traditionally idealized notions of the body such as the column or the planimetric grid that have long served as references in architectural thought. For Pallasmaa, the body constitutes a complex system integrating multiple senses; therefore, architecture should not appeal solely to vision. He emphasizes the importance of experiencing architectural space through all the senses rather than perceiving it exclusively with the eyes:

> ''Every touching experience of architecture is multi-sensory; qualities of space, matter and scale are measured equally by the eye, ear, nose, skin, tongue, skeleton, and muscle. Architecture strengthens the existential experience, one's sense of being in the world, and this is essentially a strengthened experience of self. Instead of mere vision, or the five clas sical senses, architecture involves several realms of sensory experience which interact and fuse into each other'' (Pallasmaa, 2011).

Similarly, Peter Zumthor, in his book atmospheres, introduces a section titled the body of architecture, in which he discusses the creation of physical and sensory unity in architecture. Viewing architecture through the image of a holistic body, Zumthor expresses his anthropomorphic perspective as follows:

> "As a bodily mass, a membrane, a fabric, a kind of covering, cloth, velvet, silk, all around me. The body! Not the idea of the body- the body itself! A body that can touch me.'' (Zumthor, 2006)

Zumthor's approach adds both an anthropomorphic quality and a richness of language to architecture. Words such as "body," "membrane," and "fabric" evoke the image of architecture as a living, breathing, and tangible entity. His perspective frames the building through its direct relationship with the human body: just as the body is enveloped by layers of muscle and skin, buildings, too, are wrapped in external coverings. From an anthropomorphic standpoint, this dual imagery suggests that the relationship humans first established with their own bodies is later projected onto the spaces they design to meet their needs and provide protection. In this sense, architecture emerges as a cyclical act in which humans, modeling themselves on their own bodies, continuously reproduce and reinterpret their built environments. Together, Pallasmaa and Zumthor shift the focus from the body as a unit of measurement to the body as a sensory and experiential framework, presenting architecture as a living entity that engages all senses and reshapes the human environment relationship. By integrating touch, sound, movement, and materiality into architectural discourse, their anthropomorphic approaches expand the scope of architecture beyond visual form and structural function.

Anthropomorphic Manifestations: Traces Of the Body in Architectural Production

The relationship between the body and architecture has been addressed through various modes of expression across different historical periods. Research on the human body has encouraged architects to reflect on the very essence of architecture (Linxue Li, Qi Zhang, Meiting He, 2019), thereby enabling architectural discourse to redefine the conception of space not only through functional or aesthetic dimensions but also through bodily experience and sensory perception. This section examines examples from both classical and modern architecture in which the human body was employed as a rational and mathematical unit of measurement, as well as approaches that place bodily perception, sensory experience, and movement at the center of architectural design. Located in Athens, Greece, the Acropolis is not merely an architectural complex but also a cultural artifact reflecting the art, philosophy, and humanistic ideals of Ancient Greece. When the anthropomorphic approach is examined using the human body as a rational and mathematical unit of measurement particularly in the Acropolis and most notably in the Caryatids it becomes evident that, in Ancient Greece, the body was regarded not only as a representational motif but also as a fundamental input in shaping proportion, symmetry, and the built environment. The Caryatids, (Figure 2a) serving as the supporting columns of the Erechtheion Temple on the Acropolis, embody this idea by structurally sustaining the building while simultaneously anthropomorphizing architecture through their imitation of the human form. As Kent Bloomer and Charles Moore (1977) observe, "Columns were surely a celebration of the special human upright stance even before they were pressed into service to hold up roofs over human bodies." Here, the body is rationalized into a measure both through its role as a structural column and as an aesthetic ideal. Consequently, the body emerges as a universal standard defining principles of measurement, proportion, and beauty in architecture, representing the materialized acknowledgment of the close connections between humanity and the built environment (Gympel, 2018).

Centuries later, during the years of German occupation in France, Le Corbusier had the opportunity to realize his ideal of the "housing unit," reinterpreting bodily expressions for modern life and seeking to design a new way of living (Gympel, 2018). In the unité d'habitation project, the Modulor system defines the dimensions and proportions of architectural space through the measurements and movements of the human body. By integrating competing definitions of the human body, Le Corbusier demonstrates that his rejection of earlier notions of corporeality was

never absolute (Lueder, 2021) . Just as the Caryatids employed the body as both a structural and aesthetic model, Le Corbusier united the human body with the principles of standardization, functionality, and universality in modernist architecture. Thus, both the Acropolis and unité d'habitation stand as examples, across different historical periods, of situating the human body at the center of measurement, proportion, and spatial experience in architecture. (Figure 2b, 2c)

In contrast to the attribution of space through bodily proportions, Peter Zumthor introduces a perspective in which the body, through its senses and sensory experiences, actively shapes architectural space. In his therme vals project, the body ceases to function as a purely rational or mathematical unit of measurement; instead, it becomes the very center of spatial and sensory experience. Zumthor notes that, just as the human body consists of numerous cells, tissues, systems, bones, and layers of skin, the architectural body likewise possesses a similar anatomy (Yücel A., Düzgün Bekdaş H., 2023).

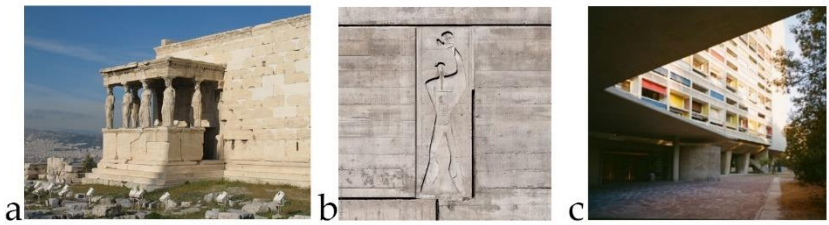


Figure 2. a, b, c. a. Caryatids from the Acropolis of Athens, b. Modular c. Unité d'Habitation/Le Corbusier,1952.

Through this analogy, elements such as water, stone, light, and shadow are orchestrated to engage all the senses of the body in perceiving space. As one moves through THERME VALS, the body does not establish a relationship with space solely through vision; touch, hearing, and even smell become integral components of the architectural experience. Here, the body is no longer merely an element that determines scale but rather the subject that fully inhabits and experiences all the sensory layers of space. (Figure 3.)



Figure 3. Therme Vals / Peter Zumthor

In contrast, in the Rooftop Remodeling Falkestrasse project designed by Coop Himmelb(l)au for a law office located in the building's attic, the body is associated with the expressive and dynamic nature of architecture. Added to the roof of an existing building, the external shell with its open, glazed surfaces and closed, folded, or linear planes frames views both from the inside and outside, defining the complexity of spatial relationships (Himmelb(l)au, 2025). These sharp, fractured, and dynamic forms break away from the traditional static nature of architecture, transforming the interaction between the body and space. The building's aggressive and fragmented geometry prevents the body from remaining a passive observer; instead, the body moves as though it were part of the architecture itself. Thus, the tranquil and sensory bodily experience in Zumthor's Therme Vals contrasts with the dynamic and expressive bodily interaction encountered in Coop Himmelb(l)au's Falkestrasse. (Figure 4.)



Figure 4. Rooftop Remodeling Falkestrasse/Coop Himmelb(l)au,1988

Anthropomorphic Manifestations: Today's Architecture

Humans perceive, touch, listen to, and measure the world through our entire bodily existence; the sphere of experience is organized and articulated around the center of the body. Therefore, understanding the body and developing holistic approaches that encompass both its internal and external systems is the key to transforming architectural designs from mere physical structures into living, adaptive, and human-integrated organisms. Throughout history, body centered design paradigms have served as fundamental reference points in architecture. However, today's evolving definitions of the body, combined with the data-processing and learning capacities offered by artificial intelligence tools, advances in digital design technologies, and innovations in material science, have elevated the body space relationship to a far more dynamic, multilayered, and interactive plane. The body is no longer conceived merely as a passive entity adapting to space; rather, it is redefined as an active agent one that, through AI supported simulations, sensory data, and behavioral modeling, transforms spaces, integrates with technology, and occupies the very center of spatial experience.

Nevertheless, contemporary design processes still often yield unsatisfactory and fragmented outcomes due to their limited scope and lack of comprehensive vision. Architectural design is frequently reduced to technical and structural safety parameters, while human-centered principles such as ergonomics, accessibility, emergency mobility, and human space interaction remain marginalized. Yet, through data-driven insights provided by AI tools enabling behavioral modeling and multidimensional analysis of bodily experiences architecture can evolve into a field that not only meets safety requirements but also integrates with human life, addressing biological and sensory needs in a holistic manner. In this regard, the active participation of architects, supported by interdisciplinary collaboration and technological integration, is essential for redefining architecture's relationship with the human body (İlerisoy Z. Y. ,Soyluk A., 2020). Anthropomorphic references to the human body in architecture, rather than being confined to historical traces, should now be reinterpreted as dynamic elements capable of integration with contemporary technologies such as AI. Just as AI systems model human cognitive and learning processes, architectural practice can also become an integral part of these intellectual production processes in the current era. As Malevich emphasizes, "every creative form overturns the harmony of existing perspectives and old norms, creating possibilities for new perceptions and new norms" (Maleviç, 2021). From this perspective, the body can generate new architectural references not only through its physical proportions but also

through its cognitive and functional processes. Such transformation, however, should not reject historical body-centered approaches entirely but instead reinterpret them within a holistic framework. Architecture can thus evolve toward a paradigm that conceives the body not merely as a source of measurement and proportion but as a living, multilayered, and organism like system. In architectural practice, this holistic approach may manifest as:

- Developing well-designed, fluid circulation systems at both the urban and building scales, drawing analogies to the body's internal systems (e.g., the circulatory system).
- Creating adaptive design strategies capable of responding swiftly to potential failures, much like the body's immune system restores balance when facing external threats.

Ultimately, an architectural understanding that preserves historical and physical references to the body while integrating them with AI-supported analytical and creative processes offers a new paradigm one that encompasses not only the form of space but also its operation, adaptability, and sustainability.

CONCLUSION

From the very moment humans began to shape the built environment, they have sought both to explore it and to push its boundaries. This pursuit stretches from the first handprints on cave walls to intellectual systems transcending the limits of thought. The common thread across all these acts of creation lies in placing the human self, the body at the center of design and space. Vitruvius's use of the body as a measure in temple design, Da Vinci's integration of anatomical knowledge into his inventions, Filarete's conception of the body as a living organism, and Le Corbusier's standardized spatial solutions for collective needs all serve as historical examples of how humanity's self-understanding has been projected into architectural form. The endeavor to comprehend the body's physical and cognitive processes has made anthropomorphic approaches increasingly prominent in modern architecture, forming a cornerstone of human-centered design. Today, the body now occupies the center not only through its proportions but also through sensory experiences, behavioral models, and cognitive processes.

Therefore, rather than discarding historical body-centered references, they should be reinterpreted within a holistic paradigm encompassing both the physical and cognitive dimensions of human existence. Such a paradigm transforms architecture from the production of static objects

into the design of living spaces in harmony with both the body and the mind.

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PRIMARY MEANINGS THROUGH DESIGN LANGUAGE: SEMIOTIC ANALYSIS OF TROY MUSEUM

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ABSTRACT

Architectural language prioritizes a set of meanings that stem from the spirit of a place, social participation and historical values. From this perspective, this study questions primary meanings by examining the design process in museums through semiotic analysis. To do this, it overlaps Barthes' narrative codes with design elements of the New Troy Museum designed by Yalın Architectural Design. As a method to unearth the primary meanings from the place and user within the Museum, Barthes' narrative codes, recognizing the user's performance dimensions, are functionalized. These codes are categorized as "hermeneutic code", "action code", "semantic code", "cultural code", and "symbolic code". Selected design elements of the Museum, which are building form, ramp, façade material, light system and exhibition space, have been evaluated under these codes that produce primary meanings according to their contents. As a result of the methodology, primary meanings are revealed, and these meanings open up a dynamic configuration that transcends the static rules of design, thereby enriching the museum narrative and lending it a vital character. The application of Roland Barthes' narrative codes in interpreting the meaning of the Troy Museum's design elements reveals that the Museum acquires a living character of the lost ancient city of Troy by activating the body, posing questions, evoking connotations, and employing symbolism.

Keywords: Primary Meanings, Troy Museum, Narrative Codes, Design Elements, Design Language

INTRODUCTION

Architectural language plays a vital role in conveying primary meanings embedded in place and uncovering user experience through historical and cultural values, integrating them as active elements of design. Adoption of a certain language of design prioritizes a set of meanings that stem from the spirit of a place, social practices and historical values. Adrian Forty's text *Language Metaphors* puts forward the crucial role of the living characteristics of buildings, since these metaphors connect with the living part of architecture. Especially, semiotic and structuralist

language metaphors demonstrate that they attribute meaning to architectural objects, while showing that the capacity to assign meaning to architecture arises from fundamental, primordial human behaviors (Forty, 2000), enabling architecture to access primary meanings and transform our surroundings into living, experiential environments. These language metaphors allow one to express feelings, thoughts, and desires, and enable architectural interpretation and reinterpretation (Durmuş Öztürk & Yazıcı, 2017). A network of relations with architectural language, narrative, and primary meanings has a rich research history in the academic field. Likewise, Christopher Alexander's book entitled *A Timeless Way of Building* discusses the quality and lively features of building with pattern language. According to him, when the built environment is perceived not merely as a lifeless physical object but as an entity that appeals to meaning and the senses, the building's nameless quality—its living essence—emerges, which gives a certain building, or certain town, its character. This vital quality does not stem from fixed, predetermined rules, but instead evokes characteristics that we rediscover over and over again each time we build. These living primary meanings, which cannot be used mechanically, become valuable, because they show us what we know already, only dare not admit because it seems so childish, and so primitive (Alexander, 1979).

Architectural theorist Jonathan Hale's text entitled *Narrative Environments, and the Paradigm of Embodiment* extend language studies to bodily experiences that according to him, we extend ourselves (and our understanding of ourselves) into the world through the medium of language – partly by reference to our bodies as a source of metaphor and analogy which is the philosophical implications of embodiment by the French phenomenologist Maurice Merleau-Ponty (Ponty, 1982 cited by Hale, 2012). While he argues that early semantic studies were superficial applications of historical forms, he later suggests that semantic studies merged with bodily experience and evolved into a more dynamic language. Therefore, an architect having the authority to fictionalize must be replaced with an architect being aware of the user's creativity. In other words, it highlights the importance of the user's primordial, creative, participatory, and responsive language as a counterforce to the rigid and fictional design language authorized by the architect. He illustrates museums, as most vital building of performative design, exemplify the shift from static spatial representation to embodied spatial narration—where meaning emerges not through formal symbolism alone, but through the user's kinesthetic engagement, temporal movement, and interpretive agency within the architectural milieu (Hale, 2012).

Roland Barthes's text entitled *Writing Zero Degree*, *The Death of the Author*, and *S/Z* (Barthes, 1967, 1977, 1974), who most profoundly address the participatory, subjective, and primordial dimensions of semantic inquiry. His work—adopted as a methodological framework in this study—has served as a guiding reference in the evolution of linguistic approaches within architectural theory. Architects extended Barthes' questioning of reader creativity into the realm of architecture. They put the user in a position that contributes to the formation of meaning, with narrative codes suspended, thereby creating meaning. Within the above-mentioned inspiration, contemporary building designs have begun to realize the importance of giving meaning to space through integration with the site and the user, and the reinterpreting of meaning into space. Interactive designs, which open up new meanings through their contextual approach and unique architecture, have become a priority (Baycan & Kaptan, 2025). Among the interactive designs, museum designs have particularly become increasingly meaningful structures through the experience of space. In contemporary museum design, its narrative is evidently multi-layered and remains perpetually open to critical inquiry (Baycan & Kaptan, 2025). Multiple approach—part exhibition, part performance—serves to activate the imagination within the museum context. While narratives in museums emerge as key elements that creatively bridge temporal, geographical, and cultural discontinuities through performative means (Hanz, Hale, & MacLeod, 2012), micro-narratives in museums resist curatorial and design authority, allowing for user participation and the activation of site-specific qualities. In this way, every user contributes to the character of the museum building (Wiszniewski, 2012).

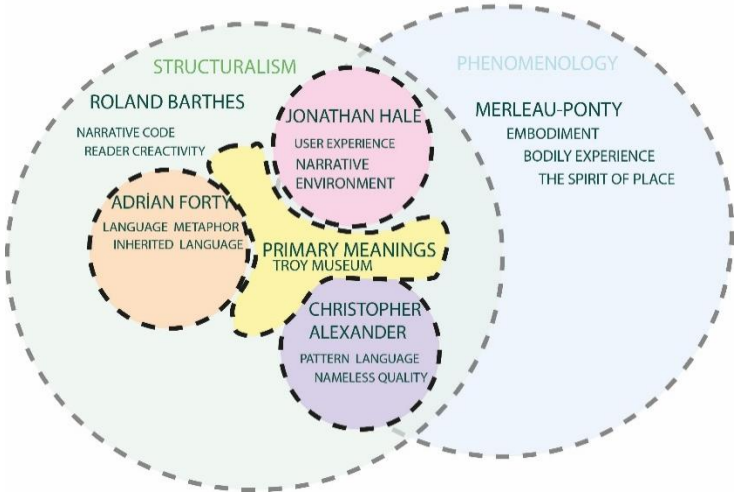


Figure 1. The theoretical background of research on architectural language, which prioritizes a set of meaning stems from the spirit of place, user creativity, and inherited and historical values.

Within this theoretical inspiration, the research interpretation above various approaches to architecture under the notion of 'primary meaning', shown in Figure 1—including language metaphors through Forty, the nameless quality through Alexander, creative and participatory language through Hale, and readerly creativity through Barthes. Especially, it becomes a primary meaning in museum design for uncovering the multi-dimensional, participatory elements of these buildings, rather than authorized and fictional ones. To be precise, this study examines the primary meanings carried through user participation and reveals the embedded properties of a site in a thematic museum design. To achieve this, it connects Barthes' five codes, which trigger user participation, with the design elements in the Troy Museum, designed by Yalın Architectural Design. It is claimed that these codes form important clusters that bring the liveliness and primary meaning of the Museum. The Troy Museum, as a case study, is worth examining through Barthes' 5 codes, since its architectural elements and design principles create a multidimensional narrative environment that interestingly interacts with place, history, and memory, which is uncovered through the user's experience. Therefore, it differs from the traditional archaeological museums of Turkey. The architectural elements of the museum serve as methodologically mediating narrative language, revealing social and primary meanings within the Museum.

In this research, one or two architectural elements designed in the Museum have been selected and evaluated under one of Barthes's five

categories. The reason for choosing these elements is that they are prioritized in the Museums Design manifesto, which identifies them as the most used experiences in the museum and those that participate in social production the most. Selected design elements of the museum have been evaluated under Barthes' 5 codes that produce primary user and place meaning according to their contents. Respectively, under Barthes's category described as "hermeneutic code", the building form has been evaluated. Under the category of "action code, ramp design has been evaluated. Under the category of "semantic code", façade material has been evaluated. Under the category of "cultural code", the lighting system of the Museum has been evaluated. Under the category of "symbolic code", the exhibition space has been evaluated. In this way, while evaluating the primary meanings of the museum with the codes, the manifesto and interpretations of the competition project of the Yalın Architectural Design Group, articles about the Museum and the author's museum experiences were used. By adopting a method inspired by Barthes, this study demonstrates how primary meanings are conveyed through design elements, and how these meanings contribute to the vitality and character of architectural form.

TROY MUSEUM AS A CASE STUDY

Troy Museum, designed by Yalın Architectural for a competition, falls into the category of an archaeological museum and hosts a chronological and thematic exhibition layout. The project location, situated near Tevfikiye Village in Çanakkale, is approximately 30 km from the ancient city of Troy, which is listed on the UNESCO World Heritage List (Kuyrukçu, 2021). With a project area of 110,000 m^2, the Museum is composed of a ground floor, a first floor, a second floor, and a third floor, and the roof is organized as a terrace. It consists of conservation and restoration laboratories, a storage area, temporary and permanent exhibition areas, a café, a restaurant, activity areas, and sales areas (Kuyrukçu, 2021). In addition to these features, the museum is a structure that embodies prioritized meanings related to the past, present, and future by establishing a relationship with the site and the user. Accordingly, through the user's experience of space, which connects with place and history, it adopts a unique architectural approach. By carrying historical meanings that reflect the spirit of the place and adopting a modern museum approach, it reveals that many embedded, yet primary meanings of architecture can be discovered. The feature of the Museum that is worth examining in detail according to Barthes's semiotics codes is that it has a dominant design language that intersects place, history and user. To create this language, the project group utilized architectural design elements. In the design fiction drawing, the visitor is invited to explore different layers of time through design

elements, including the building form, ramp, facade, lighting, exhibition space, and observation terrace. These elements stimulate creativity by evoking various meanings.

According to the Yalın Architect manifesto of the Troy Museum, the museum design uncovered historical, inherited meanings and narratives to present to visitors. As the architect of the Museum, Ömer Selçuk Baz describes promoting a spatial strategy that gradually isolates the visitor at specific layers, temporarily disconnecting them from the physical context and then reintroducing it. What they particularly aim to foreground is a spatial experience which makes sense and goes beyond the building's immediate physical surroundings (Baz, 1919). Accordingly, the Museum's attempt to evoke a sense by approaching the primordial leads us toward the core objective of the study by reconnecting with the primary meanings that have emerged over time. Moreover, the museum allows for subjective interpretations, which contribute to its character on its own site. This study initiates a discussion on how these living and characteristic features of the Museum have been designed, uncovering their primary meanings through Barthes' five narrative codes.

Analysing the steps of the Troy Museum with Barthes' 5 Codes

As a method to unearth the primary meanings from the place and user within the museum, Barthes' narrative codes recognize that the user's performance dimensions are functionalized. These codes are categorized as "hermeneutic code", "action code", "semantic code", "cultural code", and "symbolic code". The codes are interpreted as categories that can reveal the place and social meanings in the building (Barthes, 1977; Baştürk, Görgülü & Senem, 2024).

1) Mystery and Simplicity by Hermeneutic Code

The first category, which emphasizes primary meanings through user and site participation, is hermeneutic code (Barthes, 1974, p. 20). This code may present riddles and games that focus on creating meaning, user engagement, and the continuation of mystery and enigma within the narrative. Accordingly, under this category, Barthes's evaluation has been conducted on the building form in the Troy Museum. The form of the museum balances architectural simplicity with narrative mystery, allowing visitors to experience the timeless ambiguity of a civilization shaped by myth and memory. Bearing this in mind, it is obvious that the form of the Museum, as a closed cube to the outside, activates the critical thinking of the user by presenting riddles questioning the silence of the place and time.

Looking more closely, the new Troy Museum is located near the archaeological site to emphasize the historical continuity. However, it has been at a distance from the ancient site of Troy in order to preserve its historical value (Baz, 2019; Yalın Mimarlık, 2018). The site and the museum are thus connected to both old and new narratives of the past and present, without compromising the overall history and spirit of the ancient city. Within the quiet terrain of the site, the building's enclosed form, shown in Figure 2, triggers puzzles and increases mystery. Mystery increases tension, unfamiliarity, confusion and uncertainty on the site. With these features, the building form is not easily noticed in the landscape. It looks like a quiet ruin, surrounded by farmland that continues the natural surface of the area. The simplicity cubed form presents puzzles to engage visitors in the building. What allows the museum form to be evaluated under this category is that it is the power of simplicity to invite questioning, and the potential of mystery to open new possibilities. In this way, architectural questioning reveals primary meanings through the different associations of experience. Under this code, tranquility and mystery stand out as primary meanings that invite the user into the museum, giving it vitality and character within the archaeological site.

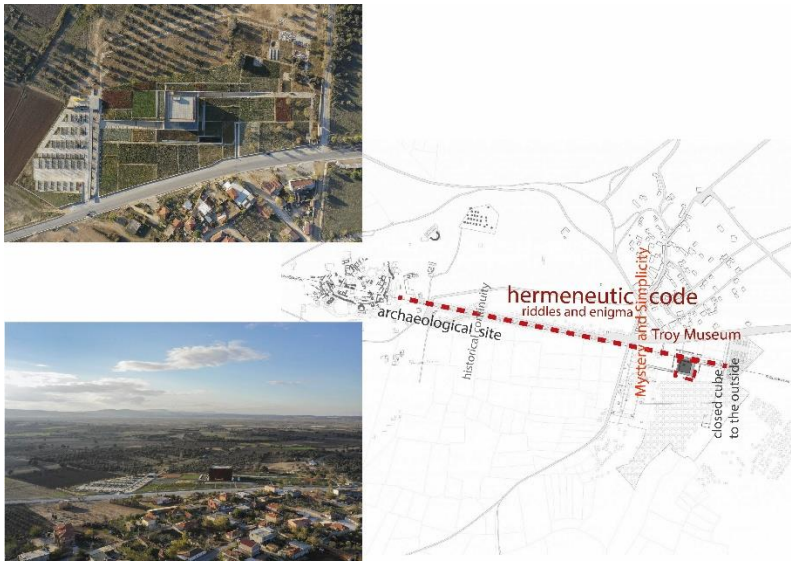


Figure 2. Closed cube form of Troy Museum questioning mystery and simplicity under the hermeneutic coding category (Source: Yalın Mimarlık, 2018).

2) Multi-layered Narratives and Continuity by Action Code

The second category, which puts forward primary meanings with user and site participation, is action code (Barthes, 1974, p. 20). In this code, the body is associated with movement, and narratives flow more than a passive machine. It creates a sense of rhythm and flow, which reveals the primary meanings stem from the site and the user. Accordingly, under this category, Barthes's evaluation has been conducted with the ramp design, shown in Figure 3, in the New Troy Museum because this element makes the building performative. The design group explains that, looking more closely at the Troy Museum, visitors enter the building by walking down a 12-meter-wide ramp. As they descend, they move closer to the building ahead. The deeper they go, the surrounding landscape and ground slowly disappear. Inside, they are met by a second circulation band—a ramp system that wraps around three sides of the building and guides them through the rest of the exhibition. The building's outer shell also encloses this ramp (Baz, 1919; Yalın Mimarlık, 2018). Thus, circulation, flow, and continuity are provided by ramps in the museum, where works belonging to different layers are displayed on each floor (Çınar & Sarıberberoğlu, 2023). In this way, the ramp is not only an architectural element but also invites the user into historical narratives by showing the flow of time.

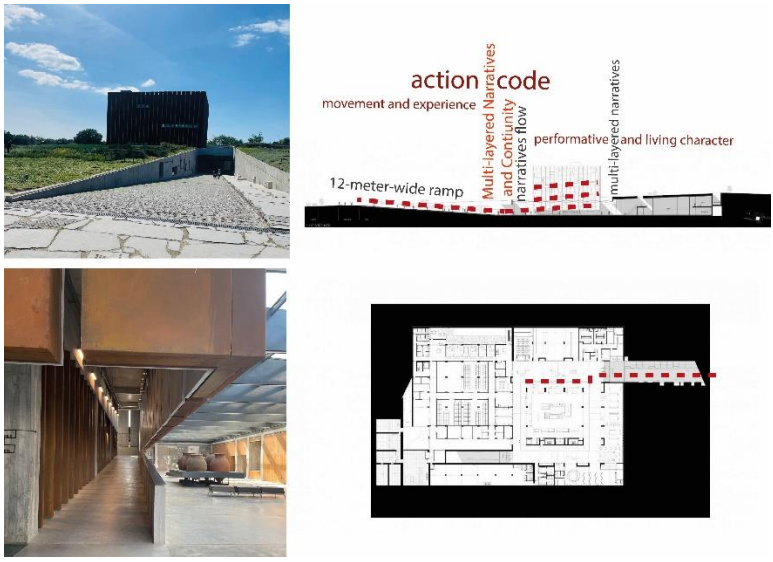


Figure 3. Troy Museum's ramps creating multi-layered narratives and continuity under the action coding category (Source: Yalın Mimarlık, 2018; Author's photo archive).

Since the act of moving through space conveys more than reading on the surface, it creates a museum experience in which the user and the narrative sometimes overlap and sometimes unfold continuously. This fusion of multi-layered narratives with subjective experience creates the performative and living character of the museum. Through the museum's ramp, qualities such as spatial specificity, embodiment, and visuality are enhanced, providing the spaces for performative characteristics. Accordingly, the ramp design constitutes spatial, visual, auditory, and temporal constructions. To be precise, what allows the museum ramps to be evaluated under this category is their capacity to enable a vivid and interactive experience of the site's archaeological origins by promoting multilayered continuity and spatial narration. Within this category, the ramp design provides multilayered continuity, establishing a connection between the archaeological context and the user, and thereby shaping the character of the building.

3) Reflection of Lived Experience by Semantic Code

The third category, which emphasizes primary meanings through user and site participation, is semantic code (Barthes, 1974, p. 20). This code reflects psychology and addresses subjective meanings that are not limited to technical and mechanical values, but also connotations with individual desire and sensitivity (Barthes, 1977; Başẗürk, Görgülü, & Senem, 2024). This category is related to the phenomenological concepts proposed by Hale with these characteristics. In phenomenological thought, material is unique for its capacity to highlight bodily and sensory responses, making museums more inhabitable and experientially rich. The choice of materials plays a crucial role in triggering visitors' emotional reactions, which fosters a relationship with the subject and the spatial environment (Hale, 2012).

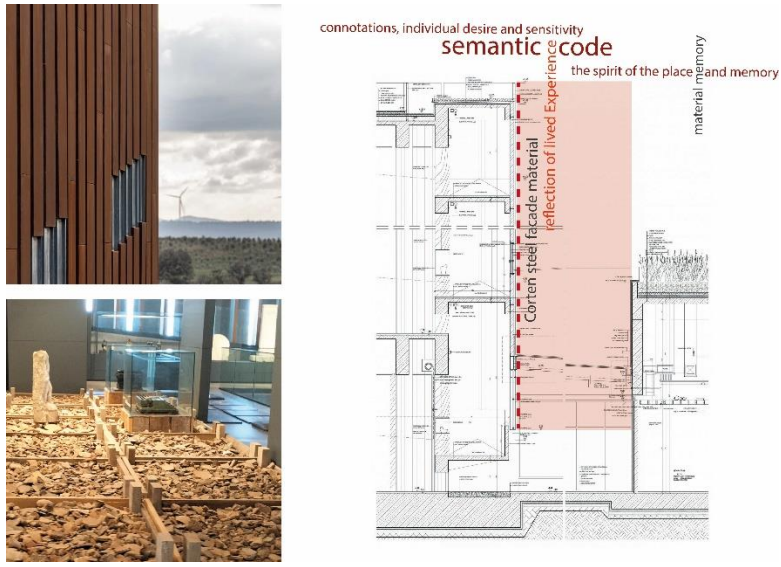


Figure 4. Troy Museum's corten steel façade material reflecting lived experiences over history under the semantic coding category (Source: Yalın Mimarlık, 2018).

Looking more closely at the case of the Troy Museum, it is observed that material is used intensively to trigger sensory responses to convey the spirit of the place and memory. Accordingly, the local materials used in the museum reflect lived experiences throughout history, integrating the user into the space. The corten steel façade material of the museum, shown in Figure 4, gains phenomenological and sensitive meaning, which allows this material to be categorized under this code. Baz describes how the façade material was specifically chosen to reflect the lived history of the ancient site, as it will transform according to weather and climate, much like an archaeological ruin. He addresses material memory to evoke the reflection of lived experiences through its surface, which resembles excavated, fractured pottery and earthenware (Baz, 2019). Through its aged, scratched, and worn texture, it conveys the impression of something that has endured, bearing traces of time and cultural resonance (Yalın Mimarlık, 2018). Through this code, the individual's sensitivity triggered by the façade material helps uncover primary meanings. The reflection of lived experiences carried by the material itself connects the museum more strongly to the site context and gives it a living character.

(4) Play of Light by Cultural Code

The fourth category, which puts forward primary meanings with user and site participation, is cultural code. This code refers to various types of knowledge and associations with construction techniques that are carried through culture. Every building transforms cultural reactions if it is constructed with local techniques (Barthes, 1977; Baştürk, Görgülü & Senem, 2024). Although the technologies used in museum architecture today are highly advanced, raw materials and traditional construction techniques continue to be employed repeatedly in ways that highlight the characteristics of place and culture. Especially in museums, lighting techniques create an effect that enhances imagination and cultural experience between the objects and the viewers.

In addition to the use of advanced technologies, the Troy Museum employed traditional construction techniques, including the use of raw materials and the interplay of natural light and shadow, to preserve the ancient ruins of Troy. Especially, the play of natural light within the building, shown in Figure 5, enhanced the sense of depth within the space (Çınar & Sarıberberoğlu, 2023). While the natural light partially dimmed interior of the museum, illuminated through narrow slits, enhances the sense of purity and depth of the atmosphere within the space, it also references the region's cultural heritage. The effect of the play of light continues along the ramp, animating transitional zones. As observed, natural lighting techniques in the museum have become a reflection of cultural and historical values. Within this conceptual framework, the interplay of light and shadow emerges as a primary narrative element, offering an experience that associates the user with local designs and contributes to the building's transformation into a living character within the archaeological site.



Figure 5. Troy Museum's natural light system enhances the sense of depth and atmosphere within the space under the cultural coding category (Source: Yalın Mimarlık, 2018; Author's photo archive).

(5) Sacredness and Centrality by Symbolic Code

The fourth category, which emphasizes primary meanings through user and site participation, is Symbolic code. Under the category of "symbolic code", symbolic and polyvalent meanings came to light (Barthes, 1977; Baştürk, Görgülü & Senem, 2024). Museum designs symbolic meanings create metaphors. In Troy museums, these symbolic meanings are shown in the exhibition space (Baz, 2019). The central positioning of the exhibition space, such as megaron, shown in Figure 6, can be interpreted as a symbolic code evoking spatial hierarchy and cultural memory. For the visitor, the megaron may be a historical architectural structure that conveys sacredness, centrality, and a symbol of belonging. In this context, architecture does not merely contain the object; it frames it within a semiotic structure that invites interaction with its historical, mythical, and perceptual layers of meaning. In this way, the museum conveys its primary meanings to visitors through the exhibition space. Sacredness and Centrality" in this category is determined as the primary meaning. The primary meaning of an exhibition space as a megaron is perceived as highly valuable and acquires the character of the Museum.



Figure 6. Exhibition Space of Troy Museum as a Megaron' evoking Sacredness and Centrality under the symbolic coding category (Source: Yalın Mimarlık, 2018).

CONCLUSION

The research in the article includes a motivation to explore the primary meanings of the New Troy Museum, as well as another question about how it brings vitality and character to the Museum. The methodology concerning whether this language that brings both motivations into focus is Roland Barthes' 5 Narrative codes. As a result, through an analysis of Troya Museum elements based on these codes, it has been realized that the codes operated together; it has been revealed that the primary meaning is not only applicable within the study area but also generates a dynamic configuration beyond the static rules of design. Moreover, through each visitor's reinterpretation, the Museum transcends its static form. It becomes a network of relations with narratives and experiences that unfold as one moves through the Troy district, revealing the crucial role of architectural elements in creating an experiential narrative. For this reason, the meanings of the Troy Museum, uncovered through five narrative codes, are of primary importance—and questionable today. Considering that every structure is rooted in its geography and historical context, it can be said that the Troy Museum captures the deepest meanings of its location and users, gradually gaining character. We can say that the Museum's primary objectives succeeded in reviving the lost ancient city of Troy by activating the body, evoking questions, connotations, and feelings. One

of the study's prospective contributions is to lead the emergence of other primary meanings. Each meaning, when brought together in unity, can contribute to the Museum's ability to acquire a sense of identity within its context. This sense of identity strengthens our responsibility to convey embodied inheritance to future generations.

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EDUCATION

PRIORITIES OF ARCHITECTURE EDUCATION: LEARNING 'BASIC DESIGN ELEMENTS AND PRINCIPLES' IN BASIC DESIGN STUDIOS

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ABSTRACT

Architecture is not merely the art of shaping the physical environment but also a continuously evolving field of thinking, questioning, and producing. In this context, the priority of architecture lies in a strong educational approach that aims to cultivate qualified individuals. The foremost concern of architectural education is the acquisition of Basic Design Elements and Principles, which constitute the foundation of the discipline and are targeted as learning outcomes in the first-year design studios. These principles serve as the cornerstones of the design process at both intellectual and perceptual levels. Design studios, where students develop their design language, form the backbone of architectural education and must continuously renew themselves in response to the demands of change. Since change directly influences design methods, it also transforms the structure of the studio environment. To adapt to these transformations, studios should be restructured not only with a focus on outcomes but also with a process-oriented, constructivist approach that emphasizes active student participation. This study investigates how Basic Design Elements and Principles, as part of the learning outcome "Understanding Basic Design Knowledge," can be reinforced in design studios through the constructivist learning method known as the SCAMPER technique. By fostering cognitive flexibility, SCAMPER technique enables students to transcend conventional approaches and generate original, multidimensional design ideas. Within the framework of action research, a SCAMPER-based workshop was conducted, offering students a constructivist learning environment. Qualitative data obtained throughout the process were evaluated using interpretive analysis. Findings indicate that the SCAMPER technique can serve as an effective tool in first-year design studios by consolidating prior knowledge, supporting flexible thinking, and encouraging the generation of alternative design ideas.

Keywords: Architectural Education; Basic Design Studios; Basic Design Elements and Principles; SCAMPER Technique

INTRODUCTION

Design studios are the most significant environments in which students develop their design language. To remain relevant, studios must continually renew themselves in accordance with contemporary changes. As changes affect design methods, they also reshape the studios where these methods take place. Thus, design studios -the backbone of architectural education- are also the areas most directly affected by transformation. To adapt, they must be reconstructed through a process-oriented approach that prioritizes active student participation rather than outcome-driven teaching.

The evolving nature of education has shifted the question from "How can we teach better?" to "How do people learn?". Learning is now recognized as a mental process that involves both cognitive and affective dimensions. According to this perspective, learners are regarded as active agents who construct meaning and interpretation based on existing mental models and new experiences (Köseoğlu & Tümay, 2013). The pursuit of active learning, rooted in Dewey's (1933) philosophy of *learning by doing*, argues that students should play an active role in their education rather than remain as passive listeners. Therefore, the necessity of student-centered architectural education in meeting academic and social needs is evident (Kılıçarslan, 2015).

This perspective has led to paradigm shifts in understanding different ways of perceiving and thinking, resulting in the emergence of the constructivist learning approach, which diverges in some respects from cognitive psychology. According to constructivism, knowledge cannot simply be transferred from an external source to the learner; rather, it must be actively constructed by the learner. In this context, the teacher does not act merely as a transmitter of knowledge but as a facilitator who provides environments where students can explore learning pathways and generate knowledge autonomously.

Although the constructivist learning approach is often considered a contemporary educational paradigm, its roots extend far back. For example, Socratic dialogues -where Socrates encouraged his students to identify gaps in their reasoning through open-ended questions- can be viewed as early manifestations of constructivism. Today, the Socratic method is widely used in Western educational contexts to assess students' prior knowledge, monitor the learning process, and plan new experiences (Köseoğlu & Tümay, 2013).

In today's educational context, constructivism emerges not only as a pedagogical model but also as a philosophical paradigm centered on *learning to learn*. The studio culture in architectural education, characterized by the dialogical environment established between teacher and student, closely aligns with the constructivist learning approach (Aydınlı, 2015).

Among the constructivist learning strategies, the brainstorming-based SCAMPER technique offers students the opportunity to express themselves freely, overcome constraints of judgment, and generate diverse and original ideas. According to Osborn (1957), Weiss (1993), and Rouquette (1992), SCAMPER fosters free thinking, encourages unconventional approaches, increases the quantity of ideas, and facilitates the integration of group contributions (Onur & Zorlu, 2017).

Originally introduced by Alex Osborn in 1953 and later developed by Bob Eberle in 1971, SCAMPER is an acronym derived from the initials of the technique's steps. These steps are structured to cultivate creative problem-solving skills in both students and teachers. Through guided brainstorming, learners generate new ideas based on existing objects or concepts. As Michalko (2006) states, every idea serves as the foundation for another. Likewise, Gann (2014) highlights that the technique is highly enjoyable for both teachers and students while being particularly effective in fostering creative thinking (Aydın & Çilci, 2020).

The seven stages of SCAMPER are as follows:

S – Substitute: What alternatives can be used in place of the current object or idea?

C – Combine: What ideas or objects can be combined to create something new?

A – Adapt/Adjust**:** How can the existing object or idea be modified to suit new conditions?

M – Modify: How can the form be altered by enlarging, reducing, or modifying it?

P – Put to Other Uses: How can the object or idea be applied in contexts other than its conventional purpose?

E – Eliminate: What can be removed from the system to achieve a more effective result?

R – Rearrange/Reverse: How can existing arrangements be reordered or reversed to yield new outcomes?

The SCAMPER technique can be applied either by focusing on individual steps in different contexts or by addressing all steps comprehensively in relation to a specific problem or design situation (Özyaprak, 2016). According to Animasahun (2014), facilitators should encourage students to express their ideas, ensure that the subject or problem is clearly defined, provide adequate pre-application instruction, and maintain a stimulating and enjoyable process. Yıldız and Israel (2002) further emphasize that students' responses should remain unaltered to preserve originality (Baş, 2018).

Therefore, the applicability of techniques such as SCAMPER becomes particularly significant in design education, especially within the core of first-year studios. While the intended learning outcomes of these studios are clearly defined in curricula, variations in instructional practices often hinder students' ability to fully internalize them. Against this backdrop, the aim of this study is to structure the subject of *Basic Design Elements and Principles*—part of the learning outcome "Understanding Basic Design Knowledge"—through the SCAMPER technique, thereby providing a guiding framework that can support both students and teachers in the design process.

METHODOLOGY

This study was conducted within the framework of an action research design. Action research is a qualitative research approach in which the researcher is directly involved in the implementation process, simultaneously observing and seeking to improve it. According to Yıldırım and Şimşek (2011), action research combines research with practice, facilitates the transfer of research results into practice, and adopts a process-oriented approach (Çakıroğlu & Ayrancıoğlu, 2021). The purpose of this study is to observe the impact of consciously applying prior knowledge through the SCAMPER technique on the design decisions of students engaged in basic design education.

The research covered a three-day workshop designed as a constructivist learning experience. Students were undergraduate students from the Department of Architecture, Faculty of Architecture, Karadeniz Technical University, who had completed the Spring semester of the 2021/2022 academic year. In accordance with the SCAMPER technique's application criteria -particularly the requirement that student numbers not exceed 10 to 15- the workshop was conducted with 12 volunteer students.

The workshop focused on the design of a façade within a historical context, emphasizing the conscious application of *Basic Design Elements and Principles* -the core subject of the learning outcome *Understanding Basic Design Knowledge*- through the SCAMPER technique.

As part of the design problem, two structures that disrupted the historical silhouette opposite Trabzon Meydan Park were disregarded, and students were asked to design a new building façade for the vacant space. Through SCAMPER, students reconstructed their individual design practices while engaging with the historical context.

To explore how students sketches developed through SCAMPER, the workshop was structured into three main phases: (1) production of initial sketches for the design problem (Design Study-1), (2) an experimental exercise introducing and applying the SCAMPER technique, and (3) production of revised sketches for the same design problem using SCAMPER (Design Study-2). The differences between the two processes were assessed through evaluation forms completed after each stage (Table 1).

Table 1. Workshop Schedule

WORKSHOP SCHEDULE		
Day 1	Day 2	Day 3
• ***Introduction*** • Topic–Site Presentation (Informative Presentation-1) • Site Visit • Initial Sketches • Homework (Examples/Visuals Related to the Topic)	• ***Design Study-1*** (Initial Sketches) • Submission of Design Study-1 • First Evaluation Questionnaire/Form • Introduction to SCAMPER Technique (Informative Presentation-2) • Examples • Experimental Exercise • Experimental Exercise Evaluation Questionnaire/Form • Homework (Improving Initial Sketches with SCAMPER Technique)	• ***Design Study-2*** (What Else Could It Be?) (Final Sketches) • Submission of Design Study-2 • Final Evaluation Questionnaire/Form • Presentation of Participation Certificates

FINDINGS

This study, as a pilot application of the doctoral research, adopted an interpretive analytical approach rather than systematic coding-based qualitative analysis methods such as content analysis or thematic analysis. The data set included *Design Study-1 and Design Study-2* sketches, researcher observations, and student reflections. These were analyzed under three main themes; (1) the ability to generate alternative design ideas, (2) reinforcement of knowledge of *Basic Design Elements and Principles*, and (3) contributions to the development of design thinking skills. In this aim, the findings present an interpretive analysis of the sketches, evaluation forms (*Design Study-1 and Design Study-2 Evaluation Forms*), and process reflections (*Process Evaluation Form*) collected during the workshop. The sample of all studies conducted within the scope of the research was limited to 3 students who generalized the results and whose sketches were legible, and the students were named S1, S2, and S3.

Generating Alternative Design Ideas

The comparison of sketches produced *in Design Study-1* (initial sketches) and *Design Study-2* (post-SCAMPER sketches) revealed significant improvements in the students' ability to produce multiple and diverse alternatives within a limited time.

- S1 produced two sketches in Design Study-1. After applying SCAMPER steps -Substitute, Combine, Adapt, and Eliminate- S1 generated six alternative sketches in Design Study-2.
- S2 produced one sketch in Design Study-1. After applying SCAMPER steps -Substitute, Combine, Adapt, and Rearrange- S2 generated five alternatives in Design Study-2.
- S3 produced two sketches in Design Study-1. After applying five SCAMPER steps (Substitute, Combine, Adapt, Eliminate, and Rearrange), expanded this into eight alternative sketches in Design Study-2.These comparisons demonstrate that SCAMPER significantly enhanced the students' ability to generate a greater variety of alternative ideas in a short time frame.

Reinforcing Knowledge of Basic Design Elements and Principles

The evaluation of *Design Study-1 and Design Study-2* sketches also revealed that students used BASIC DESIGN ELEMENTS AND PRINCIPLES more consciously after the intervention.

- S1 emphasized dominance and repetition in Design Study-1, using line and proportion. After SCAMPER additional principles

such as contrast and harmony were integrated, and existing elements were reinterpreted in Design Study-2.

- S2 emphasized dominance, contrast, and balance through line, direction, and proportion in Design Study-1. After SCAMPER additional new principles such as form and gradation, and existing elements were reinterpreted in Design Study-2.
- S3 emphasized dominance and contrast with line, direction, and value in Design Study-1. After SCAMPER, additional elements such as texture and interval were incorporated, and existing principles were reinterpreted in Design Study-2.

Overall, students not only retained their previous knowledge but also expanded their repertoire by incorporating new elements and principles into their designs. This indicates that SCAMPER fosters the reinforcement and reorganization of prior knowledge in a more systematic way.

Enhancing Design Thinking Skills

Responses from the *Process Evaluation Form* showed that students perceived SCAMPER as a guiding framework that improved their cognitive engagement with design.

- S1 noted that SCAMPER helped clarify intentions during the design process, though suggested that initial training with simpler exercises could enhance comprehension.
- S2 noted that SCAMPER helped the production of alternative ideas when experiencing design blockages, enabling faster and more diverse sketch production. The student also expressed that this process increased motivation and enjoyment.
- S3 noted that SCAMPER helped the exploration of overlooked possibilities by encouraging the reconsideration of design elements and principles.

Collectively, students indicated that SCAMPER contributed to their analytical and creative thinking processes by enabling them to approach design from multiple perspectives.

CONCLUSION

This study was conducted to examine the impact of the SCAMPER technique, developed within the framework of the constructivist learning approach, on the learning processes of students in basic design studios, and to evaluate its applicability in teaching *Basic Design Elements and Principles.* Data were collected through students' sketches, photographic records, student reflections, researcher observation notes, and three different evaluation forms (DESIGN STUDY-

1 *Evaluation Form, Design Study-2 Evaluation Form, and Process Evaluation Form*). These data were analyzed using an interpretive approach and grouped under three themes: Generating alternative design ideas, reinforcing knowledge of Basic Design Elements and Principles, and enhancing design thinking skills.

Generating Alternative Design Ideas: The first finding of the study indicates that the SCAMPER technique positively influenced students' ability to generate alternative ideas. The comparison of Design Study-1 and Design Study-2 showed that students were able to produce a greater number and variety of design alternatives for the same design problem after applying SCAMPER. This suggests that the technique enhances cognitive flexibility and supports the exploration of diverse solutions.

Reinforcing Knowledge of Basic Design Elements and Principles: The second finding reveals that students began to use design elements and principles more consciously and systematically through SCAMPER. While in free sketches certain principles appeared to be applied randomly, post-SCAMPER applications demonstrated a more deliberate and structured use. This confirms that SCAMPER, as a constructivist tool, contributes to the reorganization and consolidation of prior knowledge.

Enhancing Design Thinking Skills: The third finding, derived from student reflections, highlights SCAMPER's contribution to higher-order thinking skills. Students emphasized that SCAMPER steps such as *Substitute, Combine, and Reverse* guided them to analyze, reinterpret, and reframe design problems from multiple perspectives. Thus, SCAMPER not only supported design production but also improved critical and creative thinking capacities.

In general, the study demonstrates that the SCAMPER technique can serve as an effective educational and pedagogical tool in basic design studios. Student reported that the technique enabled faster, more flexible, and more productive design processes, while also increasing their confidence in sketching and decision-making. Beyond first-year education, SCAMPER can be integrated into design courses at different levels, supporting both student learning and professional practice.

Therefore, the systematic integration of constructivist approaches such as SCAMPER into design education is recommended to improve the quality of students' learning experiences and to foster cognitive development. Furthermore, the organization of applied workshops that employ SCAMPER in collaboration with other disciplines and larger student groups would allow for testing its effectiveness across different

contexts. Extending the technique beyond student groups to include practitioners may also contribute to lifelong learning and problem-solving capacities in architectural practice.

ACKNOWLEDGEMENTS

The study was approved by the Ethics Committee of Karadeniz Technical University (Ethics Committee Decision No: E-26014373-050.01.04-461929, Date: 02.01.2024). In accordance with ethical principles, student identities were kept confidential, and all data were used solely for scientific purposes.

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DISCLOSING 4TH-YEAR ARCHITECTURE STUDENTS' INCLINATION TOWARD REFLECTIVE PORTFOLIO THROUGH A METRICS-BASED EVALUATION FRAMEWORK

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ABSTRACT

This paper presents the development and implementation of a binary-metric-based evaluation framework for architectural design portfolios within a studio-based learning environment. Rooted in Donald A. Schön's theory of reflective practice, the study reconceptualizes portfolios as critical tools for pedagogical reflection, identity construction, and epistemic inquiry. Designed as a 14-week elective course titled Reflective Portfolio on Action, the study employed a self-referential instructional approach, where the research process emerged directly from student essays, classroom discussions, and co-developed evaluation criteria. Focusing on the first five weeks of the course, the framework was articulated through ten binary metrics—each addressing a spectrum of reflective and representational concerns such as institutional presence, personal voice, processual integrity, and interdisciplinary engagement. Students applied these metrics through peer evaluation and self-assessment exercises, culminating in a comparative radar chart analysis that visualized discrepancies between existing and aspirational portfolios. These visual tools enabled students to map their learning trajectories, identify misalignments, and formulate personalized revision strategies. Rather than proposing a fixed rubric, the framework fostered a dialogic and critical portfolio culture—encouraging students to see their portfolios not as static artifacts but as reflective, evolving narratives. The study's findings illustrate a collective shift from product-oriented documentation toward process-based, critically engaged representations. By integrating theory, metrics, and students' view into a coherent pedagogical system, the research proposes a novel and transferable model for embedding reflective practices into architectural education.

Keywords: Reflective Practice; Architectural Education; Portfolio Evaluation; Design Studio Pedagogy; Metric-Based Assessment.

INTRODUCTION

The distinct pedagogy of studio-based architectural education aligns closely with constructivist learning theories, emphasizing knowledge as an active process of inquiry and discovery (Kurt, 2011; Eigbeonan, 2013; Shareef & Farivarsadri, 2020). In this context, design studios are not merely sites of production but complex educational environments where students negotiate theory, process, representation, and reflection. Studios have increasingly adopted research-by-design and design-as-research approaches, positioning the act of designing as a site for knowledge production and intellectual engagement. Within this paradigm, the architectural portfolio emerges not simply as a collection of student work, but as a medium for communicating the process and complexity of architectural thinking.

Donald A. Schön's seminal works (1983; 1987) offer a theoretical foundation for understanding how design learning unfolds in such environments. His concept of reflective practice—comprising both reflection-in-action and reflection-on-action—captures the dual temporalities through which students construct and reconstruct their understanding. While reflection-in-action occurs during the act of designing, reflection-on-action enables learners to retrospectively assess their decisions, strategies, and epistemological assumptions. Portfolios, when designed through this lens, can function as iterative and self-reflective learning instruments. They support students in synthesizing not only final products but the reasoning, research, and values that underpin their work. However, portfolio practices vary significantly across institutional and cultural contexts.

In internationally accredited systems such as RIBA (UK) and NAAB (USA), portfolios are structured to document not only output but also process, theoretical grounding, and intellectual development (Marjanovic, Ray, & Lokko, 2003; Hui, 2020). They act as mediating devices between pedagogical goals and professional expectations, bridging formative assessment and lifelong learning. In such systems, portfolio literacy is embedded into studio culture and supported by clearly articulated evaluation frameworks.

Turkish context presents a fragmented picture. Despite the presence of MIAK (Architecture Accreditation Board) and institutional efforts toward educational standardization, portfolio practices are often shaped reactively—compiled at the end of a term for final juries or post-graduation job applications. The absence of national portfolio guidelines, formalized rubrics, or institutionalized reflective practices has reinforced a product-oriented approach. Portfolios in this context tend

to showcase completed work while obscuring the iterative, research-driven, or critical dimensions of design learning. As a result, their potential as tools for formative assessment and academic self-construction remains underutilized (Oktan & Vural, 2021; Yılmaz et al., 2022).

Moreover, when institutional and instructional guidance is lacking, students frequently frame their portfolios around pragmatic or careerist concerns. The absence of a shared reflective culture raises a critical pedagogical question: Do students adopt portfolios as tools of critical self-representation by choice, or as instruments of professional necessity shaped by institutional omission? This question underscores a broader pedagogical gap—namely, the lack of structured frameworks that enable students to evaluate, construct, and reflect on their learning trajectories through portfolio work.

The study presented reports on a methodological and pedagogical framework designed to evaluate and support reflective portfolio practices. The framework was developed and implemented at Abdullah Gül University (AGÜ), a research-oriented institution in central Turkey that encourages experimental pedagogy and student-centered learning. Within this institutional context, a new elective course titled Reflective Portfolio on Action was launched in the spring semester of 2025, targeting fourth-year architecture students. The course was conceived as a testing ground for a metrics-based portfolio evaluation system, integrating reflective theory with action-research methodologies (Yin, 2009; Creswell & Plano Clark, 2011; Biggs & Tang, 2011).

This metrics-based framework was not imposed on students but co-developed with them through iterative in-class discussions, precedent analysis, and self-assessment activities. Students critically reviewed existing portfolios, debated evaluation criteria, and constructed individualized expectations for their own reflective documents. Through this process, a binary-structured evaluation model emerged—one that maps portfolios across a series of spectrums (e.g., institutional vs. noninstitutional, personal vs. impersonal, process-oriented vs. product-oriented, etc.). These binaries were not intended as rigid categories, but rather as diagnostic tools to foster awareness of different modes of engagement and expression within portfolio work.

The remainder of this paper presents the development, application, and implications of a student-informed reflective evaluation framework that emerged through the Reflective Portfolio on Action course. Following this introduction, the next section outlines the theoretical and pedagogical foundations of the course, with a focus on Schön's theory of reflective

practice and its resonance in early student reflections. This is followed by an analysis of student essays, which revealed recurring conceptual patterns that became the basis for a ten-metric evaluation framework. The following section elaborates on how these metrics were applied not as fixed rubrics, but as reflective tools for self-assessment, peer discussion, and representational decision-making. The final section visualizes the shifts in student expectations and evaluative self-perceptions through mapping the student data, leading to a concluding reflection on how such frameworks can foster critical agency, institutional presence, and a reflective culture within architectural education.

This paper focuses on the early phases of the course—specifically the first five weeks—during which students engaged in theoretical reflection and helped construct the evaluation framework. The analysis does not extend to the final portfolios submitted at the end of the semester, as the study prioritizes the conceptual groundwork and initial shifts in portfolio thinking.

ORIGINS AND DEVELOPMENT OF THE COURSE

The idea for the elective course Reflective Portfolio on Action was born from a departmental curriculum board discussion at Abdullah Gül University (AGÜ) in early 2025. The meeting surfaced a familiar yet unresolved debate within architectural education: Should the focus of an undergraduate architecture program be the cultivation of technical proficiency—such as construction drawings, fire regulations, and detailed plan-section-elevation documentation—or the development of architectural identity through critical thinking, collaborative learning, studio culture, and design research?

Although AGÜ's curriculum is internationally aligned and explicitly supports the both—with an emphasis on reflective, research-based studio pedagogy—it became apparent that the portfolios of many recent graduates did not reflect this vision. Instead, graduate portfolios were primarily structured around high-quality visual outputs, often tailored for job applications within local contractor networks. These portfolios privileged final images and presentation layouts over design process, critical decisions, or narrative continuity. More notably, they failed to convey the values of the institution, the pedagogical culture of its design studios, or the reflective transformations students experienced throughout their academic journey.

It became clear that students lacked the tools and the space to reflect on their education in a structured and meaningful way. Their portfolios—although technically competent—lacked depth. They did not speak to

who the students were, what they had learned, or how their designs emerged from an iterative and collaborative studio process. The architecture program had a clear curricular gap. There was no dedicated pedagogical space where students could learn how to think about, construct, and critically curate their educational narratives through portfolios.

This realization led to a central question: What would a portfolio course look like if it aimed not just to prepare employable visuals, but to cultivate reflective practitioners capable of articulating their design learning and academic identity? Rather than prescribing a fixed model or adopting an existing framework, the course was conceived as an open-ended, creative instructional experiment. Its structure, content, and evaluation methods were developed iteratively through student reflections, classroom discussions, and peer feedback, making the study self-referential by design. As such, the framework that emerged is not only research-informed but also research-generated—anchored in the real-time pedagogical processes of the course itself.

Before designing the course structure, a review of existing literature on architectural portfolios was conducted. It revealed a marked absence of scholarly depth. Most available resources as cited before were in the form of guidelines or professional handbooks, focusing on portfolio formats, layouts, and visual hierarchy. Few texts addressed the theoretical, epistemological, or pedagogical dimensions of portfolio-making. The majority presented the portfolio as a showcase for competence, not as a reflective space for learning, self-assessment, or intellectual positioning.

Given that the elective would span a full semester (14 weeks), the course team decided it must be grounded in a theoretical framework capable of supporting deeper discourse. Donald Schön's theory of reflective practice was selected as the primary conceptual anchor. The students were already familiar with Schön's basic distinction between reflection-in-action and reflection-on-action—having encountered these ideas in earlier design studios. However, they had never been asked to apply these concepts to the act of making a portfolio.

The course began with several weeks of structured readings, discussions, and interpretive seminars centered on Schön's work. Students read from The Reflective Practitioner and debated the differences between reflection-in-action (real-time responsiveness during design) and reflection-on-action (retrospective analysis after action is complete). The class engaged in group conversations about how these two forms of reflection manifest in architectural thinking—both within and beyond

the studio context. A shift occurred when students were prompted to consider: What would it mean to construct a portfolio that reflects both of these modes of thinking?

To capture their evolving conceptualizations, students were assigned an essay in the third week. This assignment was formally introduced through a handout, which positioned the essay not only as a written exercise but as a conceptual and reflective milestone within the course. The handout invited students to critically engage with Schön's theory and explore how it might inform the structure, content, and meaning of architectural portfolios. It included guiding questions, theoretical framing, and instructions on how to draw connections between reflection-in-action and reflection-on-action within their past design experiences.

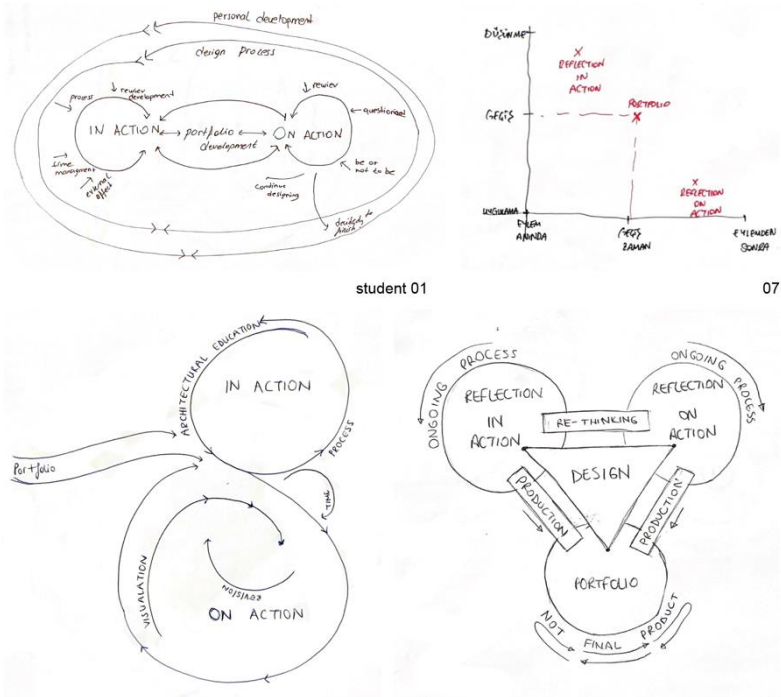


Figure 1: Selected student-generated diagrams interpreting Donald Schön's reflective framework in relation to portfolio development.

The essays became a key pedagogical turning point—not only documenting student interpretations, but also revealing the extent to which they were able to connect theoretical reflection to the practice of design representation. As students deepened their engagement with Schön's theory, an unexpected pattern emerged: many began to visualize the relationship between reflection-in-action and reflection-on-action through self-initiated diagrams. What initially appeared as

spontaneous sketching evolved into a structured classroom exercise—transformed into a collective mind-mapping session. Rather than seeking a consensus model or theoretical finality, the aim was to use diagramming as a catalyst for internalizing reflection as a dynamic and iterative construct. These visualizations functioned less as definitive mappings and more as reflective prompts—supporting students in identifying where and how reflective processes intersected with their portfolio development. The diagrams thus became epistemic tools: not to finalize Schön's framework, but to leverage it as a scaffolding for personal meaning-making. A selection of these mindmaps, generated during this formative phase, is presented as Figure 1.

Five dominant themes emerged from the students' writing and diagraming—together, they formed a foundation for understanding how students perceive reflection, portfolio-making, and their architectural development when provided with theoretical scaffolding.

STUDENT REFLECTIONS

(1) Understanding reflection-in-action and on-action as processual learning was a central insight shared by most students, who demonstrated a sophisticated grasp of Schön's key concepts. Reflection-in-action was typically described through examples of mid-process decision-making—particularly when students adapted their design moves in response to site conditions, material limitations, or feedback from studio instructors. Reflection-on-action, in contrast, was often situated in jury evaluations, post-presentation critiques, or end-of-semester assessments. Some students described how these reflections accumulated across multiple semesters, informing not only project outcomes but also personal design ethos.

> "When a model fails, and you change your strategy on the spot, that's in-action. But when you write about why it failed later, and what you learned, that's on-action." — Student 13

Interestingly, while the portfolio itself is often positioned as an instrument of reflection-on-action (as the course title), students began to perceive the act of constructing the portfolio within the studio culture as a reflection-in-action process in its own right—marked by real-time decisions, evolving intentions, and embedded critique moments.

(2) Reframing the portfolio as a reflective space marked one of the most significant conceptual shifts in student thinking. Students began to challenge the traditional view of the portfolio as a curated exhibition of final works. Instead, they proposed that a portfolio could be a discursive

space—a platform for documenting learning, capturing design evolution, and expressing personal and academic growth.

> "A portfolio should not be a folder of finished projects. It should tell the story of how I think, how I revise, how I design." — Student 5

This repositioning transformed portfolio-making from a superficial task into a meaningful reflective practice. It also foregrounded the value of process representation, rather than only product display.

(3) Articulating personal and institutional presence emerged as another prominent theme. Students reflected that their earlier portfolios failed to show who they were as learners or how their design processes were shaped by AGÜ's studio culture, jury traditions, or educational vision.

> "I had no photo of myself presenting, no mention of the studio, no reference to the feedback I received. My portfolio looked like it came from nowhere." — Student 3

This awareness was closely aligned with two of the binary metrics introduced later in the course: personal/impersonal and institutional/noninstitutional. The lack of these presences in earlier portfolios revealed a missed opportunity to situate the work within a learning community.

(4) Confronting the emotional and structural barriers to reflection was a common point of vulnerability among students. These included emotional discomfort in revisiting failed ideas, time constraints during busy studio schedules, and a general unfamiliarity with articulating learning in written or narrative form. Some students admitted to avoiding reflection because it made them feel vulnerable or exposed.

> "When I look back at some designs, I just feel embarrassed. It's easier to move on than to think about what went wrong." — Student 7

Despite these challenges, several students proposed self-directed strategies to build reflection into their workflow. These included keeping informal design journals, adding "commentary pages" to portfolios, and discussing process openly with peers.

(5) Seeing the portfolio as a site of identity construction was perhaps the most transformative realization for many students. As they engaged with reflective theory, they began to see their portfolio as a space to articulate their unique position within the architectural discipline.

> "My portfolio is not just about what I can do. It's about what I care about, what I question, what kind of architect I want to be." — Student 12

This idea—that portfolios are not only products of education, but also producers of identity—resonated strongly across the essays. Students began to use the portfolio as a tool to navigate between institutional values, personal aspirations, and disciplinary discourses.

PORTFOLIO METRICS

Toward a metrics-based reflective pedagogy, the essay phase concluded with an in-class synthesis of student insights and challenges. These reflections were then translated into a preliminary evaluation framework composed of binary metrics—each derived from the thematic patterns observed during in-class discussions and the student essays. Rather than offering a checklist or grading rubric, this framework aimed to open up reflective space for students to assess their own portfolio decisions and articulate their intentions. Thus, the early stages of the course not only generated student-driven reflections but also laid the groundwork for developing a reflective evaluation model rooted in the realities of studio culture, educational identity, and critical engagement.

The evaluation framework developed was not designed as a conventional grading tool, but as a reflective and dialogic device grounded in student discourse. Through essays, in-class conversations, and iterative peer reviews, ten binary metrics were distilled—each representing a key dimension of how architectural portfolios may function as more than curated visuals. The goal was to scaffold self-assessment and formative critique, providing students and instructors alike with a shared language to articulate representational intentions, learning trajectories, and institutional alignment.

These ten metrics, summarized in Table 1, span conceptual continuums such as personal/impersonal, process/product-oriented, and institutional/noninstitutional. Each binary invites students to interrogate a specific dimension of authorship and learning. Audience & Purpose asks whether the portfolio communicates with intentionality toward external stakeholders. Educational Context considers whether the work is situated within studio culture or appears detached from its academic setting. Personal Involvement invites the student's voice, narrative, or presence to become visible within the portfolio structure. Processual Integrity examines the coherence and sequencing of design learning across semesters, while Procedural Reflection emphasizes the inclusion

of process-based content such as sketches, iterations, and design failures.

The remaining metrics continue to open reflective avenues. Reflective Depth differentiates between descriptive documentation and critical interpretation, encouraging students to justify, analyze, and evaluate their design decisions. Competency Focus highlights the balance between technical skills and cognitive development, while Learning Alignment addresses the internalization of curricular goals across projects. Media Approach expands representational modalities beyond static visuals, and Multi-dimensional Engagement pushes the portfolio toward interdisciplinary synthesis and intellectual identity.

Together, these metrics reframe the portfolio not as a static compilation but as an active space of meaning-making. They supported students in recognizing not only what they had done, but how and why they had done it—and in many cases, how they might do it differently in the future. More importantly, the metrics offered a structure for students to take ownership of their narratives and to position themselves as reflective designers rather than visual producers.

The next phase of the course engaged students in interpreting, prioritizing, and applying these metrics through structured activities introduced via additional in-class workshop activities and assignments. These exercises blended self-evaluation and peer review, enabling students to develop personalized trajectories while contributing to a collective understanding of reflective portfolio culture.

Table 1: Binary metrics for reflective portfolio evaluation, designed to support critical analysis and reflection

(1) Audience & Purpose	Self-referential (0/10)	The portfolio functions as a personal archive without a clear adaptation for external audiences, lacking consideration for how the work is communicated to different stakeholders.
	Audience-aware (10/10)	The portfolio considers its intended audience (e.g., academic, professional, competition, juries) and adapts its structure and representation accordingly, demonstrating clear external engagement.
(2) Educational Context	Non-contextual	The portfolio presents the work in an isolated manner, detached from its institutional and educational context,

		without clear links to the pedagogical environment.
	Contextual	The portfolio integrates institutional identity, pedagogical approach, and studio culture through visual references to exhibitions, juries, and the use of studio spaces and fabrication facilities, demonstrating a connection to its educational framework.
(3) Personal Involvement	Impersonal	The portfolio lacks personal engagement, presenting projects without reflections or individualized narratives, making it difficult to understand the student's journey and academic growth.
	Personal	The portfolio includes self-representative elements, such as reflections on design philosophy, project narratives, and images of the student engaging in critiques or studio work, reinforcing an academic identity.
(4) Processual Integrity	Selective	The portfolio presents a curated selection of projects without fully conveying the evolution and iterative nature of the student's design journey.
	Comprehensive	The portfolio structures all of the projects in a way that demonstrates a cohesive and evolving learning process, showing continuity in architectural development.
(5) Procedural Reflection	Product-oriented	The portfolio focuses primarily on final design outcomes, omitting the decision-making processes and methodological evolution behind the projects.
	Process-oriented	The portfolio highlights the iterative nature of design, showcasing concept development, research insights, and experimentation, making the design process visible.
(6) Reflective Depth	Descriptive	The portfolio presents a surface-level collection of completed works without deeper evaluation, analytical reasoning, or theoretical engagement.
	Critical	The portfolio demonstrates deep reflective engagement, incorporating critical discussions on decision-making, theoretical perspectives, and design methodologies.

(7) Competency Focus	Technical-professional	The portfolio primarily showcases technical proficiency, including drafting skills, construction details, material knowledge, and software capabilities, with limited intellectual engagement.
	Cognitive-academic	The portfolio emphasizes conceptual competencies such as critical thinking, analytical depth, research-driven inquiry, and creative exploration.
(8) Learning Alignment	Unstructured	The portfolio lacks a clear representation of individual competencies or alignment with educational goals, making it difficult to assess learning outcomes of the educational program.
	Structured	The portfolio clearly articulates the student's competencies and aligns with institutional and pedagogical learning objectives, reflecting a structured learning progression.
(9) Media Approach	Conventional	The portfolio is presented as a traditional print-based or static digital format (such as a PDF or slideshow) without interactive elements.
	Interactive	The portfolio leverages interactive and alternative digital mediums such as animations, hyperlinks, or multimedia content to enhance engagement and accessibility.
(10) Multi-dimensional Engagement	Isolated	The portfolio remains narrowly focused on architecture without showcasing broader intellectual and creative connections to other fields.
	Interdisciplinary	The portfolio demonstrates the student's ability to integrate diverse interests, skills, and knowledge beyond architecture, illustrating how these domains contribute to their architectural journey.

REFLECTIVE SHIFT

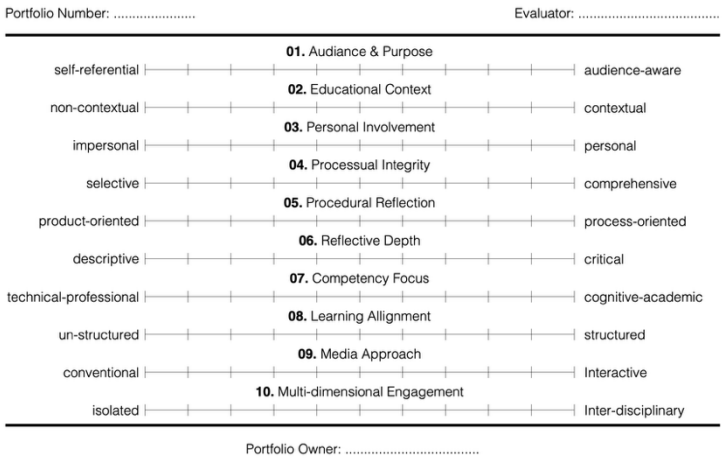


Figure 2: Evaluation sheet provided to students for binary metric-based assessment of both precedent and self-portfolios.

As the evaluation framework matured into a pedagogical tool, the course shifted from collective theorization toward individual application. Following the development of ten binary evaluation metrics, the teaching team designed a structured evaluation sheet to facilitate comparative self-assessment (Figure 2). This evaluation sheet was introduced as part of subsequent two handouts, where students were guided to reflect on how the metrics might apply to both exemplary portfolios and their own initial submissions. Each metric was presented as a spectrum between two contrasting poles—for example, from "self-referential" to "audience-aware," or from "descriptive" to "critical." The sheet allowed for a 0–10 score marking along each spectrum and encouraged students to position portfolios not in terms of quality judgments but as reflective indicators of intent, identity, and structure.

The evaluation sheet was used in two key activities:

- Peer Evaluation Exercise: Each student selected an example of what they personally considered a "good" architectural portfolio—either drawn from published sources, alumni, or public showcases—and assessed it using the metric sheet.
- Self-Evaluation Exercise: Each student then applied the same sheet to their own portfolio expectations for the end of the semester. This invited a direct comparison between aspirational reference points and personal expectation/realizations.

The resulting datasets were collected and analyzed by the instructors. Scores were entered into a centralized spreadsheet, and radar charts were generated for each student to visualize the divergence between peer samples (orange) and idealized/expected (blue) portfolio positions (Figure 3). This visual juxtaposition created a powerful reflective moment. The charts offered an immediate and individualized diagnostic of design thinking, helping students to identify not only what their portfolios lacked but also where their own values and intentions might have been underrepresented or miscommunicated.

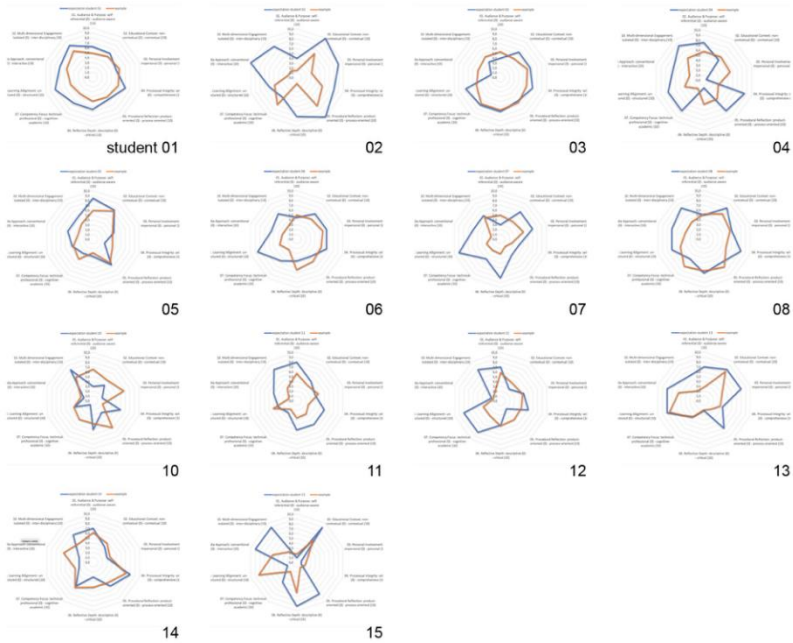


Figure 3: Individual radar chart visualizing the divergence between each student's existing portfolio and their aspirational portfolio model across ten metrics.

Beyond individual analysis, the same data was used to produce an aggregated radar chart of class-wide trends (Figure 4). This composite visualization captured the average scores across all students' evaluations, offering a broader view of portfolio culture in the studio. Rather than exposing divergence, the analysis revealed a general convergence toward idealized portfolio expectations. The exercise indicated that students' self-assessments evolved in alignment with the course's pedagogical values, pointing to a collective shift in perception and ambition. Across the studio, portfolio thinking expanded—moving beyond initial assumptions and reflecting deeper engagement with

reflective, process-based, and audience-aware modes of representation.



Figure 4: Aggregated radar chart reflecting class-wide patterns and average metric positions, highlighting collective gaps and strengths in reflective portfolio practices.

These diagrams functioned as more than visual summaries—they served as reflective maps that allowed students to trace their learning trajectories. In studio discussions following the radar chart distribution, students engaged in group critique sessions where they used their diagrams to articulate goals for portfolio revision. The charts made gaps visible, but more importantly, they made them discussable.

From an instructional standpoint, the visualizations also supported meta-level pedagogical analysis. Instructors could now observe where collective weaknesses clustered, which metrics generated confusion, and how students' definitions of "good portfolios" evolved under structured reflection. The metric-based evaluation did not seek to reduce portfolios to numbers, but to elevate reflection to a shared language—where students and instructors could co-articulate intentions, dilemmas, and pathways forward.

This phase of the course successfully transformed student reflections into a structured but flexible framework that scaffolded the next stages of development. In the following weeks, students would begin the revision process of their portfolios, using both their evaluation scores and radar diagrams as personal compasses. Each revision strategy was now

grounded in student-authored critique, rather than externally imposed standards.

CONCLUSION

This study set out to explore a deceptively simple question: What would a portfolio course look like if it were designed not as a showcase-building exercise, but as a learning environment in itself? Framed within an architecture program that already prioritizes reflective studio practices, the elective Reflective Portfolio on Action aimed to bridge a curricular gap—creating space for students to internalize, articulate, and curate their own design learning trajectories.

Through theoretical grounding in Donald Schön's reflective practice, a critical essay phase, student-led diagrams, in-class discussions, and a collaboratively generated evaluation framework, the course unfolded as both a pedagogical experiment and a research process. Rather than defining the portfolio from the outset, the course posed it as an evolving question—What is a portfolio for? Who is it for? How can it reflect not just outcomes, but thinking, identity, and growth?

The course thus responded to several key tensions in architectural education. First, it challenged the assumption that portfolios are merely visual tools for employment or assessment. Students began to understand them as spaces of reflective authorship—where design process, educational context, and personal voice could be made visible. Second, it reframed assessment not as a top-down judgment but as a co-constructed, dialogic process. The ten-metric evaluation framework—emerging directly from student writing—offered a scaffold for critical review, self-assessment, and peer feedback. It demonstrated that assessment tools can grow organically from student experience rather than being externally imposed.

In doing so, the course addressed broader pedagogical questions raised in the introduction: Can portfolio-making itself be a form of design-based research? Can assessment become a site of reflective transformation? Can students participate in shaping the criteria by which they are evaluated? This project suggests that the answer to all three is yes—if students are positioned not just as recipients of education, but as active co-authors of its structure and content.

The course also revealed that portfolios are not neutral: they reflect institutional values, pedagogical intentions, and disciplinary assumptions. When students are given the tools to critique and recompose those narratives, they begin to claim authorship over their architectural identity. The resulting radar mappings showed tangible

shifts in how students conceptualized their portfolios—beyond technical demonstration toward intellectual positioning.

Ultimately, this elective served not only as a site of reflection on portfolio practice, but as a site of reflection through portfolio practice. It demonstrated that portfolio-making, when framed as a reflective, research-based, and collaborative endeavor, can become a powerful pedagogical space. As architectural education continues to grapple with the balance between technical skills, critical thinking, and professional identity, this study offers a scalable, self-referential model that others may adapt, critique, and build upon.

While the course continued with the development and submission of final portfolios, this study deliberately focuses on the first five weeks, emphasizing the formative stages of reflection, framework construction, and expectation mapping. The evaluation of final portfolios lies beyond the scope of this paper, as the study aims to foreground processual and conceptual shifts rather than assess final outcomes.

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CARE IN THE CITY! AN EXPERIENCE OF CARE-ORIENTED ARCHITECTURAL DESIGN STUDIO

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ABSTRACT

Traditionally confined to the scale of the single building, architectural design has often neglected broader social, urban, and environmental issues. This paper argues that the priorities of the architectural profession need to be re-evaluated and that architecture must adopt care as both a practical approach and an ethical framework for addressing the challenges arising from contemporary crises. The paper is based on the premise that integrating a care perspective into architectural education is essential for cultivating socially and environmentally responsible architects toward both humanity and the planet.

This paper hypothesizes that incorporating the theme of care into an architectural design studio, a fundamental component of architectural education, can equip future architects with multidimensional sensitivities to crises beyond the discipline from the early stages of their training. To this end, an experimental studio titled "Care in the City!" was conducted as part of the MIM 2505 Architectural Design I course during the Fall semester of the 2023–2024 academic year at Dokuz Eylül University's Department of Architecture. A qualitative method was employed to analyze how students conceptualized the theme of care and related it to practices of built environment production in urban contexts. The significance of this paper lies in the limited research on integrating care and the ethics of care into architectural education. The findings indicate that such integration enables students to develop design approaches that move beyond unidimensional responses to discipline-specific problems while fostering a multidimensional sensitivity to broader social and environmental concerns often regarded as external to architecture.

Keywords: Social and Environmental Responsibilities, Care, Ethics of Care, Architectural Design Studio, İzmir

INTRODUCTION

In the contemporary era of crises, the disadvantageous effects of the production of the built environment in these crises have become more visible; therefore, it is important that the priorities of the architectural profession are re-evaluated and architecture gains a perspective that cares for the challenges arising from these crises. Conventionally, the production of the built environment offers solutions that are limited in scope, with a focus on specific problems at the scale of the single building and tends to ignore urban and environmental issues that are not directly related to the scale of the building. Problems of different scales and dimensions, such as poverty, employment issues, social segregation, climate change, water resource pollution, resource scarcity and inequalities in access to safe food, have not been accorded the requisite importance on the agenda of architectural designers and practitioners. The primary focus of this research is to problematize the situation that the responsibilities of architects are confined to the scale of a single building, and that social and environmental problems outside the discipline of architecture are not accorded sufficient importance in architectural design processes. The intricate challenges confronting the planet and humanity in the present age underscore the urgency of prioritising the necessity of care for the planet as a matter of utmost importance, thereby situating care as a pivotal perspective for the domains of architecture and urbanism. Recent scholarship across philosophy, feminist theory, and architectural studies suggests that care offers a critical lens for addressing these challenges. The concept of care is gaining increasing attention across various fields, including architecture, where it is recognized as both a practical approach and an ethical framework, suggesting that it offers a critical lens for addressing these challenges.

The transition of care from the confines of the private sphere into public debate became possible when feminist theorists positioned it as a subject of moral philosophy. Feminist care ethics emphasizes relational, contextual, and interdependent responsibilities (Gilligan, 1982; Noddings, 1984; Tronto, 1993). Today, care is understood in its broadest sense as the practice of protecting and sustaining humanity, the natural environment, and the shared future of the planet (Fisher and Tronto, 1990). Scholars such as Elke Krasny (2019) and Brittany Utting (2024) have further situated architecture within practices of care, repair, and restoration as essential to sustaining the planet.

Yet despite this growing body of theory, the integration of care into architectural design education remains limited. This research hypothesizes that the incorporation of the theme of care into an

architectural design studio, as a fundamental component of architectural education, can equip future architects with multidimensional sensitivities to crises beyond the field of architecture from the earliest stages of their training. To this end, an experimental studio focusing on the theme "Care in the City!" was conducted as part of the MIM 2505 Architectural Design I course during the Fall semester of the 2023–2024 academic year at the Department of Architecture, Dokuz Eylül University. Through qualitative analysis of student projects, the paper investigates how care can be conceptualized and operationalized in architectural design education.

LINKING CONCEPT OF CARE WITH ARCHITECTURE URBAN DESIGN

Architecture and urban design practices can be positioned as forms of giving and receiving care. Remembering the definition of Berenice Fisher and Joan Tronto shows that many everyday actions and professional practices can be understood as forms of care. According to the foundational contributions of Fisher and Tronto, care can be defined as the actions taken to protect and repair our world so that we can live better lives (1990, p. 40). Tronto states that they deliberately kept this definition broad, with the aim of showing that care is related to every aspect of our lives (2019, p. 29). In a similar vein to Fisher and Tronto's broad and normative definition of care, Elke Krasny positions architecture as a form of care, stating that architecture is about everything that is necessary for people to live as well as possible (2019, p. 33). This broad understanding provides a perspective for discussing architecture and urban design not only as technical or aesthetic practices, but as practices of care.

Architectural care practices, unlike standard construction activities, can be described as responsive spatial interventions that address neglected needs, carrying approaches of repair, preservation, maintenance, and everyday reproduction, and they can also address issues such as resource use, local production, community participation, accessibility, as well as the crisis of social disconnection. For instance, improving a building at the level of material and detail contributes to the conservation of resources and responds to the global ecological crisis; the same building, when transformed and used in a participatory way, may strengthen solidarity at the neighborhood scale. Similarly, architectural care practices such as creating or preserving community gardens not only provide a local solution to inequalities in access to food but also reinforce social relations and contribute to community building. These examples illustrate how the notion of care is directly linked to programmatic and functional decisions in architectural design studios.

Until the second half of the twentieth century, care was studied mainly through private life and thus in the context of the private sphere (domestic and family care, care institutions). Since the 1970s, however, feminist theorists have provided a theoretical foundation for care in moral philosophy. The ethics of care, a concept that has witnessed a rise in academic discourse since the 1980s, promotes the capacity to care as good morality. In contrast to the conception of universal moral laws, this ethical approach emphasizes the adoption of moral behaviors that are contingent upon specific situations, relational and interdependent contexts (Gilligan, 1982; Noddings, 1984).

The subject of care in architecture has also long been tied to the private sphere, most often associated with domestic care in housing or semi-public institutional care settings such as nurseries and nursing homes. Domestic care labor, predominantly carried by women, has been examined by feminist architects and theorists; the design and spatial qualities of semi-public institutional care buildings, such as nurseries, educational facilities, nursing homes, hospitals, clinics, and palliative care units, have been discussed in relation to health, well-being, and their distribution in the city. In the context of feminist care ethics, care practices that have traditionally been undervalued have been brought into the realm of public and political discourse. Joan Tronto, by moving care beyond the private sphere, proposes in *Moral Boundaries* (1993) and *Caring Democracy* (2013) a "caring democracy" centered on social justice and inclusivity. In later works she develops this perspective, arguing that the care need is too widespread to be filled by individual efforts, and emphasizes that democratic politics and public institutions must be designed to enable people to care for one another (Tronto, 2015). Joan Tronto's perspective on care ethics thus resonates strongly with egalitarian, inclusive, and participatory approaches in architecture and urban design.

In contemporary architectural and urban studies literature, care has increasingly been reframed from a phenomenon confined to the private sphere into a matter of public concern. According to Brittany Utting, an architecture of care challenges the rigid boundaries of private property in order to create spaces for sharing and collaboration (Utting, 2024, p. 4). Utting further argues that the scope of an architecture of care extends across a spectrum from the most intimate scale of bodily care to planetary issues, thereby revealing possibilities for engaging the public by transcending the limits of private ownership (Utting, 2024, pp. 4–5). Fitz and Krasny highlight the critical importance of contributing to the discourse of care from the fields of architecture and urbanism in order to sustain the life of the planet (2019, p. 11). Taken together, these perspectives suggest that integrating care into architectural and urban

design is not only a matter of function or form, but a broader ethical and political project that links everyday repair and maintenance to planetary survival.

METHOD

A qualitative research method is employed to analyze how students conceptualized the theme of care and related it to build environment production practices in urban contexts. This analysis is based on the examination of students' final project presentations at final jury of the term, which embody their learning outcomes after a structured pedagogical process that included short assignments, selected readings, discussions and lectures on the theme of care.

At the beginning of the semester, 21 students enrolled in the course; by the end of the semester, 19 students submitted final projects, and 17 successfully completed the course. For the purposes of this study, the projects of 6 successful students were included in the analysis. The remaining 11 projects, while meeting the Bologna-based performance criteria of the course, were excluded because they did not sufficiently integrate the central theme of "care." Of the six selected projects, four were developed on the Bostanlı Fishing Shelter site, while two were carried out on the İnciraltı site, where students presented their spatial proposals.

STUDIO PROCESS AND PEDAGOGICAL FRAMEWORK

In the Fall semester of the 2023–2024 academic year, an experimental studio focusing on the theme "Care in the City!" was conducted within the scope of the course MIM 2505 Architectural Design I at the Department of Architecture, Dokuz Eylül University. The studio was designed not only to meet the course requirements through a semester-long project but also to raise students' awareness of the care perspective in addressing urban challenges. In this project, students were tasked with developing an architectural program within an approximate impact area of 2,500 m^3, comprising 400 m^2 of enclosed space including 30% circulation. After analyzing the site, they were asked to formulate the program and scenario in relation to the theme of care. In the first five weeks of the 14-week term, the conceptual phase of the projects was completed. During this period, students were encouraged to reflect on the meaning of care, to examine notions of repair and maintenance within urban, social, and environmental contexts, and to consolidate their understanding through short readings, exercises, and discussions on care and architecture. In this context, students were assigned the following readings, which were subsequently

discussed in class: Shannon Mattern, *Maintenance and Care* (2018); Ayşen Ciravoğlu, *Ters Köşe Ekoloji* (2022); and Joan Tronto, *Caring Architecture* (2019).

Moreover, a series of exercises were carried out to further engage students with the concept of care. Assignment 01: Tell Your Care Story! (*Bakım öykünü anlat!*) asked students to narrate the care they provided to a living being or an object and to translate these experiences into architectural representation techniques. Assignment 02: Section(al) Repair@Pera (*kesit(T)amir_*section(al)Repair@Pera) invited them to propose spatial care strategies through the section of an existing vacant building in Pera. Assignment 03: The Entanglements of a Thing in the City (*kentte bir ŞEYin dolanıklıkları*) required students to map the concrete and abstract relations of an object with urban components to highlight the relational and reciprocal nature of urban elements. Finally, Assignment 04: Your Entanglements in the City (*kentte SENin dolanıklıkların*) asked them to document their own concrete and abstract relations with the city, thereby uncovering how care operates as a relational and interdependent practice.

The overarching objective of this course, as delineated in the curriculum, is to establish fundamental spatial relationships through the design of a low-rise single building and its surrounding environment. This objective is pursued by means of the organization of private-public space relations and enclosed-semi-open-open spaces within a given natural or built environment (DEÜ Bilgi Paketi Kataloğu, 2023). In alignment with this objective, two project sites exhibiting analogous characteristics were identified along the İzmir Inner Gulf coastline: One in İnciraltı and the other in Bostanlı. Students were tasked with selecting one of these sites and developing care-oriented spatial programs, integrating them into their final projects through low-rise building design and environmental planning. Following the conceptual phase, the project development process commenced with the analysis stage. This phase, spanning a duration of one week, entailed students meticulously examining the contextual conditions and challenges inherent to their project site, with the objective of ascertaining the specific types of spatial care that were deemed requisite. The ideas and care-oriented approaches developed by students were subsequently refined through concept critiques, interim juries, and one-on-one design critiques, culminating in the finalization of their projects.

ANALYSIS OF STUDENT PROJECTS THROUGH THE LENSES OF CARE THEMES

A thorough analysis of student projects reveals that the designs exhibit varying degrees of care-oriented sensitivity towards multiple aspects. Drawing on literature situated at the intersection of care, architecture, and urban design, and by examining the care-related behaviors and tendencies manifested in student projects, four overarching themes of care were identified. The thematic framework encompasses "care through building programs", "care for non-human entities", "care through construction systems and building material choices", and "care as infrastructure". Each student project demonstrates at least a sensitivity that aligns with one or more of these themes.

Themes of Care

Care through Building Programs: In architectural design and design studios, the organization of building programs and functions can be understood as a matter of care that operates not only at the individual level but also at social and spatial scales. According to Gabauer and Lebuhn (2022, p. 167), cities and neighborhoods are sites where care relations and arrangements emerge through spatial supports such as social services, parks, educational facilities, and resources for marginalized groups. This perspective requires architectural programs to respond not only to functional needs but also to networks of social care. Brittany Utting (2024, p. 4) expands this discussion by noting that an architecture of care challenges the rigid boundaries of private property in order to create spaces of sharing and cooperation, and by rethinking the relations of buildings with land, labor, resources, and life forms.

Care for Non-Human Entities: In architectural design and design studios, care is increasingly being reconsidered not only as a response to human needs but also as encompassing non-human entities. Recent literature on the ethics of care provides a posthumanist ethical framework that extends responsibility beyond human (de la Bellacasa, 2017). According to de la Bellacasa (2017, p. 13), care is not merely a human moral contract, but a multi-actor relation embedded in interdependencies with soil, air, water, and other life forms. This perspective calls for design approaches that acknowledge a broader ontological field and integrate ecological concerns, which are often marginalized in conventional architectural practices, into the core of spatial decision-making.

Care through Construction Systems and Material Choices: In architectural design and design studios, construction systems and material choices should be addressed not only in terms of technical performance but also through the lens of care. Joan Tronto (2019, p. 28)

stresses that for a fragmented planet what is needed is an "architecture of care" that assumes shared responsibility for the repair, preservation, and maintenance of all forms of life. For her, feminist care ethics requires thinking of buildings not as isolated objects but in relation to flora, fauna, and temporal factors. For instance, in studio settings, students experimenting with recycled materials can contribute to ecological conservation, while the use of local materials can strengthen local economies and generate employment, thereby transforming care into a tangible design practice. In this way, construction systems and materials can be framed as part of a relational network of repair and maintenance rather than as purely technical choices.

Care as Infrastructure: In architectural design and design studios, infrastructural care should be understood not merely as ensuring the continuity of technical services but as an approach that sustains social bonds and engages with fragile life-support systems. Shannon Mattern (2018) highlights that infrastructures are not only systems of service provision but also crucial social connectors, extending care across multiple scales. Bonnie Mann (2002, pp. 348–369) emphasizes that infrastructures such as air quality and temperature regulation are inseparable from the earth's fragile life-support systems. Juliet Davis (2022, p. 17) further suggests that urban design approaches attentive to these systems should be understood as care practices that foreground interdependence rather than autonomy. Concrete examples include rainwater harvesting systems, urban grounds that enhance accessibility and continuity, green infrastructures that support well-being, or local sharing networks for education and skills. These illustrate how infrastructural design decisions can embody care both ecologically and socially, inviting studios to reconceptualize infrastructure not as invisible technical networks but as relational spaces where care is produced and sustained.

Analysis of Student Projects

Student Project 1 - at Bostanlı (Fishing Port)

Care through Building Programs: This project was designed to enhance the public use potential of the breakwater at Bostanlı Fishing Port by situating the intervention near its tip. The proposal offered spaces that allowed for multiple usage scenarios and was envisioned to function as an educational and social space for both fishermen and urban residents from diverse socio-cultural backgrounds. The building included workshops and classrooms for educational activities, a repair shop where fishermen maintained their boats, and storage areas for the necessary equipment. Moreover, the design's open-ended approach

allowed it to expand over time in response to emerging social and spatial care needs.

Care for Non-Human Entities: With ecological sensitivities such as carbon emissions and water use in mind, a timber-frame structural system was selected. Although the project was located on reclaimed land, ground intervention was kept to a minimum: the building's contact with the soil was limited to the points where timber columns were mounted, thereby minimizing the footprint.

Care through Construction Systems and Material Choices: Observing that the existing fishing port shelters built by fishermen combined skeletal structures with façades made from available materials, the student proposed a timber-frame structural system consistent with the local building language. The site's spatial order was abstracted into a 6x6 meter grid to place the structure along the breakwater. By studying local fishermen's shelters, the student noted the use of fabrics, fishing nets, and timber planks, often repurposed from waste. This inspired a flexible façade principle, which allowed users to adapt façades seasonally or functionally while also incorporating accessible waste materials. This approach was evaluated as environmentally responsive, fostering user ownership and attachment, and enhancing spatial experience as a practice of care.

Student Project 2 - at Bostanlı (Fishing Port)

Care through Building Programs: To activate the breakwater in Bostanlı as a more dynamic public space and strengthen residents' relationship with the coastline, the program included multi-functional spaces such as a sea bath, a diving school, and a café. These functions addressed different age and interest groups, generated opportunities for social encounters, and embedded care in everyday urban life.

Care for Non-Human Entities: The project proposed integrating special seaweed species that were vital in the marine food chain and contributed oxygen through photosynthesis. Positioned within the proposed sea bath area, the seaweed was intended to mitigate water pollution, initiating a natural process of care and purification that could transform the area into a healthy and swimmable coastal zone.

Care as Infrastructure: While offering educational functions through the diving school and recreational functions through the sea bath, the project also created a communal meeting point at the underutilized tip of the breakwater, thereby enhancing urban life quality. Furthermore, the proliferation of seaweed along the breakwater was envisioned as an ecological infrastructural intervention against marine pollution. Thus,

the project functioned as a multi-layered infrastructure of care—physical, social, pedagogical, and ecological.

Student Project 3 - at Bostanlı (Fishing Port)

Care through Building Programs: This project proposed a "repair café" as a way of cultivating a culture of repair, thereby reducing consumption and conserving resources. It also included a closed boat workshop to improve conditions for existing repair and maintenance activities at the fishing shelter. In doing so, the project created not only a technical facility but also a public meeting place, reinforcing social interactions between the fishing community and the urban waterfront.

Care for Non-Human Entities: The repair-oriented program was assessed as contributing indirectly to the well-being of non-human entities by reducing consumption and waste, thus supporting ecological processes. The student argued that spatial interventions fostering repair culture could yield long-term positive impacts on environmental recovery.

Care as Infrastructure: The landscape design included a skate park as additional public infrastructure. At the same time, the repair café was designed not only with the necessary technical infrastructure but also as a social infrastructure that fostered gathering and exchange. The project thus materialized infrastructural care in both technical and social dimensions.

Student Project 4- at Bostanlı (Fishing Port)

Care through Building Programs: The student identified uncontrolled waste discharge from boats as a major source of unpleasant odors in the area and proposed a waste reception facility designed for small boats. The facility included separate tanks for bilge oil and general boat waste. While waiting to unload their waste, fishermen could use adjacent public seating and gathering areas. Additionally, a space was proposed where fishermen could cook and serve their catch to residents, encouraging social interaction and providing economic support. A rooftop garden was envisioned to produce vegetables and herbs for food preparation, reducing environmental costs associated with transport.

Care for Non-Human Entities: By preventing pollutants from entering the sea, the waste reception facility was conceived as a spatial practice of environmental care, contributing to the preservation of marine ecosystems.

Care as Infrastructure: Designed as a piece of urban infrastructure, the project integrated multiple dimensions of care. With waste management facilities, food production spaces, social areas, and storage units, it functioned as a holistic infrastructure of ecological, economic, and social care.

Student Project 5 - at İnciraltı

Care through Building Programs: Conducted as part of an architectural design studio, this project aimed to raise awareness of the climate and environmental crisis. The program included spaces for exhibitions, workshops, and a café. Designed as a bridge across the Ilıca Stream, the project invited residents to engage in ecological discussions and activities such as seminars and exhibitions.

Care for Non-Human Entities: The project's design intent was to raise ecological awareness and foster sensitivity not only to human needs but also to non-human entities and ecosystems.

Care through Construction Systems and Material Choices: All building components except for the structural system were proposed to be made of recycled materials to minimize waste. For example, semi-open floor areas were designed with recycled rubber, while façades predominantly used recycled glass.

Care as Infrastructure: As a bridge, the project enhanced continuity and accessibility across the Ilıca Stream, functioning as infrastructural care for urban residents.

Student Project 6 - at İnciraltı

Care through Building Programs: Located on a site already used by canoeists and the public, the project included a canoe training facility, storage for equipment, a public café, and service areas. The program aimed to promote canoe sports while supporting the physical and mental well-being of users. By meeting both the practical needs of canoeists and providing training opportunities for newcomers, the project fostered community-based learning. The café, designed as a public space, further encouraged social encounters and continuity of social care.

Care through Construction Systems and Material Choices: Timber was selected for semi-open spaces due to its recyclability, light weight, and labor efficiency during construction, aligning with a care-based approach to resource use.

Care as Infrastructure: In addition to offering sport and educational infrastructure, the project improved shoreline accessibility through path and sand adjustments, enhancing public space quality and embedding care at the socio-spatial level.

The analyses of the student projects discussed above are summarized in Table 1.

Table 1. Overview of the student projects analyzed according to care themes.

Student Projects	Location	Care Category	Design Decision	Care Logic and Impact
S1	Bostanlı / Fishing Port	Building Program	Workshop+Classroom+Repair Shop+Storage	By combining education and production, it strengthens community capacity, while the flexible program adapts to emerging care needs.
		Non-Human Entities	Timber Frame+ Point Foundation	It minimizes intervention in soil and coastal ecosystems while facilitating reuse and recycling
		Construction System/Material	6x6 grid; Local/Recycled Material	It minimizes intervention in soil and coastal ecosystems while facilitating reuse and recycling
		Infrastructural	—	—
S2	Bostanlı / Fishing Port	Building Program	Sea Bath+ Diving School+ Café	A multi-functional public program brings together different communities, providing a ground for the everyday social practices of care while fostering health, well-being, and community cohesion
		Non-Human Entities	Integration of selected seaweed species	Through photosynthesis, dissolved oxygen naturally improves water quality, supporting the marine ecosystem while providing safe swimming conditions for humans
		Construction	—	—
		Infrastructural	proliferation along the breakwater	The natural biofilter function becomes an integral part of the ecological infrastructure
S3	Bostanlı / Fishing Port	Building Program	Repair Café + Boat Workshop	By fostering a culture of repair, it extends the lifespan of products and boats, reduces consumption, enhances human skills, and contributes to ecological waste reduction
		Non-Human Entities	Repair/renovation-oriented use	Indirect ecological benefit: reducing resource use and waste while promoting circularity
		Construction	—	—
		Infrastructural	Skate park and public space	Social infrastructure for young people fosters encounters and a sense of belonging within the community
S4	Bostanlı / Fishing Port	Building Program	Waste reception facility for small boats+social space+ and food production	It collects pollution at its source, provides social space during waiting times, and reduces emissions through on-site food production, enhancing water quality, economy, and community life
		Non-Human Entities	Dual tanks for bilge oil and mixed boat waste	It prevents pollution, protects the marine ecosystem, and supports biodiversity
		Construction	—	—
		Infrastructural	Waste facility + food production	An ecological, economic, and social multi-layered care infrastructure
S5	İnciraltı	Building Program	Exhibition + workshop + education + bridge-building	A space enhancing ecological literacy and fostering awareness and community participation.
		Non-Human Entities	Incorporation of ecological content into the program	Learning and behavioral change that considers non-human entities as well as humans
		Construction System/Material	Partially constructed with recycled materials: rubber and glass	Resource circularity and waste reduction
		Infrastructural	A bridge connecting two urban areas.	Pedestrian access, spatial continuity
S6	İnciraltı	Building Program	Canoe training + storage + café	Supports community health and well-being by facilitating access to sports
		Non-Human Entities	Ecological sensitivity	Compatible use with the coastal ecosystem through low-impact activities
		Construction System/Material	The choice of timber as a material allows for lightweight construction and rapid assembly.	Low embodied energy and on-site assembly minimize construction impact
		Infrastructural	Path and sand adjustments to enhance shoreline use	Enhances the quality of socio-spatial infrastructure

CONCLUSION

This paper presents the design outcomes of Care in the City!, an experimental architectural studio that positioned care as a central theme in early design education. The study's findings suggest that integrating care and the ethics of care into architectural pedagogy enables students to develop design approaches that transcend unidimensional responses to discipline-specific problems while cultivating a multidimensional sensitivity to broader social and environmental issues often regarded as external to architecture. By engaging students in discussions, exercises, and design critiques grounded in the concept of care, the studio provided a pedagogical contribution, offering an example for embedding ethical reflection and multidimensional awareness into architectural education from its earliest stages.

Analysis of student projects revealed four themes: "care through building programs," "care for non-human entities," "care through construction systems and building material choices," and "care as infrastructure." Each project successfully integrated a diverse set of social, economic, and environmental sensitivities, addressing issues such as sustainability, environmental degradation, and community well-being. These demonstrated that care can simultaneously function as both an ethical stance and a practical design strategy. The projects also reflected attention to the neighborhood and its broader urban and coastal context, the needs of local communities, equal access to education and skills development, user well-being, and the protection of non-human life, including efforts to address pollution and waste management.

This paper introduced second-year students to the concept of care and encouraged them to develop a broad sensitivity to it in their architectural designs, focusing on four themes presented with rich and diverse content. Future research may explore more specific care themes in advanced design studios in greater depth. In future pedagogical, care-oriented studio studies, research may be designed on interdisciplinary collaborative studios that aim to develop architectural solutions to specific and complex problems. In conclusion, this studio experiment demonstrates that fostering a care perspective in architectural education prepares the ground for students to acquire the competencies necessary for socially and environmentally responsible architectural practices.

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PRIORITISING CRITICAL THINKING SKILLS IN THE ARCHITECTURAL DESIGN STUDIO: PEER FEEDBACK AS A PRIORITISING TOOL

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ABSTRACT

The challenge in today's rapidly evolving knowledge environment is no longer about accessing information; it lies in the ability to interpret and process it effectively. Critical thinking is essential in architecture, where subjective and intuitive aspects shape knowledge, and design does not adhere to absolute truths. This study positions peer feedback as a key pedagogical tool for fostering critical thinking within architectural design education. The nature of architectural knowledge necessitates learning through exploration and experience, which positions students as active learners rather than passive recipients. Design studios inherently provide a feedback-driven environment that can cultivate critical inquiry. In this context, students' ability to accurately perceive, interpret, and apply feedback—called feedback literacy—is vital for effective studio practice and developing critical thinking skills. Therefore, this research investigates the effectiveness of peer feedback as a pedagogical strategy to enhance feedback literacy and critical thinking. The study was conducted during the spring semester of 2023–2024 at Dokuz Eylül University, focusing on two design studio courses: Introduction to Architectural Design (for first-year students) and Architectural Design II (for second-year students). Unlike traditional studio courses, these sessions were occasionally integrated, allowing first- and second-year students to evaluate each other's work. The evaluation process was structured in three stages, including end-of-semester questionnaires with open- and closed-ended questions. Findings indicate that first-year students significantly benefited from critiques from upper-level peers, particularly in self-assessment, creative thinking, and presentation skills. In contrast, second-year students found feedback from peers at the same level more effective, especially regarding systematic thinking and architectural language. Overall, the results suggest that when carefully implemented with consideration for student levels and suitable formats, peer feedback supports the development of feedback literacy and

plays a crucial role in fostering critical thinking in architectural education.

Keywords: Architectural education, critical thinking, peer feedback, architectural design studio, feedback literacy

INTRODUCTION

The rapid development, dissemination, and accessibility of knowledge have made the accurate interpretation and processing of information more important than ever. This situation requires acquiring various competencies, often 21st-century skills, including critical thinking, creativity, problem-solving, collaboration, and flexible thinking. Critical thinking involves using cognitive processes such as reasoning, evaluation, and synthesis to solve problems by considering different possibilities (Ennis, 2018; Hitchcock, 2018). In architecture, unlike in the positive sciences, the prevalence of subjective and intuitive knowledge and the absence of absolute truths in design processes make critical thinking even more essential. Therefore, fostering critical thinking skills among architecture students has been identified as one of the priorities of architectural education.

Architectural knowledge is implicit and intuitive, positioning students as active learners rather than passive recipients of information. Design studios offer a dynamic learning environment where students engage directly in the design process, fostering critical inquiry and enhancing their interpretative skills. Feedback is central to this studio pedagogy, which is a fundamental tool in contemporary design education (Gray, 2013; Megahed, 2018; Oh et al., 2013). The feedback processes are essential to the functioning of design studios and play a crucial role in developing students' critical thinking skills. In this context, students' ability to perceive, interpret, and apply feedback is vital for both the efficiency of the studio process and the enhancement of critical thinking.

Recent studies have demonstrated that peer feedback creates an interactive environment that enhances students' critical thinking abilities (Yurdabakan, 2011). In this context, the present study aims to investigate the effects of peer feedback practices used in architectural design studios on the development of students' critical thinking skills. Specifically, the study seeks to answer the following research questions: How do students' critical thinking skills change in response to peer feedback practices? How do students at different knowledge levels influence one another during the peer feedback process?

During the Spring semester of the 2023–2024 academic year, peer feedback practices were implemented in the Department of

Architecture at Dokuz Eylül University. These sessions involved first- and second-year design studios working together. Students completed a Likert scale assessment and an open-ended questionnaire at the end of the semester. The results were analyzed based on the following themes: skills acquired through peer feedback, the methods and implementation of peer feedback, the benefits of mixing students from different levels, student interaction, and the role of peer feedback within the design studio.

CRITICAL THINKING IN ARCHITECTURAL EDUCATION

Critical thinking is one of the essential competencies of the 21st century. It is the ability to generate solutions to complex problems by exploring various possibilities and employing cognitive skills and strategies such as reasoning, judgment, evaluation, and synthesis (Ennis, 2018; Hitchcock, 2018; Halpern, 2003). This skill includes sub-competencies like recognizing relationships between concepts, making inferences from data, establishing connections, and evaluating evidence (Pascarella and Terenzini, 2005). Progress in critical thinking involves continuously asking new questions and discovering new patterns, which requires a self-directed and disciplined approach to thinking.

Critical thinking has recently been recognized as essential for academic and professional success (Shaw et al., 2020). However, studies indicate that university students' critical thinking skills are often low (Fuad et al., 2017; Suardana et al., 2018) or only moderate (Çakan Akkaş and Kabataş Memiş, 2021). This highlights the need to prioritize the development of critical thinking skills in higher education. Since design education inherently focuses on problem-solving and creative thinking, critical thinking is an indispensable component of architectural education.

In architecture, the National Architectural Accrediting Board (NAAB), a U.S.-based accreditation body, emphasizes the importance of critical thinking in its evaluation criteria. NAAB highlights that students should adopt a multifaceted perspective, maintain a sense of curiosity throughout their lives, communicate visually, evaluate diverse evidence, derive new contexts from that evidence, and develop an understanding of people, places, and contexts.

The architectural design studio is central to architectural education. In this course, students are expected to integrate the knowledge they have acquired and propose creative solutions to design problems defined at the beginning of the semester. Instead of relying solely on direct information transmission, a problem-based approach is used. The

studio's structure and learning environment are crucial in developing critical thinking skills.

The concept of "critique" is fundamental to the pedagogical process in architectural education and is regarded as one of the key tools in contemporary design studios (Gray, 2013; Megahed, 2018; Oh et al., 2013). Recent research on feedback has explored various aspects, including feedback typologies (Scagnetti, 2017), feedback literacy (Hoo et al., 2022), and the characteristics of effective feedback (Nicol and Milligan, 2006; Scagnetti, 2017). Over the last few years, the traditional model, in which instructors provide comments solely to students, has increasingly been replaced by approaches emphasizing student engagement. In this context, educators take on the role of designers of feedback environments (Carless, 2020).

This study examines critical thinking through two main dimensions: the ability to evaluate and the ability to synthesize and utilize information. Under the theme of evaluation, we consider self-assessment, peer assessment, and overall assessment. Meanwhile, under the theme of synthesis and utilization, we explore presentation skills, spatial analysis, and creativity.

PEER FEEDBACK IN ARCHITECTURAL EDUCATION

One commonly used pedagogical approach in educational sciences to promote active student participation is peer feedback. This learning method involves students assessing the quality of each other's work while simultaneously developing various cognitive and social skills (Topping, 1998; Falchikov & Boud, 1989). Research has demonstrated that peer feedback fosters collaboration through social interaction, individual accountability, and positive interdependence. Additionally, the interactive environment it creates can enhance students' critical thinking skills (Yurdabakan, 2011). It has also been observed that peer feedback directly impacts self-assessment skills and indirectly affects metacognitive skills (Topping, 2005).

Peer feedback is crucial for fostering a student-centered learning environment (Smith, 2020). Research in educational sciences has identified various benefits of peer feedback. Notably, it helps develop critical thinking skills, allowing students to question and evaluate their work more effectively (Smith, 2020) and better understand assessment standards (Nicol, Thompson & Breslin, 2014). Through the peer feedback experience, students can clarify their ideas, communicate more clearly, and engage in diverse learning processes, such as exploration, discussions with peers, feedback from their classmates, or instructor

guidance (Crolla et al., 2019). Additionally, studies have outlined the distinct roles of both peers and instructors in this process (Turner, 2021).

While peer feedback studies are present in architectural education, their implementation in design studios—especially in a planned and systematic manner—remains limited. Despite its significant contributions, this method has faced criticism. Students may doubt their peers' ability to provide constructive critiques (Mulder et al., 2014) or hesitate to be critical due to concerns about harming friendships (Lindbolm et al., 2006). Nonetheless, the literature suggests that the benefits of peer feedback might not be immediately apparent; instead, this method requires time to develop, and its effectiveness depends on repeated practice and students becoming familiar with the approach (Huisman et al., 2018; Evans, 2013; Hoo et al., 2022).

PEER FEEDBACK WITHIN ARCHITECTURAL DESIGN STUDIO

In the Spring semester of 2023–2024, the Department of Architecture at Dokuz Eylül University redesigned the Introduction to Architectural Design course (for first-year students) and the Architectural Design II course (for 2nd-year students) to incorporate peer feedback practices. Although these courses were conducted on different days, joint sessions and evaluation (jury) settings were organized to allow students from different levels to provide feedback to one another. The process was structured into three stages throughout the semester.

In stage one, first-year (1502) and second-year (2502) students provided feedback and evaluated eight peers selected from each level. No rubric was provided during this stage, and the projects were exhibited in a gallery setting, creating an unstructured feedback environment. The aim was to familiarize students with the concept of peer feedback.

Stage two was designed as a semi-structured process. On the submission day of the first-year students' second project, students provided feedback only to their peers at the same level. In this stage, instructors determined the evaluation criteria, and students were asked to give feedback according to these rubrics. Additionally, groups were formed to simulate a traditional jury setting.

Stage three brought together the submission of the first-year students' third projects and the second-year students' second projects in a joint session. Rubrics were provided, and students from different levels were encouraged to criticize one another. Like stage two, groups were formed and conducted within a traditional jury environment (Figure 1).

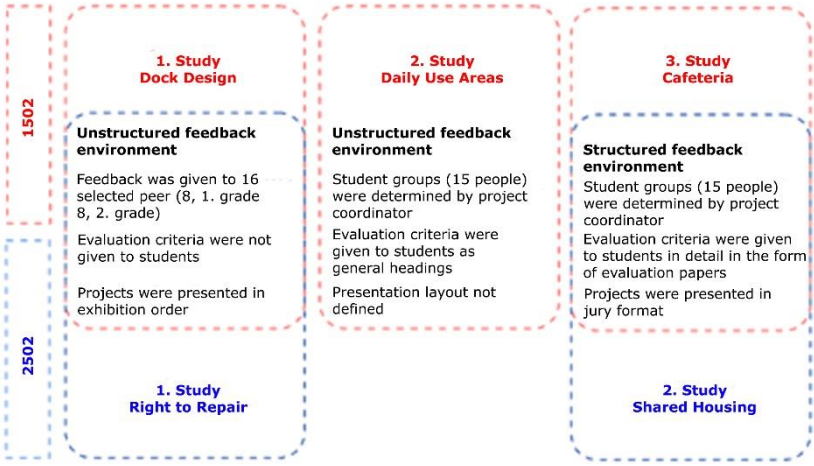


Figure 1. The three stages of the peer feedback process.

FINDINGS AND DISCUSSION

At the end of the semester, students completed a questionnaire that included both open-ended and closed-ended (Likert-scale) questions. Students were asked to rate the feedback they received from peers at their own level and at different levels. This questionnaire evaluated the students' gains related to several sub-themes of critical thinking in design studios: self-assessment, peer assessment, systematic thinking and terminology, presentation skills, spatial analysis, and creative thinking.

The concepts were explained to the students as follows: Self-assessment refers to the ability to analyze one's own project's strengths and weaknesses and evaluate oneself objectively. Peer assessment denotes the ability to analyze the strengths and weaknesses of peers' projects. Systematic thinking and terminology involve evaluating a project based on specific criteria using relevant architectural terminology. Presentation skills relate to how peer feedback influences one's own presentation style. Spatial analysis indicates the impact of peer feedback on the spatial solutions within one's project. Creative thinking refers to the influence of peer feedback on the creative ideas present in the project.

When evaluating the feedback practices among first-year students who assessed their peers, the average scores for acquired skills were ranked from highest to lowest as follows: self-assessment (4.03), presentation skills (3.97), creative thinking (3.97), spatial analysis (3.69), peer assessment (3.59), and systematic thinking and terminology (3.50) (Figure 2). The

lower averages for "systematic thinking and terminology" and "peer assessment" can be attributed to the fact that first-year students have not yet developed the architectural knowledge necessary for project evaluations and are still unfamiliar with architectural terminology.

Most categories received similar average scores in peer feedback practices involving both first year and second-year students. The rankings in this case, from highest to lowest, were creative thinking (3.91), self-assessment (3.84), presentation skills (3.81), systematic thinking and terminology (3.81), spatial analysis (3.78), and peer assessment (3.75). These results suggest that feedback provided by upper-level students was perceived as more valuable. For first-year students just beginning their architectural education, feedback from more experienced peers was considered more beneficial.

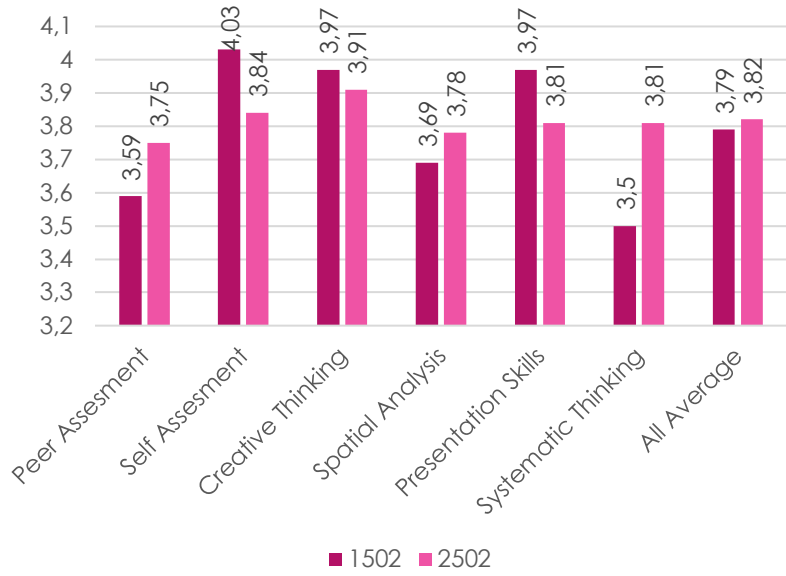


Figure 2. Peer feedback scores of first-year students.

When examining the overall averages, it is evident that first-year students received feedback from first- and second-year students that fall within the moderate to good range. First-year students improved self-assessment, presentation skills, and creative thinking. Notably, the average feedback scores they received from peers at their own level were close to 4 (indicating good) in these categories. This suggests that critiques from peers with similar levels of knowledge are easier to understand and interpret. Additionally, since the students were working

on the same project topics, they provided each other with more constructive feedback, encouraging self-assessment and creative thinking. First-year students, who are not yet familiar with the established conventions of architectural education and tend to have a more flexible mindset, demonstrated greater creativity in their presentation techniques, a tendency that was also reflected in their scores.

When analyzed concerning specific themes, the peer feedback practices among first-year students revealed a significant consensus: half of the students assigned the same score to their self-assessment and creative thinking (Figure 3). Additionally, the vast majority rated these themes with scores of 4 and 5, corresponding to "good" and "very good." These findings strongly suggest that peer feedback within the same cohort was particularly effective in helping students critically evaluate their work and enhance their creative thinking.

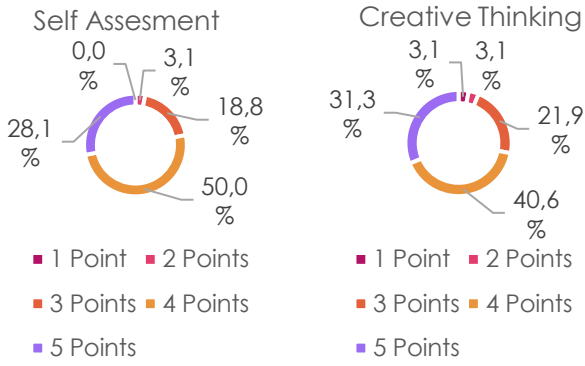


Figure 3. Scores of self-assessment and creative thinking.

In the feedback provided to first-year students by their second-year peers, a clear consensus emerged regarding spatial analysis and presentation skills themes. Most students rated both themes with scores of 4 and 5, highlighting the perceived effectiveness of peer assessments in these areas (Figure 4). These findings emphasize that feedback from more experienced peers' aids in refining spatial decision-making and significantly contributes to developing practical presentation skills among first-year students.

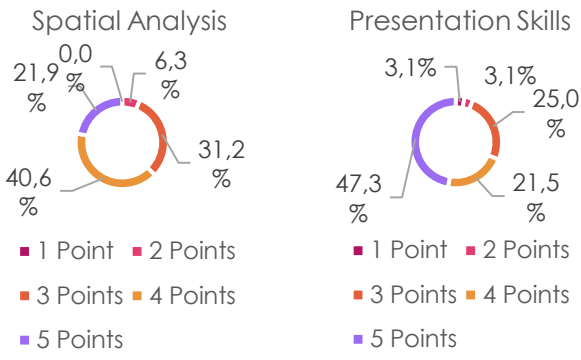


Figure 4. Scores of spatial analysis and presentation skills.

First-year students' scores on feedback from their peers at the same level varied significantly, ranging from 3.50 to 4.03 (Figure 5). In contrast, the scores for feedback from upper-level peers were much narrower, ranging from 3.75 to 3.91. This suggests that students had a greater consensus and provided more consistent ratings when critiquing the work of more advanced peers.

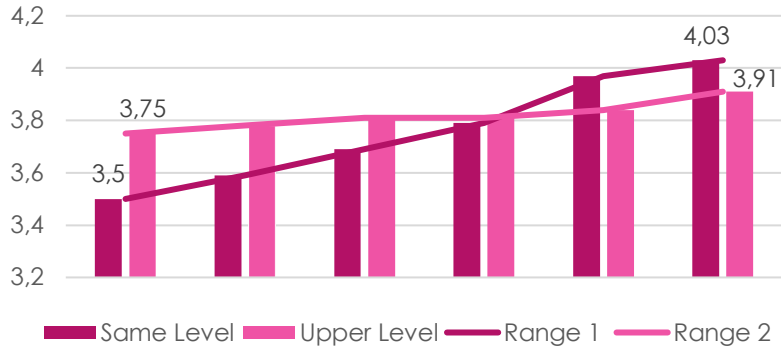


Figure 5. Comparison of score ranges by same-level and upper-level peers.

The findings indicate that first-year students significantly improved their ability to evaluate projects using architectural language and analytical reasoning after participating in feedback sessions with upper-level peers. This improvement was notably greater than the feedback they received from their peers at the same level (Figure 6). Furthermore,

second-year students' feedback was particularly beneficial in enhancing peer assessment and encouraging creative thinking. This suggests that the upper-level students' greater competence in spatial solutions played a crucial role in these positive outcomes.

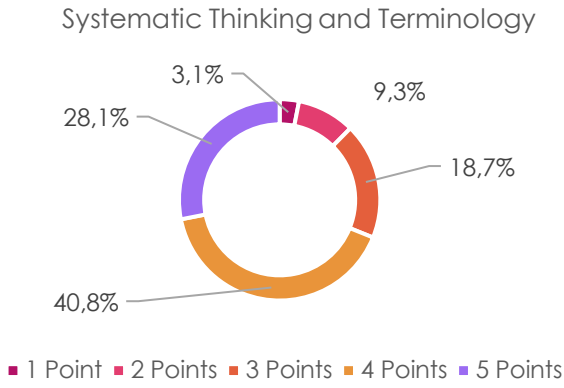


Figure 6. Impact of peer level on first-year students' analytical evaluation.

When examining the evaluations of second-year students, the average scores for skills developed through peer feedback among their peers are ranked from highest to lowest as follows: self-assessment (4.16), systematic thinking and language (3.97), spatial analysis (3.74), peer assessment (3.63), presentation skills (3.42), and creative thinking (2.97) (Figure 7). These results indicate that second-year students particularly benefited from enhancing their reflective and analytical abilities, while improvements in creativity and presentation skills were relatively limited. In feedback sessions with first-year students, the rankings only shifted in the categories of self-assessment and systematic thinking and language, which swapped positions. This change suggests a consistent overall pattern of skill development across both groups.

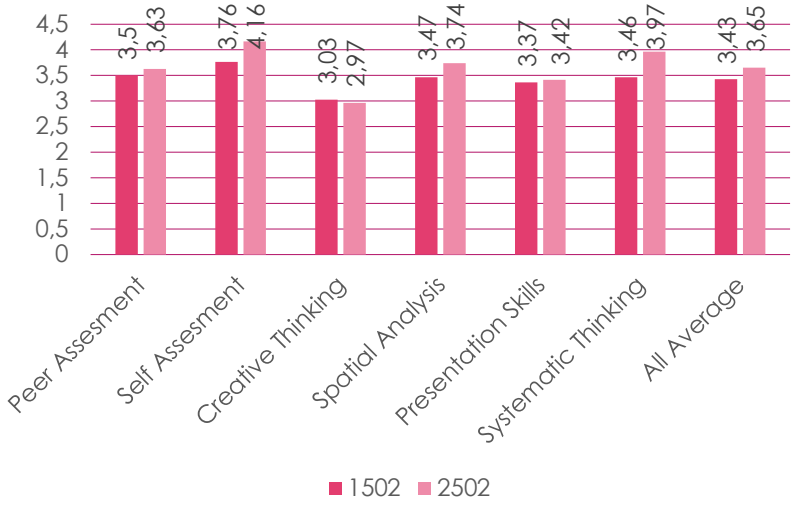


Figure 7. Peer feedback scores of second-year students with same-level and first-year peers.

When examining the overall averages, it is noted that the feedback from second-year students, both from their peers at the same level and those at lower levels, falls within a medium range. Among the categories of peer feedback, second-year students gained the most from self-assessment, systematic thinking, and language skills. In contrast, their performance in presentation and creative thinking remained below average.

A positive correlation was identified between self-assessment skills and the ability to apply systematic thinking and architectural language, as well as between peer assessment and spatial analysis. As students' skills in systematically evaluating projects and using architectural terminology improved, their self-assessment abilities also increased. Likewise, their capacity to assess their peers' projects grew alongside their spatial analysis skills.

The scores assigned to feedback from peers at their own level showed a relatively wide range, from 2.97 to 4.16 (Figure 8). In contrast, the scores given to feedback from lower-level peers showed a narrower range, from 3.03 to 3.76. This indicates that students were more consistent in evaluating critiques received from lower-level peers.

Notably, there was more uniform scoring across the students in creative thinking and spatial analysis. However, the standard deviation for

creative thinking was relatively high, suggesting that students' experiences in this aspect varied widely. This variability implies that the impact of peer feedback on the creative process was limited. Consequently, the differences in scores may depend on the specific peer providing the feedback.

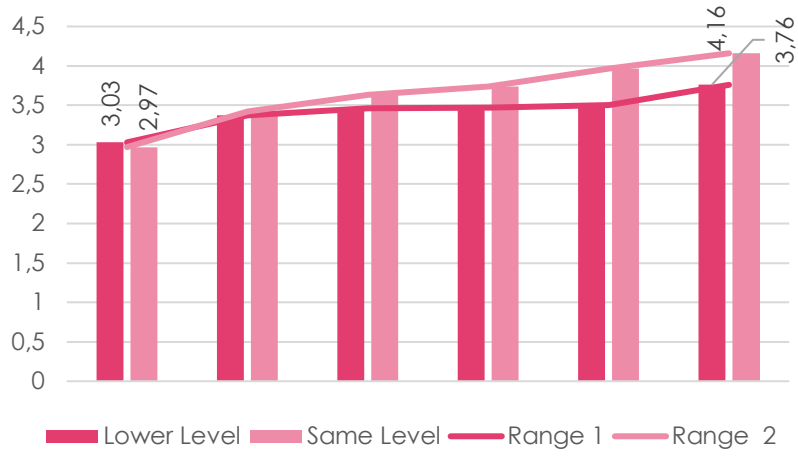


Figure 8. Comparison of score ranges in peer feedback.

The feedback received by second-year students from lower-level peers was evaluated at a moderate-to-poor level across almost all categories, particularly in creative thinking. This indicates that first-year students, who are just beginning their architectural education, lack the knowledge necessary to provide meaningful project critiques for upper-level students.

When examining both student groups, the first-year students' average peer assessment score was approximately 3.80, while the second-year students scored around 3.50. For both groups, the feedback received from peers at their own level showed relatively similar averages, with scores of 3.79 for first-year students and 3.65 for second-year students. This data suggests that peer feedback was more beneficial for first-year students when it came from their classmates and upper-level peers. In contrast, second-year students found that while feedback from peers at the same level was constructive, feedback from lower-level peers was perceived as less valuable.

For first-year students, higher average scores were noted in self-assessment, creative thinking, and presentation skills. In contrast, second-year students excelled in self-assessment, as well as in systematic

thinking and language skills. Self-assessment proved beneficial for both student groups, albeit at different levels. When comparing self-assessment scores, it was found that both groups achieved better results when they received critiques from their peers at the same level. This suggests that students can better understand the architectural language when interacting with those with a similar level of knowledge.

While first-year students made significant improvements in their presentation skills and creative thinking, second-year students scored lowest in these areas. This discrepancy may be due to the differences in project topics and requirements. The more detailed and complex projects assigned to second-year students may have limited their creative thinking processes and negatively impacted on the quality of their presentations.

Additionally, it was observed that the feedback second-year students provided to both their peers, and first-year students helped them develop their systematic thinking and language skills. Consequently, students with greater architectural knowledge tend to offer more substantial assistance to their less experienced peers, particularly in systematic reasoning and the effective use of architectural language.

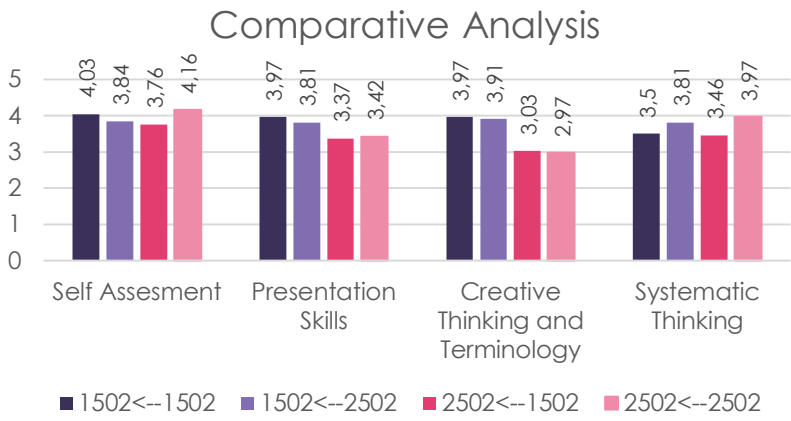


Figure 9. A Comparative analysis of self-evaluation, presentation skills, creative thinking, and project assessment.

The varying number and types of projects produced by students within a single semester may have influenced the assessment criteria. However, the lack of consideration for these variables represents a limitation of this study. Additionally, the studio setting during implementation, whether semi-structured, structured, or unstructured—

also impacted the students' experiences. First-year students found the semi-structured format more beneficial, while second-year students considered the structured format more effective. A controlled investigation of these environmental factors would yield more precise and reliable results.

CONCLUSION

Critical thinking skills must be systematically developed throughout the educational journey of architecture students. This is essential for them to adapt to the evolving and uncertain conditions in the architectural field and to create innovative solutions to the complex challenges they will face after graduation. In this context, prioritizing feedback practices in architectural design studios—where students engage as active learners and directly participate in the learning process—should be regarded as a pedagogical necessity and a vital means of enhancing the overall quality of professional education.

This study examined the concept of critical thinking through specific sub-themes, considering the pedagogical and practical dynamics of the design studio. The findings indicate that peer feedback practices have varying levels of impact across these dimensions. Furthermore, the academic level of both the feedback provider and the recipient plays a crucial role in shaping the outcomes. Notably, first-year students responded more positively to the feedback process when receiving critiques from more experienced peers. Therefore, peer feedback across different academic levels can be a significant pedagogical tool for fostering critical thinking skills.

Single-term implementations alone are insufficient to ensure lasting and substantial development of critical thinking skills. To sustainably improve these abilities, students must engage in systematically and recurring peer feedback throughout their education. This approach will enhance the effectiveness of the practice and its long-term impact. Additionally, creating feedback environments that align with students' levels, needs, and expected competencies will further increase these practices' efficiency and pedagogical value.

In conclusion, incorporating feedback practices as a central pedagogical strategy in architectural design studios fosters the development of students' critical thinking within an academic context. It helps them internalize critical thinking as a lifelong intellectual approach. This, in turn, supports continuous learning beyond formal education.

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PARASITIC ARCHITECTURE IN ARCHITECTURAL EDUCATION: INTERVENTIONS IN THE HISTORICAL URBAN CENTER OF ERZURUM

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ABSTRACT

This study explores the concept of parasitic architecture, positioning it as a critical interface in the relationship between individuals, buildings, and their urban environment. While architectural discourse often privileges formal and functional aspects of space, transitional zones—thresholds, passages, and parasitic additions—offer grounds for social, cultural, and aesthetic interaction. They not only connect interior and exterior realms but also create opportunities for flexibility, permeability, and belonging.

This paper builds on an experimental design studio conducted in the second semester of the first year at Atatürk University, Faculty of Architecture and Design, Department of Architecture. The studio, titled "In-Between Space – Parasitic Architecture", invited students to reimagine neglected voids in Erzurum's urban fabric by developing parasitic structures that attach to existing buildings and sites of cultural significance. Drawing inspiration from international case studies and local heritage, the projects sought to transform underutilized urban gaps into experiential public spaces with new cultural and social functions, such as cafés, antique shops, tasting centers, and performance venues.

By combining conceptual inquiry with hands-on design practice, the study demonstrates how parasitic strategies can enrich architectural education while simultaneously proposing alternative models for revitalizing urban space. The findings highlight the potential of in-

between spaces to foster creativity, adaptability, and public engagement in contemporary architectural practice.

Keywords: Parasitic Architecture, Architectural Education, User-Centered Design, Urban Voids, Cultural Context

INTRODUCTION

Architecture, by nature, mirrors the multiplicity and transformability of human existence—embodying both bodily and cognitive dimensions as well as its social configurations. Like many other theoretical frameworks in architecture, parasitic architecture emerges as a critical response to the growing complexities of urban life and the failures of conventional architectural production. Rooted in a desire to question the notions of space and place, it proposes rapid, flexible, and ecological solutions to pressing urban issues by forming strategic and symbiotic connections with existing structures (Bardzinska-Bonenberg, 2018; Hill, 2014).

The term "parasite" borrowed from biology, refers in architecture not to harm, but rather to mutually beneficial or opportunistic relationships with a host structure. The parasite connects to its host not to destroy it, but to survive, transform, and re-activate dormant spatial potentials. In this regard, parasitic architecture is especially relevant in contexts where urban infrastructure has become underutilized, abandoned, or incapable of responding to changing social needs (Yıldırım, 2013). This study focuses on the integration of parasitic architecture into architectural education, with a particular emphasis on design studio processes that explore urban voids and spatial gaps within the historic city center of Erzurum, Turkey.

The studio-based research, developed as part of an undergraduate design course, aimed to investigate how interstitial spaces—vacant lots between buildings, blind walls, rooftops, infrastructural leftovers, and other in-between urban spaces—can be re-appropriated through temporary, adaptive, and user-oriented micro-interventions. Such design experiments align with the goals of parasitic architecture, which typically features small-scale, flexible, mobile, or even illegal constructs that question established urban and architectural norms (Ungers, 2007).

The theoretical foundation of this work draws from Oswald Mathias Ungers, who first used the concept of the Großform (megaform)—not as a measure of physical size, but as a representation of formal consistency within the urban fabric. Ungers emphasized that spontaneous, informal, and parasitic interventions could inject vitality into sterile urban contexts by operating outside the boundaries of mass production and planning (Ungers, 2007). These ideas are further expanded by Bardzinska-

Bonenberg (2018), who frames parasitic architecture as both a critique and an alternative to the postmodern city's inefficiencies. In this context, parasitic structures are not seen as anomalies, but rather as adaptive species that reimagine space through "grafting" or spatial inoculation.

The motivation behind this design research stems from several intertwined urban challenges:

- The critique of modern urban planning,
- Housing scarcity and spatial inequality,
- Migration and demographic shifts,
- The need for sustainable and participatory design approaches,
- A growing demand for temporary and experimental spatial practices

Within the scope architectural design studio titled Architectural Design Studio II, students were asked to identify latent spatial potentials in the historical core of Erzurum—such as the blind walls of old buildings, gaps between structures, rooftops, and abandoned architectural elements. Based on field studies, conceptual exploration, and user-centered analysis, students developed small-scale, adaptable spatial proposals. The designs addressed questions such as: Who is the intervention for? How does it relate to the existing structure? What kind of new public or private programs can it host?

In line with these concerns, students conducted fieldwork in Erzurum's historic urban core, identifying potential host structures for parasitic interventions. This process included mapping spatial voids, urban leftovers, and neglected heritage buildings. Particular attention was paid to user behaviors, bodily interactions, and everyday spatial practices, framing the design process around human action, perception, and situational needs. The pedagogical goal was to make students think through questions such as "For whom is this design intended?" and "How does this intervention engage with its host and surroundings?"

The resulting projects proposed temporary structures that could offer semi-public functions—such as reading pods, community kitchens, shelters, or micro-learning spaces—often attached to existing buildings, blind walls, or infrastructural elements like underpasses and staircases. These proposals adhered to the principles of parasitic design:

- Adaptability,
- Reversibility,
- Sustainability,

- Low-cost implementation

Through this studio-based exploration, students gained an understanding of parasitic architecture not merely as a formal strategy, but as a critical urban practice. It became evident that these micro-interventions—when designed through a user-centered and context-aware lens—could propose innovative models for urban reactivation, particularly in historic or marginalized parts of the city where large-scale interventions are unfeasible or unwelcome.

This research also draws from the work of Yıldırım (2013), who sees parasitic acts—such as graffiti or informal installations—as methods of urban reclaiming and micro-resistance. These acts create symbolic and spatial connections across neglected zones and invite bottom-up processes of urban transformation.

Recent studies on parasitic architecture emphasize its role in transforming existing urban and architectural contexts by introducing flexible, adaptive, and often provocative spatial interventions. Akgün Gültekin and Birer (2019) highlight how parasitic spaces can serve as liberating interventions in public areas, creating dynamic interactions between users and the urban fabric. Erdoğan (2021) proposes a productive approach for redesigning the built environment through morphogenesis, emphasizing the generative potential of parasitic insertions. Kavut and Selçuk (2022) analyze the adaptive reuse of historic industrial buildings, demonstrating how parasitic additions can enrich both functional and experiential aspects, as seen in Santral İstanbul and Müze Gazhane. Lank (2022) focuses on the symbiotic relationship between existing structures and parasitic architecture, exploring strategies that feed off the pre-existing urban or architectural context. Mamafî (2018) investigates creativity in spatial experience through the concept of parasitism, highlighting its cognitive and design potentials. Susam and Çetin (2024) examine the museum works of Daniel Libeskind, showing how parasitic interventions can mediate between form, function, and narrative in contemporary architecture. Finally, Yıldırımer (2016) assesses building additions in Mahmutpaşa, Istanbul, providing empirical insights into how parasitic architectures can alter perceptions, usage, and spatial hierarchies in dense urban settings. Collectively, these studies underscore parasitic architecture as both a conceptual and practical strategy for revitalizing, connecting, and reinterpreting built environments.

The aim of this study is to demonstrate that parasitic design methodologies can be integrated into architectural education, particularly within design studio curricula that address urban

sustainability, heritage preservation, and socio-spatial justice. In doing so, it highlights how architecture can engage with the everyday realities of urban life, not by imposing order, but by adapting, transforming, and coexisting with what already exists.

STUDIO METHODOLOGY

Architectural Design Studio II was offered to first-year students in the Spring Semester of the 2024–2025 academic year at Atatürk University, Faculty of Architecture and Design, Department of Architecture. The course, held eight hours per week, aims to teach students how to think creatively, prioritize function and context in design, and develop their newly acquired technical drawing skills.

In the first week, during the introductory session, the course content, objectives, and evaluation methods were explained. Although students take one design studio course each semester, the project theme changes every year. In this session, students were informed that this year's design theme would be to develop an example of parasitic architecture in Erzurum's city center. At this first course Associate Professor Dr. Neslihan Demircan delivered a lecture on parasitic architecture, presenting its theoretical background, its relationship to biology, the most relevant literature, and examples from real architectural projects including photographs and drawings. After this lecture, students were assigned a research task for a deeper investigation into parasitic architecture.

In the second week, Assistant Professor Dr. Şölen Köseoğlu gave a presentation on Erzurum's city center, its historic core, and the transformations it underwent from the 19th century to the present. Starting from engravings of travelers, the presentation illustrated the city's changes through old maps and photographs. It focused on how the traditional Ottoman fabric of houses, mosques, madrasas, bazaars, and streets inside the citadel had changed during the Republican period. Attention was also drawn to Republican-era buildings in the historic center and, by the 2000s, the construction of a massive shopping mall on the city's main avenue, which contrasted sharply in scale with the surrounding historical buildings. Following this lecture, a site visit was organized. During this 2-hour trip, the students, guided by the studio instructors, explored and photographed the historic city center. They also reflected on the experience of visiting the site from the perspective of both residents and tourists.

At this stage, it is worth noting that the students carried out this visit on 17 February 2025, when temperatures ranged from a maximum of −7 °C at

midday to a minimum of −21 °C at night. The historic city center of Erzurum was covered in snow, presenting a distinctive winter landscape.

After this visit, students were asked to reflect on the experience: what they observed, whether there were unmet needs, and what design proposals could respond to those needs. They were instructed to develop ideas as a homework, locate them on the city map as parasitic interventions, and produce sketches.

In the following weeks, students first worked in groups of three, creating models of the city and their own personal ideas, and preparing presentation panels. During this stage, the entire class presented their concepts together in a single jury session every week. From weeks 3 to 7, the class continued working in this way, leading up to the midterm reviews. From week 7 to 11, the class was divided into three separate juries, and students began working individually. After week 11, students received feedback from a single instructor.

By the end of the semester, each student submitted a 1:500 scale model of their site, a detailed 1:100 scale model, and presentation panels including drawings at the same scales. A total of 71 students took the course. Of these, 3 received an AA, 2 a BA, 9 a BB, 9 a CB, and 20 a CC. Twenty-one students failed the course: 7 did not attend, 8 attended but did not submit a final project, and 6 submitted their projects but were graded as unsuccessful.

FINDINGS: STUDIO OUTPUTS

In this section, the parasitic design projects produced through the studio will be presented. Among the 71 students who took the course, the highest grade was awarded to Mert Uğan, who based his design on the dragon ornament found on the entrance gate of the Çifte Minareli Medrese, one of the most important monuments in Erzurum's historic core and a symbol of the city. His design was located on the remains of the northern city walls, directly facing the north-facing monumental portal of the Çifte Minareli Medrese. By situating his project on a historic city wall where construction is normally prohibited, the student created an example of parasitic architecture principles, which may even include forms of "illegal" construction.

In his project, the student abstracted the dragon motif into geometric square compositions and designed a cultural center. The design included terraces offering views of both the Çifte Minareli Medrese and the citadel area, along with functions such as a café, bar, and restaurant. In this proposal, the dragon's head was placed on the fortress tower closest to the Medrese, while its tail extended northward.

Along this tail section, staircases carried visitors onto the city wall and up to the dragon's head. Figure 1. shows two dragon heads beneath the double-headed eagle motif that inspired the project with student's design.



Figure 1. Two dragon heads beneath the double-headed eagle and Mert Uğan's Project the

The parasite is attached to the north, east, and west façades of a reconstructed building, which was rebuilt in accordance with its original form, located to the south of Erzurum Castle. While the northern part of the existing building is single-storied, the southern façade was constructed as two stories. On the eastern side of the building, a retaining wall separates it from the rest of the topography, creating an open space at the same level as the ground floor of the building. During the project development process, the ground floor and first-floor levels of the existing building were connected towards the north by means of an amphitheater on the east and stairs on the west. The parasite was added by using the façade walls, the retaining wall, and the roof of the single-story section of the existing building. To prevent the parasite, which clings to three façades of the building, from overpowering the structure, its roof was designed with thin strips in a perforated composition. The existing building was repurposed as part of a café, with the interior redesigned so that the ground floor serves as the service area and the upper floor as seating areas. The door located on the eastern wall of the building was used as a service door to enhance the interaction between the existing structure and the parasite.



Figure 2. Ömer Faruk Aktaş's Project

Serap Aykut focused her design on the shopping mall constructed in the 2000s along the city's main avenue. The mall is only 100 meters away from Yakutiye Madrese and is the widest building along the avenue. To the south of Cumhuriyet Avenue, behind the mall, a massive blank façade dominates the neighborhood. The Muratpaşa Mosque and the square in front of it, located just south of the mall, represent one of the rare public gathering spaces in the city center. The view of this square, however, is framed by the mall's blank façade, which does not engage with the urban environment or interact with the city's residents.

The student aimed to highlight both the blankness of this façade and the building's contrast with the traditional houses nearby, which have façades of 5–6 meters. With a 100-meter-long frontage and approximately nine stories, compared to the two-story surrounding structures, the mall raises significant issues of scale. To address this, the student introduced single-story parasitic units on the mall's blank façade facing Muratpaşa Square, mirroring the scale of the traditional urban fabric. These units were proposed for potential office use.

While the south-facing façades are also critical due to Erzurum's climate, the project explored how these underutilized areas could be activated, creating new spatial experiences and opportunities for engagement with the city. The project's relation to parasitic architecture lies in its use of underutilized potential to benefit the city's residents, much like parasites in nature that attach themselves to a larger host organism.

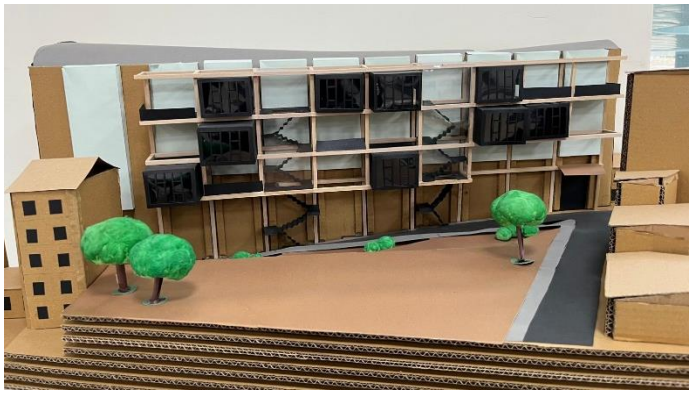


Figure 3. Serap Aykut's Project

Sena Memiş settled in the city's oldest, millennia-old section, within the inner castle structure. Like a plant clinging to a wall as it grows, her structure is attached to the inner walls of the castle and provides a small exhibition space for displaying the most recent archaeological finds, such as pottery, in rotation. The idea here is to present the castle and Erzurum's history on-site to visitors who do not have enough time to visit the Erzurum Museum.

The student based the project on the legend of the Lost Princess Mihrican, who was said to have vanished among the castle walls in Erzurum. While connecting with the city's culture, the project also reflects on how oral literature, legends, and similar stories can be transmitted sustainably to future generations.



Figure 4. Sena Memiş's Project

Mohamad Yahia Tarabishi's project proposes a parasitic structure suspended in the void between two buildings that have remained empty for many years, located in one of the most important open spaces of the city, south of the castle. The student added a horizontal rectangular prism to the inner façades of each of the two large buildings facing each other, and connected these structures to each other and to the ground with a third vertical rectangular prism. The vertical element is intended for vertical circulation, while the horizontal elements are proposed to house the parasitic architecture office.



Figure 5. Mohamad Yahia Tarabishi's Project

The parasite is positioned on the blind rear façade (south façade) of a reinforced concrete building located on a corner plot on Cumhuriyet Street, to the west of Erzurum Houses. The niche in the middle of the building's south façade divides the façade into three parts. The parasite was designed in harmony with the fragmented structure of the façade, created by wide panels placed side by side and folded at different levels along the façade. Since the area where the parasite is located was previously used as an open parking lot, the ground floor has been redesigned as an open parking area, while the addition itself was positioned at the first-floor level of the existing building. Access to the parasite is provided by stairs and a panoramic elevator extending along the south façade of the addition. Exposed concrete and glass were used together in the panels, highlighting the rigidity and coldness of the concrete through the transparency of the glass. Due to its proximity to touristic attractions and adjacency to Erzurum Houses, the parasite has been adapted as an antique shop.

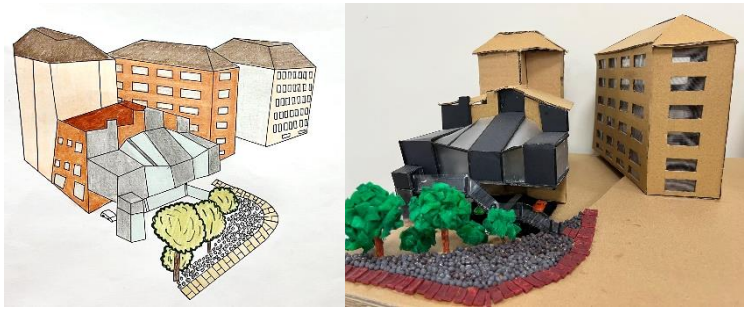


Figure 6. Esranur Sirke's Project

Yusuf Yamaç's project proposes situating itself in a void that is almost invisible due to being surrounded by many large structures in the city. This parasite, looking out onto the street through a single window between the massive buildings, actually proposes a study lounge and café for the university students who make up such a large part of the city's population, yet struggle to find spaces designed for them.

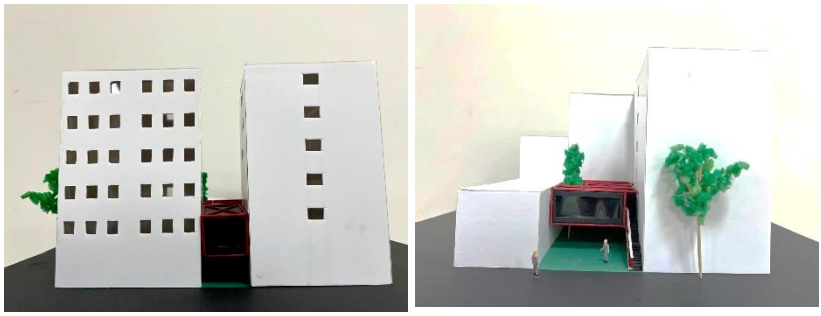


Figure 7. Yusuf Yamaç's Project

The project by student Emre Altunbey was located on the roof of the first building immediately west of Erzurum Ulu Cami, separated from the mosque by a narrow street. The building has multiple façades overlooking various city landmarks such as the Ulu Cami, the citadel, and the Kümbet. Through openings oriented in different directions, the structure offers diverse vistas for people who wish to take photographs. In this project, the student also included a photo exhibition space where visitors can observe the transformation of Erzurum over the years. A ramp allows visitors to ascend to a higher level without fatigue, providing the opportunity to view the surroundings while engaging with the exhibition. Formally, the student fragmented the circular shape to materialize different perspectives of a gaze.

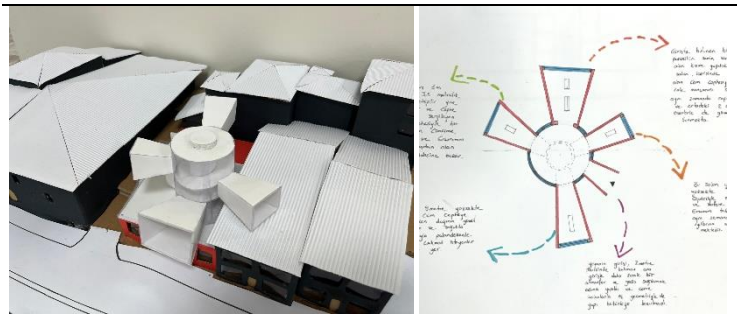


Figure 8. Emre Altunbey's Project

This parasitic structure, attached to the west façade of the Türk Telekom building facing Cumhuriyet Square on Cumhuriyet Street in Erzurum, aims to create a new public focal point by integrating with the existing building. Without intervening in the façade openings of the current Türk Telekom building, the project is structured around the main vertical circulation element. The design's primary approach is to employ a parasitic architectural strategy to generate fragmented spaces, transforming Cumhuriyet Square (the vacant area of the former Community Center building) in front of the building—currently a dysfunctional void—into a usable experiential space. Starting from the ground and linking fragmented masses both horizontally and vertically, the circulation establishes spaces that are proportionally compatible with the façade facing the square. Additionally, the staircase area used for vertical circulation is designed to provide direct access from the square to the parasitic structure.

The structure is conceived to accommodate various entertainment and music functions. Its program is envisioned as a multifunctional entertainment center, consisting of a DJ booth, a karaoke venue, and an open terrace (performance area). The DJ booth and karaoke venue, located on the ground and intermediate floors, provide a controlled and isolated acoustic atmosphere, while the open performance terrace on the top floor hosts live music concerts, establishing a direct interaction with the city. This layered approach enables a dynamic transition between interior and exterior spatial experiences.



Figure 9. Şule Sakallıoğlu's Project

With minimal intervention in the existing architectural fabric, the project adds a new social and cultural layer, offering an experiential model for the transformation of the urban texture. This model aims to enrich urban life by revitalizing idle squares through parasitic attachments to neighboring buildings.

Zehranur Baştürk's project is original and distinctive in terms of both concept and form. In her entirely self-developed idea, the student attaches her design to the façade of a seven-story new building next to a historic single-story stone warehouse called Taş Ambarlar, located in the Yeni Kapı area at the southern end of the city walls. Taking advantage of the height difference, the project includes three jellyfish- or alien-like masses containing a viewpoint overlooking the historic core of the city, a restaurant, a karaoke hall, and a photo booth. Figure 10 shows the student's initial proposal. Although it has evolved over time due to criticisms related to circulation, the student's idea exemplifies an unconventional parasite. She explains that her starting point was the desire to introduce a maritime element to Erzurum, given that the city has no sea.



Figure 10. Zehranur Baştürk's Project

As the project site, the gap between two buildings on the parcel located across from Caferiye Mosque was selected. In its current state, the site contains a structure built to enhance the visibility of the Historic Erzurum Houses from the street, yet disproportionate to its context and remaining two-dimensional. Since the parcel was constructed in an attached order, the façades of the buildings facing the gap, including their ground floors, are blind. During the project concept development process, inspired by the Jewish Museum in Berlin, diagonal lines were drawn from the historic core and nearby historic buildings to establish boundaries within the gap. In the second step, these diagonal lines were transformed into mass boundaries varying at different levels. By hollowing out the ground floor of the mass, the visual and physical connection between Erzurum Houses and Cumhuriyet Street was maintained. Positioned toward the northern side of the site to establish a closer relationship with the street, the mass was placed in a way that also makes use of the existing walls of the neighboring buildings on the east and west. Since the project is located on Cumhuriyet Street, which is heavily frequented by both locals and tourists, it has been adapted as a tasting center.

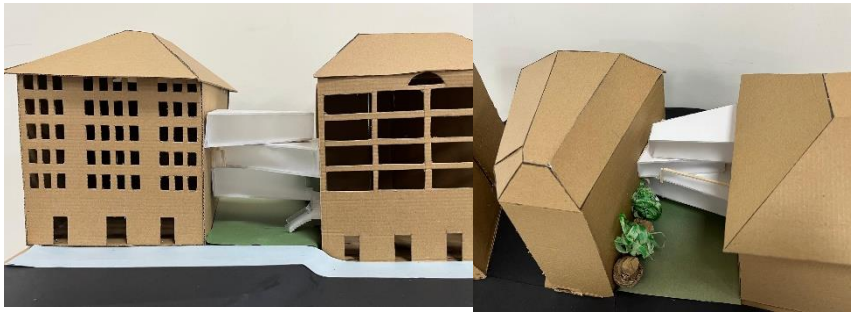


Figure 11. Gülistan Sena Koçak's Project

Fatmanur Güneş's project is located in a different area compared to the other projects, north of the castle, near one of the city's old neighborhoods and close to Yeğenağa Mosque (1661). The student aims to transform the remaining walls of a ruined historic building into a café by adding a roof over the remaining three walls. In proposing this, the student draws from her own experience, explaining that while exploring this area she felt very cold and noticed that despite the neighborhood being busy and having many commercial functions, there were no cafés. Based on her own need to sit down, rest and have something warm to drink, she suggested this function.



Figure 12. Fatmanur Güneş's Project

First constructed during the Eastern Roman period and later used by various civilizations for defensive purposes, Erzurum Castle lost its original function with the transformation of warfare technologies. Shaped by its lived history and collective memory, it has gained the identity of a cultural heritage element and today stands as one of the symbolic landmarks of Erzurum.

In its current state, with its bastions, walls, and interior spaces, Erzurum Castle constitutes mostly a visual urban backdrop rather than offering a

physical experience. Addressing this issue as the central theme of the design, the northern bastion of the castle was designated as the project site, aiming to transform the physically dysfunctional bastion—together with its parasitic additions—into a space where all surfaces can be experienced.

A semi-open volume was first created through a transparent roof resting on linear structural elements, designed to reduce the impact of climatic conditions on the space. Referencing the green surfaces and the natural landscape that once existed inside the castle before restoration, the courtyard of the bastion was afforested, with its eastern surface transformed into a climbing wall. Access to the upper levels was provided through parasitic stairways attached to the western and northern walls. The organically shaped parasitic plate that wraps around the bastion on three sides takes the ritual of experience one step further, instrumentalizing the wall in the perception of the view and creating a new observation point for watching the rural landscape stretching north of the city.



Figure 13. Sude Sena Cengiz's Project

Öykü Tuana Sivri's proposal is located in a narrow side street between the castle and Lala Mustafa Pasha Mosque. The student proposes a small ice cream shop fitting into a two-and-a-half-meter-wide gap, drawing attention to the scarcity of cafés in the city square that could bring students and young people together.



Figure 14. Öykü Tuana Sivri's Project

CONCLUSION

Space, one of the fundamental building blocks of architecture, is a dynamic reflection of the relationship between the individual and their environment. However, the concept of the in-between space (parasitic structure)—often overlooked in architectural theory and practice—functions as a critical interface that shapes the continuity of life and enriches spatial experience. Transition zones connecting interior and exterior areas, thresholds where inner and outer boundaries meet, or passages that integrate different functions are not merely physical connections; they are also fertile grounds where social, cultural, and aesthetic interactions intensify.

In contemporary architecture, in-between spaces allow for new spatial narratives at different scales by encouraging a reconsideration of core concepts such as flexibility, permeability, belonging, and social interaction. In this context, the study of in-between space in architectural education contributes significantly to students' processes of reinterpreting space, questioning boundaries, and developing experimental design approaches.

Within this framework, the design studio project titled "In-Between Space – Parasitic Architecture", conducted in the second semester of the first year at Atatürk University's Faculty of Architecture and Design, was conceived as an experimental study exploring both the theoretical (conceptual) and practical (applied) dimensions of the concept. In this project, students were asked to develop spatial solutions that question how in-between space can be produced, interpreted, and experienced in different contexts.

By engaging with the social and cultural context of the city, the project critically interrogates the conventional priorities of architectural practice. It emphasizes intangible aspects such as memory, everyday

use, and lived experience rather than merely focusing on the formal or monumental value of built heritage. The user, and their relationship with the surrounding environment, becomes central to the design process.

This approach aligns with the broader discussions raised by the congress theme "Priorities in / of Architecture," especially in its challenge to traditional architectural hierarchies. Instead of privileging permanence, monumentality, or aesthetic unity, this work explores architectural responses rooted in adaptability, creativity, and social relevance. It opens up new discussions about what should be prioritized in architecture today—especially in the context of urban transformation, climate sensitivity, and participatory design education.

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AN EVALUATION OF AI-SUPPORTED DESIGN TOOLS IN ARCHITECTURAL EDUCATION IN LIGHT OF EMERGING PEDAGOGICAL PRIORITIES: A STUDIO EXPERIENCE

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ABSTRACT

This study explores how artificial intelligence (AI) is reshaping architectural priorities within the context of design education. Conducted in a third-year design studio, the research examined the integration of AI-based generative tools in student projects focused on designing contemporary additions to the historic Konya Train Station. Two student groups were involved: Group A actively used AI tools during concept development, while Group B evaluated AI-generated outcomes based on specific design criteria. Data was collected through surveys and studio critiques. The findings indicate a dual reality. Group A valued AI for its speed, efficiency, and visual richness, yet this often came at the expense of conceptual depth, contextual reasoning, and authorship. Group B emphasized enduring architectural priorities such as contextual integration, functional clarity, and user-centered design. Comparative analysis of mean and correlation scores showed that while both groups aligned on heritage sensitivity and functional performance, they diverged on programmatic and structural reasoning. External evaluations of Group A's projects revealed that AI outputs were effective in generating visual identity but weaker in addressing architectural problems and concepts such as circulation, constructability, and human-centered design. Overall, the study highlights the need for critical AI literacy in architectural education. AI should be integrated as a collaborative medium that enriches creativity while preserving disciplinary fundamentals—context, process, and ethical responsibility.

Keywords: Architectural Education, Artificial Intelligence, Pedagogical Priorities, Design Process, Creativity and Control

INTRODUCTION

As digital technologies continue to redefine creative disciplines, architectural education stands at a transformative threshold. Among these technologies, artificial intelligence (AI) has emerged not merely as a new design tool but as a powerful medium that challenges and reframes the foundational assumptions of architectural pedagogy. AI's growing presence in design workflows invites educators and students alike to reconsider how core values—such as critical thinking, spatial reasoning, and authorship—are negotiated within the evolving landscape of computational design (Kalay, 2004).

Traditionally, architectural education has prioritized process-driven learning, emphasizing iterative development, contextual sensitivity, and the cultivation of a reflective design mindset. However, AI-assisted tools, particularly those based on generative models and text-to-image algorithms, introduce a potential shift in pedagogical focus—from process to outcome, from conceptual depth to visual richness, and from individual authorship to algorithmic collaboration (Komatina et al, 2024). These shifts raise critical questions about how educational priorities in architecture must adapt, particularly as AI becomes embedded in the early stages of the design process.

Within this study, the design studio served as a testbed to explore these questions: When engaging with AI-based generative tools, which aspects of spatial reasoning do students prioritize? What differences emerge between those who employ AI in design tasks and those who critically evaluate AI-generated outputs? To investigate these questions, a mixed-method approach combining studio critiques and survey data was employed. Two groups of students—Group A, who designed using AI, and Group B, who evaluated AI-generated outputs—were compared in terms of their strategies, values, and reflective capacities.

By treating AI as both a medium and a subject of inquiry, this study aims to contribute to the growing discourse on digital intelligence in design education, arguing that AI can serve not only as a creative partner but also as a provocation to rethink the discipline's evolving educational priorities. The following sections first situate the study within a theoretical framework, then outline the methodology of the studio project, present key findings, and conclude with implications for future pedagogical practices.

BACKGROUND AND THEORETICAL FRAMEWORK

This section develops a theoretical lens through which the study examines the evolving relationship between artificial intelligence (AI)

and architectural pedagogy. Central to this inquiry is the question of shifting priorities: how long-standing values of authorship, contextual sensitivity, and spatial reasoning are reconfigured when confronted with the immediacy, automation, and visual seduction of generative tools. Rather than isolating AI as a mere technical advancement, the discussion situates it within broader architectural discourses, tracing how design principles, educational frameworks, and creative agency are renegotiated in this new terrain. In doing so, the section provides a critical foundation for understanding not only the opportunities but also the risks posed by AI to the intellectual and disciplinary core of architectural education.

AI and the Changing Priorities of Architectural Education

The rapid integration of AI into creative disciplines has prompted a re-evaluation of pedagogical values in architectural education. Traditionally, architectural design studios have functioned as spaces of conceptual development, spatial reasoning, and contextual reflection—environments where students gradually construct architectural knowledge through iterative design processes (Oxman, 2008). However, with the emergence of generative tools capable of producing highly detailed visuals from text-based prompts, the way students approach form, meaning, and process is beginning to shift. While these tools expand formal and aesthetic possibilities, they also challenge the discipline's foundational emphasis on authorship, critical thinking, and site-specific engagement (Jin et al., 2024; Alshahrani & Mostafa, 2025).

In this new context, the boundaries between creativity, automation, and interpretation are increasingly blurred. AI tools can serve as powerful agents in early design ideation, yet their use risks detaching architectural production from spatial logic, functional reasoning, and cultural relevance. Recent literature highlights this tension, noting that AI often prioritizes stylistic novelty over architectural coherence (Picon, 2025). While speculative work on AI's potential in architectural practice is growing, empirical studies examining how students perceive, evaluate, and engage with AI-generated designs—particularly within educational settings—remain scarce. This study seeks to fill that gap by investigating how students approach and reinterpret AI outputs through established design principles as critical lenses.

To evaluate AI-generated architectural outputs, this study employs a comprehensive set of design principles that reflect the multi-layered nature of architectural thinking. These criteria encompass:

- **Cultural, historical, and contextual dimensions—**including cultural sensitivity, nature–culture relations, preservation of heritage, and contextual integration—ensuring that proposals remain embedded within societal and environmental frameworks.
- **Urban and infrastructural concerns—**such as compliance with planning regulations, traffic accessibility, and coherent connections between buildings, streets, and public spaces—safeguarding architecture's role within the broader city fabric.
- **Spatial and functional principles—**including programmatic logic, circulation, flexibility, natural lighting, and functional performance—guiding how architectural form accommodates use and experience.
- **Aesthetic and symbolic dimensions—**such as visual distinctiveness, representation, and symbolic meaning—ensuring that designs communicate beyond their technical and functional aspects.
- **Technological, economic, and sustainability concerns—** highlighting the need to balance innovation and resource efficiency with ecological and cultural responsibility.

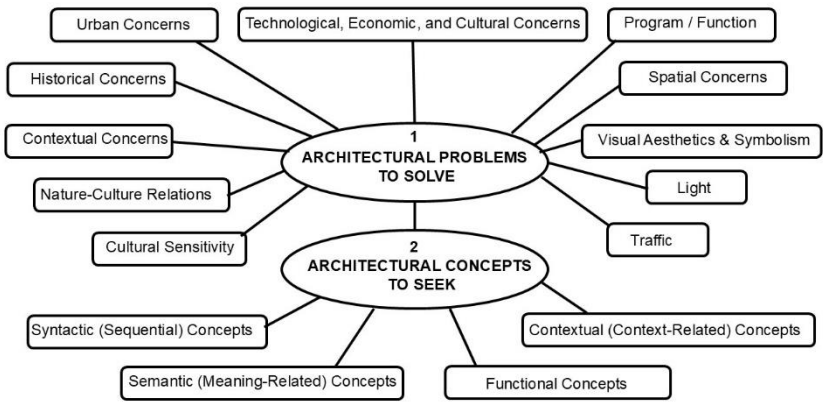


Figure 1. Adopted research criteria (Adapted from Gur, 2017)

Together, these principles provide a critical lens through which AI-assisted designs can be examined—not merely as visually compelling outputs, but as architectural proposals that must negotiate cultural meaning, spatial logic, urban integration, and symbolic resonance. These dimensions are summarized in Figure 1, which organizes the design principles into categories for clarity and analytical consistency (Gür, 2017).

Building on Gür's framework, this study further investigates how such principles manifest in the concept development process of architectural design. In this regard, the analysis is structured around two layers (Figure 1):

1. Design problems represented through 11 criteria (e.g., programmatic clarity, circulation, urban integration, structural reasoning, etc.), and
2. Design concepts captured in 4 thematic categories (syntactic, semantic, functional, and contextual).

These criteria and categories—illustrated in Figure 1—serve as the primary evaluative matrix of the study. By grounding the analysis in Gür's work, the research ensures that AI-generated proposals are not assessed merely as speculative images but are critically examined through established architectural concerns, enabling a systematic comparison between student groups and their design priorities.

Rethinking Design Principles in the Age of Generative Tools

To assess the influence of AI on architectural pedagogy, this study adopts the design principles summarized in Figure 1, building on Gür's (2017) framework. These principles reflect long-standing architectural concerns—cultural and contextual sensitivity, spatial performance, symbolism, and sustainability—and they also form the evaluation criteria for examining student work. In doing so, they provide a structured lens for questioning how architectural thinking is upheld, challenged, or reconfigured in AI-supported workflows.

At the cultural and contextual level, architecture has traditionally emphasized sensitivity to place, history, and collective memory. Frampton's (1983) notion of Critical Regionalism argues for resisting universalized aesthetics by rooting design in local histories, materials, and practices. Similarly, Plevoets and Van Cleempoel (2011) underline adaptive reuse and contextual integration as core pedagogical values. Yet, findings confirm that AI-generated images, while visually striking, often lack historical and spatial grounding. Embedding AI workflows in frameworks that reinforce students' capacity to interpret and negotiate contextual parameters critically becomes essential. The urban dimension further highlights integration with the larger city fabric. Mobility, infrastructural coherence, and topographic continuity have long been emphasized in architectural theory (Leatherbarrow & Mostafavi, 2002; Oxman, 2008). However, AI tools tend to overlook these complexities, prioritizing formal novelty. In this study, students frequently neglected circulation systems, pedestrian flows, and transportation links when producing AI-generated proposals. Incorporating geospatial

data and AI-driven urban analytics into pedagogy could help bridge the gap between speculative imagery and urban realities. Programmatic reasoning and spatial organization also emerged as key concerns. Programmatic logic shapes usability and adaptability over time (Leatherbarrow & Mostafavi, 2002). Yet, critiques from Group B emphasized that AI-generated outputs often lacked clarity in circulation, accessibility, and user-centeredness. While AI offers rapid visual iteration, its capacity to model adjacency and spatial logic remains limited. This points to the need to treat AI not merely as a visualization engine but as a decision-support system addressing functionality and human experience (Komatina et al., 2024; Zhang et al., 2023). On an aesthetic and symbolic level, AI excels at creating atmospheric imagery. McCormack et al. (2020) note, however, that algorithmic diversity often evolves independently of conceptual frameworks, detaching form from critical narrative. In this study, students could identify surface elements such as materials and stylistic cues but struggled to infer design intentions. This underscores the importance of cultivating critical AI literacy—the ability to align algorithmic aesthetics with architectural reasoning (El Moussaoui, 2025). Technological, economic, and sustainability concerns present another priority. Firdaus (2024) warns of a "sustainability paradox" in which generative AI enables compelling visuals that neglect long-term material feasibility, ecological responsibility, or cultural continuity. Similarly, Paananen et al. (2024) stress the importance of contextual intelligence in balancing innovation with environmental and social needs. In this study, several AI-generated proposals demonstrated seductive imagery but lacked sustainable or viable solutions, pointing to the necessity of pedagogical frameworks that reinforce multi-scalar decision-making.

In summary, the framework in Figure 1 provides both theoretical grounding and methodological clarity. It enables analysis of student projects not only in terms of visual appeal but also through 11 design problems (e.g., programmatic clarity, circulation, constructability, sustainability) and 4 conceptual categories (syntactic, semantic, functional, contextual). This dual lens highlights where AI-generated proposals align with enduring architectural concerns and where they fall short, offering critical insights into the evolving priorities of design education.

Bridging the Gap: A Critical Framework for AI in Architectural Pedagogy

Despite the increasing presence of AI in architectural workflows, a central challenge remains: how can architectural education integrate these tools without compromising its intellectual and disciplinary core? While existing literature often emphasizes the technical potential or

speculative futures of AI, fewer studies explore how students critically engage with these tools in relation to authorship, interpretation, and design control (Kalay, 2004). This gap calls for a framework that not only acknowledges AI's productive capacities but also reaffirms pedagogical values such as reflection, contextual sensitivity, and creative agency.

As El Moussaoui (2025) emphasizes, generative AI has blurred traditional notions of originality and authorship. To navigate these shifts, students must develop new literacies: the ability to craft effective prompts, critically evaluate outputs, and recognize biases encoded in datasets and algorithms (Picon, 2025). These competencies are essential for maintaining authorship and agency within AI-assisted workflows.

To examine this dynamic, the study adopts a fourfold conceptual schema—syntactic, semantic, functional, and contextual principles—derived from Gür's (2017) framework and visualized in Figure 1. These categories encompass syntactic principles (geometric order, tectonic logic, composition), semantic principles (narrative, symbolism, cultural legibility), functional principles (usability, circulation, programmatic clarity), and contextual principles (relationship with site, history, and environment). Together, they provide a structured lens to assess how AI-generated proposals align—or fail to align—with disciplinary expectations.

This framework is crucial for revealing both the potential and limitations of generative tools. While AI excels at producing formal and aesthetic variations, it often struggles with programmatic reasoning, site specificity, and theoretical coherence (Zhang et al., 2023; McCormack et al., 2020). Similarly, its ability to embed semantic intent remains limited, requiring students to critically mediate between algorithmic imagery and architectural meaning. By evaluating student work through this lens, the study highlights where generative tools enrich architectural inquiry and where critical intervention is required to preserve disciplinary depth.

Ultimately, this research positions AI not just as a tool, but as a pedagogical catalyst—a medium for questioning and redefining educational priorities. Developing critical AI literacy entails equipping students to engage with AI reflectively, align outputs with cultural and contextual values, and sustain the ethical and intellectual integrity of architectural education (Komatina et al., 2024; Paananen et al., 2024). This conceptual foundation informs the research design of the study. The following section outlines the methodology, detailing how students engaged with AI tools, how outputs were exhibited, and how evaluations were conducted.

METHODOLOGY

This study investigates how architectural students interpret and respond to the integration of artificial intelligence (AI) in their creative workflows, with particular attention to how such tools reshape design thinking and pedagogical priorities. Two central research questions guided the study:

1. How do students involved in AI-assisted design perceive their own design priorities? (internal evaluation, Group A)
2. How do non-AI users evaluate the outcomes of AI-generated designs? (external evaluation, Group B)

The research was conducted within the framework of the MMR 302 Architectural Design Studio IV at Duzce University, a third-year studio focusing on rethinking railway stations as cultural heritage and their reintegration into contemporary urban life. The course followed a 14-week program that combined theoretical research, contextual analysis, collaborative scenario building, and individual architectural proposals. Evaluations were based on the final outcomes produced throughout the semester. Within this framework, students were tasked with designing contemporary additions to the historic Konya Train Station, balancing heritage preservation with new urban functions. The design process adopted a multi-scalar and iterative approach, moving from urban strategies to building-scale interventions, and was informed by detailed site analyses addressing morphology, circulation, topography, and climatic conditions.

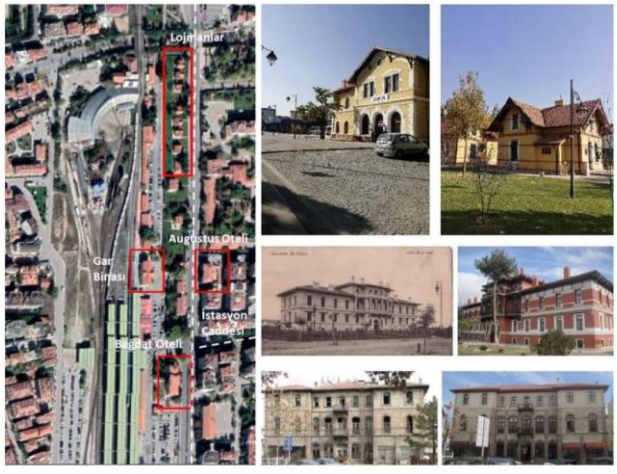


Figure 2. Project Site: Konya Train Station Complex

In the early workshops, students were introduced to AI-based generative tools for purposes such as visualization, inspiration, and concept development. A series of small-scale prompt experiments were carried out, followed by critical discussions on the limitations of AI-assisted design. In subsequent stages, students integrated these tools into the given design problem, guided by principles identified in the literature. To guarantee that all students were evaluated according to the same framework, six overarching themes were established. These focused on spatial scales (interior, exterior, and urban plan) and on the dialogue between historical and modern environments—specifically, the perception of modern space from the historic context and the perception of the historic environment from the modern space. All projects were presented through a standardized poster format combining contextual narratives, analytical diagrams, and AI-generated imagery.

The analysis of design outcomes was guided by the framework presented in Figure 1, building on Gür's (2017) categorization of design principles. This framework was operationalized through two complementary layers: 11 design problems (including traffic, light, historical, spatial, contextual concerns etc.) and 4 design concepts (syntactic, semantic, functional, and contextual). Together, these provided a structured lens for examining how AI-supported workflows align with or diverge from enduring architectural concerns.

An exhibition of student work was organized within the department, where evaluations were conducted through QR codes embedded in the posters. Three different types of feedback were collected: (1) self-assessments from Group A students, (2) peer and external reviews from Group B, and (3) jury-based critiques during mid-term and final reviews. In total, Group A consisted of 18 students who actively engaged with AI in the design process, while Group B included 133 participants (peers and external reviewers) who evaluated the outcomes without directly using AI. This multi-layered process generated both quantitative survey data and qualitative insights, capturing diverse perspectives on the role of AI in architectural education.

By embedding AI into a structured design studio, the methodology framed generative tools not as replacements for design reasoning but as catalysts for critical reflection and debate. Through the use of Gür's framework and the analytical structure of Figure 1, student projects were assessed not merely as speculative visualizations but as architectural inquiries tested against the core categories of the discipline—context, function, and authorship. The following section presents the findings, highlighting how students prioritized different design values, how

external reviewers assessed AI-generated proposals, and where alignments and divergences emerged between traditional architectural concerns and AI-mediated exploration.

FINDINGS

The survey results initially provide insight into how students prioritize the use of AI tools in general terms with reference to their recent architectural studio practice. As shown in Figure 2, AI applications were distributed across different stages of the process, with the strongest emphasis on early-stage concept generation and visualization. Students also reported using AI for data analysis, technical documentation, and problem-solving, but these uses were considered secondary. The reported platforms (Figure 3) suggest that image-based generative tools remain dominant, reflecting a prioritization of rapid idea exploration and visual output over analytical or performance-driven applications.

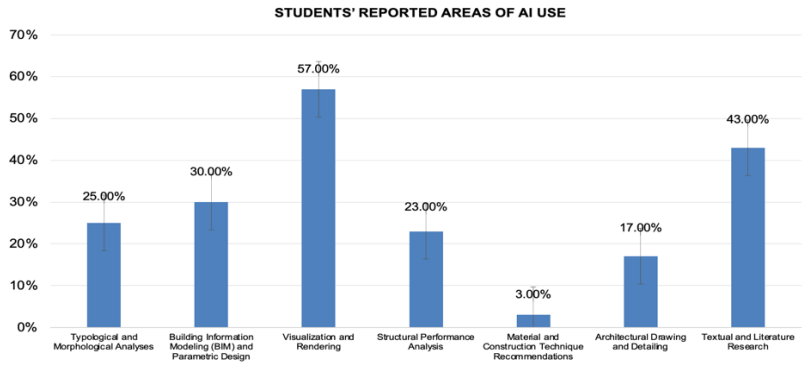


Figure 3. Areas where AI tools are used

When asked about the challenges of using AI (Figure 4), students identified several key priorities that shape their engagement with such tools. Reliability of results and ease of use were ranked as primary concerns, followed by ethical considerations such as data security and authorship. Cost emerged as another practical barrier, signalling inequities in access that may affect who benefits from these technologies. Finally, questions about the effect of AI on creativity indicate that students are not only concerned with efficiency but also with maintaining control and originality in their design process (Picon, 2025).

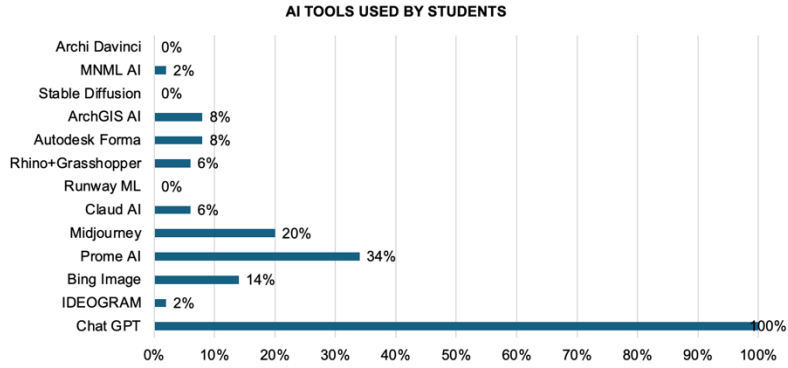


Figure 4. Reported AI tools in use

In terms of benefits, the reported advantages (Figure 5) highlight a strong prioritization of efficiency and creativity. Students most frequently valued the acceleration of the design process and the ability to generate more original ideas. Other important benefits included simplification of data analysis and visualization, time-saving through automation of routine tasks, and more accurate and optimized design iterations. While technical documentation and problem-solving were also acknowledged, these appeared as secondary benefits compared to speed and creative exploration. These findings resonate with arguments in the literature that AI extends the designer's problem-solving capacity by supporting rapid iteration and freeing time for higher-level creative tasks (Kalay, 2004).

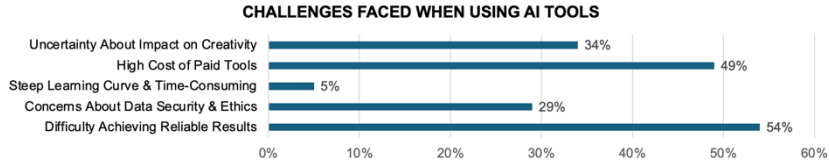


Figure 5. Reported challenges of using AI tools in design studio process

Overall, the findings suggest that students prioritize speed, creativity, and usability as the main drivers for adopting AI in the studio, while simultaneously foregrounding reliability, ethics, and accessibility as key conditions for meaningful integration. This dual emphasis underscores the need for architectural education to strengthen AI literacy—helping students critically balance the efficiency and creative potential of AI with its limitations and risks (Komatina et al., 2024).

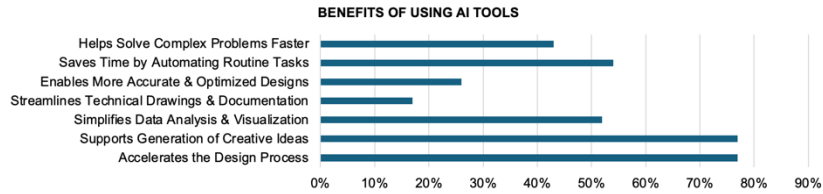


Figure 6. Benefits of using AI tools

These findings suggest that students' engagement with AI tools is shaped by a balance between creative opportunities and critical concerns. Building on these priorities, the next sections examine how students involved in AI-assisted design reflect on their own design intentions (internal evaluation), how non-users critique AI-generated outcomes (external evaluation), and how the practice of constructing and reconstructing prompts may reveal new educational priorities for architectural pedagogy.

Students' Self-Perceived Design Priorities during design process

Figure 6 illustrates how students positioned different design priorities in relation to the historical context of the Konya Train Station. Here, sensitivity to cultural and historical context emerged as the most salient factor, followed by aesthetical and architectural adaptability and functional–spatial performance. This ordering suggests that students were attentive to contextual integration when using AI-based tools, yet they simultaneously regarded adaptability and spatial performance as necessary secondary dimensions. In practice, this reflects a dual mindset: students were eager to exploit AI's capacity for generating visually rich outcomes, but they remained aware that such results had to resonate with the cultural specificity of the site.



Figure 7. Prioritization of Factors in Historical Contextual Design

Figure 7 shifts the focus from isolated priorities to their collective contribution to overall design quality. Here, contextual sensitivity and sustainability-related values contributed most strongly to perceived performance, while purely aesthetic factors showed more modest contributions. This finding highlights a critical pedagogical insight:

although AI tends to privilege striking visual aesthetics, students' evaluative framework revealed a stronger concern for criteria that anchor design decisions in historical continuity and technical resilience. In this sense, the use of AI did not erode traditional priorities but instead made their importance more explicit when evaluating overall quality.

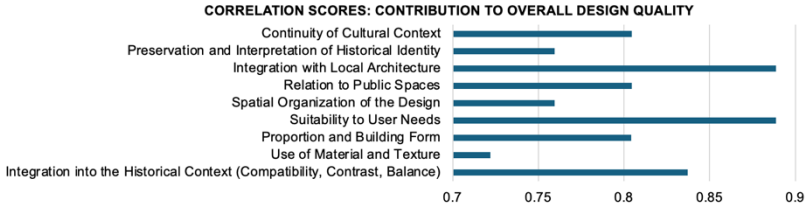


Figure 8. Correlated contributed scores to overall design quality

Finally, the correlation analysis presented in Table 1 provides further depth to these observations. Strong positive associations were found between *reliability and control of AI outputs* (0.918), *sensitivity to cultural and historical context* (0.906), and *technological and structural sustainability* (0.906). These high coefficients indicate that students perceived design quality as directly dependent on their ability to manage AI's unpredictability while simultaneously ensuring contextual and sustainable coherence. By contrast, weaker correlations with aesthetic adaptability and spatial functionality suggest that students considered these values less decisive when establishing a "successful" design outcome in the AI-mediated workflow.

Table 1. Correlation Scores of overall performance contribution

	Contribution Degree (R)
Aesthetical and Architectural Adaptability	0.870
Functional and Spatial Performance	0.870
Sensitivity to Cultural and Historical Context	0.906
Reliability and Control of Artificial Intelligence Production	0.918
Technological and Structural Sustainability	0.906

Taken together, the combined results from Figures 6 and 7 and Table 1 demonstrate that students, while experimenting with AI tools, actively balanced aesthetic exploration with contextual and performative criteria. Rather than diminishing the role of historical sensitivity, AI integration highlighted its necessity as a counterbalance to the algorithm's tendency toward generic visual solutions. This underscores an important pedagogical lesson: the meaningful use of AI in architectural education depends not only on generating innovative

imagery but also on cultivating the capacity to critically mediate between technological output and disciplinary values.

Perceived Priorities by External Evaluators

The comparative analysis between Group A (AI users) and Group B (non-users) provides insights into how AI-generated designs are interpreted when assessed against traditional architectural criteria. As illustrated in Figure 8, the mean scores reveal notable divergences between the two groups. Group A, who worked directly with AI, tended to emphasize aesthetic expression and formal exploration, whereas Group B placed greater weight on functional clarity, contextual integration, and sustainability. This contrast reflects how AI's promise of rapid visual generation may shift students' focus toward outcome-oriented design, while external evaluators continue to uphold more enduring pedagogical values such as spatial reasoning and contextual coherence (Chatzichristou & Kolarevic, 2023; Plevoets, 2011).

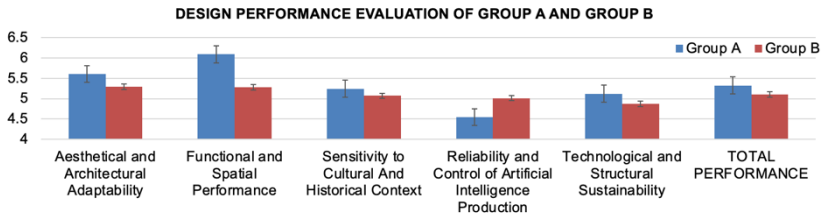


Figure 9. Design performance evaluation by criterion

The correlation scores presented in Figure 9 further refine this interpretation. High correlations between the two groups were observed in criteria related to cultural–historical sensitivity and functional performance, suggesting that these remain shared priorities regardless of design methodology. By contrast, weaker correlations in categories such as programmatic logic and structural reasoning indicate a divergence in priorities: AI users tolerated less resolution in these domains, while non-users regarded them as essential to architectural quality. This finding highlights that while certain disciplinary anchors persist, the integration of AI risks fragmenting the relative weight students assign to architectural criteria.

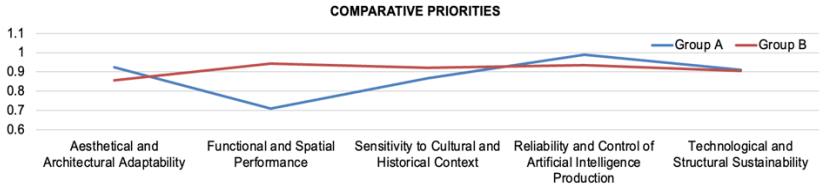


Figure 10. Criteria's comparative contribution to Design Quality

External evaluation of Group A's posters, illustrated in Figure 10, sheds additional light on how AI-generated proposals were judged in practice. Reviewers identified persistent shortcomings in addressing programmatic clarity, circulation, and urban integration, echoing broader critiques that AI may produce visually compelling outcomes without adequately resolving fundamental design problems (Firdaus, 2024). At the same time, projects that demonstrated contextual sensitivity and adaptive reuse potential received relatively stronger recognition, suggesting that external evaluators reward attempts to align AI outputs with traditional concerns of heritage continuity and site-specific responsiveness.

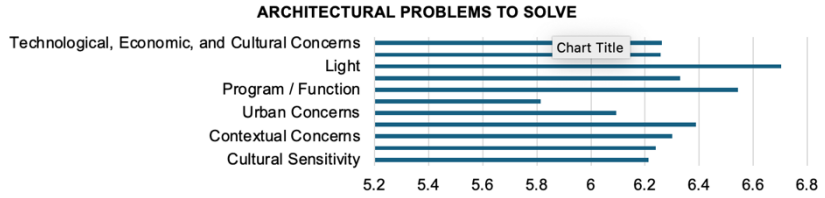


Figure 1 Architectural problems to solve

A similar pattern emerged in the evaluation of architectural concepts (Figure 11). Group B acknowledged that AI-generated designs effectively conveyed visual identity and symbolic form, but highlighted gaps in human-centered design, constructability, and material articulation. This reinforces the perception that while AI facilitates speculative form-making, it falls short of ensuring the multi-scalar integration required in architectural practice (Frampton, 1983; Paananen et al., 2024).

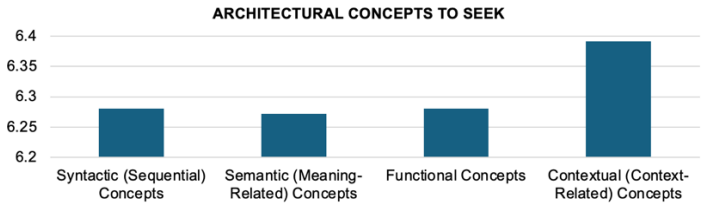


Figure 2 Architectural concepts to seek

Taken together, the comparative findings suggest that AI reshapes how students articulate design priorities, accentuating speed and visual exploration for its users, while external evaluators uphold a broader and more critical set of values. The areas of high correlation underscore architecture's enduring priorities—context, function, and cultural sensitivity—whereas divergences reveal potential risks of superficiality and detachment from design fundamentals. These tensions highlight the pedagogical challenge: ensuring that AI is framed not as a replacement for design reasoning, but as a tool that can complement and extend architectural judgment when critically mediated.

CONCLUSION

This study examined how AI-supported design tools are reshaping pedagogical priorities in architectural education through a studio project at the historic Konya Train Station. By comparing the perspectives of students who actively engaged with AI (Group A) and those who only evaluated AI-generated designs (Group B), the research revealed a dual reality: while AI was valued for its speed, efficiency, and visual richness, it also provoked concerns about contextual detachment, superficial aesthetics, and blurred authorship.

Group A's experience demonstrated that AI can stimulate creative exploration and accelerate early-stage ideation. However, this often came at the expense of conceptual depth and process-oriented learning, traditionally central to architectural pedagogy (Kalay, 2004). Conversely, Group B highlighted enduring architectural values such as contextual sensitivity, functional clarity, and human-centered design (Plevoets, 2011; Zhang et al., 2023). Their evaluations underscored that design quality was judged less by visual novelty and more by cultural coherence, programmatic logic, and sustainability.

The findings collectively point to the necessity of developing critical AI literacy (McCormack et al., 2020). Students must not only learn to generate AI-driven outcomes but also critically interpret, control, and situate them within architectural reasoning. As Firdaus (2024) warns,

visually seductive yet impractical solutions risk undermining both ecological and cultural sustainability. In this sense, AI cannot be treated as a substitute for architectural thinking but rather as a collaborative medium requiring reflective guidance. At the same time, the study raises important questions regarding authorship and collaborative creativity: as AI contributes significantly to the creative process, the issue of design ownership remains unresolved and central to the debate on AI's role in architectural practice (Firdaus et al., 2024).

Pedagogically, three insights emerge. First, design thinking must take precedence over image-making: AI outputs should be integrated into iterative and contextualized processes rather than driving them. Second, ethical and reflective engagement with technology is required: students must be able to question issues of authorship, originality, and bias embedded in AI systems (El Moussaoui, 2025). Third, human creativity and contextual intelligence remain non-negotiable priorities, reminding us that architecture must still be grounded in place, function, and users, even in an age of generative tools (Frampton, 1983).

The conclusions of this research must be understood in light of its specific scope. The project was situated in a heritage context and focused on the design concept stage, where visual exploration tends to dominate. Therefore, the findings cannot be generalized to all phases of architectural production, such as detailed design, construction documentation, or urban-scale planning. Similarly, the evaluation was conducted within a single educational setting and with a limited number of participants, which constrains the transferability of the results.

Future studies should expand on this work by examining how AI tools influence different design phases (from conceptual ideation to technical detailing) and how they perform across varied architectural contexts, including non-heritage urban sites and complex infrastructural projects. Comparative research across institutions and cultural settings could also shed light on how differing pedagogical traditions shape AI's role in architectural education. In addition, longitudinal studies that track how students' AI literacy develops over time would provide valuable insight into the long-term integration of AI into the discipline.

In conclusion, this study demonstrates that while AI-supported tools enrich architectural education by accelerating idea generation, they also demand careful mediation to preserve the discipline's intellectual and ethical foundations. By acknowledging the limitations of this case study and pursuing broader future inquiries, architectural pedagogy can move toward a balanced integration of technological innovation and enduring design priorities (Paananen et al., 2024).

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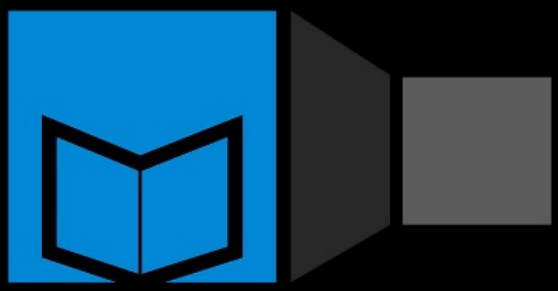
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