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**CONTENTS**

**RESEARCH ARTICLES /** *ARAŞTIRMA MAKALELERİ*

The Epistemological Divide in Urban Design: Reconciling Theory and Practice
*Kentsel Tasarımda Epistemolojik Ayrım: Teori ve Pratiği Uzlaştırma*
**Francis Deng Clement, Ali Soltani** ..... **01**

Cultural Heritage Perception, Awareness and Pedestrian Density: A Case Study in İzmir
*Kültürel Miraşa İlişkin Farkındalık, Algı ve Yaya Yoğunluğu: İzmir'de Bir Vaka Çalışması*
**Ayça Uysal Üner, Ebru Çubukçu** ..... **21**

Analysis of Ottoman Baths in the Context of Architectural Typology: Bursa Bazaar Baths
*Osmanlı Hamamlarının Mimari Tipoloji Bağlamında İncelenmesi: Bursa Çarşı Hamamları*
**Emine Yavuz Pakih, Firdevs Kulak Torun** ..... **44**

Evolution of the Urban Renewal Process into Redevelopment Process as a Failure to Maintain Balance in Public and Private Sector Activities
*Kentsel Yenileme Sürecinin Yeniden Geliştirme Sürecine Evrimi: Kamu ve Özel Sektör Faaliyetlerinde Dengenin Korunamaması*
**Fatma Gözde Köseoğlu** ..... **61**

Metric-Based Comparative Analysis of Seljuk and Byzantine Architectural Practices in Medieval Anatolia
*Selçuklu ve Bizans Mimarisi Üzerine Nicel ve Nitel Analiz: Ortaçağ Anadolu'sundan Örnekler*
**Zeynab Nazer, Péter Rabb** ..... **78**

**Research Article**

# The Epistemological Divide in Urban Design: Reconciling Theory and Practice

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## Abstract

Urban design faces a critical challenge in bridging the gap between theoretical frameworks and real-world implementation. This paper examines the persistent divide between ideals and practice through the lenses of zoning governance, interdisciplinary collaboration, and urban resilience. The study reveals how rigid institutional structures, competing priorities, and fragmented approaches continue to hinder sustainable urban development. Through comparative analysis of global case studies, the research demonstrates that successful urban transformation requires three key elements: flexible zoning systems that balance regulation with community needs, meaningful integration across professional disciplines, and genuine participatory approaches that elevate local knowledge. The findings expose systemic barriers including political-economic constraints, cultural mismatches, and institutional resistance to innovation. The study proposes a new paradigm of reflexive urban practice that combines dynamic policymaking with community engagement and ecological principles. This approach emphasizes continuous adaptation through feedback loops between planning, implementation, and evaluation. The research provides concrete tools for practitioners while highlighting the need for fundamental changes in how urban design is taught, regulated, and implemented. Ultimately, this work argues that urban design must evolve from a technical discipline into an adaptive, inclusive practice capable of addressing 21st century challenges. The findings offer pathways to create more equitable, resilient cities by fundamentally rethinking the relationships between policy, design, and community needs.

**Keywords:** Architecture, Criticism, Practical Gaps, Theoretical, Urban Design, Urban Planning.

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**Araştırma Makalesi**

# Kentsel Tasarımda Epistemolojik Ayrım: Teori ve Pratiği Uzlaştırma

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## Özet

Kentsel tasarım, teorik çerçeveler ile gerçek dünya uygulaması arasındaki boşluğu kapatmada kritik bir zorlukla karşı karşıyadır. Bu makale, imar yönetimi, disiplinlerarası işbirliği, ve kentsel dayanıklılık perspektifinden idealler ile uygulama arasındaki kalıcı ayrımı incelemektedir. Çalışma, katı kurumsal yapılar, rekabet eden öncelikler ve parçalı yaklaşımların sürdürülebilir kentsel gelişimi nasıl engellemeye devam ettiğini ortaya koyuyor. Araştırma, küresel vaka çalışmalarının karşılaştırmalı analiziyle, başarılı kentsel dönüşümün üç temel unsuru gerektirdiğini göstermektedir: düzenlemeleri topluluk ihtiyaçlarıyla dengeleyen esnek imar sistemleri, profesyonel disiplinler arasında anlamlı entegrasyon ve yerel bilgiyi yükselten samimi katılımcı yaklaşımlar. Bulgular, siyasi-ekonomik kısıtlamalar, kültürel uyumsuzluklar ve yeniliğe karşı kurumsal direniş gibi sistemik engelleri ortaya koymaktadır. Çalışma, topluluk katılımı ve çevre koruma kurallarını bir araya getirerek, esnek bir politika geliştirmek için yeni bir yöntem öneriyor. Bu yaklaşım, planlama, uygulama, ve değerlendirme arasındaki geri bildirim döngüleri aracılığıyla sürekli uyumu vurgular. Araştırma, uygulayıcılara somut araçlar sağlarken, kentsel tasarımın nasıl öğretildiği, düzenlendiği, ve uygulandığı konusunda köklü değişiklikler gereksinimini vurgulamaktadır. Sonuç olarak, bu çalışma kentsel tasarımın sadece bir teknik alan olmaktan çıkıp, 21. yüzyılın sorunlarını çözebilecek uyumlu ve kapsayıcı bir uygulama haline gelmesi gerektiğini öne sürüyor. Bulgular, politika, tasarım, ve topluluk ihtiyaçları arasındaki ilişkileri temelden yeniden düşünerek daha adil ve dayanıklı şehirler yaratmanın yollarını sunmaktadır.

**Anahtar Kelimeler:** Mimarlık, Eleştiri, Pratik Boşluklar, Kuramsal, Kentsel Tasarım, Kentsel Planlama.

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## INTRODUCTION

Urban design serves as a vital framework for tackling contemporary urban challenges, balancing sustainability, adaptability, and multidisciplinary integration. Mumford (1961) described the city as both a "physical utility for collective living and a theatre of social action", highlighting its dual role in shaping environments and social dynamics. It operates at the intersection of (Rantanen, 2005)"space of flows" and "space of places", navigating global pressures and local realities.

The theory-practice divide, noted by (Habermas, 1981)as the "colonization of the lifeworld", prioritizes technical rationality over communicative action, exacerbating (Harvey, 2007)"right to the city" paradox—capitalist urbanization versus democratic spatial production. Modernism, per (Madanipour, 1996) established urban design as a discipline, but (Foucault & Carrette, 2013) "heterotopic" critique reveals its tendency to impose order while ignoring existing ecologies.

Contemporary theory, rooted in Kevin Lynch's (1960) cognitive mapping and (Jacobs, 2012)street-level vitality, has shifted toward (Sassen, 2014)"open-source urbanism", embracing complexity. (Latour, 2005)actor-network theory views cities as dynamic assemblages, while (Mostafavi, 2013)ecological urbanism, inspired by (Guattari, 1995)"ecosophical" approach, integrates environmental, social, and mental ecologies.

The challenge, as (Koolhaas & Mau, 1995) notes in the "generic city", is crafting (Brenner, 2000)"differential space"—resisting uniformity while supporting growth. (Scott, 2005)These demands moving beyond (Scott, 2005)"authoritarian high modernism" toward (Sandercock, 1998)"cosmopolis", embracing diversity. Urban design must prioritize (Augé & Bixio, 1995)"places" over "non-places", addressing (Brenner & Schmid, 2015)"extended urbanization" to create meaningful, resilient cities.

The operational realities of municipal governance systematically diverge from normative theoretical constructs (Gómez-Varo et al., 2024) revealing what Flyvbjerg (1998) identifies as the "rationality paradox" in urban development. Contemporary urban designers, despite adopting what (Fainstein, 2010) terms "the just city" approach through grounded problem-solving, remain marginalized within institutional power structures (Bregoli et al., 2024; Cao et al., 2024; Grove et al., 2024). This professional asymmetry reflects what (Healey, 2007) describes as the enduring "trap of technical expertise", where urban planners maintain policy hegemony through what (Flyvbjerg et al., 2002) exposes as the strategic use of "rationality rituals" in governance.

The dialectical relationship between urban planning's macro-scale interventions and urban design's micro-scale sensibilities embodies what (K. Lynch, 1984). theorized as the necessary "tension between totality and fragment" in city-making. While planners operationalise what (Faludi, 1973) framed as "procedural rationality", designers engage in what (Jacobs, 1993) called "making city sense" - a reciprocal dynamic that (Carmona, 2021) demonstrates can produce spatially coherent yet functionally robust urban environments. However, as (Enright & Olmstead, 2023)empirically validate, this interaction frequently degenerates into what (Marcuse, 2009) critiqued as "conflictual urbanism", where disciplinary turf wars undermine integrated outcomes.

The persistent implementation gap between urban design theory and practice manifests what (Schoen & Uhlenbeck, 1983) diagnosed as the "crisis of professional knowledge" in complex systems. Cities struggle to reconcile what (Brenner & Schmid, 2015) term "planetary urbanization" pressures with the situated intelligence that Amin & Thrift (2002) argue defines successful urban interventions. This research interrogates these disjunctures through what Roy (2005) calls "urban informality" frameworks, simultaneously clarifying urban design's distinct epistemic boundaries from both architecture's object-fixation (Koolhaas & Mau, 1995) and planning's abstractionist tendencies (Scott, 2001).

This study examines the fundamental disconnect between urban design theory and practice through the dual lenses of zoning g governance and interdisciplinary collaboration. Building on (Flyvbjerg, 2014) critique of rational planning models, we investigate why urban design knowledge often fails to translate into effective practice, following (Bamberger & Schön, 1983) framework of reflective practice in complex systems. The research traces how five decades of critiques -from (Wendt, 2009) challenge to modernist planning through Marcuse's (2009) conflictual urbanism- have reshaped contemporary approaches to zoning and design implementation. We develop (Sassen, 2014) concept of "analytic borderlands" to identify practical strategies for bridging the theory-practice divide in urban governance, particularly in achieving what (Brenner & Schmid, 2015)terms "differentiated coherence" in zoning systems. The study operationalises (Amin & Thrift, 2007) institutional thickness framework to test interdisciplinary models for sustainable urban transformation, while applying Roy's (2005) urban informality lens to zoning paradoxes.

Methodologically, we combine critical discourse analysis of planning documents, comparative case studies of zoning adaptation, and participatory action research with design teams. Our findings contribute both practically - through diagnostic tools for implementation gaps and protocols for knowledge integration - and theoretically, by advancing the concept of "reflexive zoning" that merges regulatory theory with reflective practice. The research ultimately aims to reconcile what (Sandercock, 1998) identified as the rationalist-pragmatist divide in urban scholarship, offering pathways to more adaptive and ecologically sound urban futures while identifying key areas for future research on planetary urbanization's impact on zoning epistemologies and digital planning innovations.

**Methodology**

This research adopts a qualitative, exploratory approach to examine the interplay between urban design theory and practice, with a specific focus on zoning strategies and interdisciplinary collaboration. Grounded in (Schoen, 1983) reflective practice framework and (Flyvbjerg, 1998) case study methodology, the study investigates how urban design knowledge is translated -or fails to be translated- into material urban interventions.

**Research Design**

The study employs a comparative case study methodology, analysing selected urban projects that exemplify the integration (or disjuncture) of architectural and planning principles in urban design implementation. These cases are examined through the lens of what Sassen (2014) terms "analytic borderlands"—the conceptual spaces where disciplinary logics intersect and transform. Each case is evaluated based on:

**1. Regulatory Adaptation**: How zoning frameworks evolved from theoretical models to on-ground implementation (Fischler, 2011).

**2. Interdisciplinary Negotiation:** The role of what (Amin & Thrift, 2002)call "institutional thickness" in shaping outcomes.

**3. Socio-Spatial Outcomes:** The realized urban form against intended theoretical objectives (Lefebvre, 1974).

**Data Collection**
The study synthesizes two primary data streams:

**1. Document Analysis**
- Critical review of urban design guidelines, zoning codes, and planning policies (Scott, 2001).
- Mapping of theoretical frameworks against their practical iterations in project documentation (Roy, 2005).

**2. Expert Engagement**
- Semi-structured interviews with urban designers, planners, and architects, applying what (Healey, 2007) terms "knowledge capital" mapping.
- Focus groups with municipal stakeholders to assess governance barriers (Flyvbjerg et al., 2002).

**Data Analysis**
Thematic analysis is conducted through:
**1. Theory-Practice Dialectics:** Identifying gaps between normative urban design principles (Lynch, 1984) and realized spatial outcomes.
**2. Interdisciplinary Interfaces:** Coding collaborative processes using (Elshater & Abusaada, 2023) framework for disciplinary integration.
**3. Zoning Paradoxes:** Applying (Brenner & Schmid, 2015) "differentiated coherence" concept to evaluate regulatory adaptability.

This methodology (Figure 1) transcends conventional case study approaches by embedding urban design analysis within critical theory frameworks, offering both diagnostic tools for practitioners and conceptual advances for

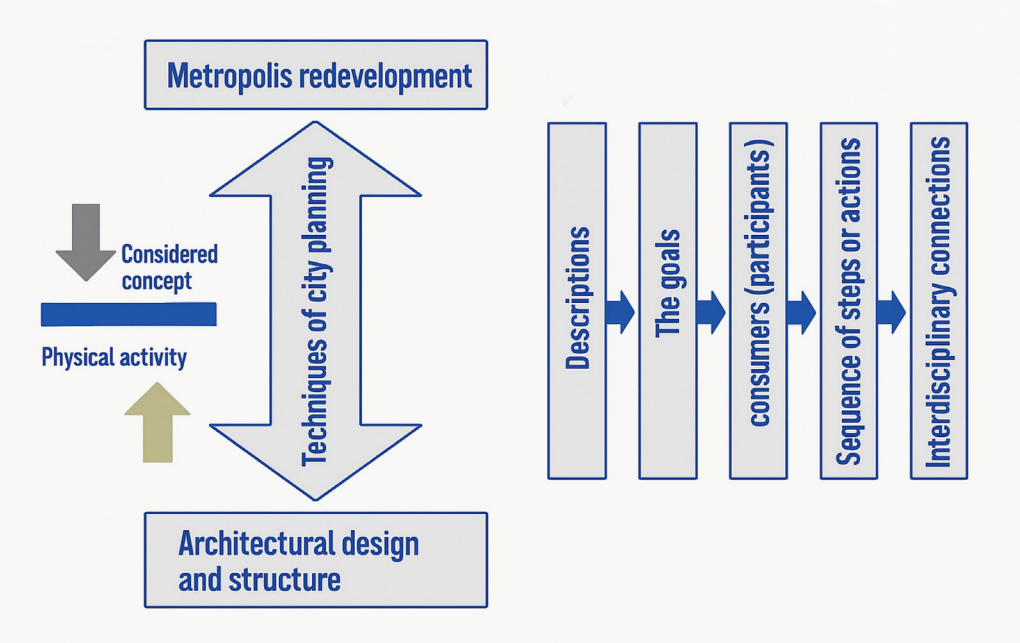


**Figure 1.** Analytical framework for bridging theory and practice in urban planning -courtesy of Author.

scholars (Dehghani et al., 2023). The tripartite structure -document analysis, expert engagement, and relational mapping- provides a robust scaffold for understanding urban design's interstitial nature between aspiration and implementation.

At the bottom of the chart, "Architectural design and structure" is emphasized, signifying the culmination of the redevelopment process where design theory materializes into tangible frameworks. Parallel to this, on the right side, vertical boxes labelled "Descriptions", "The goals", "Consumers (participants)(Bagheri et al., 2024)", "Sequence of steps or actions", and "Interdisciplinary connections" are sequentially linked by arrows, representing a systematic flow of information (Farahani et al., 2015), objectives, stakeholder engagement, procedural actions, and collaborative integration across disciplines. This configuration underscores the comprehensive and interconnected nature of metropolis redevelopment.

**Urban Design Definition**

Urban design represents a profound mediation between human aspirations and the material realities of cities, rooted in both philosophical traditions and practical interventions. At its core, it embodies what Kevin Lynch conceptualized as "the deliberate shaping of urban environments to nurture human flourishing" -a process that synthesizes spatial organization with social meaning. This discipline operates within what Henri Lefebvre termed "the urban fabric", where physical forms simultaneously reflect and shape power structures, cultural values, and ecological relationships. The field remains torn between modernist visions of ordered efficiency, epitomized by Le Corbusier's Radiant City (Soltani et al., 2018), and organic approaches championed by Christopher Alexander's pattern language theory, which argues for incremental, human-scaled development. Contemporary urban design increasingly embraces what Doreen Massey called "thrown togetherness"- the recognition that cities are dynamic assemblages where formal planning must engage with informal practices (Soltani & Allan, 2006).

The ecological turn in urbanism, drawing on thinkers like Timothy Morton and Bruno Latour, now positions urban design as a critical practice for navigating the Anthropocene, demanding solutions that address climate resilience while ensuring spatial justice. Projects like Jan Gehl's Copenhagen transformations (Clement & Zhou, 2025) or Jaime Lerner's Curitiba experiments demonstrate how theory becomes material practice, revealing urban design's unique capacity to translate between abstract principles and lived experience. As cities face unprecedented challenges, from inequality to climate breakdown, urban design emerges (Chenary et al., 2023) not merely as technical discipline but as essential philosophical project - one that must continually negotiate between utopian imagination and pragmatic intervention, between global paradigms and local particularities, to create spaces that are simultaneously functional, meaningful, and sustainable.

**Aims of Urban Design**

Urban design aims to enhance urban experiences, particularly challenging in developing nations with limited resources and underdeveloped systems. Key issues include (Table 1):

**Urban Challenges:** Poor planning, mobility restrictions, and inefficient infrastructure undermine sustainability and inclusivity, significantly impacting economic development through misallocated resources (Soltani & Allan, 2006).
**Governance:** Effective legal frameworks and governance are essential for sustainable, inclusive city development.

**Cultural Context:** Traditions shape urban behaviours and norms; understanding them is crucial for locally responsive design.
**Political-Economic Factors:** Authorities employ context-specific development approaches influenced by economic conditions, affecting public services and resource allocation.
**Resource Disparities:** Wealthier cities achieve more comprehensive development than resource-constrained ones.

**Table 1.** A concise overview of the goal of urban design as described in literature.

| No | Goals and Standards for Urban Design | Lynch, Kevin | Jacobs, Allan, and Donald Appleyard | Jon Lang | Francis Tibbalds | Design Guideline | Emerging Residents (according to Krieger, Urban Design Regions) |
|---|---|---|---|---|---|---|---|
| 1 | Security and Reliability | Energy, secure | The affordability, peace of mind | Spaces influence more | People realm's character | | |
| 2 | A Livable Sphere Theme Synthesis | Environmentally resilient | | | | | |
| 3 | Maintaining Ecological Balance | (Restoring ecological balance) | | | | | |
| 4 | Place, Identity, and Form in Perspective | Practical, personal identification | Individuality, Visual characteristics | Regional recognition of a person | Morphology o f the town | | |
| 5 | How Everything Fits in Urban Areas: Structure, Enclosure, and Continuity | Architecture (alignment, component suitability) | Relevance & genuineness. Environment | Incorporate every aspect, perimeter & coherence | Surface finish | | |
| 6 | Create for Accessibility & Reliability | Clarity | Established a comprehensible community | Accessibility | | | |
| 7 | Acknowledging the Setting via Recognition of the Place's Culture | Site classification by structural form and client visibility | Understand the history and acknowledge the setting. | | | | |
| 8 | Deliver User-Controlled Surroundings | Manipulate, Administration of the residence | Regulating building systems | Consumers socializing, switch any abrupt variation | | | |
| 9 | Comparable Accessibility, Oversight, and Potential for All Facets of Society | Assessing the oversight framework with diligence and dependability | Community and public | | | | |
| 10 | Enhancing Freedom of Movement and Communication | Entry | Increasing connectivity, convenience, and attractive associations | Increase walking mobility | Affluence of measure, link, and longevity | | |
| 11 | Building up for Flexibility and Strength | Adequate, flexible and robust | Responsiveness, preserving knowledge shared | | | | |
| 12 | Create Proportions and Scale for People in Mind | Analyses scale | Incorporate man aspects, compliance | Measure for togetherness | | | |
| 13 | Cost-Effectiveness Along with Optimization within the Constructed Landscape | Efficiency | Affordable construction elements resolve conflicts among various factors | Building sustainability | | | |
| 14 | Promoting Equality Through Equal Access to Community Resources and Benefits | Fairness, advantage consumers | A society benefits all | Convenience | | | |
| 15 | Multiple Uses Along with Mixed-Use Development | Integrating activities, variations | Integrating activities, variations | | | | |

This table integrates the views of various urban design theorists, comparing their emphasis on key urban design principles such as security, accessibility, ecological balance, community, and sustainability. Each row provides insight into how different urban design experts view the practical application of these concepts.

**Actors in Urban Design**

Urban design involves users, producers, and regulators (Liu et al., 2022) with political entities and planning authorities playing dominant roles through policies that shape development. These key actors define urban spaces, though institutional dynamics influence rather than dictate design outcomes. Conflicting interests among stakeholders often hinder cohesive urban development, as political and economic constraints frequently prioritize sectoral needs over community wellbeing. Top-down approaches exacerbate these issues by ignoring local contexts, necessitating inclusive mechanisms for equitable, livable spaces.

Urban designers must navigate complex regulatory frameworks and competing demands while understanding their intrinsic policy relationships (Michaels et al., 2014; Un-Habitat, 2012). This integration is vital for sustainable, seamless urban evolution.

**Process Diagram for Urban Design**

Urban design is a systematic method of confronting urban challenges through evaluation, designing, and brainstorming (Farsangi et al., 2019). This method means that solutions are able to be used in operation, are properly maintained, and are future-proofed for the longer term (Talen, 2020). Urban design is increasingly less linear as it is traditionally perceived of (Niemitalo et al., 2021), following a circular loop pathway whereby feedback coalesces to make previous mistakes deeper and more cohesive. This flexibility allows urban design to meet changing conditions and needs, creating a more resilient city designed for the future (Lehmann et al., 2023).

If urban designers produce standalone proposals, they work with the relevant project administrators and financiers to carry out their project, or they work with them to improve on existing strategies for the project (Cattaneo et al., 2022). It requires being intentionally aware of the consequences of design decision-making on what may be the by -products of the physical, social, and environmental evolution so that the path of sustainable development may be followed (Lang et al., 2022). Traditionally urban design is an adaptable profession-where newer innovative techniques bring in resilience in the management of urban spaces (Fraser et al., 2020) actualizing and sensibly maintaining city plan with essential intercessions. While negotiation and mediation are crucial, they are unlikely to be enough for achieving successful urban design (Hung et al., 2022).

To design resilient and inclusive urban spaces requires substantial depth of insight into stakeholder dynamics, the role of iterative design, and practical limitations (Gómez-Varo et al., 2022). Even though the case of ideal urban forms has been exhaustively elaborated upon in the literature, the ways to implement the urban design ideas into action are still lacking, implying that relevant research might unite theory and practice (Lehmann, 2023).

**Additional Disciplines Incorporate Urban Design**

Urban design often loses in short-term planning that neglects long-term integration of buildings and public spaces. Excessive regulation stifles innovation, while insufficient oversight creates poorly planned environments. Balanced regulatory flexibility is crucial for functional yet creative urban development. Architectural and urban design professions require advanced education to foster innovation, sustainability, and interdisciplinary thinking—key to addressing modern urban challenges. This approach enhances adaptability and future-focused solutions (Figure 2).

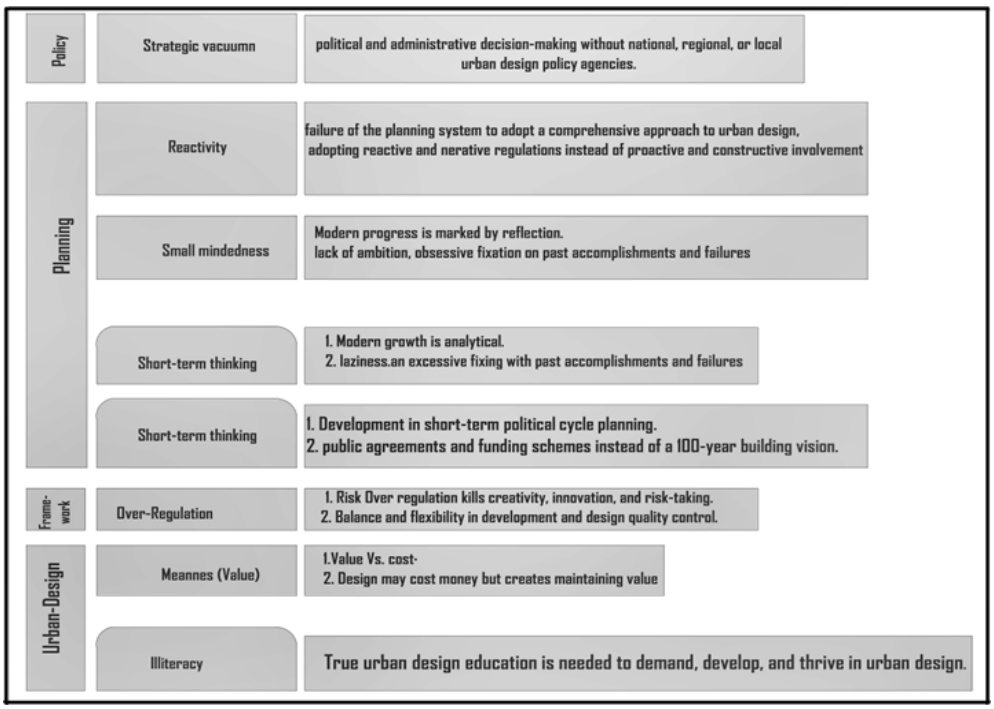


**Figure 2.** Seven urban design grips

The framework dimension discusses "Over-regulation", illustrating risk-averse tendencies and the challenge of achieving a balanced and flexible approach to urban development. Within the category of Urban Design, challenges such as "Meanness (Value)" highlight the conflict between cost efficiencies and delivering long-term value, while "Illiteracy" underscores a critical need for urban design education to enhance literacy, expertise, and informed decision-making in this field.

### Realities Versus Gaps in Urban Design

Urban design often struggles with implementation, as many projects are altered or abandoned due to constraints, raising doubts about the discipline's effectiveness. This theory-practice gap highlights the need for stronger frameworks to create sustainable urban spaces. Interdisciplinary collaboration—integrating architecture, engineering, and sociology—could bolster urban design's credibility. Without it, skepticism will persist. The failure of urban projects often stems from misapplication rather than inherent flaws in city structures. Reforming outdated approaches could improve outcomes.

The divide between urban design (focused on aesthetics and human experience) and planning (centred on land use policy) hinders collaboration. Since the 1960s, architecture prioritized form, while planning shifted to economics, widening the gap. Urban design now bridges these disciplines, merging strategic planning with creative architecture to address social and environmental concerns. It also fosters "third places"—social hubs between home and work—enhancing community life.

### The Historical Context

The term "civic design" (1908) preceded modern urban design, initially focusing on civic buildings and open spaces (Larice & Macdonald, 2007) before expanding to the entire public realm. Urban design became systematic in the 1960s, taught at institutions like Harvard (Banerjee & Loukaitou-Sideris, 2019), emphasizing scale. Early modernist movements (e.g., CIAM) prioritized grids and functional segregation but overlooked human-centred design, later shifting toward public realm and activity.

By the 1960s, CIAM's influence extended beyond architecture, shaping urban design as an integration of social, economic, and environmental factors. Since the 1990s, sustainability (climate assessments, green mobility) moved from an afterthought to a core focus. Modern cities must balance eco-friendly and socially inclusive development, fostering resilient communities through holistic urban spaces.

### Urban Design Practice

Urban design innovations worldwide demonstrate the importance of blending traditional approaches with modern utility, as rigid modernist solutions often fail when applied without context (Moore). However, urban design frequently faces constraints from political pressures and market forces that prioritize private development over public spaces, ultimately fracturing urban cohesion. Addressing these challenges requires improved education and policy interventions to better align private interests with public needs. Successful examples from global cities offer valuable lessons: Barcelona's Superblocks create pedestrian-friendly zones that reduce traffic and pollution; Curitiba's Bus Rapid Transit system showcases integrated public transport planning; Freiburg's eco-districts model sustainable zoning; Portland's flexible zoning encourages mixed-use development; Singapore balances urban density with green infrastructure; and Copenhagen implements climate-resilient designs like green roofs. These cases collectively demonstrate how interdisciplinary approaches, participatory planning, and sustainable zoning can create more livable, resilient urban environments when properly implemented. The lessons from these diverse contexts enrich urban design theory by providing practical evidence of successful strategies that address both functional needs and quality of life in cities.

**Table 2.** A summary of the best practices from various cities with practical insights and their application to urban theory

| City | Best Practice | Context | Practical Insight | Application to Theory |
|---|---|---|---|---|
| Barcelona, Spain | Superblocks for Urban Livability | Transforms clusters of city blocks into pedestrian-friendly zones, reducing traffic and pollution. | Integrates urban design with environmental goals, prioritizing community needs and livability. | Demonstrates how zoning reforms and public space design can align with sustainability principles. |
| Curitiba, Brazil | Integrated Public Transport and Urban Planning | Developed a globally recognized Bus Rapid Transit (BRT) system to align transport with urban growth. | Highlights interdisciplinary collaboration among planners, engineers, and policymakers to enhance urban mobility and reduce environmental impacts. | Illustrates the effectiveness of integrating technical solutions within broader urban design frameworks. |
| Freiburg, Germany | Eco-city Development | Combines sustainable zoning policies, mixed-use developments, and renewable energy integration. | Balances urban development with ecological preservation, showing how environmental assessments enhance urban design. | Provides a model for incorporating sustainability into zoning and urban morphology. |
| Portland, USA | Flexible Zoning Policies | Employs urban growth boundaries and adaptable zoning to support compact development. | Demonstrates how flexible zoning encourages mixed-use neighbourhoods and sustainable urban growth. | Validates the theoretical argument for adaptable urban policies. |
| Singapore | Integrated Urban Planning and Design | Centralized planning integrates land-use, transportation, and housing in a compact urban layout. | Highlights how interdisciplinary planning balances urban density with green infrastructure. | Reinforces the importance of coordination across disciplines for sustainable urban outcomes. |
| Copenhagen, Denmark | Climate-Resilient Urban Design | Implements climate-adaptive features such as green roofs and permeable surfaces to manage flooding. | Combines environmental resilience with urban aesthetics and functionality, enhancing sustainability. | Provides evidence for the practical utility of resilience strategies discussed in theory. |

These cities exemplify how urban planning practices can be applied in real-world contexts, showing the intersection of theory and practice in achieving sustainable, livable, and resilient urban environments.

**Architecture-Urban Design Relationship**

Urban design blends architecture with broader urban contexts, focusing on both built and unbuilt spaces. Alex Krieger notes overlapping roles between architects and planners complicate their relationship. Three debates exist: some claim architects dominate, but Sebastian Loew highlights engineers' key role (e.g., Haussmann's Paris). Germany classifies urbanists as engineers, yet no country grants architect the title "urban designer", despite U.S. legislation formalizing it in 2001. Urban design is often misconstrued as large-scale architecture, prioritizing aesthetics over social and environmental integration, risking unlivable developments. Urban design emerged in the 1960s as planning shifted from physical to social and infrastructural concerns. While Gunder views planning as encompassing urban design, Patsy Healey argues placemaking (and thus urban design) is central to planning. Most agree urban design is key to landscape urbanism and city planning, requiring integration for sustainability. Sustainable Urban Development, merges environmental, social, and economic dimensions through interdisciplinary methods. Compact designs, mixed land uses, and sustainable transport boost efficiency and inclusivity (Jabareen, 2006). Spatial analysis, stakeholder engagement, and mixed assessments align local needs with scientific insights (Sioen et al., 2016). Collaboration among designers, policymakers, and communities addresses challenges like climate resilience (Kee, 2019).

**The Research Gap**

Urban design must address social contexts and political climates, moving beyond its current flawed approach to city management. Talen and Sorkin critique its trajectory as a "cul-de-sac", caught between architects' focus on originality and urban designers' emphasis on human settlements. Talen argues architects should stick to buildings, while urban designers work at a larger scale, experimenting with new methods.

**Present Theory of The Urban Design Procedure and Its Status.**

Urban planning must ensure that the physical design of cities reflects core social values such as justice, democratic participation, and sustainability. By integrating urban design as a key component of planning practice, these principles can be consistently applied throughout city development. Both architecture and urban planning must align with established standards to maintain coherence between design and societal goals (Manthiou et al., 2018).

To improve urban modeling, experts advocate for optimization techniques in procedural city design. This involves algorithmic approaches that treat urban layouts as spatial optimization problems, enhancing efficiency and strategic planning. Additionally, sustainable urban form depends on principles such as walkability, density, mixed land use, and ecological connectivity—factors critical to advancing urban sustainability (Jiang et al., 2023).

Environmental management tools, such as Strategic Environmental Assessment (SEA) and Environmental Site Impact Assessment (ESA), are essential for creating sustainable urban spaces. These frameworks ensure systematic environmental considerations, fostering ecologically sound and socially productive cities. Trees and green infrastructure, for instance, play a vital role in enhancing landscape quality (Ismayilova & Timpf, 2023).

Critiques of urban planning highlight the need for foundational improvements. Scholars and practitioners must adopt a proactive approach, using research-driven strategies to address shortcomings rather than merely identifying them.

Continuous refinement at each stage of urban design is necessary for meaningful progress (see Figure 3).

### Does This Definition Yield an Understanding of Urban Design?

While critiques of urban design persist, criticism alone—whether justified or not—fails to offer solutions or recognize the field's progress. To drive meaningful change, the discipline must be reevaluated rather than endlessly scrutinized. Cities with decades of history should revisit their urban design frameworks to address modern challenges, not to dismiss past approaches—which were effective in their time—but to redefine what "urban" means today. This evolution ensures design practices remain relevant to contemporary societal and environmental demands (Figure 3).

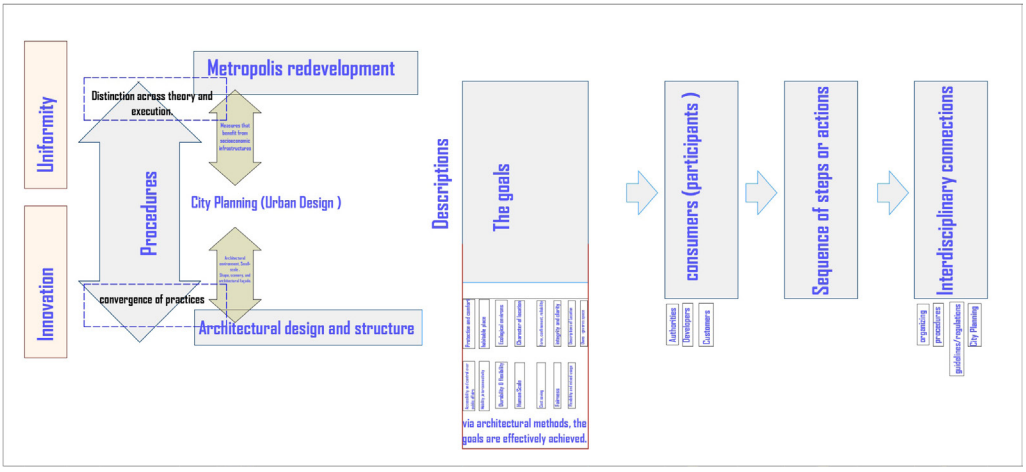


**Figure 3.** The Urban Designs Procedure Phase with regard to City Planning & Architecture. Source Author.

The flowchart further progresses through a detailed sequence comprising "Descriptions", "The goals", "Consumers (participants)", "Sequence of steps or actions", and "Interdisciplinary connections." These sequential elements underline the systematic nature of redevelopment, where coordinated efforts across multiple disciplines contribute to effective goal realization. Additionally, the text highlights the achievement of redevelopment objectives through the strategic integration of architectural techniques, ensuring alignment between urban design and practical execution.

### How is Conceptual Urban Design Applied?

Urban design is a complex process shaped by cognitive-cultural loops, technology, and cultural influences. Biomimetics—drawing inspiration from nature—offers innovative solutions for sustainable urban growth, while intelligent city principles, resilience, and low-carbon initiatives help address urbanization challenges. Advanced tools like evolutionary algorithms and computational fluid dynamics can optimize designs for better ventilation and functionality. Successful urbanism requires continuous renewal, yet each city's unique context—including race, politics, and culture—affects how design principles are applied, sometimes in unexpected ways (Bettencourt, 2021). However, excessive contextualization risks inconsistency, particularly in education. Urban design strategies must therefore balance adaptability with core principles (Williams, 2023).

### Theory Versus Practice: What is Needed and How Can It Be Achieved?

Urban design is shaped by policy frameworks (Rode, 2019), but stakeholder conflicts hinder implementation. Bridging theory and practice requires collaboration among researchers, educators, and practitioners (McClymont, 2022). Interdisciplinary efforts are key to developing resilient urban solutions.

### Could the Urban Design Process Be More Systematic?

The actual process of urban design is far more labyrinthine and the stages in which its planning should be intertwined are still a topic of debate. Consequently, this points to the necessity for more research on unified approaches in sustainable

urban development planning. It will be appropriate for achieving participatory planning, a key aspect of inclusivity and one that reflects all-inclusive public space as an expression of community needs and aspirations. However, political hurdles within public design defeat the participatory approach, the integration of governance, health equity and environmental sustainability in design will necessarily promote social justice and for improved community well-being.

**Is the Cyclical Association of Urban Design with Related Fields Possible?**

This gap between theory and practice in urban design is issues like them has not been well investigated among the related disciplines: Planning and development. It is thus imperative that this gap be bridged, with the aim of ensuring a smoother transition from research into theory to practice application in order to increase the probability of strategies working as intended. This means that the urban design process has to design through —and with regard for— existing governance structures. Intervening in the design of these socio-technical systems to achieve a more sustainable urban future, a number of studies suggest, requires a clear understanding of the organizational properties of urban governance.

Urban planning must bridge theory and practice to address 21st-century challenges through flexible, mixed-use zoning that enhances vibrancy, equity, and sustainability (Alonso-Blanco et al., 2023). Participatory frameworks and evidence-based decisions are critical for resilient outcomes (Ross et al., 2024; Amoako et al., 2022). Interdisciplinary collaboration with environmental, social, and economic experts ensures holistic solutions (Santos et al., 2025; Yapp et al., 2025). Data-driven monitoring of zoning impacts enables adaptive, responsive planning (Singh et al., 2023). Together, these strategies foster equitable, sustainable cities that meet evolving community needs.

**DISCUSSION**

Critics argue urban planning has often relied on naive theories or inconsistent solutions over the past 50 years. A key issue is static zoning practices that create disconnected spaces and fail to adapt to urban complexity (Palermo, 2014). This theory-practice gap stems from traditional approaches that produce inflexible models unsuitable for local contexts. For example, zoning often prioritizes economics over social and ecological needs. Scholars like (Madanipour, 2006) advocate interdisciplinary approaches and context-sensitive zoning laws to address this (Asaad et al., 2020).

To bridge the gap between theory and practice, interdisciplinary dialogue is essential in urban design, planning, and architecture. Urban design emerged from the fusion of architecture and planning (Yang & Taufen, 2022) yet these fields often operate separately, fragmenting development strategies. Interdisciplinary collaboration can integrate aesthetics, functionality, and environmental concerns, fostering sustainable urban landscapes (Lang, 2005; Kreiger & Saunders, 2009). Collaborative methods like co-design and Sustainable Urban Drainage Systems (SUDS) blend technical, social, and environmental solutions, enhancing climate resilience and resource management (Savage et al., 2018; Neuman et al., 2021).

Flexible urban design, grounded in theory yet adaptable, encourages experimentation and mixed-use developments over rigid zoning, improving resource efficiency and social sustainability. Community participation ensures local needs shape decisions, creating valued, connected spaces. Multidisciplinary teams—environmental, social, and economic experts—address

urban challenges holistically, promoting equitable cities. Real-time data analytics further refine zoning, making it responsive to evolving conditions. Combining flexibility, engagement, and data-driven strategies builds resilient, inclusive urban environments that adapt and thrive amid modern complexities.

## CONCLUSION

The critical method remains essential in urban planning and design, linking theory to practice (Fischer & Forester, 1993). This study highlights the need to address the theory-practice divide—seen in zoning paradoxes, governance barriers, and interdisciplinary tensions—through a shift to reflexive urbanism. Global case studies, like Barcelona's Superblocks and Singapore's integrated planning, show that sustainable urban futures require adaptive governance, moving beyond rigid zoning to flexible policies balancing economic, social, and ecological goals (Brenner & Schmid, 2015) interdisciplinary collaboration, merging architecture's form-focused approach with planning's policy orientation via participatory frameworks (Carmona, 2021); and ecological integration, embedding green infrastructure and climate resilience (Bibri, 2020; Orenstein & Shach-Pinsley, 2017). Urban design's evolution—from modernist rigidity to ecological and participatory models—shows equitable outcomes depend on cultural context (Lefebvre, 1974) and community agency (Sandercock, 1998). Yet, top-down governance and market forces often undermine these priorities, deepening inequalities (Fainstein, 2010; Harvey, 2008). To address this, we propose participatory co-design, using tools like co-design charrettes and digital platforms, as in Copenhagen's climate adaptation, and data-driven reflexivity, employing real-time analytics to adapt zoning dynamically (Sassen, 2014).

Future research should focus on scalability across diverse contexts and tackling power asymmetries to ensure inclusive development. The aim is just cities—where critical reflection, multidisciplinary synergy, and ecological stewardship promote social-environmental justice. Urban scholarship and practice must institutionalize critical participatory loops—ongoing feedback between theory, community input, and adaptive implementation—to make urban design equitable and resilient.

### Conflict of Interest

No conflict of interest, it must be written: 'No conflict of interest was declared by the authors.

### Authors' Contributions

The authors contributed equally to the study.

### Financial Disclosure

The authors declared that this study has received no financial support.

### Ethics Committee Approval

This study did not require ethics committee approval as it did not involve human participants, animal subjects, or any other research components that fall under the requirement for ethical review. The research was based on publicly available data and urban planning methodologies.

## REFERENCES

Alonso-Blanco, E., Gómez-Moreno, F. J., Díaz-Ramiro, E., Fernández, J., Coz, E., Yagüe, C., Román-Cascón, C., Narros, A., Borge, R., & Artíñano, B. (2023). Real-time measurements of indoor–outdoor exchange of gaseous and particulate

atmospheric pollutants in an urban area. *International Journal of Environmental Research and Public Health, 20*(19), 6823. https://doi.org/10.3390/ijerph20196823

Amin, A., & Thrift, N. (2002). *Cities: Reimagining the urban*. Polity Press.

Amin, A., & Thrift, N. (2007). Cultural-economy and cities. *Progress in Human Geography, 31*(2), 143–161. https://doi.org/10.1177/0309132507075361

Amoako, G. K., Dzogbenuku, R. K., Doe, J., & Adjaison, G. K. (2022). Green marketing and the SDGs: Emerging market perspective. *Marketing Intelligence & Planning, 40*(3), 310–327. https://doi.org/10.1108/MIP-11-2018-0543

Asaad, A., El-Sokkary, R., Alzamanan, M., & El-Shafei, M. (2020). Knowledge and attitudes towards Middle East respiratory syndrome-coronavirus (MERS-CoV) among health care workers in south-western Saudi Arabia. *Eastern Mediterranean Health Journal, 26*(4), 435–442. https://doi.org/10.26719/emhj.19.079

Augé, M., & Bixio, A. L. (1995). *Hacia una antropología de los mundos contemporáneos*. Gedisa Editorial.

Bagheri, B., Azadi, H., Soltani, A., & Witlox, F. (2024). Global city data analysis using SciMAT: A bibliometric review. *Environment, Development and Sustainability, 26*(6), 15403–15427. https://doi.org/10.1007/s10668-023-03255-4

Bamberger, J., & Schön, D. A. (1983). Learning as reflective conversation with materials: Notes from work in progress. *Art Education, 36*(2), 68–73. https://doi.org/10.2307/3192667

Banerjee, T., & Loukaitou-Sideris, A. (2019). *The new companion to urban design*. Routledge.

Bettencourt, L. M. (2021). *Introduction to urban science: Evidence and theory of cities as complex systems*. MIT Press.

Bibri, S. E. (2020). The eco-city and its core environmental dimension of sustainability: Green energy technologies and their integration with data-driven smart solutions. *Energy Informatics, 3*(1), 4. https://doi.org/10.1186/s42162-020-00107-7

Bregoli, D., Liscio, M. C., Nabiti, N., & Sospiro, P. (2024). Exploring the evolution of smart cities: A review on energy, mobility, and waste management. *Smart Cities: Foundations and Perspectives, 23*. https://doi.org/10.5772/intechopen.114330

Brenner, N. (2000). The urban question: Reflections on Henri Lefebvre, urban theory and the politics of scale. *International Journal of Urban and Regional Research, 24*(2), 361–378. https://doi.org/10.1111/1468-2427.00234

Brenner, N., & Schmid, C. (2015). Towards a new epistemology of the urban? *City, 19*(2-3), 151–182. https://doi.org/10.1080/13604813.2015.1014712

Cao, F., Zhang, L., Wu, W., Han, S., Wu, Z., & Wu, Y. (2024). Challenging the nexus of power: The gaming dilemma of collaboration between government and enterprises in environmental management. *Heliyon, 10*(1), e23472. https://doi.org/10.1016/j.heliyon.2023.e23472

Carmona, M. (2021). *Public places, urban spaces: The dimensions of urban design*. Routledge.

Cattaneo, A., Adukia, A., Brown, D. L., Christiaensen, L., Evans, D. K., Haakenstad, A., McMenomy, T., Partridge, M., Vaz, S., & Weiss, D. J. (2022). Economic and social development along the urban–rural continuum: New opportunities

to inform policy. *World Development, 157*, 105941. https://doi.org/10.1016/j.worlddev.2022.105941

Chenary, K., Soltani, A., & Sharifi, A. (2023). Street network patterns for mitigating urban heat islands in arid climates. *International Journal of Digital Earth, 16*(1), 3145–3161. https://doi.org/10.1080/17538947.2023.2243901

Clement, F. D., & Zhou, S. (2025). Examining Nantong City's ancient market significance, efficiency, and improvements through a behavioral demand analysis. *Journal of Asian Architecture and Building Engineering*, 1-23. https://doi.org/ 10.1080/13467581.2025.2467253

Dehghani, A., Alidadi, M., & Soltani, A. (2023). Density and urban resilience, cross-section analysis in an Iranian metropolis context. *Urban Science, 7*(1), 23-45. https://doi.org/10.3390/urbansci7010023

Elshater, A., & Abusaada, H. (2023). Exploring the types of blogs cited in urban planning research. *Planning Practice & Research, 38*(1), 62–80. https://doi.org/10.1080/02697459.2023.2156834

Enright, T., & Olmstead, N. (2023). The potential politics of the porous city. *Environment and Planning D: Society and Space, 41*(2), 295–309. https://doi.org/10.1177/02637758231170

Fainstein, S. S. (2010). *Redevelopment Planning and Distributive Justice in the American Metropolis.* SSRN. *http://dx.doi.org/10.2139/ssrn.1657723*

Faludi, A. (1973). The "systems view" and planning theory. *Socio-Economic Planning Sciences, 7*(1), 67–77. https://doi.org/10.1016/0038-0121(73)90012-8

Farahani, L. M., Lozanovska, M., & Soltani, A. (2015, July 6-7). The social life of commercial streets [Conference session]. 8th Making Cities Livable Conference, Melbourne, Australia. http://dx.doi.org/10.2139/ssrn.4602528

Farsangi, E. N., Takewaki, I., Yang, T. Y., Astaneh-Asl, A., & Gardoni, P. (2019). *Resilient structures and infrastructure*. Springer.

Fischer, F., & Forester, J. (1993). *The argumentative turn in policy analysis and planning*. Duke University Press.

Fischler, C. (2011). Commensality, society and culture. *Social science information*, *50*(3-4), 528-548. https://doi.org/10.1177/0539018411413963

Flyvbjerg, B. (1998). *Rationality and power: Democracy in practice*. University of Chicago Press.

Flyvbjerg, B. (2014). What you should know about megaprojects and why: An overview. *Project Management Journal*, *45*(2), 6-19. https://doi.org/10.1002/pmj.21409

Flyvbjerg, B., Holm, M. S., & Buhl, S. (2002). Underestimating costs in public works projects: Error or lie? *Journal of the American Planning Association*, *68*(3), 279-295. https://doi.org/10.1080/01944360208976273

Foucault, M., & Carrette, J. R. (2013). Who are you, Professor Foucault?(1967). In Carrette, J. R. (Ed.), *Religion and culture* (pp. 87-103). Routledge.

Fraser, A., Pelling, M., Scolobig, A., & Mavrogenis, S. (2020). Relating root causes to local risk conditions: A comparative study of the institutional pathways to small-scale disasters in three urban flood contexts. *Global Environmental Change*, *63*, 102102. https://doi.org/10.1016/j.gloenvcha.2020.102102

Gómez-Varo, I., Delclos-Alio, X., & Miralles-Guasch, C. (2022). Jane Jacobs reloaded: A contemporary operationalization of urban vitality in a district in Barcelona. *Cities*, *123*, 103565. https://doi.org/10.1016/j.cities.2022.103565

Gómez-Varo, I., Delclòs-Alió, X., Miralles-Guasch, C., & Marquet, O. (2024). Are vital neighbourhoods socially privileged? Exploring the spatial relationship between urban vitality and urban vulnerability. *Local Environment*, *29*(7), 969-985. https://doi.org/10.1080/13549839.2024.2324294

Grove, H., Clouse, M., & Xu, T. (2024). Risk governance for environmental, social, and governance investing and activities. *Risk Governance and Control: Financial Markets & Institutions, 14*(4), 50–58. https://doi.org/10.22495/rgcv14i4p5

Guattari, F. (1995). *Chaosmosis: An ethico-aesthetic paradigm*. Indiana University Press.

Habermas, J. (1981). *New social movements.* Telos Press Publishing

Harvey, A. L. (2008). Natural products in drug discovery. *Drug discovery today*, *13*(19-20), 894-901. https://doi.org/10.1016/j.drudis.2008.07.004

Harvey, D. (2007). Neoliberalism as creative destruction. *The ANNALS of the American Academy of Political and Social Science*, *610*(1), 21-44. https://doi.org/10.1177/0002716206296780

Healey, P. (2007). The new institutionalism and the transformative goals of planning. In Tiesdell, S. (Ed.), *Institutions and planning*, (pp. 61-87). Elsevier Ltd.

Hung, R. K., Binns-Roemer, E., Booth, J. W., Hilton, R., Fox, J., Burns, F., Harber, M., Ustianowski, A., Hamzah, L., & Burns, J. E. (2022). Sickle cell trait and kidney disease in people of African ancestry with HIV. *Kidney International Reports*, *7*(3), 465-473. https://doi.org/10.1016/j.ekir.2021.12.007

Ismayilova, I., & Timpf, S. (2023). Towards an ontology of urban green spaces. Journal of Geographic Information Science, *10*(2), 47-57

Jabareen, Y. R. (2006). Sustainable urban forms: Their typologies, models, and concepts. *Journal of Planning Education and Research*, *26*(1), 38-52. https://doi.org/10.1553/giscience2022_02_s47

Jacobs, A. B. (1993). *Great streets*. MIT Press.

Jacobs, J. (2012). " The Uses of City Neighborhoods": From The Death and Life of Great American Cities (1961). In Lin, J. & Mele, C. (Eds.), *The Urban Sociology Reader* (pp. 50-57). Routledge.

Jiang, N., Jiang, W., & Chen, H. (2023). Innovative urban design for low-carbon sustainable development: Evidence from C hina's innovative city pilots. *Sustainable Development*, *31*(2), 698-715. https://doi.org/10.1002/sd.2413

Koolhaas, R., & Mau, B. (1995). *Generic city*. The Monacelli Press.

Lang, W., Lang, H., Hui, E. C., Chen, T., Wu, J., & Jahre, M. (2022). Measuring urban vibrancy of neighborhood performance using social media data in Oslo, Norway. *Cities*, *131*, 103908. https://doi.org/10.1016/j.cities.2022.103908

Larice, M., & Macdonald, E. (2007). *The urban design reader*. Routledge.

Latour, B. (2005). *Reassembling the social: An introduction to actor-network-theory*. Oxford University Press.

Lefebvre, H. (1974). La producción del espacio. *Revista De Sociologia*, *3*,

219–229. https://doi.org/10.5565/rev/papers/v3n0.880

Lehmann, S. (2023). Reconnecting with nature: Developing urban spaces in the age of climate change. *Emerald Open Research*, *1*(5), 1-20. https://doi.org/10.1108/EOR-05-2023-0001

Lehmann, T., Bamou, R., Chapman, J., Reynolds, D., Armbruster, P., Dao, A., Yaro, A., Burkot, T., & Linton, Y.-M. (2023). Urban malaria may be spreading via the wind-here's why that's important. *Proceedings of the National Academy of Sciences*, *120*(18), e2301666120. https://doi.org/10.1073/pnas.2301666120

Liu, B., Li, D.-Y., Wu, Z.-X., Yang, W.-J., Zhou, D.-Y., & Zhu, B.-W. (2022). Combined effects of ultrasound and antioxidants on the quality maintenance of bay scallop (Argopecten irradians) adductor muscles during cold storage. *Ultrasonics Sonochemistry*, *82*, 105883. https://doi.org/10.1016/j.ultsonch.2021.105883

Lynch, K. (1984). *Good city form*. MIT press.

Lynch, M. (1984). The genetic structure of a cyclical parthenogen. *Evolution*, *38*(1), 186-203. https://doi.org/10.1111/j.1558-5646.1984.tb00271.x

Madanipour, A. (1996). Urban design and dilemmas of space. *Environment and Planning D: Society and Space*, *14*(3), 331-355. https://doi.org/10.1068/d140331

Madanipour, A. (2006). Roles and challenges of urban design. *Journal of Urban Design*, *11*(2), 173-193. https://doi.org/10.1080/13574800600644035

Manthiou, A., Kang, J., Hyun, S. S., & Fu, X. X. (2018). The impact of brand authenticity on building brand love: An investigation of impression in memory and lifestyle-congruence. *International Journal of Hospitality Management*, *75*, 38-47. https://doi.org/10.1016/j.ijhm.2018.03.005

Marcuse, P. (2009). From critical urban theory to the right to the city. *City*, *13*(2-3), 185-197. https://doi.org/10.1080/13604810902982177

Michaels, T. M., Horan, W. P., Ginger, E. J., Martinovich, Z., Pinkham, A. E., & Smith, M. J. (2014). Cognitive empathy contributes to poor social functioning in schizophrenia: evidence from a new self-report measure of cognitive and affective empathy. *Psychiatry Research*, *220*(3), 803-810. https://doi.org/10.1016/j.psychres.2014.08.054

Mostafavi, M. (2013). Why ecological urbanism? Why now? In Pollalis, S., Georgoulias, A., Ramos, S., & Schodek, D. (Eds.), *Infrastructure Sustainability and Design* (pp. 319-333). Routledge.

Mumford, L. (1961). *The city in history: Its origins, its transformations, and its prospects*. Harcourt, Brace & World Press.

Neuman, M. D., Feng, R., Carson, J. L., Gaskins, L. J., Dillane, D., Sessler, D. I., Sieber, F., Magaziner, J., Marcantonio, E. R., & Mehta, S. (2021). Spinal anesthesia or general anesthesia for hip surgery in older adults. *New England Journal of Medicine*, *385*(22), 2025-2035. https://doi.org/10.1056/NEJMoa2113514

Niemitalo, O., Koskinen, E., Hyväluoma, J., Tahvonen, O., Lientola, E., Lindberg, H., Koskela, O., & Kunttu, I. (2021). A year acquiring and publishing drone aerial images in research on agriculture, forestry, and private urban gardens. *Technology Innovation Management Review*, *11*(2), 5-16. https://doi.org/10.22215/timreview/1418

Orenstein, D. E., & Shach-Pinsley, D. (2017). A comparative framework for assessing sustainability initiatives at the regional scale. *World Development*, *98*,

245-256. https://doi.org/10.1016/j.worlddev.2017.04.030

Rantanen, T. (2005). The message is the medium: An interview with Manuel Castells. *Global Media and Communication*, *1*(2), 135-147. https://doi.org/10.1177/1742766505054629

Rode, P. (2019). Urban planning and transport policy integration: The role of governance hierarchies and networks in London and Berlin. *Journal of Urban Affairs*, *41*(1), 39-63. https://doi.org/10.1080/07352166.2016.1271663

Ross, F. C., Patangia, D., Grimaud, G., Lavelle, A., Dempsey, E. M., Ross, R. P., & Stanton, C. (2024). The interplay between diet and the gut microbiome: implications for health and disease. *Nature Reviews Microbiology*, *22*(11), 671-686. https://doi.org/10.1038/s41579-024-01068-4

Roy, A. (2005). Urban informality: Toward an epistemology of planning. *Journal of the American Planning Association*, *71*(2), 147-158. https://doi.org/10.1080/01944360508976689

Sandercock, L. (1998). *Making the invisible visible: A multicultural planning history*. University of California Press.

Santos, E. J. F., Farisogullari, B., Yapp, N., Townsley, H., Sousa, P., & Machado, P. M. (2025). Efficacy and safety of pharmacological treatments in inclusion body myositis: a systematic review. *RMD Open*, *11*(1), e005176. https://doi.org/10.1136/rmdopen-2024-005176

Sassen, S. (2014). *Expulsions: Brutality and complexity in the global economy*. Harvard University Press.

Savage, J. E., Jansen, P. R., Stringer, S., Watanabe, K., Bryois, J., De Leeuw, C. A., Nagel, M., Awasthi, S., Barr, P. B., & Coleman, J. R. (2018). Genome-wide association meta-analysis in 269,867 individuals identifies new genetic and functional links to intelligence. *Nature genetics*, *50*(7), 912-919. https://doi.org/10.1038/s41588-018-0152-6

Schoen, R., & Uhlenbeck, K. (1983). Boundary regularity and the Dirichlet problem for harmonic maps. *Journal of Differential Geometry*, *18*(2), 253-268. https://doi.org/10.4310/jdg/1214437663

Schoen, S. F. (1983). The status of compliance technology: Implications for programming. *The Journal of Special Education*, *17*(4), 483-496. https://doi.org/10.1177/002246698301700410

Scott, A. J. (2001). Globalization and the rise of city-regions. *European Planning Studies*, *9*(7), 813-826. https://doi.org/10.1080/09654310120079788

Scott, J. C. (2005). Afterword to "moral economies, state spaces, and categorical violence". *American Anthropologist*, *107*(3), 395-402. https://doi.org/10.1525/aa.2005.107.3.395

Singh, I., Blukis, V., Mousavian, A., Goyal, A., Xu, D., Tremblay, J., Fox, D., Thomason, J., & Garg, A. (2023). ProgPrompt: program generation for situated robot task planning using large language models. *Autonomous Robots*, *47*(8), 999-1012. https://doi.org/10.1007/s10514-023-10135-3

Sioen, I., Lust, E., De Henauw, S., Moreno, L., & Jiménez-Pavón, D. (2016). Associations between body composition and bone health in children and adolescents: a systematic review. *Calcified Tissue International*, *99*(6), 557-577. https://doi.org/10.1007/s00223-016-0183-x

Soltani, A., & Allan, A. (2006). Analyzing the impacts of microscale urban attributes on travel: Evidence from suburban Adelaide, Australia. *Journal of Urban Planning and Development*, *132*(3), 132-137. https://doi.org/10.1061/(ASCE)0733-9488(2006)132:3(132)

Soltani, A., Pieters, J., Young, J., & Sun, Z. (2018). Exploring city branding strategies and their impacts on local tourism success, the case study of Kumamoto Prefecture, Japan. *Asia Pacific Journal of Tourism Research*, *23*(2), 158-169. https://doi.org/10.1080/10941665.2017.1410195

Talen, E. (2020). Big yellow taxi. *Environment and Planning B: Urban Analytics and City Science*, *47*(7), 1140-1142. https://doi.org/10.1177/2399808320950042

Un-Habitat. (2012). *Enhancing urban safety and security: Global report on human settlements 2007*. Routledge.

Wendt, M. (2009). The importance of death and life of great American cities (1961) by Jane Jacobs to the profession of urban planning. *New Visions for Public Affairs*, *1*, 1-24.

Williams, K. L. (2023). *Examining the Traits and Behaviors of Ethical Leading by Executive Leaders From Lviv, Ukraine City Hall in the Context of War*. (Dissertation Number: 30816042) [Doctoral dissertation, Indiana Wesleyan University]. ProQuest Dissertations & Theses.

Yang, Y., & Taufen, A. (2022). Sustainable cities and landscapes: Cultivating infrastructures of health. In Yang. Y.,& Taufen, A. (Eds.), *The Routledge Handbook of Sustainable Cities and Landscapes in the Pacific Rim* (pp. 1-14). Taylor & Francis Publisher.

Yapp, E. H. T., Jamil, N., Lee, L. S. G., Chooi, Y. T., & Chen, C. O. (2025). Urban farming: the challenges of hydroponic and vertical farming in Malaysia. *Cogent Food & Agriculture*, *11*(1), 2448601. https://doi.org/10.1080/23311932.2024.2448601

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**Research Article**

# Cultural Heritage Perception, Awareness and Pedestrian Density: A Case Study in İzmir

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## Abstract

Inspired by the well-known Turkish proverb "Even if we don't visit or see it, that village is still ours", this study explored whether historical buildings in frequently visited and walkable areas are more widely recognized, or if it is possible to identify, appreciate, and preserve historically significant buildings without seeing or passing by them. Specifically, this study investigates the relationship between pedestrian density and cultural heritage perception and awareness in Izmir's historic district. Surveys were conducted with 138 residents to evaluate their knowledge of historical buildings from the Early Republican Period (or their cultural heritage awareness) and how they perceived the aesthetic quality of both the buildings and the streets where they are located. As a walkability indicator, pedestrian density around selected historical buildings was measured via objective and subjective methods. Unobtrusive observations, such as counting the number of people at specific locations during designated time intervals were used to evaluate the actual behaviour (objective measure). Additionally, surveys were employed to understand people's tendency to walk through the streets where these buildings are located (reported behaviour / subjective measure). The results show that streets surrounding well-preserved and aesthetically prominent buildings are preferred more often by pedestrians; or vice a versa. Results also confirm that increased pedestrian density is associated with a greater awareness of cultural heritage sites. Furthermore, aesthetically appealing streets are considered more suitable for recreational walking. These findings highlight the value of walkable spaces in urban planning and cultural heritage conservation, as pedestrian experience can boost awareness of cultural heritage.

**Keywords:** Cultural Heritage Awareness, İzmir, Pedestrian Density, Walkability.

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**Araştırma Makalesi**

# Kültürel Mirasa İlişkin Farkındalık, Algı ve Yaya Yoğunluğu: İzmir'de Bir Vaka Çalışması

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## Özet

"Gezmesek de görmesek de o köy bizim köyümüzdür" sözünden yola çıkarak, bu çalışmada sıkça ziyaret edilen ve yürünebilir alanlardaki tarihi yapılara ilişkin farkındalığımız daha mı yüksektir yoksa tarihi yapıların yanından geçmesek de görmesek de onların farkında olur, tanır, değerini bilir korur muyuz gibi sorulara cevap aranmıştır. Daha somut ifade etmek gerekirse; bu çalışmada İzmir'in tarihi bölgesindeki tarihi yapıların (ve yapıların yer aldığı sokakların) kullanıcılar tarafından ne derece estetik bulunduğu ve ne derece fark edildiği ile bu sokakların yayalar tarafından ne derece tercih edildiği arasındaki ilişkinin incelenmesi amaçlanmıştır. Seçilen tarihi binaların çevresindeki yaya yoğunluğunun yürünebilirliğin bir göstergesi olduğu varsayılmıştır. Tarihi yapıların çevresindeki yaya yoğunluğu (ve yürünebilirlik) hem nesnel hem öznel yöntemlerle ölçülmüştür. Gerçek yaya yoğunluğunu ölçmek için belirli yerlerden geçen insan sayısı belirli aralıklarda gözlem yoluyla ölçülmüştür. Ayrıca anketler aracılığı ile rapor edilen yaya yoğunluğu bilgisi elde edilmiştir. Bu tarihi yapıları (Erken Cumhuriyet Dönemi'ne ait kültürel mirasları) ne kadar tanıdığı / bildiği ve ne derece estetik bulduğu ise 138 katılımcının dahil olduğu anketlerle değerlendirilmiştir. Sonuçlar, iyi korunmuş ve estetik açıdan öne çıkan binaların çevresindeki sokakların yayalar tarafından daha sık tercih edildiğini; diğer bir deyişle, artan yaya yoğunluğunun kültürel miras alanlarına yönelik farkındalık ile ilişkili olduğunu göstermektedir. Ayrıca, sonuçlar estetik açıdan çekici sokakların, rekreasyon amaçlı yürüyüşler için daha uygun bulunduğuna işaret etmektedir. Bu bulgular, yürünebilir alanların kentsel planlama ve kültürel mirasın korunmasındaki değerini vurgulamakta; yaya deneyiminin, kültürel miras farkındalığını artırabileceğini göstermektedir.

**Anahtar Kelimeler:** Kültürel Miras Farkındalığı, İzmir, Yaya Yoğunluğu, Yürünebilirlik.

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## INTRODUCTION

The growing influence of contemporary architectural and planning practices has led to a decrease in awareness of historical buildings in cultural heritage areas. Rapid urbanization, ineffective preservation policies, plans and strategies have contributed to the deterioration of the traditional urban fabric and the loss of historical identity. General knowledge suggests that, as the original form and function of historical buildings change, public awareness of these buildings' declines, which in return leads to a reduction in cultural heritage areas' attractiveness for pedestrians, especially those walking for recreation. When this mutual chain between cultural heritage and pedestrian behaviour is disrupted, overtime, cultural heritage areas lose their significance, reducing opportunities for citizens to experience them through recreational walking. This raises the question: Is awareness of historical buildings higher in areas with heavy pedestrian traffic and where walking is more popular?

Given that, this study aims to investigate the relationship between pedestrian density and awareness of historical buildings in cultural heritage areas (Izmir's historical city centre district). It is assumed that pedestrian density indicates walkability of an area; the higher the pedestrian density the more walkable the area is.

In recent years, various disciplines, including urban planning, tourism, architecture, and heritage conservation, have explored different strategies to address these challenges. Conservation, renovation, and adaptive reuse of historical buildings and cultural heritage areas have gained increasing attention across these fields. For example, planning studies investigated the impact of modern urbanization on the silhouette of historical environments (Özkaraca Özalp & Halaç, 2023), and explored the renewal and refunctioning of historical areas (Mehanna & Mehanna, 2019). Cultural tourism research addressed various topics, including the identification of cultural routes (Wang & Wong, 2020), and the potential applications of virtual reality, artificial intelligence, and simulation in touristic areas (Bolshakov & Merkuryeva, 2016; J. Lee et al., 2019). In addition, the literature examined topics such as, social awareness of historical heritage (Endere et al., 2018; Shankar & Swamy, 2013), urban memory (Kolsal & Güven Ulusoy, 2022), cultural heritage (Pehlivan et al., 2021) and cultural heritage management (Ulusan, 2022). The literature also explored the connection between cultural and historical heritage sites and tourism by analyzing tourist carrying capacity and spatial density in urban heritage zones (Ding et al., 2023; García-Hernández et al., 2017), the sustainability of these areas (Pizarro-Reyes et al., 2022; Zhenrao et al., 2021), cultural economy (Ernawadi & Putra, 2021; Özdemir, 2009).

In addition, the relation between cultural heritage and awareness is also explored. Some of these studies focused on the influence of social and demographic factors. For example, Nyaupane & Timothy (2009) examined public awareness of heritage buildings in Arizona and found that citizens' awareness of historic sites and preservations vary by their income and education. Similarly, Erbay & Saylam (2018) addressed the unique challenges faced by women in accessing and appreciating historical sites. Other studies focused on the ways that can enhance cultural heritage awareness and suggest that promoting citizens walking around these areas can contribute to increase in awareness. For example, Shimray (2019) addressed the ways to raise awareness for cultural heritage sites, such as incorporating the topic into education, publishing heritage-themed newspapers or organizing heritage festivals, walks. In parallel; Husar et al. (2020) explored how urban walks can enhance public awareness

about cultural heritage and foster public participation in advocating the protection of historic environments.

However, fewer studies have focused on the walkability of cultural heritage areas. Existing research has examined topics such as spatial accessibility for individuals with disabilities (Kejanlı et al., 2023; Marín-Nicolás & Sáez-Pérez, 2022), pedestrian density and spatial access (Jiménez Martín et al., 2022), spatial quality (Li et al., 2024), and the relationship between walkability and elements of the built environment (Barrera-Fernández & Hernández-Escampa, 2019; Belge, 2012; Kerdani et al., 2017; Sheng & Wa Tang, 2011), along with pedestrian behaviour in historic areas and cultural routes (Abdel-Hadi et al., 2009; Maniei et al., 2024). These studies underscore the importance of this research. The lack of similar studies involving a Turkish sample adds to the originality of this work. While research in developed countries tends to highlight the role of space quality in walking decisions, in Türkiye, walking is often driven by economic necessity, as many cannot afford alternative transportation modes (Çubukçu, 2019). Consequently, the effect of environmental quality on walking behaviour is less pronounced, potentially weakening the connection between pedestrian density and awareness of historical sites. In other words, findings from developed countries may not fully apply to Türkiye's unique social and physical context. This study seeks to explore whether the level of pedestrian density can enhance awareness of an area's historical value in Izmir.

Although not specifically in the context of historical sites, some works have been evaluating preferability of streets by pedestrians and walkability at different scales (street segment, neighbourhood, city). A significant number of these resources are aimed at identifying the parameters that describe walkability of a place (Çubukcu, 2013; Çubukçu, 2019; Ewing et al., 2005; Ewing & Handy, 2009; Forsyth, 2015; Forsyth et al., 2010; Frank et al., 2021; Lo, 2009; Southworth, 2005; Spoon et al., 2005; Zhou et al., 2019). A variety of parameters are listed for different types of walking (transportation, recreational, exercise). Considerable number of studies focus on walking for transportation (Alfonzo, 2005; Campisi et al., 2021; Cao et al., 2006; Deka et al., 2018; Ferrer et al., 2015; Koohsari et al., 2018; S. Lee et al., 2020; McIlroy et al., 2020; Pikora et al., 2006; Saelens, Sallis, & Frank, 2003; Shatu & Yigitcanlar, 2018; Tarek et al., 2021; H. Wang & Yang, 2019). Specifically, a growing trend regarding walking for transportation can be categorized around New Urbanism (Cysek-Pawlak & Pabich, 2021), sustainability (Zainol et al., 2014), spatial accessibility (Gargiulo et al., 2019; Wali et al., 2024), 15-min city (Teixeira et al., 2024), net zero cities (Gündel & Velibeyoğlu, 2020; Lewis, 2015; Nieuwenhuijsen, 2020). Additionally, some works focus on walking for exercise in different regards such as obesity, elderliness, and socioeconomic status (Cetintahra, 2015; Çubukçu, 2014; Cubukcu et al., 2015; Lachowycz & Jones, 2014; Lehman et al., 2007; Saelens et al., 2003; Xu, 2019). Studies concerning recreational walking (Ball et al., 2001; Beenackers et al., 2014; Bunds et al., 2019; Cheng et al., 2019; Christian et al., 2017; Davies et al., 2012; Gidlow et al., 2019; Ma et al., 2021; Sugiyama et al., 2014, 2015) are limited compared to walking for transportation and exercise. Given that, this study focuses on recreational walking in historical areas. The literature on recreational walks in historical areas is quite limited and only discusses aesthetics (Lomadze, 2024), comfort (Basu et al., 2023), safety and security (Abdulla et al., 2017; Guo & Loo, 2013; Zainol et al., 2016) as separate issues and none explores actual pedestrian behaviour.

The act of walking is defined as a daily practice that occurs within the context of the socio-spatial environment. Urban space is continually reproduced through the behaviours and interactions in daily life (Avar Arslan, 2009; Cihanger Ribeiro,

2019). Walking engages in all the senses and serves as a fundamental means to explore, comprehend, and connect with the city, shaping the perception of urban space (Bassett, 2004; Middleton, 2010, 2018; Wunderlich, 2008). In this perspective, pioneers such as Engels, George Simmel, Jan Gehl and Jane Jacobs have emphasised that cities can be recognised through walking practice, that cities increase social interactions and allow people to use streets as public spaces more effectively (Gehl, 2010; Appleyard, 2021; Jacobs, 1961; Wekerle, 2000).

Walter Benjamin held significant discussions on modernism and the perception of urban space and introduced 'flaneur' concept. According to Benjamin, wandering and strolling as a kind of recreational walking is an effective method to experience the urban areas in its fullest sense (Benjamin, 2002; Önen, 2016). It has been observed that when pedestrians are not constrained by time or the need to reach a specific destination, they tend to engage in wandering. The quality of these walks is directly affected by the way pedestrians perceive the environment (Cao et al., 2006; Jacobs, 1961; Traunmuller & Schieck, 2013). In summary, while numerous studies focus on walkability, recreational walking, environmental perception, and awareness of cultural heritage, there is a significant lack of research examining the connection between cultural heritage perception and awareness and pedestrian density. This study seeks to fill that gap.

The research addresses three research questions:
1) How do the quality and aesthetic appeal of historical buildings and the surrounding streets influence people's awareness and perception of these buildings?
2) What is the relationship between perceived and actual pedestrian density, and how do they relate to the awareness and perception of historical buildings?
3) Does higher pedestrian density contribute to increased awareness of historical buildings, and what role does building aesthetics play in this relationship?

This study employs a mixed methodology, integrating perception-based and measurement-based techniques. Actual and perceived pedestrian density is considered as an important walkability indicator. Pedestrian density (or walkability) is assessed from two angles: first, through user perspectives gathered via surveys, and second, through unobtrusive observations of pedestrian counts. Cultural heritage perception and awareness data are gathered via surveys to understand whether well-designed streets around historical sites can encourage people to walk and raise awareness of the area's historical significance.

**METHODOLOGY**

The main purpose of the study is to focus on the relationship between pedestrian density and the awareness of historical structures. As perceptions and awareness can differ depending on the type of historical structure, this study focuses solely on buildings to eliminate any potential biased variables. Monuments, squares, plaques are excluded from the study as their physical characteristics (such as size) and social attributes (such as meaning and function) may differ from those of historical buildings.

The study focuses on public and civil buildings in Konak, İzmir, as well as the streets where they are located. Konak, İzmir plays a significant role in the history of the Turkish Republic, as it is recognized as the place where the war began and ended. Consequently, the buildings that are considered as good examples of the First National Architecture Movement of the Early Republican Period were

selected as historical structures. Moreover, as the city centre of İzmir, Konak plays a significant role in the daily activities of its citizens and experiences a high volume of pedestrian traffic, making it an ideal site for the research.

Surveys were conducted with residents to understand their cultural heritage awareness and their perceptions of the aesthetic quality of both historical buildings and the streets where these buildings are located. As an indicator of walkability pedestrian density around selected historical buildings was analyzed using both objective and subjective methods. Unobtrusive observations such as counting the number of people at specific locations during designated time intervals were used to evaluate the actual behaviour of pedestrians. Additionally, surveys were employed to understand people's tendency to walk through the streets where these buildings are located (reported behaviour).

To explore the relationship between the variables, a correlation analysis was performed. Given the small sample size (N=15) and the non-parametric nature of the data, Kendall's tau-b correlation coefficient was deemed the most appropriate statistical method. This measure is particularly advantageous for studies with small sample sizes because it accounts for non-normal distributions. It also minimizes the influence of outliers, yielding more robust and reliable results.

**Selection of Historical Buildings Representing First National Architecture Movement of the Early Republican Period**

First, 43 buildings that are still standing and in use, representing the First National Architecture Movement of the Early Republican Period, were selected from the studies that focus on Republican Period Architecture in İzmir by İnci Kuyulu (2000); Begüm Türkelleri (2004) and İzmir City Encyclopedias (2013).

A building can stand out and be memorable due to its distinct physical characteristics. Since this study focuses on historical buildings, it is important to account for physical features that may influence the awareness of the selected buildings. Next, these 43 buildings were assessed and scored based on their distinctiveness, as shown in Table 1. This evaluation was conducted to control confounding variables that could affect awareness. These variables include façade design, building mass and height, condition, layout and orientation, setback distances, location, landmark recognition, and the presence of advertisements, signage, and billboards. The table below explains the scoring method for each parameter.

For this evaluation, each building is photographed and assessed by a planner (expert) according to the above criteria set. Then for each building, all scores were summed to calculate an overall distinctiveness score, which ranged from 3 to 14. The buildings were then categorized based on their scores: 17 buildings received fewer than 6 points (low distinctiveness), 17 buildings scored between 6 and 10 points (moderate distinctiveness), and 9 buildings had more than 10 points (high distinctiveness). The results revealed common characteristics among the categories:

Buildings with low distinctiveness scores are generally located on the local streets. The facades of these commercial buildings are hidden by billboards and advertisements.

Buildings with moderate distinctiveness scores are generally situated as corner buildings on local streets. They also serve commercial purposes but have facades that are free from billboards, signage, and advertisements.

Buildings with high distinctiveness scores are located on boulevards. Most of them have institutional functions like banks, library, theatre. Their façades are free from billboards, signage, and advertisements. Also, they appear to be better maintained and more effectively preserved than the others.

**Table 1.** Distinctiveness criteria

| Parameters | Related Sub-Criteria | Scoring |
|---|---|---|
| Façade Design | Colour<br>Material<br>Organisation of openings<br>Having a balcony, overhang etc.<br>compared with nearby buildings. | 0 The building's facade is the same as the other buildings on the street.<br>1 The building's facade resembles the nearby buildings, yet it has some differences.<br>2 The building's facade is completely different from the other buildings on the street. |
| Building Mass | Size (floor area)<br>Form<br>compared with nearby buildings. | 0 The building's size and form are the same as the other buildings on the street.<br>1 The building's size and form resemble the nearby buildings, yet it has some differences.<br>2 The building's size and form are completely different from the other buildings on the street. |
| Building Height | The height of the building is compared with nearby buildings. | 0 The building is the same height as the other buildings on the street.<br>1 The building is shorter than the other buildings on the street.<br>2 The building is higher than the other buildings on the street. |
| Building Condition | General look (Bad, Average, Good) is compared with the nearby buildings. | 0 The building is about to collapse, is in disuse and has cracks and paint problems.<br>1 The building shows some signs of wear, with minor cracks and maintenance issues.<br>2 The building is in good condition. |
| Harmony | Overall consistency of design, materials, size etc in relation to nearby buildings on the street is compared with the nearby buildings | 0 The building is so harmonious with the other buildings that it blends in seamlessly<br>1 The building stands out as distinct |
| Orientation | The building's positioning / orientation in relation to the street is compared with the nearby buildings | 0 The building has the same positioning and orientation as the nearby buildings.<br>1 The building has a different positioning and orientation than the nearby buildings. |
| Building Setback | The setback from the street is compared with the nearby buildings | 0 The building's setbacks are the same as the nearby buildings.<br>1 The buildings' setbacks differ from the nearby buildings. |
| Location | The significance of the street where the building is situated and the number of façades that are visible from the street. | 0 The building is on a local street nestled among other structures, rather than being located at a corner.<br>1 The building is on the arterial road nestled among other structures, rather than being located at a corner.<br>2 The building is a corner building with two visible sides.<br>3 The building is a corner building with at least three sides visible from the street. |
| Landmark | The symbolic value of the building is examined. | 0 The building is not recognized as a landmark.<br>1 The building is recognized as a landmark. |
| Advertisement, Signs and Billboards | The presence of advertisements and signs that pollute the aesthetic and architectural features of the building is evaluated. | 0 More than half of the building's front is made up of billboards, signage, and advertisements, which distort the building's architectural features and visual appeal.<br>1 Less than half of the building's front is made up of billboards, signage, and advertisements, which distort the building's architectural features and visual appeal.<br>2 The building's front is free from billboards, signage, and advertisements. |

As a next step, from each category, the five most divergent buildings were selected. In order to mitigate the potential impact of other physical and social characteristics on the results, the buildings in the same vicinity were selected (Figure 1, Table 2).

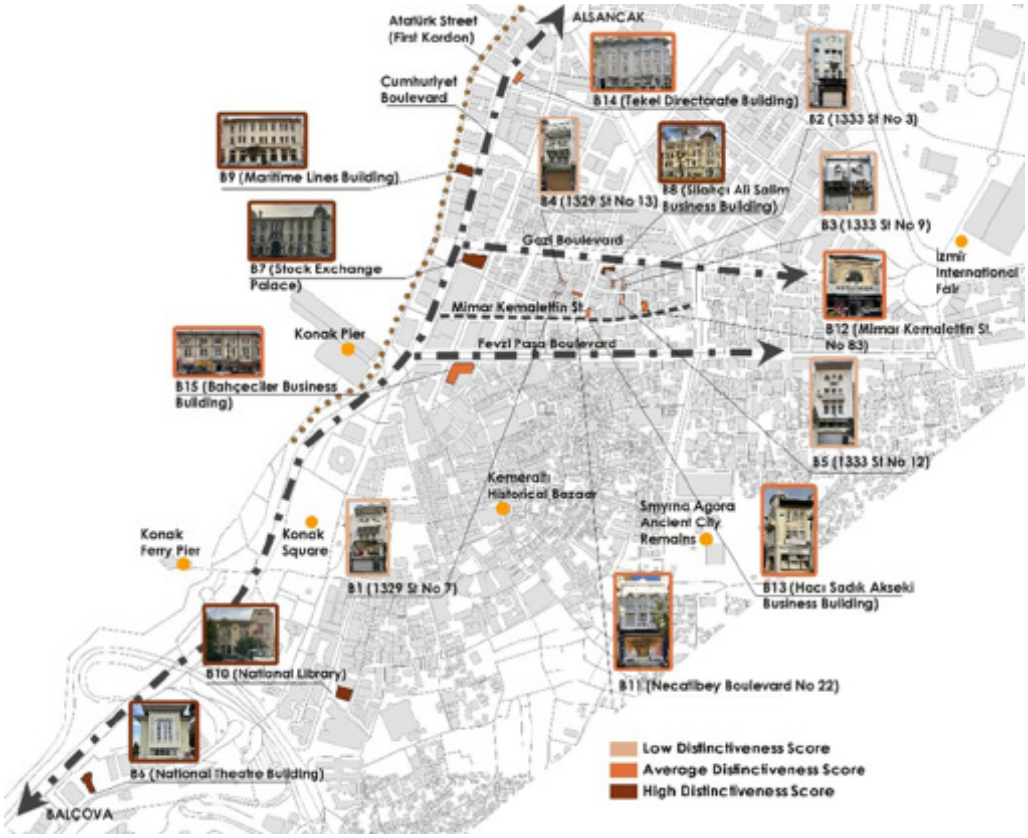



**Figure.1** Locations of the selected buildings for the awareness analysis

The common characteristics of the buildings in each group are as follows: All buildings with low distinctiveness level are designated for commercial use and classified as civil structures. In contrast, for moderate distinctiveness buildings; 4 out of 5 are commercial and civil buildings (one of them is a public building). Among the high distinctiveness buildings, 1 out of 5 are commercial and civil buildings (four of them are public buildings).

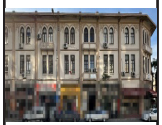
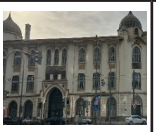
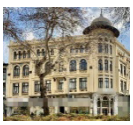
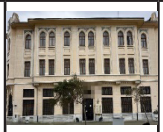
| | | | | | |
|---|---|---|---|---|---|
| Low distinctiveness |  |  |  |  |  |
| Name; score | B1 (1329 St No 7); 3 | B2 (1333 St No 3); 3 | B3 (1333 St No 9); 3 | B4 (1329 St No 13); 4 | B5 (1333 St No 12); 4 |
| Moderate distinctiveness |  |  |  |  |  |
| Name; score | B11 (Necatibey Boulevard No 22); 6 | B12 (Mimar Kemalettin Cd No 83); 6 | B13 (Hacı Sadık Akseki Business Building);10 | B14 (Tekel Directorate Building); 10 | B15 (Bahçeciler Business Building); 10 |
| High distinctiveness |  |  |  |  |  |
| Name; score | B6 (National Theatre Building);11 | B7 (Stock Exchange Palace); 12 | B8 (Silahçı Ali Salim Business Building);13 | B9 (Maritime Lines Building); 14 | B10 (National Library); 14 |
| *Building: B , Street Segment: St. | | | | | |

**Table 2.** Buildings for the awareness analysis and distinctiveness scores

### Survey for Historical Site (Building and Street) Awareness

The survey was conducted online via Google Forms, targeting residents of İzmir. A total of 138 responses were obtained. The survey has three sections. The first section collects demographic information and assesses respondents' familiarity with the area. The second section aims to understand how well the buildings are known by the respondents (awareness of the building). The last section explores the streets that the buildings are located are used by the respondents (walkability).

### Pedestrian Density

Pedestrian density was evaluated using two methods—unobtrusive observations, which provide objective measures of actual street walkability, and surveys, which capture subjective evaluations.

Unobtrusive observations were conducted to gather data on pedestrian density. In front of each selected building, two experts counted pedestrians walking in both directions on the same side of the street as the building for a duration of 4 minutes. Since pedestrian density can vary between weekdays and weekends, observations were recorded separately for each. The counts were taken during the same time intervals (09:00-10:00, 10:00-12:00, 12:00-13:30, 13:30-18:00, 18:00-19:00). For buildings on the same street, a 10-minute gap was maintained between observation intervals.

## FINDINGS

### Participants' Personal Characteristics

Among the respondents, the majority are aged between 24 and 63 years (40.6% were between 44 to 63 years old and 52.9% were between 24 to 43 years old). Younger and older people are less represented in the sample, as only 3.6% were born between 1941 and 1960, and 2.9% were born between 2001 and 2004. The majority of the participants have graduated from a university (1.4% no formal education, 2.9% Primary/Secondary School, 15.9% High School, 60.1% Associate/Bachelor's Degree, and 19.6% Graduate Degree). The sample is almost balanced regarding employment status, with 57.2% employed and 42.8% unemployed.

General and scientific knowledge suggests that education in a design-related field can influence a person's perception and awareness of historic buildings. Therefore, participants were asked whether they have received education in the fields of Architecture, Urban Planning, Landscape Architecture, Interior Architecture, Industrial Design, Conservation and Restoration of Cultural Heritage, Graphic Design, Art and Culture Management, Archaeology, History, and Art History. Only 13.8% of the respondents reported that they have professional knowledge in these domains.

### Participants' Familiarity with the Setting

In order to measure familiarity with the area, participants were asked how long they had been living in Izmir. The majority revealed that they have been in İzmir for over 10 years (1 year or less= 6.5%, 2-4 years= 6.5%, 5-9 years= 12.3%, 10 years or more= 74.6%). In addition, participants were asked how frequently they visit Konak. The majority of the participants revealed that they visit Konak once a month (28.3%) or 3-4 times a year (26.8%). As expected, very high and very low familiarity ratings were fewer than moderate familiarity (everyday as they live or work in or around Konak= 10.9%, once a week= 9.4%, once every two weeks=16.7%, once a year= 8.0%).

The participants were also asked about the reasons for visiting Konak. The most popular answers were 'meeting with friends (84)' and 'shopping (81)', while less common responses included 'working in Konak (17)', 'just passing by (6)', and 'exercise (3)'. These results highlight Konak's role as a hub for social and economic activities.

When respondents were asked to describe the locations they most frequently use in and around Konak (including the arrival points, destinations, streets and routes), there were not enough detailed responses to point to a specific location. This finding indicates that participants perceive Konak as a homogeneous area, where nearly all locations are equally preferred by users, with no particular route, destination, or region, noticeably standing out in terms of usage. However, two commonly mentioned locations were; 1) accessing Kemeraltı district from Konak metro station and 2) reaching Cumhuriyet Boulevard from Alsancak İZBAN station. B7 (Stock Exchange Palace), B9 (Maritime Lines Building) and B14 (Tekel Directorate Building) are located on the second route.

The participants were also asked to identify the most preferred streets and areas for walking in and around Konak. Among all participants, 57 respondents did not highlight any specific street, while the remaining 81 respondents pointed to a specific street as the most walkable. The most preferred areas and streets are Kemeraltı, Kordon, Cumhuriyet Boulevard. B7 (Stock Exchange Palace), B9 (Maritime Lines Building), B10 (National Library) and B14 (Tekel Directorate Building) are located in the most preferred areas.

Respondents also described specific features that made these streets appealing for walking. The most frequently mentioned feature was "the existence of historical buildings (50)", followed by landscaped areas (46), attractive shopping area (42), pedestrian-friendly zones (37), attractive architectural characteristics (32), presence of green areas (22), tree-lined streets (20), low traffic density (20), wide pavements (19), variety of colours and forms of buildings along the street (18), existence of street furniture (5). This finding confirms that site selection perfectly aligns with the research objectives.

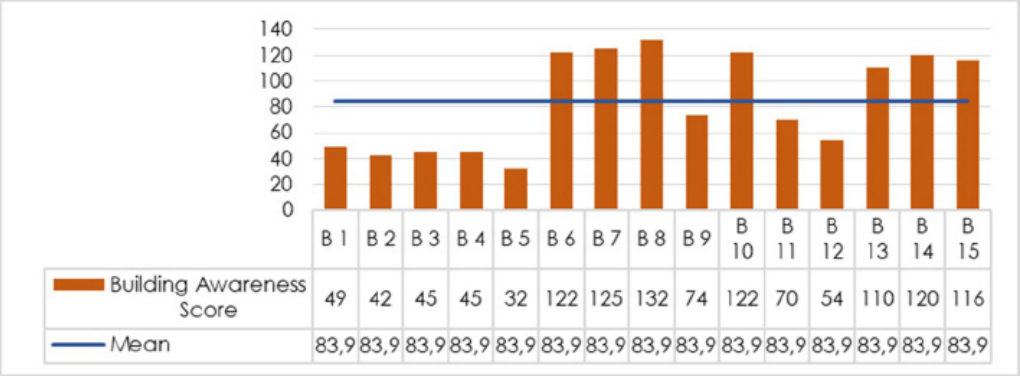
**Evaluation of the Perception and Awareness of the Historical Building and Its Vicinity**

The second part of the survey collects data on "historical building awareness". The building awareness score is calculated as the sum of the points obtained from the below three questions:

1) The degree of recognition of the building (0= LOW (I do not recognize the building); 1= MODERATE (I recognize the building only visually, I passed by, saw it briefly, remembered it but I cannot describe the location of the building); 2= HIGH (I recognize the building. I can describe the location of the building with the surrounding buildings and street names).
2) Memories or experiences about the building (0= NONE (I do not have any memories or experiences); 1= SOME (I do have some memories or experiences).'
3) Knowledge about architectural style (0= NONE (I do not know), 1= I know the architectural period that the building represents).

The results showed that (Figure 2); B8 (Silahçı Ali Salim Business Building) has the highest awareness score. Then, B7 (Stock Exchange Palace) is the second most well-known building and B10 (National Library), and B6 (National Theatre Building) ranked as third highest awareness score. It is noteworthy that these buildings also have the highest distinctiveness scores, highlighting their significant visual and cognitive impact.

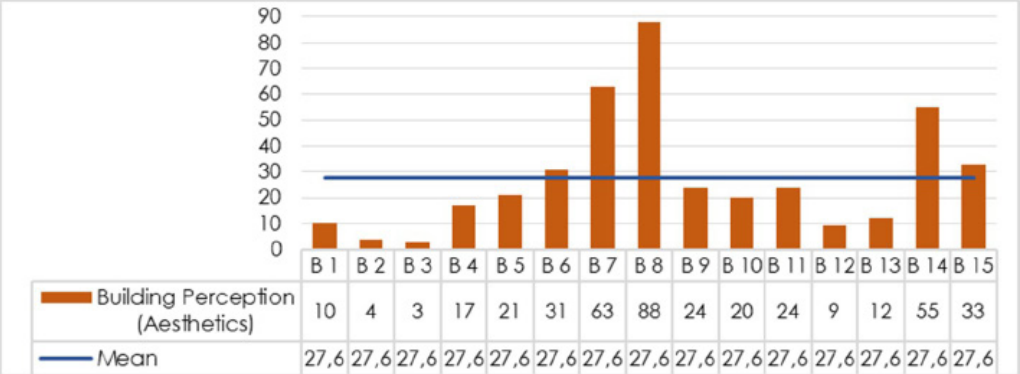
**Figure 2.** Building awareness




Building perception is explored via aesthetic appeal of the buildings. The pictures of the buildings were presented in a random order, and the participants were asked to select the three they found the most aesthetic. Results showed that B8 (Silahçı Ali Salim Business Building) was selected as the most aesthetic building, B7 (Stock Exchange Palace) and B14 (Tekel Directorate Building) were ranked second and third, respectively (Figure 3). The two most aesthetically pleasing buildings were also those with the highest distinctiveness scores.

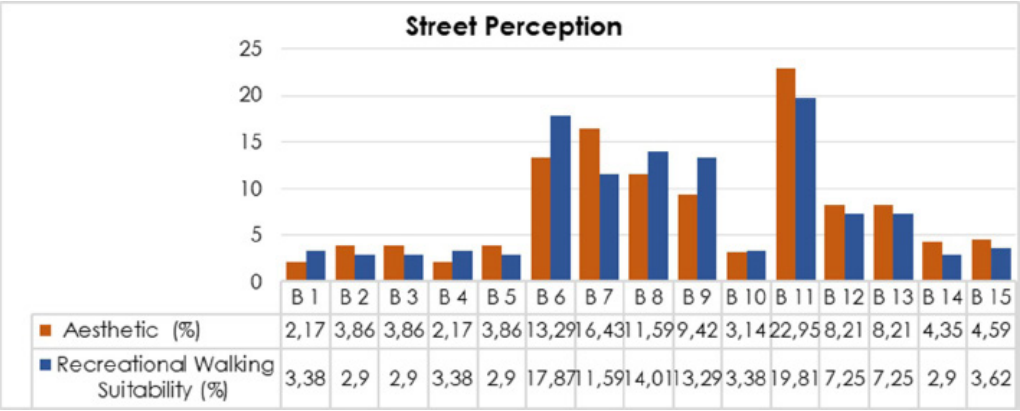
Next, the perceived quality of these streets was evaluated (Figure 4). First, the aesthetic appeal of the streets was measured (similar to evaluations for historical

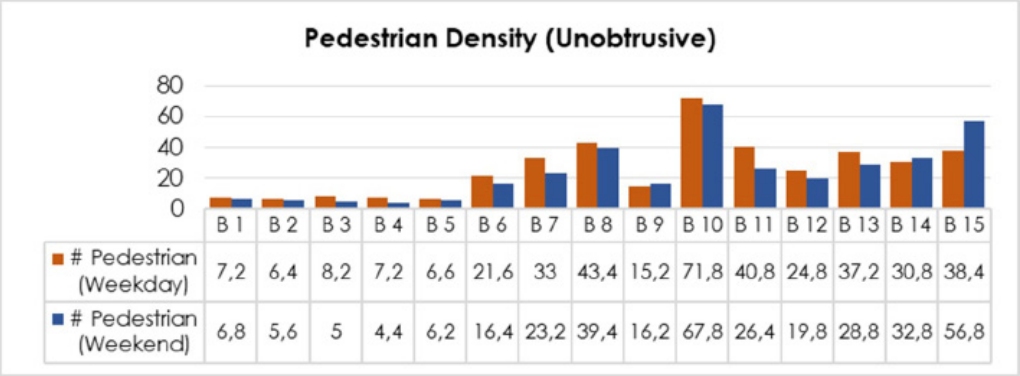
**Figure 3.** Building perception




buildings). The pictures of the streets were presented in a random order, and the participants were asked to select the three streets they found the most aesthetic. In relation to this question participants were also asked to select the three streets that they consider the most suitable for recreational walking. The results revealed the streets rated as the most visually appealing were also the most preferred streets for recreational walks: B6 (National Theatre Building), B7 (Stock Exchange Palace), B8 (Silahçı Ali Salim Business Building), B9 (Maritime Lines Building), B11 (Necatibey Boulevard No 22).

**Figure 4.** Street perception






| | B 1 | B 2 | B 3 | B 4 | B 5 | B 6 | B 7 | B 8 | B 9 | B 10 | B 11 | B 12 | B 13 | B 14 | B 15 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| # Pedestrian (Weekday) | 7,2 | 6,4 | 8,2 | 7,2 | 6,6 | 21,6 | 33 | 43,4 | 15,2 | 71,8 | 40,8 | 24,8 | 37,2 | 30,8 | 38,4 |
| # Pedestrian (Weekend) | 6,8 | 5,6 | 5 | 4,4 | 6,2 | 16,4 | 23,2 | 39,4 | 16,2 | 67,8 | 26,4 | 19,8 | 28,8 | 32,8 | 56,8 |

**Figure 5.** Pedestrian density – Based on unobtrusive observations

**Pedestrian Density Evaluation**

The results of pedestrian counting (Figure 5) showed that, except for B9 (Maritime Lines Building), B14 (Tekel Directorate Building) and B15 (Bahçeciler Business Building), the average number of pedestrians was higher on weekdays at all observation points. B9 (Maritime Lines Building) and B14 (Tekel Directorate Building) are located on the access route to Kordon, one of the busiest areas in Izmir on weekends. Additionally, this street segment is adjacent to a small square where facilities such as free Wi-Fi, charging stations, and seating areas are provided. B15 (Bahçeciler Business Building) is located at the transition via one of the pedestrianized streets of Kemeraltı Historical Site and the street leading to Kızlarağası Han, one of the most important places in Kemeraltı.

The results also showed that the street where the B10 (National Library) is located had the highest pedestrian traffic on both weekdays and weekends. As expected, the awareness scores for the B10 (National Library), located at the point with the highest pedestrian density, are also high. However, contrary to expectations, based on building and street perception evaluations, B10 (National Library) is not found to be an appealing building or located on a street considered as aesthetically pleasing or ideal for recreational walking. The National Library's proximity to the most central and popular area in the study (Kemeraltı) may have contributed to this unexpected result. In other words, although its perceived quality scores are not particularly high, the building's central and well-known location in the city may have increased its recognition and the number of pedestrians passing by.

Apart from this, the historical buildings with the next highest pedestrian density are B8 (Silahçı Ali Salim Business Building) and B11 (Necatibey Boulevard No 22). According to street perception evaluations, both buildings are located on aesthetically pleasing streets that are also suitable for recreational walking. For B8, perceived quality scores are among the top three, while for B11 (Necatibey Boulevard No 22), these scores are above average, though not the highest three.

The following Figure 6 and Figure 7 examine "pedestrian density" based participants reports. Participants were asked to rate how often they use the street where the historical building is located, with the following scale: 0= VERY LOW (I don't know the street / have never used it), 1= LOW (I've used the street once), 2= MODERATE (I rarely use the street), 3= HIGH (I frequently use the street), 4= VERY HIGH (I live/work on the street).

The second question asks about the primary reason for walking on the street, offering options such as: I have not walked on this street before / for Recreation (for shopping or leisure) / for Other Purposes (to travel between destinations or

**Figure 6.** Pedestrian density – Based on survey evaluations

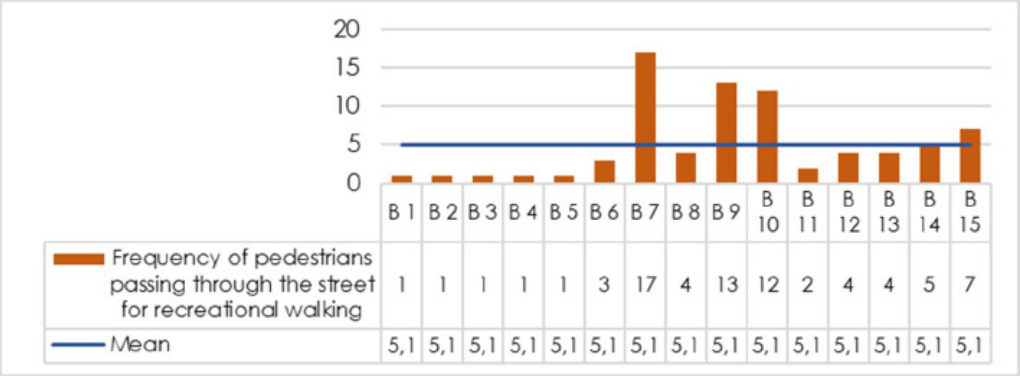
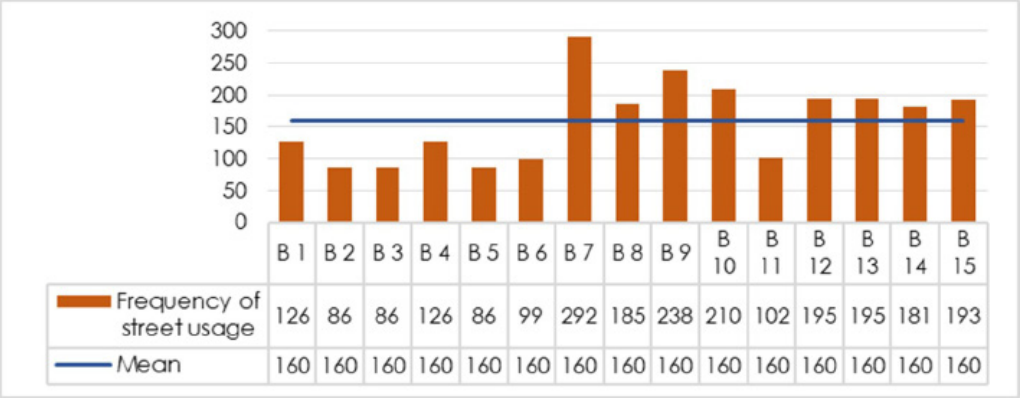



**Figure 7.** Pedestrian density (recreational walking) – Based on survey evaluations




to Exercise). The results revealed that the most frequently used streets are also popular for recreational walks: B7 (Stock Exchange Palace), B9 (Maritime Lines Building), and B10 (National Library).

**Evaluation of the Relationship Between Pedestrian Density, Environmental Perception and Cultural Heritage Awareness**

Qualitative and quantitative data analyses are applied in a complementary manner. Correlation analyses were employed to understand the relationship between number of pedestrians and cultural heritage awareness and perception.

According to the findings of this study, the highest "building awareness" score belongs to B8 (Silahçı Ali Salim Business Building) (132), followed by B7 (Stock Exchange Palace) (125) and B6 (National Theatre Building) and B10 (National Library) (122). The street segments where these buildings are located also have high pedestrian counts. It can be inferred that historic buildings located on street segments with high pedestrian counts have a high level of awareness. Likewise, the street segment where the building with the lowest awareness score (B5 (1333 St No 12) = 32) is located has a low pedestrian count.

The relationship between building awareness and building perception is explored. Aesthetically pleasing buildings are more likely to be noticed by pedestrians, and the level of awareness toward such buildings is significantly greater. B8 (Silahçı Ali Salim Business Building) is the most aesthetic building, and it is followed by B7 (Stock Exchange Palace) and B14 (Tekel Directorate Building). The pedestrian density in front of these buildings and building awareness scores are also high, which suggests a link between aesthetic appeal, awareness and pedestrian preferences. In areas where the aesthetic appeal is higher, there are more pedestrians, and awareness increases as well. Similarly, buildings such as B2 (1333 St No 3) and B3 (1333 St No 9) have lower perception (aesthetics) scores and the pedestrian density around these buildings is also quite low.

Although such direct comparisons may provide examples that indicate the accuracy or inaccuracy of assumptions, they are not sufficient for understanding the bigger picture or reaching a comprehensive conclusion. Therefore, Kendall's tau-b correlation analyses were run between building awareness and measures of pedestrian density and perception scores to better understand whether historical building awareness increases when more people pass by it and perceive it as aesthetically pleasing. There is a positive and significant correlation between building awareness scores and all three measures of pedestrian density (average weekday pedestrian counts (r= 0.618, p= 0.001), average weekend pedestrian counts (r= 0.606, p= 0.002) and reported frequency of street usage (r= 0.453, p= 0.022). This indicates that as pedestrian density increases during weekdays and weekends, and as more people think that they pass by the building, the recognition scores of buildings also increase. Although the results did not reveal significant correlation between building awareness scores and street aesthetic scores (r= 0,355, p= 0.072), there is a positive and significant correlation between building awareness scores and building aesthetic scores (r= 0,599, p= 0.002). In other words, people are more likely to remember buildings that have aesthetic appeal.

Kendall's tau-b correlation also revealed a significant and positive relation between weekday and weekend pedestrian counts (r= 0,785, p= 0.00). When the relationship between objective and subjective measures of pedestrian density is examined via Kendall's tau-b correlation; a moderately significant and positive correlation was calculated between the reported "frequency of street usage" and observed weekday pedestrian count (r= 0,412, p= 0.04) and weekend pedestrian counts (r= 0,429, p= 0.03).

## DISCUSSION AND CONCLUSION

Understanding the relationship between pedestrian density and cultural heritage awareness is crucial for shaping urban policies that prioritize both walkability and heritage conservation. This study highlights how well-preserved and aesthetically appealing historical buildings are more likely to be recognized and appreciated, especially when located in areas with high pedestrian traffic. The findings suggest that the visual and experiential quality of urban spaces plays a significant role in shaping public awareness and engagement with historical sites. As cities continue to evolve, integrating cultural heritage conservation with pedestrian-oriented urban design can serve as a powerful strategy to enhance both urban livability and historical consciousness.

The results support the notion that increased foot traffic enhances the visibility and recognition of historical structures. Moreover, buildings with high awareness scores tend to be located on streets frequently used for recreational walking, indicating that such environments contribute to the public's recognition and appreciation of cultural heritage buildings.

This correlation underscores the critical role of urban design and aesthetics in fostering cultural heritage awareness. Buildings located in aesthetically pleasing and recreationally walkable streets are more likely to be recognized and valued by the public. The findings suggest that integrating cultural heritage sites into urban planning strategies that prioritize walkability can significantly enhance public awareness and appreciation of these landmarks. Urban planners and policymakers should prioritize the development of walkable urban spaces that highlight historical and cultural landmarks as this approach not only aids in cultural heritage preservation but also enriches the urban experience for both residents and visitors. Encouraging recreational walking in well-designed historic

areas allows people to better observe and experience the city, increasing social interactions and a deeper mental map of the urban environment. This study underscores the need for holistic urban design strategies that balance walkability and heritage conservation, ensuring that historical sites remain not just preserved but actively experienced and appreciated.

In this context, urban design should emphasize aesthetic values, ensuring that the surroundings of historical buildings are enhanced in accordance with urban planning principles. Incorporating art and cultural activities can make these spaces more attractive, drawing more pedestrians and encouraging deeper engagement with the city's historical fabric. To improve visibility and accessibility, historical buildings along walking routes could benefit from better lighting, clear signage, and interactive digital tools, such as QR codes or augmented reality applications, providing visitors with historical insights.

Moreover, a holistic approach that integrates building facades, street textures, and spatial organization can create a more cohesive and immersive urban experience. By carefully designing and improving these environments, pedestrians may be encouraged to explore these areas as flâneurs—urban wanderers who engage with the cultural and historical richness of their surroundings. This enhanced engagement fosters a deeper appreciation of historical sites, ultimately contributing to their long-term preservation.

In brief, "Even if we don't visit or see it, that village (historical cultural heritage) is still ours"; however, "if we do visit and see it, we recognize and appreciate it more".

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**Conflict of Interest**

No conflict of interest was declared by the authors.

**Authors' Contributions**

The authors contributed equally to the study.

**Financial Disclosure**

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**Ethics Committee Approval**

The present study was ethically approved by the Scientific Research and Publication Ethics Committee, the Faculty of Science and Engineering at Dokuz Eylül University, with the decision dated 08 November 2024 and approval number E-87347630-659-1195864.

**Legal Public/Private Permissions:**

In this research, the necessary permissions were obtained from the relevant participants (individuals, institutions and organizations) during the survey, in-depth interview, focus group interview, observation or experiment.

## REFERENCES


Abdel-Hadi, A., El-Nachar, E., & Safieldin, H. (2009, October 12-16). *Pedestrian Street Life in Historic Cairo Authenticity and Counterfeit* [Conference session]. International IAPS-CSBE & HOUSING Network, Istanbul, Turkey.

Abdulla, K. M. A., Abdelmonem, M. G., & Selim, G. (2017). Walkability in historic urban spaces: Testing the safety and security in Martyrs' Square in Tripoli. *Archnet-IJAR, 11*(3), 163–177. https://doi.org/10.26687/archnet-ijar.v11i3.1378

Alfonzo, M. A. (2005). To walk or not to walk? The hierarchy of walking needs. *Environment and Behavior, 37*(6), 808–836. https://doi.org/10.1177/0013916504274016

Avar Arslan, A. (2009). Lefebvre'in üçlü –algilanan, tasarlanan, yaşanan mekân– diyalektiği. *TMMOB Mimarlar Odası Ankara Şubesi Dosya Dergisi, 17, 7-16. http://www.mimarlarodasiankara.org/dosya/dosya17.pdf*

Appleyard, B., Appleyard, D. (2021). *Liveable Streets 2.0.* Elsevier.

Ball, K., Bauman, A., Leslie, E., & Owen, N. (2001). Perceived environmental aesthetics and convenience and company are associated with walking for exercise among Australian adults. *Preventive Medicine, 33*(5), 434–440. https://doi.org/10.1006/pmed.2001.0912

Barrera-Fernández, D., & Hernández-Escampa, M. (2019). Walkability in the historic city of Oaxaca, Mexico. *Event Management, 23*(4), 573–598. https://doi.org/10.3727/152599519X15506259855689

Bassett, K. (2004). Walking as an aesthetic practice and a critical tool: Some psychogeographic experiments. *Journal of Geography in Higher Education, 28*(3), 397–410. https://doi.org/10.1080/0309826042000286965

Basu, N., Oviedo-Trespalacios, O., King, M., Kamruzzaman, M., & Haque, M. M. (2023). What do pedestrians consider when choosing a route? The role of safety, security, and attractiveness perceptions and the built environment during day and night walking. *Cities, 143*, 104551. https://doi.org/10.1016/j.cities.2023.104551

Beenackers, M. A., Kamphuis, C. B. M., Prins, R. G., Mackenbach, J. P., Burdorf, A., & Van Lenthe, F. J. (2014). Urban form and psychosocial factors: Do they interact for leisure-time walking? *Medicine and Science in Sports and Exercise, 46(*2), 293–301. https://doi.org/10.1249/MSS.0000000000000017

Belge, Z. S. (2012). *Increing Walkability Capacity of Historic City Centers: The Case of Mersin* (Dissertation No: 318828) [Master's Thesis, Middle East Technical University]. YÖK Ulusal Tez Merkezi.

Benjamin, W. (2002). *Pasajlar.* (A. Cemal, Trns.). Yapı Kredi Yayınları.

Bolshakov, V., & Merkuryeva, G. (2016, June 1-3). Simulation in Intelligent Management of Pedestrian Flows at Heritage Sites [Conference session]. 2nd International Conference on Systems Informatics, Modelling and Simulation, Riga, Latvia.

Bunds, K. S., Casper, J. M., Hipp, J. A., & Koenigstorfer, J. (2019). Recreational walking decisions in urban away-from-home environments: The relevance of air quality, noise, traffic, and the natural environment. *Transportation Research Part F: Traffic Psychology and Behaviour, 65*, 363–375. https://doi.org/10.1016/j.trf.2019.08.006

Campisi, T., Ignaccolo, M., Inturri, G., Tesoriere, G., & Torrisi, V. (2021). Evaluation of walkability and mobility requirements of visually impaired people in urban spaces. *Research in Transportation Business and Management, 40,* 100592. https://doi.org/10.1016/j.rtbm.2020.100592

Cao, X., Handy, S. L., & Mokhtarian, P. L. (2006). The influences of the built environment and residential self-selection on pedestrian behavior: Evidence from Austin, TX. *Transportation, 33*(1), 1–20. https://doi.org/10.1007/s11116-005-7027-2

Cetintahra, G. E. (2015). The Effect of Perceived Physical Environment on Children's Physical Activity. *Planning, 25*(3), 205-211. https://doi.org/10.5505/planlama.2015.32932

Cheng, L., Caset, F., De Vos, J., Derudder, B., & Witlox, F. (2019). Investigating walking accessibility to recreational amenities for elderly people in Nanjing, China. *Transportation Research Part D, 76,* 85–99. https://doi.org/10.1016/j.trd.2019.09.019

Christian, H., Knuiman, M., Divitini, M., Foster, S., Hooper, P., Boruff, B., Bull, F., & Giles-Corti, B. (2017). A longitudinal analysis of the influence of the neighborhood environment on recreational walking within the neighborhood: Results from RESIDE. *Environmental Health Perspectives, 125*(7), 077009. https://doi.org/10.1289/EHP823

Cihanger Ribeiro, D. (2019). The Poiesis of Everyday Life and Space in Yüksel Street. *Journal of Ankara Studies, 7*(1), 1–25. https://doi.org/10.5505/jas.2019.63825

Cubukcu, E. (2013). Walking for Sustainable Living. *Procedia - Social and Behavioral Sciences, 85,* 33–42. https://doi.org/10.1016/j.sbspro.2013.08.335

Çubukçu, E. (2014). *Kentsel Çevrede Fiziksel Aktivite ve Aktif Yaşamı Destekleyen Mekansal Özelliklerin Belirlenmesi: İzmir Karşıyaka Örneği (*Project No: 111K383). TÜBİTAK ULAKBİM TR Dizin.

Çubukçu, E. (2019). Genç Yetişkinlerin Yürümeyi Tercih Ettiği/Etmediği Mekânların Fiziksel Özelliklerinin Analizine Yönelik Yeni Bir Yöntem Önerisi, (Project No: 116K385). TÜBİTAK ULAKBİM TR Dizin.

Cubukcu, E., Hepguzel, B., Onder, Z., & Tumer, B. (2015). Active Living for Sustainable Future: A Model to Measure "Walk Scores" via Geographic Information Systems. *Procedia - Social and Behavioral Sciences, 168*, 229–237. https://doi.org/10.1016/j.sbspro.2014.10.228

Cysek-Pawlak, M. M., & Pabich, M. (2021). Walkability–the New Urbanism principle for urban regeneration. *Journal of Urbanism, 14*(4), 409–433. https://doi.org/10.1080/17549175.2020.1834435

Davies, N. J., Lumsdon, L. M., & Weston, R. (2012). Developing recreational trails: motivations for recreational walking. *Tourism Planning and Development, 9*(1), 77–88. https://doi.org/10.1080/21568316.2012.653480

Deka, D., Brown, C. T., & Sinclair, J. (2018). Exploration of the effect of violent crime on recreational and transportation walking by path and structural equation models. *Health and Place, 52*, 34–45. https://doi.org/10.1016/j.healthplace.2018.05.004

Ding, S., Zhang, R., Liu, Y., Lu, P., & Liu, M. (2023). Visitor crowding at World Heritage Sites based on tourist spatial-temporal distribution: A case study of the Master-of-Nets Garden, China. *Journal of Heritage Tourism, 18*(5), 632–657. https://doi.org/10.1080/1743873X.2023.2214680

Endere, M. L., Chaparro, M. G., & Conforti, M. E. (2018). Making Cultural Heritage Significant for the Public. The Role of Researchers in Encouraging Public Awareness and Local Pride. *Public Archaeology, 17*(1), 36–54. https://doi.org/10.1080/14655187.2018.1499390

Erbay, M., & Saylam Canım, D. (2018). Review of Concept of Awareness Over Historical Environment & Buildings in Connection with Woman Users: A Pilot Study in Trabzon City. In R. Dorczak, R. Leart-Gansiniec, C. Ruggiero, & M. A. İçbay (Eds.), *Research and Development on Social Sciences* (pp. 367-378). Jagiellon University Institute of Public Affairs. www.isp.uj.edu.pl

Ernawadi, Y., & Putra, H. T. (2021). Authenticity and Walkability of Iconic Heritage Destination in Bandung Indonesia. *International Journal of Sciencement, 2*(4), 1082–1094. https://doi.org/10.46729/ijstm.v2i4.243

Ewing, R., Clemente, O., Handy, S., Brownson, R. C., & Winston, E. (2005). Identifying and Measuring Urban Design Qualities Related to Walkability. *Journal of Physical Activity and Health, 3*(1), 1-18. https://activelivingresearch.org/sites/activelivingresearch.org/files/JPAH_15_Ewing.pdf

Ewing, R., & Handy, S. (2009). Measuring the unmeasurable: Urban design qualities related to walkability. *Journal of Urban Design, 14*(1), 65–84. https://doi.org/10.1080/13574800802451155

Ferrer, S., Ruiz, T., & Mars, L. (2015). A qualitative study on the role of the built environment for short walking trips. *Transportation Research Part F: Traffic Psychology and Behaviour, 33,* 141–160. https://doi.org/10.1016/j.trf.2015.07.014

Forsyth, A. (2015). What is a walkable place? The walkability debate in urban design. *Urban Design International, 20*(4), 274–292. https://doi.org/10.1057/udi.2015.22

Forsyth, A., Jacobson, J., & Thering, K. (2010). Six assessments of the same places: Comparing views of urban design. *Journal of Urban Design, 15*(1), 21–48. https://doi.org/10.1080/13574800903429274

Frank, L. D., Appleyard, B. S., Ulmer, J. M., Chapman, J. E., & Fox, E. H. (2021). Comparing walkability methods: Creation of street-smart walk score and efficacy of a code-based 3D walkability index. *Journal of Transport and Health, 21,* 101005. https://doi.org/10.1016/j.jth.2020.101005

García-Hernández, M., de la Calle-Vaquero, M., & Yubero, C. (2017). Cultural heritage and urban tourism: Historic city centres under pressure. *Sustainability (Switzerland), 9*(8), 1346. https://doi.org/10.3390/su9081346

Gargiulo, C., Zucaro F. & Gaglione, F. (2019). Improving accessibility to urban services for over 65: a GISsupported method. In C. Gargiulo & C. Zoppi (Eds.), *Planning, nature and ecosystem services* (pp. 839-850). Naples: FedOAPress. https://doi.org/10.6093/978-88-6887-054-6

Gehl, J. (2010). *Cities for People*. Island Press

Gidlow, C., Cerin, E., Sugiyama, T., Adams, M. A., Mitas, J., Akram, M., Reis, R. S., Davey, R., Troelsen, J., Schofield, G., & Sallis, J. F. (2019). Objectively measured access to recreational destinations and leisure-time physical activity: Associations and demographic moderators in a six-country study. *Health and Place, 59*, 102196. https://doi.org/10.1016/j.healthplace.2019.102196

Gündel, H., & Velibeyoğlu, K. (2020). Düşük karbon mahalle: yürüme ve bisiklet öncelikli kentsel tasarım. *Meltem İzmir Akdeniz Akademisi Dergisi, 8,* 5–21. https://

doi.org/10.32325/iaad.2020.14

Guo, Z., & Loo, B. P. Y. (2013). Pedestrian environment and route choice: Evidence from New York City and Hong Kong. *Journal of Transport Geography, 28*(C), 124–136. https://doi.org/10.1016/j.jtrangeo.2012.11.013

Husar, M., Ondrejicka, V., & Scacchi, M. (2020). Involving citizens through walking: Urban walks as a tool for awareness raising in historic built areas. *IOP Conference Series: Materials Science and Engineering, 960(*2) 022087. https://doi.org/10.1088/1757-899X/960/2/022087

Jacobs, J. (1961). The Death and Life of Great American Cities. Vintage Publisher.

Jiménez Martín, D., Ramírez Saiz, A., & Ajuriaguerra Escudero, M. A. (2022). Urban Accessibility in World Heritage Cities. Accessibility Considerations in Pedestrian Routes in Historic City Centres. *Studies in Health Technology and Informatics, 2*(297), 499–506. https://doi.org/10.3233/SHTI220879

Kayın, E.(2013). İzmir Kent Ansiklopedisi Mimarlık. İzmir Büyükşehir Belediyesi.

Kejanli, T., Koç, C., & Alkan, M. C. (2023). Tarihi bölgelere erişilebilirliğin engelli bireyler açısından değerlendirilmesi: Diyarbakır Suriçi bölgesi örneği. *GRID - Architecture Planning and Design Journal,* 6(2), 699-724. https://doi.org/10.37246/grid.1208072

Kerdani, D. Y. El, Shafik, Z. Y., & Abdullah, M. A. (2017, November 24). *Cycling And Walkability as Enablers to Preserve The Urban Heritage of Maadi Case Study: Street Number 250* [Conference session]. The 1st International Conference: Towards A Better Quality of Life, Berlin, Germany. https://ssrn.com/abstract=3170362

Kolsal, F., & Güven Ulusoy, F. Ö. (2022). Kent deneyimi ve belleğin imgelerle dönüşümü. *GRID - Architecture, Planning and Design Journal,* 6(1), 108-132. https://doi.org/10.37246/grid.1060792

Koohsari, M. J., Sugiyama, T., Hanibuchi, T., Shibata, A., Ishii, K., Liao, Y., & Oka, K. (2018). Validity of Walk Score® as a measure of neighborhood walkability in Japan. *Preventive Medicine Reports, 28*(9), 114–117. https://doi.org/10.1016/j.pmedr.2018.01.001

Kuyulu, İ. (2000). İzmir'de Cumhuriyet Dönemi Mimarisi. *Sanat Tarihi Dergisi, 10*(10), 91–100.

Lachowycz, K., & Jones, A. P. (2014). Does walking explain associations between access to greenspace andlower mortality? *Social Science and Medicine, 107*(100), 9–17. https://doi.org/10.1016/j.socscimed.2014.02.023

Lai, K. Y., Kumari, S., Gallacher, J., Webster, C., & Sarkar, C. (2022). Associations of residential walkability and greenness with arterial stiffness in the UK Biobank. *Environment International, 158*, 106960. https://doi.org/10.1016/j.envint.2021.106960

Lai, T. F., Chang, C. S., Liao, Y., Hsueh, M. C., Koohsari, M. J., Shibata, A., & Oka, K. (2021). Does neighborhood built environment support older adults' daily steps differ by time of day? *Journal of Transport and Health, 22,* 101234. https://doi.org/10.1016/j.jth.2021.101234

Lee, J., Kim, J., Ahn, J., & Woo, W. (2019). Context-aware risk management for architectural heritage using historic building information modeling and virtual reality. *Journal of Cultural Heritage, 38,* 242–252. https://doi.org/10.1016/j.culher.2018.12.010

Lee, S., Lee, C., Nam, J. W., Abbey-Lambertz, M., & Mendoza, J. A. (2020). School walkability index: Application of environmental audit tool and GIS. *Journal of Transport and Health, 18,* 100880. https://doi.org/10.1016/j.jth.2020.100880

Lehman, M., Boyle, M., Mix, T., & DeCoursey, W. J. (2007). *Healthy and Walkable Communities.* Institute for Public Administration College of Human Services, Education & Public Policy University of Delaware. https://udspace.udel.edu/server/api/core/bitstreams/dee8610a-0da1-47db-a779-94bace46140a/content

Lewis, E. (2015). Stepping Towards Sustainability: Analyzing Walkability in Urban Environments. *Student Theses 2015-Present. 184, 1-68.* https://research.library.fordham.edu/environ_2015/184

Li, Q., Lv, S., Cui, J., Zhang, J., & Liu, Y. (2024). Environmental Perception about Pedestrian Environment on Cultural Visitation Roads. *Sustainability (Switzerland), 16*(16), 7097. https://doi.org/10.3390/su16167097

Lo, R. H. (2009). Walkability: What is it? *Journal of Urbanism, 2*(2), 145–166. https://doi.org/10.1080/17549170903092867

Lomadze, E. (2024). Pedestrian Perception of Walkability in Public Spaces Example of a Historical Neighbourhood in Batumi [Master's dissertation, Malmö University]. Publikationer från Malmö Universitet.

Ma, X., Chi Kwan, C., & Hung Kit Lai, J. (2021). Critical Factors Influencing the Comfort Evaluation for Recreational Walking in Urban Street Environments. *Cities, 116*(0), 103286. https://doi.org/10.1016/j.cities.2021.103286

Maniei, H., Askarizad, R., Pourzakarya, M., & Gruehn, D. (2024). The Influence of Urban Design Performance on Walkability in Cultural Heritage Sites of Isfahan, Iran. *Land, 13*(9), 1523. https://doi.org/10.3390/land13091523

Marín-Nicolás, J., & Sáez-Pérez, M. P. (2022). An Evaluation Tool for Physical Accessibility of Cultural Heritage Buildings. *Sustainability (Switzerland), 14*(22), 15251. https://doi.org/10.3390/su142215251

McIlroy, R. C., Nam, V. H., Bunyasi, B. W., Jikyong, U., Kokwaro, G. O., Wu, J., Hoque, M. S., Plant, K. L., Preston, J. M., & Stanton, N. A. (2020). Exploring the relationships between pedestrian behaviours and traffic safety attitudes in six countries. *Transportation Research Part F: Traffic Psychology and Behaviour, 68,* 257–271. https://doi.org/10.1016/j.trf.2019.11.006

Mehanna, W. A. E. H., & Mehanna, W. A. E. H. (2019). Urban renewal for traditional commercial streets at the historical centers of cities. *Alexandria Engineering Journal, 58*(4), 1127–1143. https://doi.org/10.1016/j.aej.2019.09.015

Mehta, V. (2019). Streets and social life in cities: a taxonomy of sociability. *Urban Design International, 24*(1), 16–37. https://doi.org/10.1057/s41289-018-0069-9

Middleton, J. (2010). Sense and the city: Exploring the embodied geographies of urban walking. *Social and Cultural Geography, 11*(6), 575–596. https://doi.org/10.1080/14649365.2010.497913

Middleton, J. (2018). The socialities of everyday urban walking and the 'right to the city.' *Urban Studies, 55*(2), 296–315. https://doi.org/10.1177/0042098016649325

Nieuwenhuijsen, M. J. (2020). Urban and transport planning pathways to carbon neutral, liveable and healthy cities; A review of the current evidence. *Environment International, 140,* 105661. https://doi.org/10.1016/j.envint.2020.105661

Nyaupane, G., & Timothy, D. (2009). Public Awareness and Perceptions of Heritage Buildings in Arizona, USA. *Travel and Tourism Research Association: Advancing Tourism Research Globally. 32,* 1-11. https://hdl.handle.net/20.500.14394/48197

Önen, S. (2016). Kenti Yürüyerek Keşfetmenin Sosyolojisi. *Kent Araştırmaları Dergisi (Journal of Urban Studies), 7(*18), 286–303. http://idealkentdergisi.com

Özdemir, N. (2009). Kültür Ekonomisi Ve Endüstrileri İle Kültürel Miras Yönetimi İlişkisi. *Milli Folklor Dergisi, 11(*84), 73-86.

Özkaraca Özalp, N., & Halaç, H. H. (2023). Tarihi Çevrede Korumanın Üçüncü Boyutu Olarak Silüet: Korunma Sorunlarının Medya Perspektifinden İncelenmesi. *GRID - Architecture Planning and Design Journal, 7*(1), 1-35. https://doi.org/10.37246/grid.1077009

Pehlivan, G. F., Baldiran, A., & Pehlivan, E. (2021). Kültürel mirasın belgelenmesinde farklı tekniklerin karşılaştırılması: Iasos Bouleuterionu örneği. *GRID - Architecture, Planning and Design Journal, 5(*1), 53-71. https://doi.org/10.37246/grid.946786

Pikora, T. J., Giles-Corti, B., Knuiman, M. W., Bull, F. C., Jamrozik, K., & Donovan, R. J. (2006). Neighborhood environmental factors correlated with walking near home: Using SPACES. *Medicine and Science in Sports and Exercise, 38(*4), 708–714. https://doi.org/10.1249/01.mss.0000210189.64458.f3

Pizarro-Reyes, L., Díaz-Lazcano, V., Zumelzu, A., & Prieto, A. J. (2022). Resilience and sustainability assessment of cultural heritage and built environment: The Libertad pedestrian walkway in Valdivia, Chile. *Journal of Cultural Heritage, 53,* 154–164. https://doi.org/10.1016/j.culher.2021.11.013

Saelens, B. E., Sallis, J. F., Black, J. B., & Chen, D. (2003). Neighborhood-Based Differences in Physical Activity: An Environment Scale Evaluation. American *Journal of Public Health, 93(*9), 1552–1558. https://doi.org/10.2105/AJPH.93.9.1552

Saelens, B. E., Sallis, J. F., & Frank, L. D. (2003). Environmental correlates of walking and cycling: Findings from the transportation, urban design, and planning literatures. *Annals of Behavioral Medicine, 25*(2), 80–91. https://doi.org/10.1207/S15324796ABM2502_03

Shankar, B., & Swamy, C. (2013). Creating Awareness for Heritage Conservation in the City of Mysore: Issues and Policies. *International Journal of Modern Engineering Research (IJMER), 3*(2), 698-703. https://www.ijmer.com/papers/Vol3_Issue2/AQ32698703.pdf

Shatu, F., & Yigitcanlar, T. (2018). Development and validity of a virtual street walkability audit tool for pedestrian route choice analysis—SWATCH. *Journal of Transport Geography, 70,* 148–160. https://doi.org/10.1016/j.jtrangeo.2018.06.004

Sheng, N., & Wa Tang, U. (2011). Spatial analysis of urban form and pedestrian exposure to traffic noise. International *Journal of Environmental Research and Public Health, 8(*6), 1977–1990. https://doi.org/10.3390/ijerph8061977

Shimray, S. R. (2019). Ways to Create Awareness on Cultural Heritage: An overview. *Philosophy and Practice, 2577*, 1-7. https://digitalcommons.unl.edu/libphilprac

Southworth, M. (2005). Designing the Walkable City. *Journal Of Urban Planning And Development, 131*(4), 246-257. https://doi.org/10.1061/ASCE0733-94882005131:4246

Spoon, S. C., Khattak, A. J., Richard, E., & Killingsworth, M. P. H. (2005). What

Defines Walkability: Walking Behavior Correlates [Master's Dissertation, University of North Carolina at Chapel Hill]. Carolina Digital Repository.

Sugiyama, T., Cerin, E., Owen, N., Oyeyemi, A. L., Conway, T. L., Van Dyck, D., Schipperijn, J., Macfarlane, D. J., Salvo, D., Reis, R. S., Mitáš, J., Sarmiento, O. L., Davey, R., Schofield, G., Orzanco-Garralda, R., & Sallis, J. F. (2014). Perceived neighbourhood environmental attributes associated with adults[U+05F3] recreational walking: IPEN Adult study in 12 countries. *Health and Place, 11*(28), 22–30. https://doi.org/10.1016/j.healthplace.2014.03.003

Sugiyama, T., Gunn, L. D., Christian, H., Francis, J., Foster, S., Hooper, P., Owen, N., & Giles-Corti, B. (2015). Quality of public open spaces and recreational walking. *American Journal of Public Health, 105*(12), 2490–2495. https://doi.org/10.2105/AJPH.2015.302890

Tarek, M., Hassan, G. F., Elshater, A., & Elfayoumi, M. (2021). Investigating Built Environment Indicators to Develop a Local Walkability Index. *Journal of Contemporary Urban Affairs, 5*(2), 235–251. https://doi.org/10.25034/ijcua.2021.v5n2-7

Teixeira, J. F., Silva, C., Seisenberger, S., Büttner, B., McCormick, B., Papa, E., & Cao, M. (2024). Classifying 15-minute Cities: A review of worldwide practices. *Transportation Research Part A: Policy and Practice, 189,* 104234. https://doi.org/10.1016/j.tra.2024.104234

Traunmuller, M., & Schieck, A. F. (2013, June 29-02). Introducing the Space Recommender System: How crowd-sourced voting data can enrich Urban Exploration in the digital Era [Conference Session]. 6th International Conference on Communities and Technologies, Munich, Germany.

Türkelleri, B. (2004). İzmir'de Erken Cumhuriyet Dönemi Eserleri (Tez No: 146419) [Yüksek Lisans Tezi, Ege Üniversitesi]. YÖK Ulusal Tez Merkezi.

Ulusan, E. (2022). Kültürel Miras Yönetim Planlaması Kavramsal Çerçevesi ve İlgili Lisansüstü Araştırmalar Üzerine Bir İnceleme. *Journal of Planning, 33(*1), 40-57. https://doi.org/10.14744/planlama.2022.93276

Wali, B., Frank, L. D., Saelens, B. E., Young, D. R., Meenan, R. T., Dickerson, J. F., Keast, E. M., & Fortmann, S. P. (2024). Associations of walkability, regional and transit accessibility around home and workplace with active and sedentary travel. *Journal of Transport Geography, 116*, 103776. https://doi.org/10.1016/j.jtrangeo.2023.103776

Wang, H., & Yang, Y. (2019). Neighbourhood walkability: A review and bibliometric analysis. *Cities, 93*(6), 43–61. https://doi.org/10.1016/j.cities.2019.04.015

Wang, Y., & Wong, Y. D. (2020). Repositioning urban heritage for active mobility: Indications from news coverage in Singapore. *Cities, 98*(102525), 1-12. https://doi.org/10.1016/j.cities.2019.102525

Wekerle, G. (2000). From Eyes on the Streets to Safe Cities. *Places, 13*(1), 44-51. https://placesjournal.org/assets/legacy/pdfs/from-eyes-on-the-street-to-safe-cities.pdf

Wunderlich, F. M. (2008). Walking and rhythmicity: Sensing urban space. *Journal of Urban Design, 13*(1), 125–139. https://doi.org/10.1080/13574800701803472

Xu, J. L. (2019). From walking buffers to active places: An activity-based approach to measure human-scale urban form. *Landscape and Urban Planning, 191,* 103452. https://doi.org/10.1016/j.landurbplan.2018.10.008

Yoon, Y. J., Kim, S. Y., Lee, Y. K., Ham, N., Kim, J. H., & Kim, J. J. (2023). GIS-Based Multi-Objective Routing Approach for Street-Based Sporting-Event Routing. *Applied Sciences (Switzerland), 13*(14), 8453. https://doi.org/10.3390/app13148453

Zainol, R., Ahmad, F., Nordin, N. A., & Aripin, A. W. M. (2014, August 26-29). *Evaluation of users' satisfaction on pedestrian facilities using pair-wise comparison approach* [Conference Session]. 8th International Symposium of the Digital Earth (ISDE8), Sarawak, Malaysia. https://doi.org/10.1088/1755-1315/18/1/012175

Zainol, R., Wang, C., Ali, A. S., Ahmad, F., Mohd Aripin, A. W., & Salleh, H. (2016). Pedestrianization And Walkability In A Fast Developing Unesco World Heritage City. *Open House International, 41*(1), 112–119. https://doi.org/10.1108/OHI-01-2016-B0016

Zhenrao, C., Chaoyang, F., Qian, Z., & Fulong, C. (2021). Joint development of cultural heritage protection and tourism: the case of Mount Lushan cultural landscape heritage site. *Heritage Science,* 9(86), 1-16. https://doi.org/10.1186/s40494-021-00558-5

Zhou, H., He, S., Cai, Y., Wang, M., & Su, S. (2019). Social inequalities in Neighbourhood visual walkability: Using street view imagery and deep learning technologies to facilitate healthy city planning. *Sustainable Cities and Society, 50,* 101605. https://doi.org/10.1016/j.scs.2019.101605

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**Research Article**

# Analysis of Ottoman Baths in the Context of Architectural Typology: Bursa Bazaar Baths

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## Abstract

The act of bathing, a practice that has maintained its importance from the past to the present, has always been facilitated by bath structures. These structures, which were also of great importance for the Turks, reached their architectural peak during the revered Ottoman period. This study aims to comprehensively examine the architectural typologies of the Ottoman period bazaar baths in Bursa. The importance of this study lies in its contribution to the existing knowledge of Ottoman architecture, as it analyzes the architectural features of these historical buildings in detail. It also emphasizes the urgent need to preserve these buildings and transfer them to future generations as cultural heritage. The methods used in this study include literature review, field study, and comparative analysis. The literature review examined the general characteristics of Ottoman period baths, followed by a detailed analysis of the construction dates, spatial arrangement, and current use of the baths in Bursa. The findings reveal that the bath buildings in Bursa show an asymmetrical structure in terms of plan and mass characteristics, but there are differences in their spatial arrangement and usage patterns. In particular, it was determined that some of the baths preserved their architectural identity despite the loss of their original functions. The results of the study make important contributions to the literature in terms of identifying commonalities and differences between the architectural typologies of Ottoman baths and emphasize the critical importance of preserving these buildings for cultural sustainability and the continuity of historical heritage.

**Keywords:** Architectural Typology, Bazaar Bath, Bath, Interior Space, Ottoman Period.

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**Araştırma Makalesi**

# Osmanlı Hamamlarının Mimari Tipoloji Bağlamında İncelenmesi: Bursa Çarşı Hamamları

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## Özet

Yıkanma eylemi geçmişten günümüze önemini korumuştur. Eski dönemlerden itibaren yıkanma eylemini gerçekleştirmek üzere hamam yapıları inşa edilmiştir. Türkler için de önemli olan hamam yapıları mimari bağlamda doruk noktasına Osmanlı Dönemi'nde ulaşmıştır. Bu çalışma, Bursa'daki Osmanlı dönemi çarşı hamamlarının mimari tipolojilerini kapsamlı bir şekilde incelemeyi amaçlamaktadır. Çalışmanın önemi, bu tarihi yapıların mimari özelliklerinin detaylı bir şekilde analiz edilerek, Osmanlı mimarisine dair mevcut bilgi birikimine katkı sağlamasında yatmaktadır. Aynı zamanda, bu yapıların korunması ve kültürel miras olarak gelecek nesillere aktarılması gerekliliği vurgulanmaktadır. Çalışmada kullanılan yöntemler arasında literatür taraması, alan çalışması ve karşılaştırmalı analiz yer almaktadır. Literatür taraması ile Osmanlı dönemi hamamlarının genel özellikleri incelenmiş, ardından Bursa'da yer alan hamamların yapım tarihleri, mekân dizilimleri ve günümüzdeki kullanım durumları detaylı olarak ele alınmıştır. Bulgular, Bursa'daki hamam yapılarının plan ve kütle özellikleri açısından asimetrik bir yapı gösterdiğini, ancak mekân dizilimlerinde ve kullanım biçimlerinde farklılıklar bulunduğunu ortaya koymuştur. Özellikle, bazı hamamların özgün işlevlerini yitirmiş olmalarına rağmen mimari kimliklerini korudukları saptanmıştır.Çalışmanın sonuçları, Osmanlı hamamlarının mimari tipolojileri arasında ortak ve farklı yönlerin belirlenmesi açısından literatüre önemli katkılar sunmakta ve bu yapıların korunmasının kültürel sürdürülebilirlik ve tarihî mirasın devamlılığı açısından kritik bir öneme sahip olduğunu vurgulamaktadır.

**Anahtar Kelimeler:** Mimari Tipoloji, Çarşı Hamamı, Hamam, İç Mekân, Osmanlı Dönemi.

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## INTRODUCTION

Human beings have had many needs since the beginning of life. In the process, it has brought solutions to meet its needs. One of these needs has been the need for cleaning and purification. Since the Neolithic Age, people have used water vapor and smoke to clean and purify themselves (Pekşen, 2015). During these periods, people preferred waterfronts for settlement. In this way, they were close to water, the most important element in meeting their cleaning needs (Ertuğrul, 2009). Because body cleansing has an effect that contributes to the maintenance of health and well-being (Peate & Lane, 2015). After people settled down, they needed places for this action since the act of washing was a part of their lives. In this way, bathhouse structures developed (Halaç et al., 2018). Climate conditions and privacy also effectively developed bath structures (Ertuğrul, 2009).

The first examples of bath structures were found in Ancient Egypt, Mesopotamia, and Anatolia (Pekşen, 2015). The oldest known bath structure in world history is a bathing place belonging to the Assyrian King. In addition, the ruins of a bath complex belonging to the Indus civilization were found in the Sind region west of Pakistan (Eyice, 1997). It is known that the bath belonging to the Indus civilization was built around 2500 BC. The structure consists of a large pool and surrounding building complexes. The pool in the structure is 12 meters long. The pool was built of bricks and natural tar. There are changing rooms, water tanks, and drainage systems around the bath (Ray, 2020). Although the first example of bath structures generally belongs to the Indus civilization, they have played important roles in hygiene and social life throughout history. For this reason, bath structures have been widely used in various civilizations and have become a part of social life. In parallel with the settlement and development of societies, the number of bath structures increased. In Anatolian lands, bath structures belonging to Greek, Roman, Byzantine, and Turkish civilizations were built (Kulak Torun, 2023).

The origin of bath structures in ancient Greece dates to the works of Homer. Bathing rituals in Greek culture have been the subject of works of art (Cook, 2009). In the Hellenistic period, Greek baths went beyond personal cleaning. They became the centre of social life (Yegül, 1992). On the other hand, Roman baths assumed a social role in which people came together and performed various activities. In the imperial period, bath buildings served as structures that increased popular and political status (Gensheimer, 2018). On the other hand, Roman baths set an example for the bath buildings of the following periods. The number of bath buildings heated with hot water increased (Kaplan, 2021). From the 4th century onwards, important changes were added to the architecture of the baths. They developed bathing pools in a size suitable for human ergonomics (Mısırlı & Özgüven, 2020). In addition, changing rooms, warm and hot rooms were used in the context of plan typology. They built aqueducts to transport water to the bath structure (Avşar & Avşar, 2016). After the Roman Empire, Byzantine rule was experienced in Anatolian lands. The Byzantine society, which continued the Roman Empire in the east, preserved the bath structures. In this period, baths were classified as public, private, and monastery (Ertuğrul, 2009). When the Turks ruled in Anatolian lands, bath structures continued to remain important structures for the society. However, they reorganized the bath structures inherited from previous societies according to their religious and cleaning rules (Önge, 1988). In short, the Turks shaped the structure of the Turkish Bath by combining their bath traditions with the Roman and Byzantine bath structures that existed in Anatolia (Yegül, 1992).

Many bath structures from the Ottoman period have survived to the present day in Anatolia. Within the scope of this study, the Ottoman period bazaar baths in the city of Bursa are discussed. The study aims to reveal the linguistic unity and differences between the Ottoman bath structures in a certain settlement area by comparing them with each other and the period's characteristics. Bursa was one of the most important cities during the Ottoman period. For this reason, many artifacts belong to that period in the city of Bursa. For this reason, Bursa was chosen as the field of study.

## METHOD OF THE STUDY

More than one method was used in the study. The first method used is a literature review. This stage is very important for the study. The data to be used in the evaluation phase of the study were obtained in this step. Within the scope of the literature review, firstly, the Ottoman period bath structures were researched and transferred. Then, general information about the city of Bursa and the bath buildings in the city were explained. The Ottoman period bazaar baths in Bursa, which were determined as the sample, were documented within the scope of the field study. In addition, information about the buildings was compiled and presented in the relevant section. In the evaluation section of the study, the data obtained about the Ottoman period bath buildings were analyzed by comparing them with the buildings in the sample. In typological studies, the "analytical typology" method, which is based on analysis and consists of creating an inventory of the existing, classification and reduction stages, was used. In this way, the period characteristics of the buildings in the sample and their similarities and differences with each other were determined. The methods used in the study are shown in Figure 1.

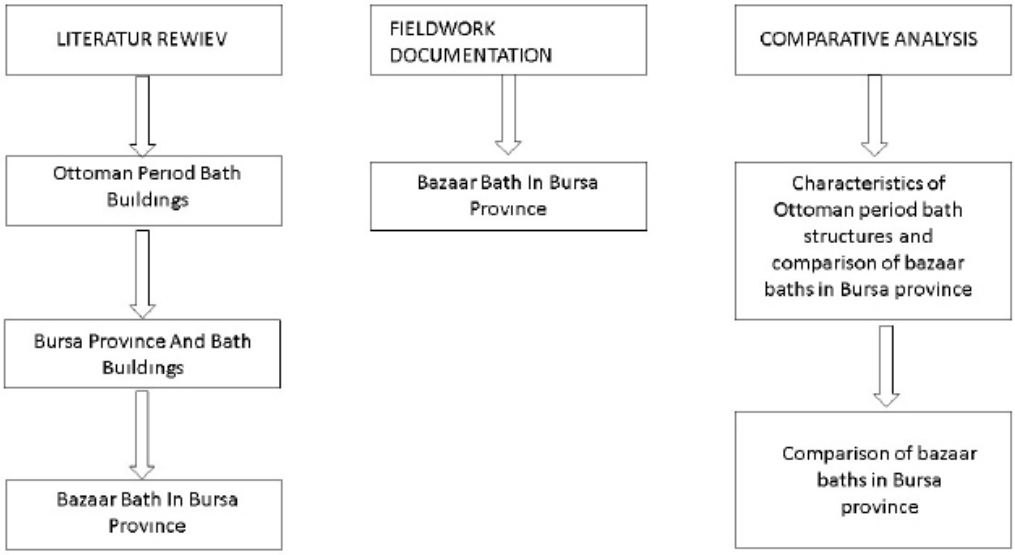



**Figure 1.** Methods Used in the Study

## LITERATURE REVIEW

The literature review within the scope of the study covers two topics. The first subject is the Ottoman period bath buildings. In this context, the architectural features of the Ottoman period bath buildings were examined. The second subject is Bursa province and the bath buildings in the province. The bath buildings in the province of Bursa are generally conveyed. However, the research on the Ottoman period bazaar baths in the province of Bursa, which constitute the study's sample, is described in the section where the sample is introduced.

## OTTOMAN PERIOD BATH BUILDINGS

Turkish baths were not only used for bathing as in other societies. They were also accepted as places where socialization took place. In addition, with the need for cleansing brought about by the religious beliefs of the Turks, bath structures were built as complementary elements of mosque structures, especially during the Seljuk period (Koren, 1996). With the strengthening of the Turks in Anatolia, the construction of bath structures also gained momentum. As the construction of bath buildings accelerated, the architectural diversification of the buildings also began. In this context, hammam buildings are divided into two public and private. Private baths are the spaces built for buildings such as mansions and mansions with few users. Public baths were also called bazaar baths. They are bath structures built by foundations or built next to complexes (Önge, 1988, Eyice, 1994). A classification was also made according to the usage status of male and female users. Baths serving only male users were classified as single baths, while baths serving both male and female users were classified as double baths (Arseven, 1956).

Turkish bath buildings had three main sections: undressing, warming-up and temperature that is warmer than other areas where the bathing action takes place. However, in addition to the main sections, the ashtray and water tank areas used for heating were also included in the plans of the baths (Eyice, 1997). At the entrance of the bath buildings, a dressing area was designed. The function of this space was a dressing area where clothes were removed before the act of washing. It was also used as a resting area for users after the act of bathing. The dressing area was the largest in the spatial organization of Turkish bath buildings. In some Turkish bath examples, a fountain was also used in the centre of the dressing area (Önge, 1988). In most bath buildings, a dome was used in the undressing areas. A few windows were used on the wall plane in the undressing areas to ensure privacy. Generally, lighting was provided by the dome used as the upper cover (Eyice, 1997).

The warmth area is designed after the undressing section in the plan plane of the bath buildings. The function of the space is to familiarize users with the warmth section. It was also used to perform ablution after the act of washing in the warmth area (Taşçıoğlu, 1988). In this section, marble seating areas and cleaning cells were designed. In some of the warmth spaces, toilet facilities were also used. A barrel vault or dome was used for the upper cover of the warming space (Ertuğrul, 2009).

After the warmth section in the bath buildings, the temperature section is designed. This space is the area where the act of washing takes place. In this space, a navel stone is placed as a platform in the middle of the common area, and halvet cells, which are closed and solitary washing areas, are designed. In addition, basins with a tap and a basin filled with water underneath for users to sit on, and benches designed for sitting are also included. Vault and domes were used in the upper cover of the temperature section (Ertuğrul, 2009). In Turkish bath buildings, the ashtray and water tank are generally located along the wall plane of the temperature space (Önge, 1988).

In the literature reviews on Turkish bath buildings, bath plan typologies were generally realized by considering the temperature space. Ülgen (1950) divided the bath buildings into three classes. He identified the plan and mass, the way the temperature was formed and the number of halvet cells as the main headings of the classification. He analyzed the plan and mass features under two headings as monumental massed-symmetrical plan and undeveloped/

asymmetrical plan. He analyzed the heading that was realized for the creation of the temperature space in six groups as four-cornered, rectangular, cloverleaf, T-shaped, multi-cornered, cross-shaped. The classification according to the number of halvet cells is grouped as single, double, four and multi-halvet. Eyice (1960) realized the typological classification of bath buildings by considering only the form of the temperature space. In this context, he categorized them into six groups: corner cells with four eyvan, star-like, multi-domed, twin rooms, double halves with a domed centre, four corners, and surrounded halvet cells. The classification of the plan typology of the baths by Ülgen (1950) and Eyice (1960) is shown in Figure 2.

Architectural elements in Turkish bath buildings are defined as columns, arches, walls and upper cover elements. The most frequently used upper covers in bath structures were vaults and domes. Domes were built with binding plaster and bricks. Horasan mortar was used in the upper covers, such as vaults and domes, because it is resistant to temperature and humidity (Demirdal, 2011). The wall planes of the bath structures were built using rubble stones and a masonry system. In the 15th and 16th centuries, brick and cut stone were used as building materials in the wall planes (Yıldırım, 2021). Generally, flattened or circular arches were used. Arches in the upper parts of window and door openings are also quite common (Asatekin, 1978).

**Hammam Typologies According To Ülgen (1950)**

| Plan And Mass | Temperature | Number Of Seclusion |
|---|---|---|
| Monumental - Symmetrical Plan | Polygonal | Single Private |
| Asymmetric Plan | Square | Double Private |
| | Cloverleaf | Four Secluded People |
| | Rectangle | Very Private |
| | Cross Shaped | |
| | T Shaped | |

**Bath Typologies According To Eyice (1960)**

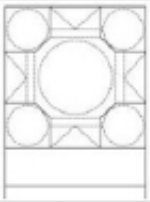
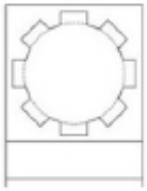
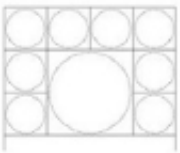
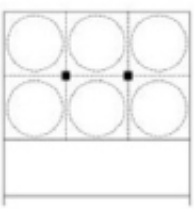
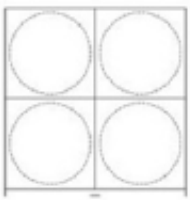
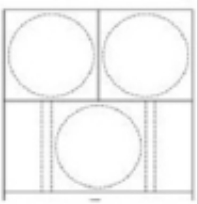
| Corner Cell With Four Eyvans (Type A) | Stellar Temperature (Type B) | Four Corners Surrounded By Hot Water With Private Rooms (Type C) |
|---|---|---|
|  |  |  |
| **Multi-domed Temperature (D Type)** | **Double Halvet With Middle Dome (E Type)** | **Roommate( F Type)** |
|  |  |  |

**Figure 2.** Classification of Hammam Typologies by Ülgen (1950) and Eyice (1960)

## BURSA PROVINCE AND BATH BUILDINGS

Since Bursa province has hot water resources, it has been a tourism centre with Roman and Ottoman baths and spas throughout history. In Bursa, which became the capital after the Ottoman conquest, approximately 50 baths and spas, 39 of which are still standing today, were built by sultans, prominent statesmen, and philanthropic citizens (Şehitoğlu, 2000). As important buildings of the city, public baths were important places of socialization for the public and statesmen. The numerous bazaar baths built in the 15th and 16th centuries were profitable businesses that provided financial support and were concentrated in the commercial centres surrounding the inns used by travellers to stay on the road during long journeys or in the city centre (Şehitoğlu, 2008).

The baths built by the Ottomans in the city have common features in terms of size, plan scheme, covering system and ornaments according to the period they were built. Orhangazi Bath, built by Orhan Bey in 1339, is an important bath symbolizing the transition to Ottoman bath architecture after the Seljuk period. Afterwards, Nalıncılar Bath, the largest bath of Bursa built by Murad I; Demirtaş Bath, the largest domed Bursa bath with a diameter of 16.00 meters during the reign of Bayezid I; Court (İbrahimpaşa) Bath and Ördekli (Eski Yeni) Bath built by Mehmed I, Meyhaneli Bath and Kayhan (Mehmed Ağa) Bath built during the reign of Murad II show the care shown to the construction of baths by the rulers with their advanced architectural features (Cardigan, 2019).

Due to the land structure of the old city centre of Bursa, the baths are generally located on sloping land and are rectangular-plan structures.The undressing areas are generally square in plan; in many examples, they constitute almost half of the bath. When we look at the temperature planning of the baths, which were generally built in the 14th - 15th centuries, it is seen that they are mainly of the Semavi Eyice's bath typology type E "type with a dome in the middle and a double halo". The octagonal plan of the undressing and temperature areas of the Davutpaşa Bath distinguishes it from other bath structures. Baths' temperature's roof covering vary according to their size. While the large-volume plans are covered with a dome, the small ones are covered with a wooden roof. The warm and hot rooms differ according to their plan scheme; either they are only covered with a dome or the main dome is supported by a half dome, vault or arches. Small-sized spaces such as halvet, toilets and shaving areas are usually covered with a dome or vault.

## OTTOMAN PERIOD BATH BUILDINGS IN BURSA PROVINCE

The Ottoman period baths in Bursa can be grouped according to their service purposes and their location in the city: Külliye Baths, Bazaar Baths, neighbourhood baths and spas. Complex baths are located within complex complexes. Bazaar baths are located within the trade zone. Neighbourhood baths are located in

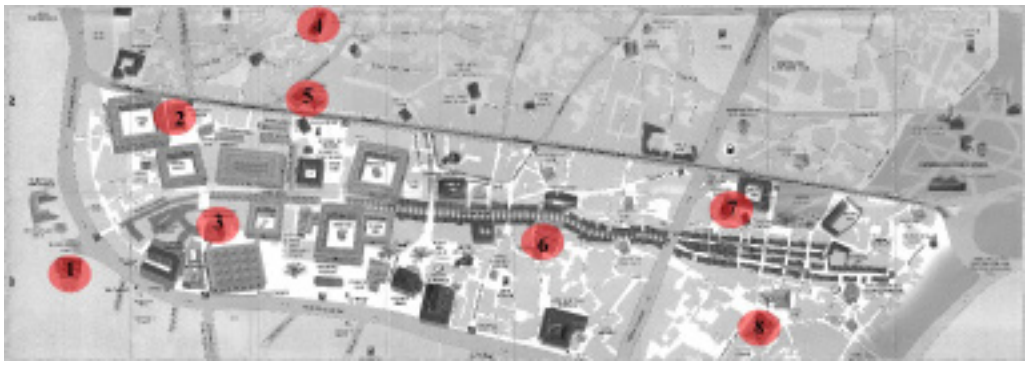



**Figure 3.** Map of Bursa Bazaar Bath

Çakırağa Bath 1.
Tavukpazarı Bath 2.
Şengül Bath 3.
Reyhan Bath 4.
Perşembe Bath 5.
Nalıncılar Bath 6.
Davutpaşa Bath 7.
Kayıhan Bath 8.

the neighbourhoods formed around the complexes and the bazaar. Spas are structures built for treatment and bathing purposes in areas close to natural hot water sources (Şehitoğlu, 2008).

In the Ottoman period, the neighbourhood baths called "bazaar baths" were built by the wealthy people of the city. Within the scope of the study, 8 of the 10 bazaar baths in Bursa, located in the historical bazaar and inns region, were discussed.

1.Çakırağa Bath: It was built by Çakır Ağa, a subaşı in Istanbul, during the reign

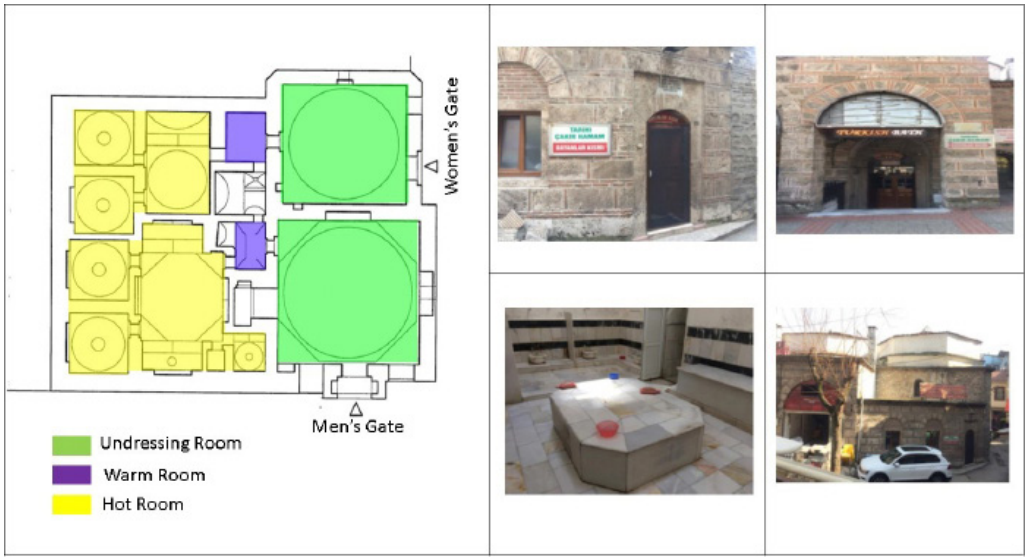



**Figure 4.** Çakırağa Bath

of Mehmed II. The men's section of Çakırağa Bath, which is a medium-sized double bath, passes from the 9.60 x 9.66 m square planned undressing section of the men's section to the temperature section with a small transition space. There are two halvet rooms in the temperature space expanded with arches. In the west direction of the warmth, there is a latrine and a razor room. Shops were built on the side of the men's section facing the street to generate income for the foundation. The women's section, which has a smaller area, is 8.07 x 8.37 m. A passage leads to the warmth section. Hala and the razor holder are to the north of the warmth section. There is a navel stone on the east of the building.

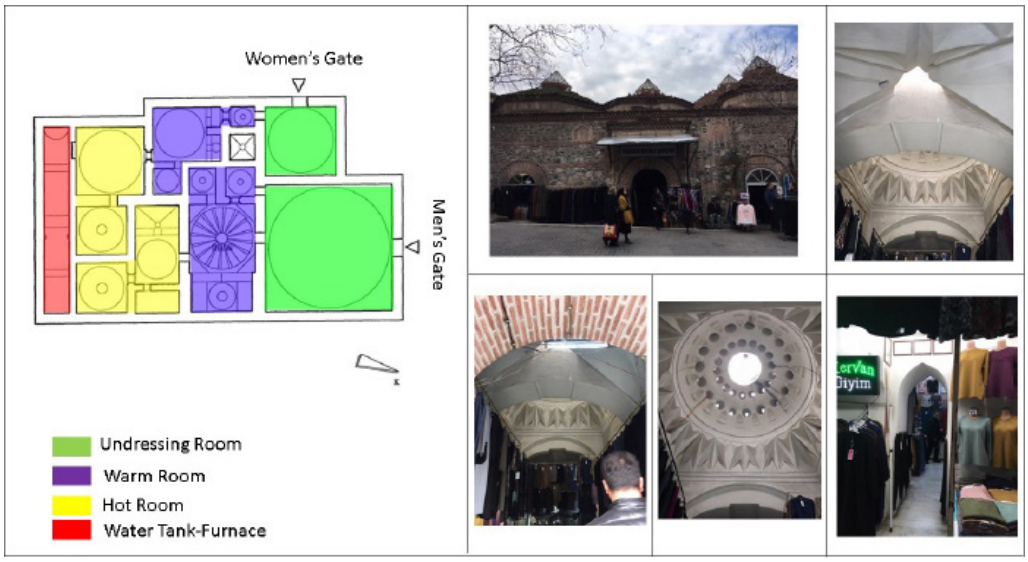



**Figure 5.** Tavukpazarı Bath

2. Tavukpazarı Bath: Known as "Tavuk Pazarı Bath" because a chicken market was once established in front of it, and as "Meyhaneli Bath" because it was later used as a winery, the bath was built by Murat II in 1426. The dressing room, ashtray, and water tank section of the bath, which has a double bath plan typology, have not survived to the present day. The function of the privately owned building today is a clothing store.

3. Şengül Bath: It was built by Yıldırım Bayezid. The dressing area was expanded with two eyvans and the transition from the dressing area to the temperature is provided by a small 1.50 m wide intermediate space. The hot section has two eyvan and there is a navel stone under the dome. Two halves are connected to the warmth. Today, it is known as the silversmith bazaar and serves as such.

4. Reyhan Bath: It was built in 1431 by Reyhan Pasha to generate income for his zawiya in Yenişehir. The single bath typology of the bath is 11.00 x 11.00 m in size, covered with a wooden roof, and the transition from the undressing space to the warmth is provided by a small warming space. The temperature is a domed space expanded by an eyvan with two large halvets. The ashtray and water tank are located at the end of the successive spaces. Today the building is used as a branch of the Green Crescent.

**Figure 6.** Sengul Bath


**Figure 7.** Reyhan Bath

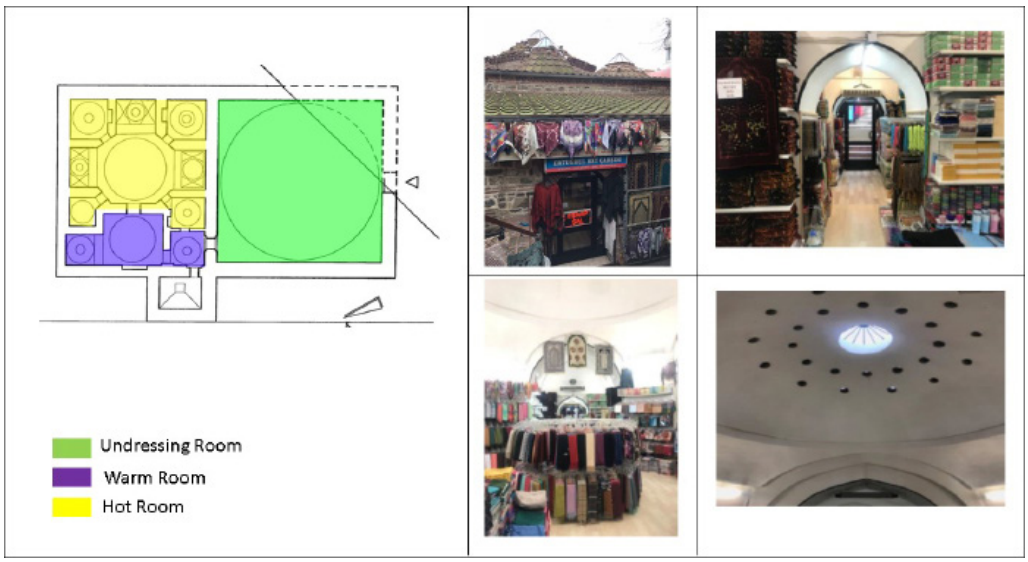



**Figure 8.** Persembe Bath

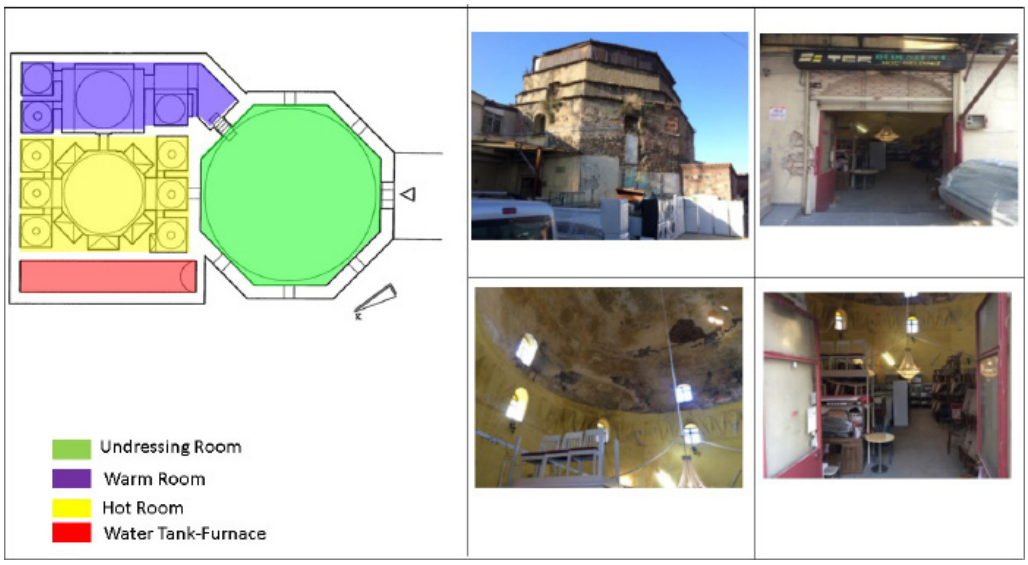
5. Perşembe Bath: It was built by Kadıasker Mustafa Efendi to generate income for his mosque in Istanbul. It is a small bath with a single bath plan typology with a very large dressing area. The dressing area is covered with a dome with a diameter of 12.50 m. The warmth is accessed through an intermediate passage from the dressing room and the warmth has a razor and a latrine. The warmth has a central plan with three eyvans and four corner halvets. It serves as a store.

6. Nalıncılar Bath : It is the largest bathhouse of Bursa built by Sultan Murad I (Hüdavendigâr). The bath is in the typology of a rectangular planned double bath with an area of approximately 1400 square meters and dimensions of 28,00-50,00 m. The undressing and warmth sections of the women's section were demolished. Today it serves as a store.

7. Davutpaşa Bath: It was built in 1485 by Davut Pasha to generate income for the Davutpaşa Mosque in Istanbul. The Davutpaşa Bath is a single bath and the undressing area measures 14.00 x 14.00 m and has an octagonal plan. A staircase with a height of 1.73 m leads to the interval space that provides access to the rectangular warmth. The warmth consists of an octagonal main space and two eyvans. There are halvets on both sides of the eyvan. The water tank and ashtray (hearth) are located on the west side of the building. Today it is used as a furniture warehouse.


**Figure 9.** Nalıncılar Bath

**Figure 10.** .Davutpasa Bath




8.Kayıhan Bath: It was built at the beginning of the 15th century by Veziriazam Koca Mehmed Pasha to generate income for the Kayhan Mosque located to its north. It has a double bath plan typology. The men's undressing area is entered through a large crown door. The dressing room has a square plan and measures 13.00 x 13.00 m in dimensions. There is a latrine in the 7.40 x 5.20 m warmth section which is accessed from the dressing room. There are two small halvets and a domed navel stone space in the warmth space. The women's undressing room measures 12.85 x 9.80 m. The temperature is expanded with an arch and there is a halvet room inside. Today it serves as a restaurant.

**Figure 11.** Kayıhan Bath


## EVALUATION

Within the scope of the study, eight Ottoman period bath structures located in Bursa province were examined. The bath buildings were evaluated within the scope of the data in the literature section. The first evaluation was carried out within the scope of the construction date, function, usage status, and space arrangement of the bath buildings. The evaluation is given in Table 1.

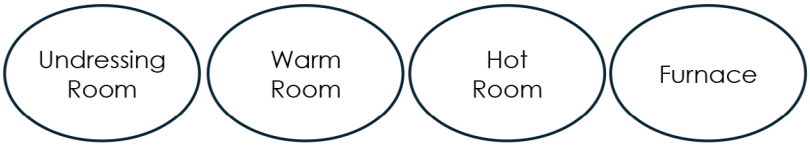
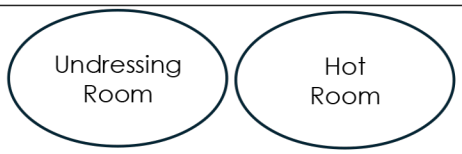
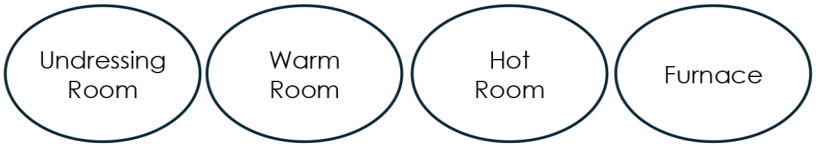
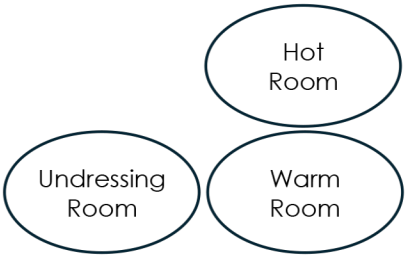
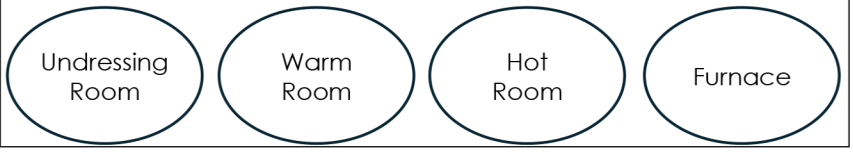
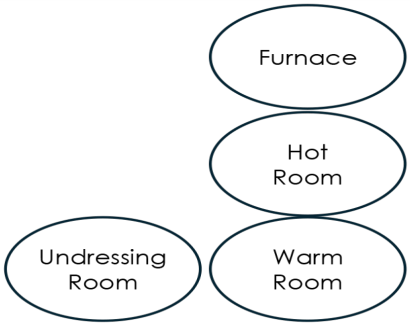
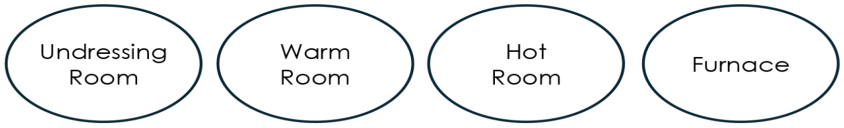
| | | | |
|---|---|---|---|
| Cakiraga Bath | Date of Construction | Function | Usage Status |
| | 15th century | Double Bath | Bath |
| | Space arrangement | | |
| |  | | |
| Tavukpazarı Bath | Date of Construction | Function | Usage Status |
| | 15th century | Double Bath | Clothing Store |
| | Space arrangement | | |
| |  | | |
| Sengul Bath | Date of Construction | Function | Usage Status |
| | 14th-15th centuries. | Single Bath | Shopping centre |
| | Space arrangement | | |
| |  | | |
| Reyhan Bath | Date of Construction | Function | Usage Status |
| | 1431 | Single Bath | Green Crescent Branch |
| | Space arrangement | | |
| |  | | |
| Persembe Bath | Date of Construction | Function | Usage Status |
| | 14th century | Single Bath | Shopping centre |
| | Space arrangement | | |
| |  | | |
| Nalıncılar Bath | Date of Construction | Function | Usage Status |
| | 14th century | Double Bath | Shopping centre |
| | Space arrangement | | |
| |  | | |

**Table 1.** Evaluation of Ottoman Period Bath Buildings in Bursa Province According to Their Construction Date, Function, Usage Status and Space Arrangements

| | | | |
|---|---|---|---|
| Davutpasa Bath | Date of Construction | Function | Usage Status |
| | 1485 | Single Bath | Furniture Warehouse |
| | Space arrangement | | |
| |  | | |
| Kayıhan Bath | Date of Construction | Function | Usage Status |
| | Early 15th century | Double Bath | Restaurant |
| | Space arrangement | | |
| |  | | |

All the bath buildings in the sample were built in the 14th and 15th centuries during the Ottoman Period. Four of the bath buildings were used as single baths and four as double baths. Today, only Çakırağa bath continues its original function. All of the other bath buildings are usable. However, they are used outside their original functions. Within the scope of this evaluation, the space sequences are the last to be discussed. Because the space arrangement in Turkish bath buildings was realized on a single plane. Per the evaluation, Perşembe Bath and Davutpaşa Bath are not on a single plane. Other bath structures have space layouts on a single plane.

The second evaluation within the scope of the study was carried out by considering the classification of hammam typologies. This realization consists of two steps. In the first step, Ülgen's (1950) classification of bath typology was evaluated. Within the scope of this evaluation, the plan and mass, temperature and halvet numbers of the bath structures were considered. Eyice's (1960) classification of bath typologies was considered in the second step. At this stage, the plan typologies of the temperature spaces of the bath buildings were classified. The evaluation carried out is given in Table 2.

Within the scope of Ülgen's (1950) typology of bath buildings, the 14th-15th century Ottoman period bazaar baths in Bursa have common characteristics in terms of plan and massing. Century Ottoman period bazaar baths in Bursa show common characteristics in terms of plan and mass. All of them are asymmetrical. In the evaluation carried out within the scope of the temperatures, there are multi-cornered and four-cornered plan typologies. When the bath buildings were analyzed according to the number of halves, it was determined that there are all classifications, including single, double, four, and multi-halves. When the sample was analyzed in the context of Eyice's (1960) classification, it was determined that type E was used more frequently. The second most used type was type B. 3 temperature spaces could not be classified within the scope of Eyice (1960)'s bath typology.

**Table 2.** Evaluation of Ottoman Period Bath Buildings in Bursa Province within the Scope of Their Architectural Typologies

| | Ülgen (1950) Classification of Bath Typologies | | | Classification of Bath Typologies by Eyice (1960) |
|---|---|---|---|---|
| | **Plan and Mass** | **Heat** | **Number of Halvat** | |
| **Cakiraga Bath** | | | | |
| **Men's Section** | Asymmetric | Polygonal | Double Private Room | Type E |
| **Women's Section** | Asymmetric | Polygonal | Double Private Room | Type E |
| **Tavukpazarı Bath** | | | | |
| **Men's Section** | Asymmetric | Multi Corner | Double Halvet | Not classified |
| **Women's Section** | Asymmetric | Four Corners | Single Halvet | Not classified |
| **Sengul Bath** | Asymmetric | Multi Corner | Double Private Room | Type E |
| **Reyhan Bath** | Asymmetric | Four Corners | Double Private Room | Type E |
| **Perşembe Bath** | Asymmetric | Polygonal | Very Halvat | Type B |
| **Nalincilar Bath** | | | | |
| **Men's Section** | Asymmetric | Four Corners | Very Halvat | Type B |
| **Davutpasa Bath** | Asymmetric | Four Corners | Very Halvat | Type B |
| **Kayihan Bath** | | | | |
| **Men's Section** | Asymmetric | Polygonal | Four Halvat | Type E |

## CONCLUSION

Çakırağa Bath, Tavukpazarı Bath, Sengul Bath, Reyhan Bath, Persembe Bath, Nalıncılar Bath, Davutpaşa Bath and Kayıhan Bath located in the city of Bursa were determined as the sample of the study. These buildings, which are 14th and 15th-century period bazaar baths, were evaluated in two stages in the previous section. Within the scope of the first evaluation, the construction date, utilization status and spatial arrangement of the bath structures were discussed. As a result of the evaluation, the following conclusions were reached:

- Half of the bazaar baths in the city of Bursa are single baths, and half are double baths. In this context, they do not show a common feature.
- Seven of the bath buildings are not used in their original function.
- Within the scope of the spatial arrangement, 6 bath buildings have spaces arranged in a plane. However, 2 bath structures do not have this feature. Within the scope of spatial arrangement, bath structures cannot provide language unity.

In the second stage of the evaluation, the analysis was carried out according to the typologies of baths by Ülgen (1950) and Eyice (1960). The results of this evaluation are as follows:

- The bazaar bath buildings in the city of Bursa show common characteristics in terms of plan and mass. All the buildings are asymmetrical.
- The bath buildings in the sample do not show common features according to Ülgen (1950) temperature typology. However, only multi-cornered and four-cornered temperature types were used in the bath buildings within the scope of this typology.
- Bath buildings do not show a linguistic unity according to the number of halves. In the sampled hammam buildings, all of the single-halved, double-halved, four-halved, and multi-halved types were used in the classification of hammam typology.

• According to Eyice's (1960) classification of the typology of baths, no linguistic unity was found. However, it was determined that type E is the most commonly used typology. Type B is the second most common typology. No other plan type was used.

The conservation and preservation of the bazaar baths of the city of Bursa, which are discussed within the scope of the study, is a very important issue. In this context, the study is important as the first step of large-scale research by evaluating the bath buildings within the scope of their architectural typology. These bath buildings, which have become increasingly dysfunctional and have been brought into daily life by assuming different functions, continue their existence by showing different unique features in architectural typology.

**Conflict of Interest**

No conflict of interest was declared by the authors.

**Authors' Contributions**

The authors contributed equally to the study.

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In this research, the necessary permissions were obtained from the relevant participants (individuals, institutions and organizations) during the survey, in-depth interview, focus group interview, observation or experiment.

**REFERENCES**

Asatekin, G. (1978). *The old bath in Ankara* [Master's Thesis, Middle East Technical University].

Arseven, C. E. (1946). *History of Turkish art from its origin to the present, architecture-sculpture-painting-ornament and decorative arts.* National Education Printing House.

Avşar, Z., & Avşar, S. (2016). The importance of baths in terms of communication as places of physical-spiritual cleansing in the historical course of existence and purification. *Ideal City Journal, 9* (7), 628-658.

Cook, J. M. (1959). Bath-tubs in Ancient Greece. *Greece & Rome,* 6 (1), 31 - 41.

Demirdal, M. (2014). *Mimar Sinan baths in Istanbul that have undergone a change of function: Ortaköy bath example* [Master's Thesis, Bahçeşehir University].

Ertuğrul, A. (2009). Bath structures and literature. *Journal of Turkish Studies Literature, 7* (13), 241-266.

Eyice, S. (1960). An essay on the Great bath in Iznik and the baths of the Ottoman period. *Journal of History, 11*(15), 99-122.

Eyice, S. (1997). *''Bath'' Turkish Religious Foundation Islamic Encyclopedia 15.* Turkish Religious Foundation.

Gensheimer, M.B. (2018). *Decoration and display in Rome's imperial thermae: messages of power and their popular reception at the baths of Caracalla.*

Oxford University Press.

Halaç, H. H, Kalak, M. & Yıldırım, Ö. C. (2018). Utilization status of Siverek historical bath buildings. *Al-Farabi International Journal of Social Sciences, 1* (1), 54-74. https://dergipark.org.tr/tr/pub/farabi/issue/33998/372301

Hırka, M. E. (2019). *The relationship between hot water and space from past to present: the example of Bursa.* [Master's Thesis, Uludag University].

Kaplan, D. (2021). The change of panhellenic sanctuaries; examples of festivals, baths, athletics and smintheion. *Anatolia Magazine, 47*, 137-173.

Koren, L. (1996). *Undesigning the bath*. Stone Bridge Press.

Kulak T. F. (2023). A double bath in Denizli: Germiyanoğlu (Vakiflar) bath. *Idil, 101*, 105-117. Doi: 10.7816/Idil12-101-09.

Mısırlı, A., & Özgüven, B. H. (2020). Transformation of the city in the Byzantine period: the reuse of the baths and bath-gymnasium structures. *Journal of Medieval Studies, 3* (2), 391-401.

Önge, Y. (1998). General Information on Anatolian Turkish Baths and The Baths Built by Architect Koca Sinan. Mimarbaşı Koca Sinan, The Era He Lived In And His Works,C. I, Istanbul: General Directorate of Foundations Publications, 403-428.

Peate, I., & Lane, J. (2015). Bed bathing: how good cleaning turns into Great care. *British Journal of Healthcare Assistants,* 9, 174-178. https://doi.org/10.12968/BJHA.2015.9.4.174

Pekşen, S. (2015). A current overview of the Anatolian bathroom culture and equipment in terms of design. *European Journal of Social Science Education and Research,* 2 (2), 33-55. https://doi.org/10.26417/Ejser.V4i1.P120-137

Ray, A. (2020). The psychological philosophy behind public baths in indus valley civilization. *International Journal of English Literature and Social Sciences, 5* (3), 587-589. https://doi.org/10.22161/ljels.53.4

Şehitoğlu, E. (2000). *Structural, environmental, functional problems and solution suggestions of Bursa baths* [Master Thesis, Mimar Sinan Fine Arts University].

Şehitoğlu, E. (2008). *Bursa baths.* History Foundation Yurt Publications.

Taşçıoğlu, T. (1998). *Turkish Bath*, (Ed. Ali Pasiner). Unilever Publishing House.

Ülgen A. S. (1950). *''Bath'', Islamic Encyclopedia 5*. Ministry of National Education Publishing House.

Yegül, F. (1992). *Baths and bathing in classical antiquity.* MA: MIT Press.

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**Review Article**

# Evolution of the Urban Renewal Process into Redevelopment Process as a Failure to Maintain Balance in Public and Private Sector Activities

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**Abstract**

This study examines the critical role of urban policies and public investments in urban renewal processes, while also attempting to explain the transformation of these processes into real estate development projects. It discusses the decision-making processes that establish the conditions for urban renewal and questions the outcomes created by the shift of urban renewal processes, initially driven by public investments, into the control of the private sector. The research highlights the dynamic interaction between private sector investments and urban renewal, while also addressing the consequences of the diminishing role of the public sector and its failure to provide guidance during the implementation phase. Findings suggest that public sector plans and policies initially played a crucial role in creating an investment-friendly environment, encouraging private sector participation. Urban policies, such as strategic infrastructure investments and public investments, provided a strong foundation for regeneration. However, field work data reveal that the public sector gradually withdrew from its guiding role, leaving renewal efforts largely to private sector interests. This withdrawal led to shifts in focus and project outcomes, resulting in the abandonment of key urban projects and disrupting the intended renewal trajectory. The study underscores the importance of maintaining a balanced public-private partnership in urban renewal processes. It argues that public sector involvement is crucial not only for the equitable disruption of benefits but also to prevent socio-economic segregation. The study concludes that sustainable and inclusive urban renewal requires continuous public sector engagement to uphold its regulatory and guiding roles throughout the transformation process.

**Keywords:** Public Investments, Redevelopment, Urban Policies, Urban Regeneration, Urban Renewal.

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**İnceleme Makalesi**

# Kentsel Yenileme Sürecinin Yeniden Geliştirme Sürecine Evrimi: Kamu ve Özel Sektör Faaliyetlerinde Dengenin Korunamaması

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## Özet

Bu çalışma, kentsel politikalar ve kamu yatırımlarının kentsel yenileme süreçlerindeki kritik rolünü incelemekte, aynı zamanda kentsel yenileme süreçlerinin gayrimenkul geliştirme projelerine dönüşümünü açıklamaya çalışmaktadır. Kentsel yenileme için gerekli koşulları belirleyen karar alma süreçlerini tartışmakta ve kamu yatırımları ile başlayan kentsel yenileme süreçlerinin özel sektörün kontrolüne geçmesinin yarattığı sonuçları sorgulamaktadır. Araştırma, özel sektör yatırımları ile kentsel yenileme arasındaki dinamik etkileşimi vurgulamakta, ancak aynı zamanda kamu sektörünün giderek azalan rolünün ve uygulama sırasında rehberlik sağlama konusundaki başarısızlığının sonuçlarına dikkat çekmektedir. Bulgular, kamu sektörü plan ve politikalarının başlangıçta yatırım dostu bir ortam oluşturarak özel sektör katılımını teşvik etmekte kritik bir rol oynadığını göstermektedir. Stratejik altyapı yatırımları ve kamu yatırımları gibi kentsel politikalar, yenilenme için güçlü bir temel oluşturmuştur. Ancak saha çalışması verileri, kamu sektörünün zamanla yönlendirici rolünden geri çekildiğini ve yenileme çabalarını büyük ölçüde özel sektör çıkarlarına bıraktığını ortaya koymaktadır. Bu geri çekilme, odak ve proje sonuçlarında değişimlere, önemli kentsel projelerin terk edilmesine ve planlanan yenileme sürecinin bozulmasına neden olmuştur. Araştırma, kentsel yenileme süreçlerinde dengeli bir kamu-özel sektör ortaklığının korunmasının önemini vurgulamaktadır. Kamu sektörünün katılımının, yalnızca faydaların adil bir şekilde dağıtılması için değil, aynı zamanda sosyo-ekonomik ayrışmayı önlemek için de kritik olduğu savunulmaktadır. Çalışma, sürdürülebilir ve kapsayıcı bir kentsel yenilemenin, kamu sektörünün dönüşüm süreci boyunca düzenleyici ve yönlendirici rollerini sürdürmesini gerektirdiği sonucuna varmaktadır.

**Anahtar Kelimeler:** Kamu Yatırımları, Yeniden Geliştirme, Kentsel Politikalar, Kentsel Yenileme, Kentsel Dönüşüm.

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## INTRODUCTION

The aim of this article, which examines the renewal of Sütlüce in the context of urban transformation /regeneration, is to demonstrate that the urban renewal process evolved into a re-development project as a result of the abandonment of the urban policies adopted at the beginning of the process and the handing over of the region's fate to private sector investments.

Sütlüce is one of the historic districts of Istanbul, located on the shores of the Golden Horn, and has played an important role throughout history. During the Ottoman period, Sütlüce was a region characterised by intense industrial and commercial activity (Figure 1). It hosted numerous workshops, docks, storage areas, and businesses. The buildings along the shores of Sütlüce were particularly important for maintaining the district's connection with the sea (Figure 2). By the late 19th century, with industrialisation, the area began to be increasingly populated by workers, further shaping its identity as a working-class district. During the Republican era, the industrial function of Sütlüce continued to expand, while at the same time, it became a densely populated area for the working class and lower-income residents. In this period, rapid urbanisation increased, with the construction of workers' housing and industrial facilities. However, beginning in the late 1980s, the pace of urbanisation intensified, and industrial areas were replaced with more modern and luxurious structures.

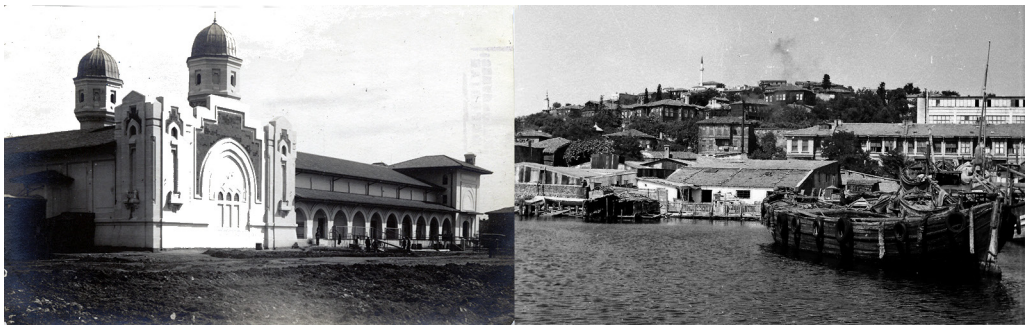

**Figure 1.**Sütlüce Mezbahası (Wikimedia Commons, 2022)

**Figure 2.** Sütlüce in 1960's (Eski İstanbul, 2018)

Today, the identity and role of Sütlüce have changed significantly. The district is undergoing a rapid urban transformation and regeneration process. The opening of the Sütlüce Congress Centre has marked a shift from its historical industrial identity to one that is more cultural and commercial. Furthermore, with the development of the tourism and hospitality sectors, Sütlüce has become an attractive location for investors. This transformation has led to the displacement of the region's original residents, while at the same time attracting wealthier populations to the area. In other words, the identity of Sütlüce has been reshaped by urban regeneration and private sector investments, evolving from an industrial neighbourhood to a modern centre integrating culture, commerce, and tourism. This shift represents a transition from its previous industrial character to a contemporary identity as a vibrant cultural and commercial hub.

Within the framework of the aforementioned explanations, the hypothesis of this study is formulated as follows:

"Urban renewal processes tend to evolve into redevelopment processes as a consequence of the failure to maintain a balance between public and private sector activities."

Within the scope of the explanations, the research questions to reveal the validity of the hypothesis were determined as follows:

- What is the role of urban policies in the urban renewal process?
- What is the role of public investments in the urban renewal process?
- What is the role of private sector investments in the urban renewal process?
- In what ways does the decline in public sector effectiveness shape the direction and nature of urban renewal?

This study examines the dynamics that shape the renewal and transformation process in the region, drawing on the perspectives of traditional restaurant owners who have witnessed the changes, as well as interviews with businesses that chose to invest in the area. Additionally, it explores the role of urban policies and public investments within this process. The study focuses on the role of both public and private investments during the regeneration process in Sütlüce, using data gathered from previous field research conducted in the region. As part of the research, in-depth interviews were carried out with institutions and businesses located in the neighbourhood, guided by a semi-structured questionnaire.

The study further investigates the role of public and private investments in the regeneration process, based on in-depth interviews with the owners of traditional restaurants and representatives of private sector investments in the area, all of whom have witnessed the regeneration process in Sütlüce. Interviews were conducted with representatives from Hilton Garden Inn, Istanbul Haliç, Lazzoni Hotel, ARY Yapı-Arkas Holding, Monesel Suits Golden Horn, Armağan Konutları (Armağan Residences), İş Merkezi-Demircioğlu İnşaat, Bob Group, Bessa İnşaat, the Boutique Hotel Project, owned by Hasan Açıkel, and Kılıç İnşaat, which developed the Japon Evleri (Japanese Residences) in Sütlüce. The purpose of the questions posed to these participants, who represent projects implemented in the neighbourhood in recent years, is to uncover the factors influencing their choice of land in the region.

In this study, the urban renewal (regeneration/transformation) processes are first defined, and the historical development of urban renewal (transformation) is discussed. In the next phase, the impact of urban policies and public investments on the renewal/transformation process is examined. The main part of the study focuses on analysing the guiding role of urban policies in the transformation process, based on the field study data, and investigates the effectiveness of public investments. Additionally, the study addresses the question of whether private sector investments or public investments serve as the driving force behind the renewal and transformation. The findings reveal that the steering of the renewal process has been left in the hands of private sector investments.

## THE EVOLUTION OF URBAN RENEWAL UNDER THE INFLUENCE OF GLOBALISATION

Urban transformation, which can also be defined as urban regeneration and is a long-term process, encompasses all forms of intervention aimed at improving the urban fabric with its multidimensional and multi-component structure that includes various forms of intervention (Dinçer, 2010). The concept of urban transformation involves creating vibrant uses, urbanising vacant spaces, and renewing built-up areas (Keleş, 2003).

The need for urban transformation, which began to be mentioned more frequently in the second half of the 1990s in Türkiye and became a common topic of discussion in the 2000s, can be attributed to four main reasons: migration and the illegal structures resulting from it, the decay of historical urban areas, and disasters—primarily earthquakes (Özden, 2006).

In fact, Urban Regeneration emerged first in the United States, but its first developed examples were yielded in the United Kingdom (Hague, 2010). Since the 1960s, there have been changes in the industrial organisation in city centres, and industrial activities in city centres have decreased gradually. In parallel to this change arising from the shift of industrial activities from city centres to uptown and rural regions, it has also been observed that economic activities related to these industries have also vanished from city centres.

On the one hand, city centres have encountered the risk of physical obsolescence, and on the other hand, they have gone into a process of change and interaction with local, national and global influences. Amongst the problems facing city centres, there are population movements, poverty and poverty-related social problems, economic restructuring, and physical obsolescence. On the other hand, the population shift from city centres to uptown regions and the departure from city centres brought about physical problems such as obsolescence and wearing down as well as social problems and conflicts between different social classes. All these have created the need for a multi-dimensional renewal in city centres (Kocabaş, 2005).

The process starting with the shift of industrial areas to uptown regions and leading to physical obsolescence and wearing down was followed by city centres' becoming attraction centres in these regions, which not only gave way to urban renewal but also contributed to the emergence of feasible conditions for old industrial areas and port areas that lost their function to be the primarily re-functionalised areas of the urban renewal projects.

The fact that industrial areas and port areas are considered on a preferential basis in urban renewal projects has to do with their accessibility and their appeal for the service industry as well as other factors. Because it reduces the costs and increases the applicability, the already-existing infrastructure in these areas has been a significant factor both for the local government and for the investors. Besides, there are no ownership issues with the public areas that lost their function in the abandoned industrial regions, which make urban regeneration projects more applicable in these areas. These regions are also big enough to address the big projects' need for construction areas.

The residents of Fordist cities were primarily from the working class, and the design of these towns was straightforward, catering to the needs of this demographic. In contrast, the residents of post-Fordist cities consist of educated, highly skilled, creative individuals, and upper-income groups. Consequently, the urban landscape is now shaped by luxurious and ostentatious projects that align with the interests of the capital class (Şahin, 2011).

At this stage, it is necessary to discuss both the changing meaning of space in the globalisation process and the relationship between the development of cities and political and ideological elements. As depicted by Lefebvre, space is socially and collectively produced, containing social, political, and ideological elements, while also embodying numerous conflicts, tensions, and negotiations within itself (Okyay, 2008). This definition suggests that space is not detached from ideology and does not take shape independently of politics. In today's world, the primary aim of capitalism, the dominant mode of production, is to ensure infinite capital accumulation, which necessitates continuous system expansion. For this reason, the commodification of everything has become a means to sustain the system (Wallerstein, 2000).

Keyder (1992) emphasises that cities come to the forefront because the growing service sector operates within them. Moreover, the type of services offered in cities is shaped by the prevailing technology of the time to serve global capital. The different members of the global economic system live in global cities, which, in other words, function as the brains of the global economy (Şahin, 2011). It is an undeniable fact that policies must be developed to attract capital, enabling global capital to invest and produce, thus creating employment (Keyder, 2004).

With the mobility of capital accelerated by neoliberal globalisation, it collaborates with both central and local governments to secure legal grounds to claim urban spaces and maximise profits. It is evident that as states strive to integrate into global capital, they intervene intensively in cities using laws and regulations as tools and often compromise everything in doing so (Altınörs Çırak & Yörür, 2006; Ergun, 2011). While cities compete to integrate into the global system, even a small advantage provided by one city can create significant impact for capital. On one hand, capital seeks space in the favourable environment provided by neoliberal policies, while on the other, central and local governments implement urban policies and practices aimed at attracting and retaining capital within cities (Akgün & Karademir, 2007).

In the post-1980 period of capital globalisation, urban policies structured around marketing cities, transforming them into economic units, and fuelling inter-city competition have evolved in interaction with mobile investor capital and the desire of central and local governments to eliminate all potential obstacles to capital (Öktem, 2006). City administrators develop intervention methods, including restructuring urban areas, to attract capital and investments amidst this competitive environment. Cities aspiring to become global city candidates strive to attain this status by creating job opportunities and infrastructure. In this relentless competition aimed at removing barriers to capital, cities undergo change, renewal, transformation, and continuous restructuring. Urban transformation projects have emerged as one of the most effective tools for creating the urban fabric required to join the global city network. These projects are implemented as a dominant urban policy today in both developed and developing countries to create urban spaces catering to global actors.

These projects are implemented in line with capital's expectations, prioritising areas most advantageous for investors without considering the spatial, social, and economic development of the city (Kiper, 2006). As a predictable consequence of capital's expectations, policies aimed at removing barriers for the construction sector and repeatedly demolishing and reconstructing urban spaces have come to the forefront. Urban regulations and changes in land use have been rapidly implemented, allowing construction firms and urban transformation projects to overcome obstacles. Construction permits have been issued in unauthorised zones, development statuses have been altered, and zoning plans have been implemented even in areas with construction bans, such as historical sites, archaeological areas, green spaces, and forests (Şahin, 2011). Through these processes, urban lands and historical settlement areas have been opened to the use of upper-income groups (Kurtuluş, 2006).

The evolution of global cities has led to a social structure defined by disparities in income and education levels, resulting in class-based segregation among residents (Güneş, 2019). As a result, many former inhabitants have been displaced from city centres, prompting numerous urban transformation projects that fundamentally change neighbourhoods, districts, and areas within cities (Şahin, 2011). These projects are often driven by the expectations of capital,

focusing on the most profitable areas for investors while neglecting the spatial, social, and economic development of the city (Kiper, 2006).

New approaches that feature urban development based on the market economy lead to the applications that entail economic functions in urban renewal to gain importance. An approach which provides for the revitalisation and protection of urban spaces and making good use of the existing historic fabric via applications that would enable economic input; brought forward the participation of private sector during the renewal process, which led to a model where private-public partnership is maintained.

Former industrial areas and port areas which lost their function in city centres stand out as the primary re-functionalised areas in urban renewal projects. In addition to these, there are other areas that are regarded as primary regeneration areas such as the neighbourhoods consisting of unhealthy buildings jammed in the city centre and areas that remained in the city after the city grew beyond its urban fringes forming new ones. While the city government expect to create an urban image and prestige by re-functionalising these areas which they regard as prestige areas, the private sector gets involved in the project seeking rents. The necessity to prevent the regeneration and renewal efforts from becoming tools for these rent sharing processes, and the holistic perspective developed by the strategic planning approach put forth the effort to tackle the social, economic, and cultural components of the city without separating them from one another (Erden, 2003).

In summary, the role of the state within the social and economic structure has changed during the globalisation process. The changes in both the global and Türkiye's economic structure have also impacted cities, laying the groundwork for the urban transformation process. In the 1980s, efforts to transform Istanbul into a global city emerged. These efforts initially began with the transformation of the Golden Horn area and later spread throughout the city, turning the city into a virtual construction site.

## THE ROLE OF URBAN POLICIES AND PUBLIC INVESTMENTS IN THE RENEWAL PROCESS

The urban space emerges as a product that is being created socially, and consists of social, political, and ideological components, and entails a great deal of tension and negotiation (Lefebvre, 1976; Okyay, 2008). This definition suggests that urban space is not free from ideology, and it does not form independently from politics.

During the reproduction process of the urban space under the influence of natural and artificial factors, the states' power and dominance over the urban space increase (Özden, 2010). At this point, it is necessary to examine the role of policies and legal regulations over the parts of the city that have been changed via urban regeneration. However, another element supported by the political process is the increasing land values especially in the historic parts of the city that remained in the city centre and the real estate projects wanting to take part in this increasing value.

In 1970s and 1980s, it was observed that many city centres had become attraction centres once again; they had turned into popular areas selected by industries such as finance, law, and IT, and there had been an increase in their functions as office, entertainment, and accommodation areas. The primary reasons for the attraction of city centres are regarded as the historic identity of these regions and their relations with their spatial features pertaining to their historic

identities. Thus, the factors that make these regions attractive show parallelism with the criticism made about the urban regulations during the modernisation process. Furthermore, the fact that the occurring regeneration started to create a new rent area had an impact on the marketing of these regions (Lynch, 1972). Because the obsolescent regions that have remained in the city centre over time which are situated in strategic points and close to transport connections are extremely high in opportunity costs, they are more appealing areas than other parts of the city for investors and key stakeholders (Turok, 2010).

Neoliberal policies have laid the groundwork for global capitalism, which has commodified cities just like it has commodified other aspects of life. In this framework, globalisation—despite having a wealth of studies within the economic field and lacking a universally accepted definition due to various economic perspectives (Özdemir, 2019)—is observed to continuously transform urban spaces that serve as its stage. At the same time, as space is reproduced under the influence of both natural and artificial factors, the power and dominance of states over these spaces are increasingly growing (Özden, 2010). Capital, meanwhile, is drawn to global cities that emerge from globalisation and contain skilled labour capable of fulfilling its core functions (Keyder, 2004). It is clear that policies aimed at attracting capital must be developed to encourage investment and production by global capital, thereby creating employment opportunities (Keyder, 2004). Neil Smith (2002) points out that urban renewal has become a prominent urban policy, as cities are increasingly viewed as spaces for the reproduction of capital rather than labour. Furthermore, the state has shifted away from its role as an intermediary between labour and capital, instead aligning itself with the interests of capital. The preparation and implementation of urban transformation projects, rooted in neoliberal ideology, do not occur in isolation from power relations, political processes, or cultural contexts. Cities are being restructured as these power relations, influenced by global dynamics and their political implications, legitimise policies and practices (Öktem, 2006).

Private sector investors want to be encouraged by the strategies of the state when they are making risky and especially large-scale investment decisions (Turok, 2010). Upper-scale plans and infrastructural improvements are efficient tools for reassuring the investors and creating a positive perception about investing in obsolescent neighbourhoods that are in need of regeneration (Turok, 2010). However, in these regions where rent-oriented projects are highly appealing, it is of vital importance that there are constructive partnerships formed between public and private sectors.

While neglected areas attract anti-social activities, regions that receive incentives via state policies and public regulations attract social activities and investors. Therefore, it is important to gain the trust of the investors by adopting a holistic approach, rather than having individual interventions in obsolescent urban areas.

In short, motivating investors towards obsolescent parts of the city by reassuring regulations made by both central and local government leads to the re-functionalisation of both the regions and the buildings that lost their function, which then brings about urban renewal.

Within this context, especially the real estate investments that choose areas in historic city centres play a significant role in the regeneration process either by adding value to the regenerated areas or becoming part of the process and the created value, but, in each case, they are an element that accelerate and steer the renewal process.

## EVOLUTION OF THE URBAN RENEWAL PROCESS INTO REDEVELOPMENT PROCESS IN SÜTLÜCE

At this stage of the study, firstly the plan decisions during the legal and historical process will be examined, then the data acquired via the field study will be explained.

### Legal Process and Plan Decisions

In 1985, After Bedrettin Dalan was elected as the Metropolitan Mayor and Haliç Master Plan was created, interventions called "Dalan Operations" began. Haliç Master Plan provided for the industrial areas alongside the coasts of Haliç to be removed and turned into green areas for public use. The coasts were turned into parks and recreation areas with efforts fundamentally aiming to draw the industry and industrial pollutant elements from Haliç, clear the physically worn-out buildings, and create a bay surrounded by greenbelt. An area of approximately one million square kilometres was opened up. Besides, with the duct system and collectors used in the cleaning process, which is remembered by Bedrettin Dalan's famous slogan "Haliç will be as blue as my eyes", the waters of Haliç started to be cleaned as well.

However, in the name of decentralisation of the industry and the Central Business Area, destructions that damaged the identity of Haliç were performed. With the interventions called "Dalan Operations" and carried out under the name of cleaning Haliç up; more than 4000 buildings were expropriated, 696 factories and 2020 businesses were demolished, and the businesses were transferred to the new uptown centres. This period was criticised because the structures that the region had during the historic process, which were specific to the identity of the region and part of the cultural heritage, also disappeared after the destructions and operations that were not in line with the democratic process and formed by central decisions.

Dalan Operations have a very important part in the process which has formed the current identity of Haliç; because even though the change in the functional use of the region damaged the identity of the region, it also procured Haliç's evolution from an industrial area to a recreational area and a housing zone, opening the region to public use (Erden, 2003). Within the framework of the plan decisions; Sütlüce moved away from its industrial identity and became a part of the city that is situated in the new city centre with its cultural and tourism functions.

In the 1990s, as a result of all these processes, the industry abandoned Haliç and the empty industrial structures started to attract attention. The Haliç Master Plan aimed to protect the historic, cultural, and natural values that Haliç has on a universal level; to preserve its ages-long identity and make Haliç a cultural port; to procure that the region develops in line with the urban development plan; and to create a bay that makes good use of regional opportunities, where there is a balance between protecting and improving focused on history, culture, art, and service.

With the idea of turning the region into a cultural centre, the process of re-functionalising the old buildings started and many of the old buildings that were once planned to be demolished obtained new functions. "Sütlüce Congress and Cultural Activities Centre Project" was also within the Action Areas designated based on the aims, objectives, and principles of the plan. With the project to render the Sütlüce Abattoir into a cultural centre in 1994, the aim was to make Sütlüce Congress and Cultural Centre the biggest culture and art centre

in Europe with cinema, theater, concert, and congress halls in a single facility (Irmak, 2003).

As a complex consisting of a castellated main building and various extensions, it was considered important that cultural, art, and congress activities take place in Sütlüce Abattoir as a result of its new identity, for both Sütlüce and Istanbul in general. Furthermore, many international film and music festivals took place in the facility during the years when the project was being designed, but the necessary services could not be provided because of insufficient facilities, so the aim of creating such a congress and cultural centre was to address those needs (Eruzun, 2001).

The idea to re-functionalise and regulate the industrial structures, which form the identity of Haliç with their architectural qualities despite polluting it, paved the way to preserve and protect Haliç (Eruzun, 2001).

In the following years, the components of the vision were created in line with the vision determined for the city and various strategies were determined under these sub-headings in the 1/100.000 Provincial Environmental Plan, which was prepared projecting the year 2023 by Istanbul Metropolitan Municipality and was approved on 22.08.2006.

It would be sensible to say that what paved the way for the regeneration process taking place in Sütlüce was the 1/100.000 Provincial Environmental Plan. In the plan, it was procured that housing zones within the borders of the Haliç's silhouette would be planned with a holistic approach; and that culture, tourism, and recreation areas would be included alongside the coasts of Haliç, which has a specific importance naturally, ecologically, and regarding the history of Istanbul. The policy that was developed with regard to the coasts of Haliç is as follows: "Haliç should be planned with a holistic approach that encompasses the culture, tourism, and recreation areas, including the housing zones within the silhouette.

According to the plan decisions, exemplary projects such as Miniatürk, Feshane and Cendere Park Project which is used for recreation purposes; Sütlüce Congress Centre which was transformed from industrial to cultural usage; Rahmi Koç Museum and Kadir Has University, which are used as an education facility, are potential areas that will accelerate the transformation of Haliç coasts into a 'Cultural Centre'".

Historic Peninsula, Haliç, Beyoğlu, Kadıköy, and Üsküdar regions, which are densely populated by historic and cultural values and have a high tourism potential, were determined as Culture-Oriented Tourism Area.

One of the strategies that were set to make use of the cultural heritage in a sustainable fashion in order to improve the global recognition and appeal of Istanbul was: "Supporting the idea of using industrial heritage structures for cultural purposes and regarding Haliç as a cultural centre within this context".

It was envisioned that there would be refreshments, entertainment, cultural activities, shopping units, tourism-oriented small-scale workshops, crafts shops, and similar commercial and service functions, and cultural industries that would be in line with the texture of the region and that would serve the tourism industry in culture-oriented tourism areas that are rich in historical and cultural values and have a high tourism potential.

Furthermore, it is also envisioned that cultural tourism-oriented boutique hotels will be set in the region. In 1/100.000 scale Istanbul Environment Plan; the aim was to transform the region into a cultural centre, Haliç region was defined as the Culture-Oriented Tourism Area, and it was aimed that the usage of industrial heritage structures for cultural purposes would be supported and the tourism function would be drawn into the region.

Today, in addition to various structures with tourism function that have been opened to service, there are many hotel projects that are under construction. Besides the advantages that the neighbourhood gained regarding the tourism function, many other functions are selecting areas to operate in, and new projects are emerging, whether it be for housing or commercial usage.

Thus, it would be sensible to say that, of all the neighbourhoods in Haliç, Sütlüce is the neighbourhood where all the aforementioned aims of the Haliç Master Plan and the 1/100.000 scale Environmental Plan have been implemented, and all the provisions have been realised.

**Interpretation of the Interviews Carried Out in Sütlüce**

The study aims to explain the contribution of public policies and private sector investments to the urban regeneration processes by interpreting what the participants conveyed during the interviews.

The keepers of the Çınaraltı, Haliç, Dadaş and Nevizade Sweetbread Restaurants stated that they had been there for years, but the number of visitors had decreased significantly before 2008 as a result of the obsolescence process; and they added that after the Sütlüce Congress Centre's opening, the region gained some movement, that many restaurants started efforts to update themselves, and even that Sütlüce regained its former vitality. Uğur O. (Haliç Sweetbread Restaurant), who has been residing in Sütlüce for years, stated that after the opening of Sütlüce Congress Centre, the region got more vivid, that there are even foreigners coming there to buy land, and that he himself regrets not buying some land in this region. Ugur O. also said that the number of tourists visiting the area increased upon the arrival of hotel projects in the region; that the students from the universities in the vicinity were coming to the region to have lunch; that new sweetbread restaurants were being opened in the area, people working under unhealthy conditions and street vendors left the region; and more importantly he added that this change had motivated them to update and adapt to this change. İlhan B., who was interviewed in Çınaraltı Sweetbread Restaurant, stated that there were many people moving to the region, but there were also people who left the region due to not being able to afford the increasing rents. He then added that neighbourhood residents were convinced by inventors with appealing offers to leave the neighbourhood, but there were many dwellers from Sivas and Gümüşhane still living in the neighbourhood. Another important piece of information conveyed by İlhan B. is that it was common for dwellers to give their lands to building contractors to receive flats in return, and this accelerated the construction of new buildings in the region. Interviewed in Dadaş Sweetbread Restaurant, Basri A. said that until 5 or 6 years ago, there had been no buildings in the vicinity, but the demolition of shanty houses and the construction of new buildings started upon the arrival of MUSIAD and Ak Party Provincial Centre; and they also moved their grills inside and made improvements to their restaurants. The participant emphasised that people are still looking for lands to buy in the neighbourhood. The last participant working in a sweetbread restaurant, namely Nevizade Sweetbread Restaurant, Suat Ö. drew attention to the transformation in the social structure of the region, and he stated that neighbourhood residents who could not afford the increasing

rents were leaving the region, and that he knew many families who moved to Esentepe. Suat Ö. added that newcomers to Sütlüce are in high-income segment, which had a positive and implicit effect on them economically, and that there were new sweetbread restaurants opening up as well as the old ones being renewed. What participants conveyed during the interviews suggest that both urban policies and private sector investments are the driving power during the regeneration process, which also points to a gentrification process is also taking place in the region.

One of the most significant and outstanding investments is the business centre and residence project executed by the partnership of Arkas Holding and ARY Group. ARY Group Finance Director Yavuz Y. said that they were executing the project in partnership with Arkas Holding, and that there had been an increase in the demand in the region in the last five years because it was discovered that the area was in fact usable and investable. Yavuz Y. also stated that the most significant factor was that AK Party Building and Sütlüce Congress Centre was set up in the region and the following investments accelerated the renewal process in the neighbourhood. He also said that the development in the region had a snowball effect, that it would gain further momentum, that many investors are looking to buy some land along the coast, and that the development process had started to diffused into the inner parts of the neighbourhood, even though for now investments are densely along the coastal area. The participant highlighted that the region had become increasingly attractive for investment and the appeal of the region grew due to the incentive urban policies that encourage investment. What the participant meant by saying that the development in the region had a snowball effect is that private sector investments draw other types of investments to the region as well.

Another participant who was interviewed was Kemal G., the director of Monesol Suits Golden Horn. Touching upon the importance of the region for foreign tourists, Kemal G. said that one of the most significant factors behind the arrival of tourists to the region was the opening of Sütlüce Congress Centre and the international status it acquired afterwards. Saying that new projects that provide renewal and development continued to arrive in Sütlüce, he added that there were preparations going on for Divan Patisserie, which had been in the region for years, to be turned into a hotel. What the participant conveyed refers to the capacity of urban policies to appeal private sector investments into the region. As a result of the interviews carried out at MUSIAD, which moved from Mecidiyeköy to Sütlüce in March 2007; it was discovered that in the land where MUSIAD's building is, there used to be shanty settlement as well; and the appeal of the region increased thanks to Santrallstanbul, cleaning up of Haliç, the pledge by Istanbul Metropolitan Municipality for the region to be further cleaned up, and most importantly, the Sütlüce Congress Centre. The participant stated that the demolition of shanty houses in the vicinity accelerated with the arrival of hotel investments and business centres introduced into the region; and he added that this process had consequently paved the way to physical renewal.

Interviews were carried out with the representatives of Hilton Garden Inn, Istanbul Haliç, Lazzoni Hotel, ARY Yapı, Monesel Suits Golden Horn, Armağan Konutları (Armağan Residences) and İş Merkezi-Demircioğlu İnşaat, Bob Group, Bessa İnşaat, Boutique Hotel Project which was discovered to be owned by Hasan A., and Kılıç İnşaat which executed Japon Evleri (Japanese Residences) in Sütlüce. In order to identify the criteria regarding the land selection, the participants were asked to rate the factors below from 1 to 5 in accordance with their importance in the land selection decision process.

- The Urban Renewal Process in the Neighbourhood
- Transportation Facilities
- Proximity to the City Centre
- Historic Texture of the Region
- Proximity to Other Big Real Estate Investments in the Region
- Building Quality
- Social Diversity
- Land Values and Investment Opportunities

Upon evaluation of the rates given by the participants, it was seen that the most significant factor was "The Urban Renewal Process in the Neighbourhood", which got 38 points. The factors of "Proximity to the City Centre" and "Transportation Facilities" got 36 points each and both came in the second rank. "Land Values and Investment Opportunities" was given 35 points, which means that it is the third most important factor for the participants. Another factor which was one of the first five factors important for the participants is "Proximity to Other Big Real Estate Investments in the Region", which got 32 points in total.

The fact that the investments came to the region influenced by the renewal process and other projects confirms the role of urban policies and other private sector investments within the renewal process. The importance of land values and investment opportunities being another outstanding and effective factor confirms the role of urban policies and plan decisions within the regeneration process, which pave the way for investment opportunities that are efficient. The change experienced in the region, along with the increase in rents, has also led to a transformation in the social fabric. Interviews conducted in the field revealed that the former residents of the area faced economic difficulties during this process and were forced to leave Sütlüce.

In summary, the policies of the local government, Haliç Master Plan, and the 1/100.000 Scale İstanbul Environmental Plan which defines the neighbourhood as Culture-Oriented Tourism Area, transformed Sütlüce into an investable "Culture and Tourism Centre", and private sector wanting to take part in this new Sütlüce selected land in region and accelerated urban regeneration.

## CRITICAL EVALUATION AND CONCLUDING REMARKS

Within the scope of the study, the role of urban policies and public investments was examined to explain the process of change and transformation experienced in Sütlüce, a historical settlement located on the shores of the Golden Horn. The study revealed that both urban policies and public investments in the region had significant impacts on the renewal and transformation process. However, it was concluded that the driving force steering the urban transformation process was the investments carried out by the private sector.

Interpreting what all the participants reported during the interviews, it would be sensible to infer that the seeds of urban transformation in Sütlüce were sown through urban policies and the face of the neighbourhood started changing upon the opening of a public investment, the Sütlüce Congress Centre; that new functions arrived in the neighbourhood as a result of this change; that with the arrival of new functions in the neighbourhood, it further flourished; and finally, the renewal process was accelerated by all these investments into the region.

The acceleration of urban renewal and the improvement of environmental quality appealed new investments to the region, and each new investment further accelerated urban renewal in return. Both the private sector investments and the renewal process itself were both the reason for and the consequence of urban renewal.

Some participants emphasised that the metropolitan municipality played a significant role in their decision to move to the region by encouraging them. This emphasis shows that spatial policies play an active role in terms of attracting investments into the region, which are increasing in number in parallel to the urban renewal process in the region. Besides, with the planning history of the region and the plan decisions, it is clear that local policies, such as the transformation of the Sütlüce Abattoir into the Sütlüce Congress Centre as an output of the process, paved the way for renewal. In the process that followed, the urban regeneration process backed by private sector investments created a new attraction centre. In other words, the urban policies developed for the region have played an effective role in the transformation and change of Sütlüce.

Investments created a brand-new attraction centre and continued to attract new investments into the region. New investments coming into the region further cultivated renewal and contributed to the increase in Sütlüce's attraction. Therefore, not only the buildings) with culture or tourism functions that are the focal point of the plan decisions, but also the projects aimed at accommodation and commercial use have started to appear in Sütlüce. It is clear that the starting point for the renewal reaction in Sütlüce was a regeneration policy that was executed via urban-scale plan decisions; and it is also clear that the process was supported by market mechanisms in the period that followed (Figure 3).

In other words, the public sector was the triggering factor in the beginning of the process, but in the following phases, the regeneration process continued as guided by the private sector investments. Moreover, the projects outlined in the Haliç Master Plan were not implemented, and planning was excluded from the project. This indicator suggests that the urban policies initially established to trigger the urban transformation process were abandoned as the transformation process progressed (Figure 4).

**Figure 3.** Sütlüce Mezbahası (Wikimedia Commons, 2013)

**Figure 4.** Sütlüce TOKİ Project (Alberhan Yapı, 2023).

In conclusion, the policies and plannig decisions of the local governments paved the way for the process by creating feasible conditions and investment opportunities for the market mechanisms, however, within the following phases of the process, the activity of public sector disappeared, and the decisions envisaged by the plans were not executed; so, the region was completely left in the hands of the market mechanisms. The public sector detaching itself from

the process and handing it over to the private sector investments results in the gentrification and renewal processes to evolve into a redevelopment process. This result also suggests that urban transformation in the region has been shaped by luxurious and ostentatious projects aligned with the interests of the capital class, leading to class-based segregation in the urban space. It is clear that urban renewal projects, which transform into re-development projects, will result in gentrification and create cities where class-based segregation is reflected in the space.

The evolution of the transformation process in Sütlüce into a redevelopment phase is a consequence of abandoning the urban policies adopted at the beginning of the process and the failure to establish a balance between public and private sector investments. In light of all these assessments, it is evident that the support of urban renewal projects by public investments and the active involvement of the public sector in the regeneration/transformation process is vital for the future of cities.

In this context, the necessity of adopting a holistic and interventionist approach to urban policy becomes increasingly apparent. Sustainable urban transformation requires not only the regulation of market forces but also the proactive engagement of public authorities to safeguard social justice and spatial equity. Future regeneration initiatives must be conceptualised within frameworks that prioritise inclusive development, prevent socio-spatial fragmentation, and ensure the equitable distribution of urban benefits. Unless such measures are systematically integrated into urban governance practices, the transformation processes are likely to perpetuate patterns of exclusion, deepen class-based divisions, and ultimately compromise the social sustainability of urban environments.

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**REFERENCES**

Akgün, G., & Karademir, H. (2007, September 13-15). *Kentsel dönüşümde yeni sermaye hareketleri ve ilişki biçimleri* [Conference Session]. *İstanbul Kent Sempozyumu*, İstanbul, Türkiye.

Alberhan Yapı. (2023, August 3). *Beyoğlu Sütlüce Toki Konutları.* [Photograph]. Instagram. https://www.instagram.com/alberhanyapi/p/CvfDAmjN6Bm/?img_index=1

Altınörs Çırak, A., & Yörür, N. (2006). İzmir Onur Mahallesi örneğinde farklı söylemler ve taraflar açısından kentsel dönüşümün iki yüzü. *Planlama, 36*(3), 79–88. https://

www.spo.org.tr/resimler/ekler/fa732b517cbed14_ek.pdf

Dinçer, İ. (2010). Türkiye'de kent ölçeğinde koruma ve kent planlamanın yollarının kesişmesi ve yeniden ayrılması: Protokol alanından yenileme alanına. In D. Özdemir (Ed.), *Kentsel dönüşümde politika, mevzuat, uygulama* (pp. 341–364). Nobel Yayın Dağıtım.

Erden, Y. D. (2003). *Kentsel yenileşmede bir araç olarak dönüşüm projeleri* (Tez No: 131294) [Doktora Tezi, Mimar Sinan Üniversitesi]. YÖK Ulusal Tez Merkezi.

Ergun, C. (2011). Kentsel dönüşüm sürecine dönüşüm alanlarından bakmak: İstanbul Maltepe (Başıbüyük ve Gülsuyu Mahallesi) örneği (Tez No: 274433) [Doktora Tezi, Süleyman Demirel Üniversitesi]. YÖK Ulusal Tez Merkezi.

Eruzun, C. (2001). Sütlüce Kültür ve Kongre Merkezi. İstanbul Dergisi, 39, 138-147.

Eski İstanbul. (2018, March 24). *Eski İstanbul Fotoğrafları Arşivi, Sütlüce/ 1960'lar.* https://www.eskiistanbul.net/239/sutluce-1960lar

Güneş, İ. (2019). Şehirlere küresel şehir endekslerinden bir bakış. *Strategic Public Management Journal,* 5(10), 111–130. https://doi.org/10.25069/spmj.585811

Hague, C. (2010). Küresel krizde kentsel dönüşümü yeniden düşünmek. In D. Özdemir (Ed.), *Kentsel dönüşümde politika, mevzuat, uygulama* (pp. 98–104). Nobel Yayın Dağıtım.

Harvey, D. (1999). *Postmodernliğin durumu*. Metis Yayınları.

Irmak, H. (2003). Sütlüce'de mezbahaneden kültür merkezine. *Haliç: Haliç Belediyeler Birliği Yayın Organı, 5,* 1-58.

Keleş, R. (1998). *Kent bilim terimleri sözlüğü*. İmge Kitabevi.

Keleş, R. (2003, July 21-22). Urban regeneration in İstanbul [Conference Session]. UNEP, Priority Actions Programme, Workshop on Urban Regeneration in the Mediterranean Region, Split, Croatia.

Keyder, Ç. (1992). İstanbul'u nasıl satmalı? İstanbul *Dergisi*, 3*,* 81–85.

Keyder, Ç. (2004). *Ulusal kalkınmacılığın iflası*. Metis Yayınları.

Kiper, H. P. (2006). Küreselleşme sürecinde kentlerin tarihsel-kültürel değerlerinin korunması: Türkiye Bodrum örneği (Tez No: 31157497) [Doktora Tezi, Ankara Üniversitesi]. ProQuest Dissertations & Theses.

Kocabaş, A. (2005). Londra'da kentsel yenileşme/dönüşüm uygulaması: Toplum gelişme kurumlarının rolü. *Mimarist, 5*(18), 39–46.

Kocabaş, A. (2006). *Kentsel dönüşüm/yenileş(tir)me: İngiltere deneyimi ve Türkiye'den beklentiler*. Literatür Yayınları.

Kurtuluş, H. (2006). Kentsel dönüşüme modern kent mitinin çöküşü çerçevesinden bakmak. *Planlama, 36*(2), 7–12.

Lefebvre, H. (1991). *The production of space*. Wiley-Blackwell Press.

Lynch, K. (1972). *What time is this place?* The MIT Press.

Öktem, B. (2006). Neoliberal küreselleşmenin kentlerde inşası: AKP'nin küresel kent söylemi ve İstanbul'un kentsel dönüşüm projeleri. *Planlama, 36*(2), 53–63. https://www.spo.org.tr/resimler/ekler/0aee3a5f4643755_ek.pdf

Okyay, İ. (2008). İktisadi mekânın doğası ve türevi. *YTÜ Mimarlık Fakültesi Dergisi,*

3(1), 112–116.

Özdemir, O. (2019). Emek payının hesaplanması: Farklı yaklaşımlar, farklı paradigmalar. *Uluslararası Ekonomik Araştırmalar Dergisi,* 5(4), 41–57. https://dergipark.org.tr/tr/download/article-file/963320

Özden, P. P. (2006). Türkiye'de kentsel dönüşümün uygulanabilirliği üzerine düşünceler. *İstanbul Üniversitesi Siyasal Bilgiler Fakültesi Dergisi, 35*, 215–233. https://dergipark.org.tr/tr/download/article-file/5359

Özden, P. P. (2010). Kentsel dönüşüm politikaları ve mevzuatına eleştirel bir bakış. In D. Özdemir (Ed.), *Kentsel dönüşümde politika, mevzuat, uygulama* (pp. 194–224). Nobel Yayın Dağıtım.

Şahin, Ç. (2011). Kentsel dönüşüm, küresel kentler ve inşaat sektörünün parlayan yıldızı. *Toprak* İşveren *Dergisi, 92,* 10–18.

Smith, N. (2002). New globalism, new urbanism: Gentrification as global urban strategy. *Antipode, 34*(3), 427–450. https://doi.org/10.1111/1467-8330.00249

Smith, N. (2013). Gentrification, the frontier and the restructuring of urban space. In N. Smith & P. Williams (Eds.), *Gentrification of the city* (pp. 15–34). Routledge Taylor & Francis Group.

Tekeli, İ. (1992). Kentsel topraklarda mülkiyet kurumunun varlığının toplumsal sonuçları ve yeniden düzenleme olanakları üzerine. *Planlama, 22*(18), 44–66.

Tekeli, İ. (1999). *Modernite aşılırken siyaset.* İmge Kitabevi Yayınları.

Turok, I. (2010). Dönüşümün mücadelesi: Yoksul mahalleleri kent bölgesindeki büyümenin parçası haline getirebilmek. In D. Özdemir (Ed.*), Kentsel dönüşümde politika, mevzuat, uygulama* (pp. 35–50). Nobel Yayın Dağıtım.

Wallerstein, I. (2000). *Bildiğimiz dünyanın sonu: Yirmi birinci yüzyıl için sosyal bilim.* Metis Yayınları.

Wikimedia Commons. (2013, March 19). *İstanbul- Sütlüce- Mart 2013 from VikiPicture.* https://tr.m.wikipedia.org/wiki/Dosya:%C4%B0stanbul_-_S%C3%BCtl%C3%BCce_-_Mart_2013_R2.JPG

Wikimedia Commons. (2022, February 15). *Sütlüce Mezbahası (1926-1929).* https://tr.m.wikipedia.org/wiki/Dosya:S%C3%BCtl%C3%BCce_Mezbahas%C4%B1_%281926-1929%29_%2815%29.jpg

## BIOGRAPHY OF AUTHOR

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**Research Article**

# Metric-Based Comparative Analysis of Seljuk and Byzantine Architectural Practices in Medieval Anatolia

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## Abstract

The architectural landscape of medieval Anatolia represents a complex synthesis of Byzantine and Seljuk traditions, characterized by significant advancements in construction techniques and decorative methodologies. This study investigates the interplay between these two architectural traditions, analysing key elements such as stonework, tilework, and ornamental patterns. The Seljuks are renowned for their emphasis on intricate geometric motifs, calligraphy, and the innovative application of muqarnas, while Byzantine architecture is distinguished by its monumental scale, intricate masonry, and the extensive use of religious iconography, particularly mosaics. Despite their differing cultural and artistic ideologies, both traditions contributed profoundly to the evolution of Anatolian architecture.

Through the comparative analysis of emblematic structures, including the Great Mosque of Divriği, the Green Mosque in Bursa, and the Hagia Sophia in Constantinople, this research highlights mechanisms through which cultural exchange. Seljuk architects adopted and adapted Byzantine structural innovations, integrating them into Islamic artistic frameworks to develop a hybrid architectural style. Conversely, Byzantine structures, particularly in the post-Byzantine period, reflect Seljuk influences in their decorative schemes, including geometric patterns and muqarnas.

Employing a methodical comparative framework, the study evaluates the aesthetic and structural principles underpinning these traditions, revealing the sociopolitical and cultural dynamics that shaped their innovations. This synthesis of Byzantine structural ingenuity and Seljuk ornamental creativity produced a distinctive architectural identity in Anatolia that profoundly influenced the subsequent development of Ottoman architecture and Islamic design throughout the Middle East and Mediterranean. These findings underscore the region's role as a crossroads of artistic and technological exchange.

**Keywords:** Byzantine Traditions, Comparative Architectural Analysis, Seljuk Architecture, Cultural Exchange in Anatolia, Geometric Patterns.

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**Araştırma Makalesi**

# Anadolu Selçuklu ve Bizans Mimari Uygulamalarının Metrik Tabanlı Karşılaştırmalı Analizi

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## Özet

Ortaçağ Anadolu'sunun mimari manzarası, Bizans ve Selçuklu geleneklerinin karmaşık bir sentezini temsil eder ve yapı teknikleri ile süsleme yöntemlerindeki önemli ilerlemelerle karakterize edilir. Bu çalışma, taş işçiliği, çini kaplamalar ve süsleme desenleri gibi temel unsurları analiz ederek bu iki mimari geleneğin etkileşimini incelemektedir. Selçuklular, karmaşık geometrik motifler, hat sanatı ve mukarnas uygulamalarıyla tanınırken, Bizans mimarisi anıtsal ölçek, karmaşık taş işçiliği ve özellikle mozaiklerde kullanılan dini ikonografi ile öne çıkmıştır. Kültürel ve sanatsal ideolojilerindeki farklılıklara rağmen, her iki gelenek de Anadolu mimarisinin evrimine derin katkılarda bulunmuştur.

Divriği Ulu Camii, Bursa'daki Yeşil Cami ve İstanbul'daki Ayasofya gibi önemli yapılar üzerinden yapılan karşılaştırmalı analiz, kültürel etkileşim mekanizmalarını ortaya koymaktadır. Selçuklu mimarları, Bizans yapı tekniklerini benimseyerek İslami sanatsal çerçevelerle harmanlamış ve hibrit bir mimari üslup geliştirmiştir. Öte yandan, özellikle Bizans sonrası dönemde, Bizans yapılarında Selçuklu etkileri, geometrik desenler ve mukarnas gibi süsleme şemalarında görülmektedir.

Yöntemsel bir karşılaştırma çerçevesi kullanan bu çalışma, bu geleneklerin estetik ve yapısal ilkelerini değerlendirerek yeniliklerini şekillendiren sosyopolitik ve kültürel dinamikleri açığa çıkarmaktadır. Bizans'ın yapısal ustalığı ile Selçuklu'nun süsleme yaratıcılığının birleşimi, Anadolu'da özgün bir mimari kimlik oluşturmuş ve bu kimlik, Osmanlı mimarisinin ve Ortadoğu ile Akdeniz'deki İslam tasarımının sonraki gelişimlerini derinden etkilemiştir. Bulgular, bölgenin sanatsal ve teknolojik değişimlerin bir kesişim noktası olarak önemini vurgulamaktadır.

**Anahtar Kelimeler:** Bizans Gelenekleri, Karşılaştırmalı Mimari Analiz, Selçuklu Mimarisi, Anadolu'da Kültürel Etkileşim, Geometrik Desenler,

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## INTRODUCTION

The Seljuk architectural tradition is one of the most impressive expressions of the cultural and artistic vitality of medieval Anatolia, serving as a bridge between the Byzantine and Islamic worlds (Redford, 1991). Byzantine architecture, renowned for its monumental churches and fortifications, served as a source of both artistic and technological innovation, influencing the architectural development of Anatolia for centuries (Hillenbrand, 1994). The interaction between artistic creativity and technological prowess in Seljuk and Byzantine architecture highlights how these two traditions navigated their cultural contexts while adapting innovative building techniques (Necipoğlu, 1995). The architecture of the Seljuks, influenced by Byzantine structural techniques, developed its own identity through innovative vaulting systems and ornamental schemes, embodying the cultural synthesis of medieval Anatolia (Blessing, 2014). Through a comparative analysis of these two architectural traditions, the study uncovers the unique features of each style and investigates how the interaction of art and technology shaped architectural identity and cultural expression in the region.

The architectural relationship between the Seljuk and Byzantine empires in Anatolia was shaped by both conflict and collaboration. This cross-cultural exchange saw the adoption and adaptation of architectural elements from each tradition. While the Seljuks integrated Byzantine innovations such as dome construction techniques and vaulting systems into their own brick structures, Byzantine architecture occasionally reflected Seljuk influences, particularly in ornamentation. However, each architectural style retained its unique identity, avoiding homogenization despite this exchange of ideas.

Anatolia served as a crossroads where Byzantine and Seljuk architectural traditions met and influenced one another. Despite adopting certain techniques from each other, both empires maintained their distinct cultural and religious identities, which were reflected in their architectural approaches. The Seljuks emphasized geometric patterns, calligraphy, and muqarnas, while the Byzantines focused on monumental stone construction and mosaic decoration. This dynamic exchange contributed to the architectural diversity of medieval Anatolia, creating a blend of styles that mirrored the region's rich cultural history. As scholars have noted, the interaction between the Byzantine and Islamic worlds was complex, resulting in mutual influence without compromising the core characteristics of either tradition.

## LITERATURE REVIEW

The literature surrounding Seljuk and Byzantine architecture in Anatolia is extensive, offering diverse perspectives on the artistic, technological, and cultural exchanges between these two empires. Notable scholars such as Hillenbrand (2010, 2004), Ettinghausen et al. (2003), and Blair and Bloom (1994) provide comprehensive analyses of Islamic and Byzantine art and architecture, emphasizing the distinct characteristics of each tradition within its historical contexts.

Hill and Al-Hassan (1992) focus on the technological aspects of Seljuk architecture, particularly the construction techniques and materials that influenced ornamentation. Ettinghausen et al. (2003) explore the artistic achievements of the Seljuk period, highlighting architectural styles and ornamentation. Hillenbrand (2004) specifically examines the Seljuk period in Anatolia, noting the blend of Seljuk and Byzantine influences that shaped the region's unique architectural identity.

| Approach | Study | Author(s), Publication Year | Specific Focus | Focus & Key Information | Relevance to Research |
|---|---|---|---|---|---|
| Holistic | Islamic Art and Architecture | Robert Hillenbrand, 2010 | Comprehensive overview of Islamic art and architecture, including Seljuk styles. | Highlights the importance of geometric patterns, calligraphy, and floral motifs in Seljuk art. | Provides foundational knowledge on Seljuk ornamentation within Islamic art history. |
| Holistic | The Art and Architecture of Islam, 1250-1800 | Sheila S. Blair and Jonathan M. Bloom, 1994 | Evolution of Islamic art and architecture from the 13th century onwards, including Seljuk influences. | Discusses regional styles and the adaptation of ornamentation in different contexts. | Provides insights into the later development of Seljuk-influenced architecture. |
| Atomistic | Architecture of the Islamic World: Its History and Social Meaning | Ernst J. Grube and George Michell, 1995 | Development of different architectural styles within the Islamic world, including Seljuk architecture. | Discusses the role of ornamentation and its cultural significance. | Offers a broad historical context for understanding Seljuk ornamentation. |
| Atomistic | Islamic Technology: An Illustrated History | Donald R. Hill and Ahmad Y. Al-Hassan, 1992 | Technological advancements in Islamic architecture, covering construction techniques and materials used in Seljuk buildings. | Examines how these influenced the development of ornamentation. | Offers insights into the technological aspects of Seljuk architecture and how they impacted ornamentation. |
| Atomistic | Byzantine Architecture | Cyril Mango, 1985 | Detailed analysis of Byzantine architecture, highlighting its unique structural and decorative features. | Explores its evolution across different periods. | Offers a foundational understanding of Byzantine architecture and its artistic innovations. |
| Atomistic | "The Art of the Byzantine Empire" | Grabar, A. 1967 | Artistic achievements of the Byzantine Empire, examining its art and architecture within the broader context of the Eastern Orthodox Church. | Provides insights into the artistic and symbolic significance of Byzantine art, particularly in the context of religious expression. | Provides insights into the artistic and symbolic significance of Byzantine art, particularly in the context of religious expression. |
| Holistic | Islamic Art & Architecture: 650-1250 | Richard Ettinghausen, Oleg Grabar, Marilyn Jenkins Madina, 2003 | Comprehensive overview of Islamic art and architecture, including Seljuk architecture. | Explores its artistic principles, architectural features, and cultural significance. | Provides a broader context for understanding Seljuk art and architecture within the wider Islamic world. |
| Atomistic | A Survey of Persian Art (Vol. 8) | Arthur Upham Pope, Phyllis Ackerman, 1981 | Persian art across historical periods, including Seljuk art and architecture. | Provides insights into the stylistic characteristics and influences on Seljuk art. | Offers a valuable resource for understanding the broader context of Seljuk art and its origins in Persia. |

**Table 1.** Analyzed relative Studies on Seljuk and Byzantine Architecture in Anatolia, Source: Authors.

In the context of Byzantine architecture, foundational works by Mango (1985) and Grabar (1967) provide crucial insights into its structural and decorative innovations. Nazer, Kovács, and Rabb (2020) delve into the significance of Tomb Towers in Seljuk architecture in Persia and Anatolia, while Nazer (2016) examines the role of light in Islamic Mosque domes, both offering key insights into Seljuk architectural traditions

## METHODOLOGY

The methodology for this comparative architectural study involved a multi-step process to systematically evaluate and compare the key architectural features of Seljuk and Byzantine structures. The steps are as follows:

• Case Study Selection: Buildings from the Seljuk and Byzantine traditions were carefully chosen for their iconic representation of architectural styles, focusing on key examples such as mosques, churches, and palaces within the Anatolian context.

• Define Key Metrics: For each architectural feature, key metrics were identified to evaluate both structural technologies (e.g., dome construction, vaulting systems) and decorative elements (e.g., mosaics, calligraphy). These metrics allowed for a structured comparison between the two traditions.

• Establish a Coding System and Quantitative Scoring: A coding system was established for each metric, assigning numerical values or categorical descriptors based on the complexity and presence of features in each building. Scores were compiled based on the coded metrics, allowing for quantitative comparison between the Seljuk and Byzantine architectural traditions.

• Comparison and Visualization: The final step involved visualizing the comparative data using charts and tables to highlight the differences and similarities between the two traditions.


**Figure 1.** Methodology of research on comparative Analysis of art and technology in Seljuk and Byzantine Architecture, Source: Authors..

**Overview of the Seljuk and Byzantine Paradigms in Anatolian Architecture**

The architectural traditions of both the Seljuk and Byzantine empires developed within a shared historical and geographical context, yet their distinct religious beliefs, political objectives, and available resources gave rise to unique architectural paradigms. As Hillenbrand (2004) argues in Islamic Architecture, the Seljuks, influenced by Persian and early Islamic art, emphasized adaptability and ornamentation, evident in their use of intricate geometric patterns, calligraphy, and muqarnas. This decorative focus is contrasts with Byzantine architecture, as explored by Mango (1985) in The Art of the Byzantine Empire, which emphasized monumental scale and technical mastery, particularly in dome construction and the use of stone. The Byzantines relied heavily on mosaics and figurative representation to convey religious narratives, as seen in iconic structures like Hagia Sophia. In contrast, Seljuk architecture, as highlighted by Ettinghausen et al. (2003) in Islamic Art and Architecture, reflects Islamic principles of unity and symmetry through its decorative elements and structural techniques. This interaction between the two traditions, particularly in Anatolia, fostered a dynamic exchange of architectural innovations while preserving the distinct identities of each empire.

| Feature | Seljuk | Byzantine |
|---|---|---|
| **Dominant Artistic Style** | Intricate geometric patterns, calligraphy, stylized floral motifs, and prominent use of muqarnas. | Mosaics, figurative representations, classical-inspired floral motifs, and limited use of geometric patterns. |
| **Religious Context** | Islamic principles of unity, harmony, and the beauty of creation. | Eastern Orthodox Christianity, emphasizing religious iconography and narratives. |
| **Political Context** | Expanding Seljuk Sultanate seeking to solidify power and establish a distinct cultural identity. | Byzantine Empire maintaining imperial authority and cultural dominance while facing external pressures. |
| **Structural Emphasis** | Adaptable construction using brick, seamlessly integrating ornamentation with structure. | Technical mastery with a focus on sophisticated stone construction techniques. |
| **Dome Construction** | Squinch arches, brick, creating a lighter and more airy aesthetic. | Pendentives, stone, creating a more imposing and massive scale. |
| **Vaulting Systems** | Ribbed vaults, creating intimate interior spaces. | Barrel and groin vaults, emphasizing spaciousness and grandeur. |
| **Decorative Elements** | Geometric patterns, calligraphy, floral motifs, and muqarnas reflecting Islamic principles. | Mosaics, frescoes, and classical-inspired motifs reflecting religious narratives and imperial power. |
| **Overall Aesthetic** | Harmonious unity, intricate ornamentation often concealing structural framework. | Grandeur and awe-inspiring scale, emphasizing visible structural mastery. |
| **Influence in Anatolia** | Shaped later Anatolian styles, particularly Ottoman architecture. | Left a legacy on architectural techniques, especially in dome construction and stonework. |

**Table 2.** Overview of the Seljuk and Byzantine Paradigms in Anatolian Architecture, Source: Authors.

## Selecting Case Studies

The primary objective of this step is to select representative buildings from both Seljuk and Byzantine architectural traditions that offer a rich basis for comparative analysis.

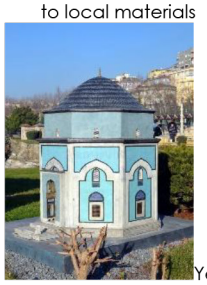
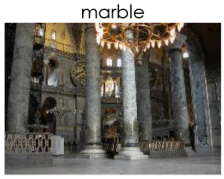
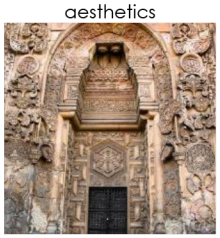
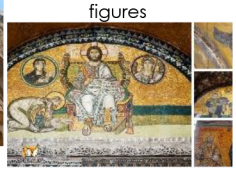
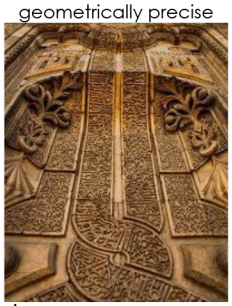
Buildings were selected based on their historical and architectural significance within each tradition. To ensure a comprehensive comparison, buildings of different functions (e.g., mosques, churches, tombs, palaces) were chosen. This allows for the evaluation of a wide range of architectural expressions and innovations within each tradition that represent the core characteristics of Seljuk and Byzantine architecture, enabling a detailed comparative analysis.

The comparative analysis of Seljuk and Byzantine architecture in Anatolia reveals distinct approaches to both structural technologies and decorative elements, reflecting the cultural, religious, and technical priorities of each empire. While both traditions coexisted in the same region, their architectural features illustrate different design philosophies. The Seljuk style is characterized by an emphasis on intricate ornamentation, adaptability in the use of materials, and a focus on geometric precision, often incorporating Islamic symbolism. In contrast, Byzantine architecture is known for its monumental scale, mastery of stone construction, and the extensive use of religious imagery through mosaics and structural visibility. By examining features such as dome construction, vaulting systems, materials, and decorative techniques, scholars can gain insights into how these empires shaped the architectural landscape of Anatolia. Table 4 provides a detailed breakdown of the key structural and decorative elements of both Seljuk and Byzantine architecture, with examples from iconic Anatolian structures.

**Table 3.** Overview of the Seljuk and Byzantine Paradigms in Anatolian Architecture, Source: Authors.

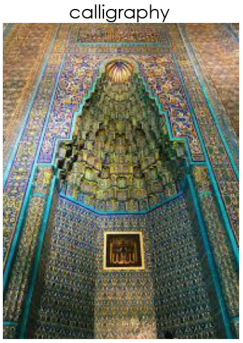
| Case Study | Style | Key Structural Features | Key Decorative Elements | Cultural & Historical Significance |
|---|---|---|---|---|
| Great Mosque of Divriği, Divriği, Türkiye, 1228-1229 | Seljuk | Dome supported by squinch arches<br>Combination of stone construction<br>Complex vaulting system<br>Use of buttresses for support | Elaborate geometric patterns<br>Intricate stone carvings<br>Floral motifs and Quranic inscriptions in calligraphy | Represents the synthesis of Seljuk and Byzantine influences<br>A UNESCO World Heritage Site<br>Demonstrates Seljuk architectural skill<br>Blends religious and secular elements |
| Green Mosque, Bursa, Türkiye, 1421 | Seljuk | Dome supported by squinch arches<br>Brick construction with glazed tile decoration<br>Use of muqarnas for both decorative and structural support | Intricate geometric patterns throughout<br>Richly coloured glazed tiles<br>Calligraphic inscriptions on the walls and ceilings | Illustrates the peak of Seljuk architecture<br>Commissioned by Sultan Mehmed I<br>Symbol of Ottoman architectural tradition influenced by Seljuk art and techniques |
| Sultanhani Caravanserai, 1229 | Seljuk | Ribbed vaulting systems<br>Brick construction with expansive courtyard<br>Functional design with large entrance iwan | Use of geometric patterns in stonework<br>Calligraphic inscriptions and ornamentation in the main hall | Largest and best-preserved Seljuk caravanserai along the Silk Road<br>Showcases Seljuk advancements in functional architecture with decorative integration |
| İnce Minareli Madrasa, Konya, Türkiye, 1260s | Seljuk | Towering minaret with ribbed construction<br>Stone masonry<br>Combination of educational and religious functions | Elaborate stone carvings<br>Calligraphic decoration along the minaret<br>Geometric patterns and inscriptions | A key example of Seljuk educational institutions<br>Blends religious and educational architecture<br>Known for its ornamentation and functional design |
| Yeşil Türbe (Green Tomb), Bursa, Türkiye, 1421-1422 | Seljuk | Dome supported by squinch arches<br>Brick construction with tiled exterior<br>Harmonious design with elegant proportions | Richly coloured glazed tiles<br>Intricate geometric patterns and floral motifs<br>Extensive use of calligraphy<br>Muqarnas decoration | Commissioned by Sultan Mehmed I<br>Exquisite ornamentation and harmonious design<br>Represents the influence of Seljuk architecture on early Ottoman tradition |
| Hagia Sophia, Istanbul, Türkiye, 537 | Byzantine | Massive dome supported by pendentives<br>Extensive stone construction<br>Complex vaulting system<br>Use of buttresses to support the dome | Mosaics depicting religious and imperial figures<br>Marble columns and pilasters<br>Intricate geometric patterns in the mosaics | A masterpiece of Byzantine architecture<br>Symbol of Byzantine imperial power<br>A UNESCO World Heritage Site<br>Reflects the cultural and religious significance of Constantinople |
| Church of the Holy Apostles, Istanbul, Türkiye, 532-547 | Byzantine | Dome supported by pendentives<br>Stone construction with marble columns<br>Cross-in-square layout<br>Barrel and groin vaulting systems | Mosaic decoration with biblical and imperial themes<br>Marble columns<br>Geometric patterns in the mosaics | One of the most impressive churches of the Byzantine Empire<br>Reflects the wealth and power of Byzantium<br>Represents the use of architecture for religious and political purposes |
| Hagia Irene, Istanbul, Türkiye, 7th century | Byzantine | Dome supported by squinch arches<br>Stone construction with marble columns<br>Barrel vaults and groin vaults<br>Emphasis on structural expression | Mosaics with religious themes<br>Marble columns<br>Intricate geometric patterns in mosaics<br>Decorated interior spaces | Early example of Byzantine church architecture<br>Prime example of vaulting techniques<br>Symbol of Constantinople's artistic legacy |
| Monastery of Hosios Loukas, Boeotia, Greece, 10th century | Byzantine | Domed cross-in-square design<br>Stone and brick construction<br>Use of barrel and groin vaults | Elaborate mosaic work with religious themes<br>Use of marble columns and decorative elements<br>Geometric and floral motifs | Represents Middle Byzantine ecclesiastical architecture<br>Blend of structural ingenuity and artistic expression<br>Key example of religious architecture in Greece |
| Chora Church, Istanbul, Türkiye, 11th century | Byzantine | Smaller domed structure supported by arches<br>Stone construction with complex vaulting systems<br>Integration of architectural elements with the surrounding space | Famous for its preserved mosaics and frescoes<br>Naturalistic floral motifs<br>Geometric patterns in mosaics<br>Richly decorated interior spaces | Late Byzantine architecture<br>Illustrates the artistic achievements of the period<br>Well-known for its preserved mosaics and frescoes |

**Table 4.** Case Studies: Seljuk and Byzantine Architecture in Anatolia, source: Authors

| | Dome Construction | | Vaulting Systems | |
|---|---|---|---|---|
| | **Seljuk** | **Byzantine** | **Seljuk** | **Byzantine** |
| **Structural Technologies** | Squinch arches; use of brick and glazed tiles<br>  <br>Green Mosque, Bursa (dome supported by squinch arches, glazed tiles) | Pendentives; use of stone and marble<br>  <br>Hagia Sophia, Istanbul (massive dome supported by pendentives, stone construction) | Ribbed vaults, more intimate interior spaces<br>  <br>Sultanhani Caravanserai (ribbed vaults for structural support) | Barrel and groin vaults, creating grand interiors<br>  <br>Hagia Irene, Istanbul (barrel vaults, grand spaces) |
| | **Materials & Techniques** | | **Structural Expression** | |
| | Primarily brick; adaptable to local materials<br>  <br>Yeşil Türbe, Bursa (brick construction, intricate decoration) | Predominantly stone, skilled masonry with marble<br>  <br>Church of the Holy Apostles (stone, marble columns, monumental design) | Concealed structural elements, focus on aesthetics<br>  <br>Great Mosque of Divriği (brick and stone, smooth exterior with ornamentation) | Visible structural elements, emphasis on mastery<br>  <br>Hagia Sophia, Istanbul (visible arches and dome, emphasizing structural strength) |
| **Decorative Elements** | **Mosaics** | **Muqarnas** | | |
| | Limited use, mostly geometric designs<br>  <br>Sultanhani Caravanserai (small geometric mosaics) | Extensive use, religious and imperial themes, figures<br>  <br>Hagia Sophia, Istanbul (religious figures and imperial imagery) | Prominent feature, both structural and decorative<br>  <br>Mausoleum of Sultan Mehmed I, Bursa (intricate muqarnas) | Limited, mainly for decorative purposes<br>  <br>Chora Church, Istanbul (limited use of muqarnas) |
| | **Floral Motifs** | **Calligraphy** | | |
| | Stylized, symmetrical, and geometrically precise<br>  <br>İnce Minareli Madrasa, Konya (stylized floral motifs) | Naturalistic, often more free flowing<br>  <br>Hagia Sophia, Istanbul (naturalistic floral motifs) | Prominent, often integrated with geometric designs, Quranic inscriptions<br>  <br>Yeşil Türbe, Bursa (Quranic inscriptions) | Limited, mostly for inscriptions<br>  <br>Hagia Sophia, Istanbul (minimal use of calligraphy, mainly inscriptions) |

**Geometric Patterns**

Highly intricate, Islamic mathematical principles, often integrated with calligraphy



Green Mosque, Bursa (interlacing patterns, calligraphic integration)

Simpler geometric patterns, used mostly for decoration

Chora Church, Istanbul (simpler geometric patterns within mosaics)

### Define Key Metrics

To develop measurable criteria for the architectural features to be analyzed in the case studies, we defined metrics that are applied consistently across the selected case studies, allowing for a systematic comparison of architectural features.

- Structural Technologies: Metrics for structural elements such as dome construction, vaulting systems, and material innovations were defined. For instance, dome complexity is assessed based on size, support mechanisms (e.g., pendentives or squinches), and structural innovations.

- Decorative Elements: Metrics were also established for decorative features, such as the presence of mosaics, geometric patterns, floral motifs, and calligraphy. These metrics allow for an analysis of how decorative elements reflect religious, cultural, and political values.

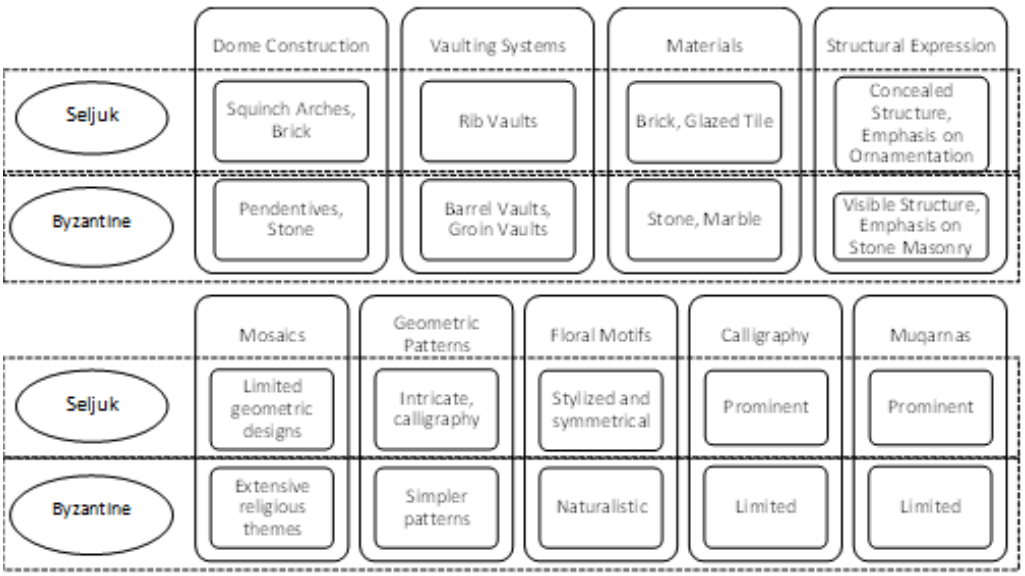



**Figure 2.** Comparative Analysis of Structural Technologies and Decorative Elements in Seljuk and Byzantine Architecture (Anatolian Focus), source: Authors.

### Establish a Coding System and Quantitative Scoring

To ensure consistency in evaluating the selected buildings, a coding system was developed to quantify architectural features based on defined metrics.

Numerical Coding: Architectural features such as dome complexity were assigned numerical values:

- Simple dome with minimal support.
- Moderate complexity with elements like pendentives or squinches.
- Highly complex domes with multiple support mechanisms.

Categorical Coding: Decorative elements, such as mosaics, were rated based on presence or complexity (1 for simple mosaics, 5 for intricate mosaics).

| Metric | Feature Description | Seljuk Example | Seljuk Score | Byzantine Example | Byzantine Score |
|---|---|---|---|---|---|
| Dome Construction | | | | | |
| Dome Support Mechanism | 1 = Pendentive, 2 = Squinch Arch | Green Mosque | 2 | Hagia Sophia | 1 |
| Material Used | 1 = Stone, 2 = Brick | Green Mosque | 2 | Hagia Sophia | 1 |
| Size of Dome (m) | Measured diameter | | | | |
| Transition Type | 1 = Direct, 2 = Layered | Green Mosque | 2 | Hagia Sophia | 1 |
| Vaulting Systems | | | | | |
| Type of Vault | 1 = Barrel, 2 = Groin, 3 = Ribbed | Sultanhani Caravanserai | 3 | Hagia Irene | 1 |
| Vault Span (m) | Measured span | | | | |
| Number of Vaults | Count of vaults | 5 | 5 | Hagia Irene | 3 |
| Aesthetic Integration | 1 = Exposed, 2 = Concealed | Sultanhani Caravanserai | 2 | Hagia Irene | 1 |
| Materials & Techniques | | | | | |
| Primary Material | 1 = Stone, 2 = Brick | Sultanhani Caravanserai | 2 | Hagia Sophia | 1 |
| Masonry Techniques | 1 = Plain, 2 = Decorative, 3 = Intricate | İnce Minareli Madrasa | 3 | Hagia Sophia | 2 |
| Decorative Material | 1 = Glazed Tile, 2 = Stone, 3 = Marble | Green Mosque | 1 | Hagia Sophia | 3 |
| Structural Expression | | | | | |
| Visibility of Structure | 1 = Visible, 2 = Concealed | İnce Minareli Madrasa | 2 | Hagia Sophia | 1 |
| Decorative Focus | 1 = Technical/Structural, 2 = Aesthetic | Green Mosque | 2 | Hagia Sophia | 1 |
| Decorative Elements | | | | | |
| Presence of Mosaics | 1 = Yes, 0 = No | Green Mosque | 0 | Hagia Sophia | 1 |
| Dominant Theme | 1 = Geometric, 2 = Religious, 3 = Floral | İnce Minareli Madrasa | 1 | Hagia Sophia | 2 |
| Scale of Mosaics | 1 = Small, 2 = Medium, 3 = Large | Green Mosque | 1 | Hagia Sophia | 3 |
| Complexity of Patterns | 1 = Simple, 2 = Intermediate, 3 = Complex | İnce Minareli Madrasa | 3 | Hagia Sophia | 2 |
| Integration with Calligraphy | 1 = Yes, 0 = No | İnce Minareli Madrasa | 1 | Hagia Sophia | 0 |
| Style of Floral Motifs | 1 = Naturalistic, 2 = Stylized, 3 = Geometric | Green Mosque | 2 | Chora Church | 1 |
| Symmetry of Floral Motifs | 1 = Symmetrical, 2 = Asymmetrical | Green Mosque | 1 | Chora Church | 2 |
| Presence of Calligraphy | 1 = Yes, 0 = No | İnce Minareli Madrasa | 1 | Hagia Sophia | 0 |
| Type of Calligraphy | 1 = Quranic, 2 = Decorative, 3 = Both | İnce Minareli Madrasa | 1 | Hagia Sophia | 0 |
| Presence of Muqarnas | 1 = Yes, 0 = No | Green Mosque | 1 | Hagia Sophia | 0 |
| Purpose of Muqarnas | 1 = Decorative, 2 = Structural | Green Mosque | 1 | Hagia Sophia | 0 |

**Table 5.** Analysing Structural and Decorative Elements in Seljuk and Byzantine Architecture (Anatolian Focus), Source: Authors.

### Quantitative Scoring and Analysis

To apply the coding system was applıed to compare Seljuk and Byzantine architectural features. Each building was evaluated and assigned scores based on the coding system. Scores for key features like dome complexity, vaulting systems, and decorative richness were calculated for each building. Scores were compared between Seljuk and Byzantine buildings to highlight differences in architectural innovations. A set of quantitative data was generated, providing an objective basis for comparing structural and decorative features of the Seljuk and Byzantine buildings. Table 5 is based on the named case studies and incorporates Seljuk and Byzantine examples discussed earlier.

### Comparison and Visualization

We used charts and graphs to visualize the comparative data, highlighting key differences and similarities between the Seljuk and Byzantine architectural traditions. Bar charts, tables, and heat maps were created to compare architectural scores across the key metrics. For instance, a bar chart was used to display the average decorative richness scores for Seljuk and Byzantine buildings. Visual aids were used to highlight trends in architectural practices, such as differences in dome construction methods or decorative elements between the two traditions. The visualized data clearly illustrates the architectural distinctions between Seljuk and Byzantine buildings, making it easier to interpret the comparative results.

**Table 6.** Comparative Analysis of Seljuk and Byzantine Architectural Features, Source: Authors.

| Metric | Seljuk Score | Byzantine Score |
|---|---|---|
| Dome Support Mechanism | 2 | 1 |
| Material Used | 2 | 1 |
| Size of Dome (scale 1 per 10 m) | 1 | 3 |
| Transition Type | 2 | 1 |
| Type of Vault | 3 | 1 |
| Vault Span (scale 1 per 10 m) | 1 | 2 |
| Number of Vaults per Building | 5 | 3 |
| Aesthetic Integration | 2 | 1 |
| Primary Material | 2 | 1 |
| Masonry Techniques | 3 | 2 |
| Decorative Material | 1 | 3 |
| Visibility of Structure | 2 | 1 |
| Decorative Focus | 2 | 1 |
| Presence of Mosaics | 0 | 1 |
| Dominant Theme | 1 | 2 |
| Scale of Mosaics | 1 | 3 |
| Complexity of Patterns | 3 | 2 |
| Integration with Calligraphy | 1 | 0 |
| Style of Floral Motifs | 2 | 1 |
| Symmetry of Floral Motifs | 1 | 2 |
| Presence of Calligraphy | 1 | 0 |
| Type of Calligraphy | 1 | 0 |
| Presence of Muqarnas | 1 | 0 |
| Purpose of Muqarnas | 1 | 0 |

The following chart (Figure 3) visually represents the quantitative comparison of Seljuk and Byzantine architectural features across metrics such as dome support mechanisms, vaulting systems, materials, and decorative elements.

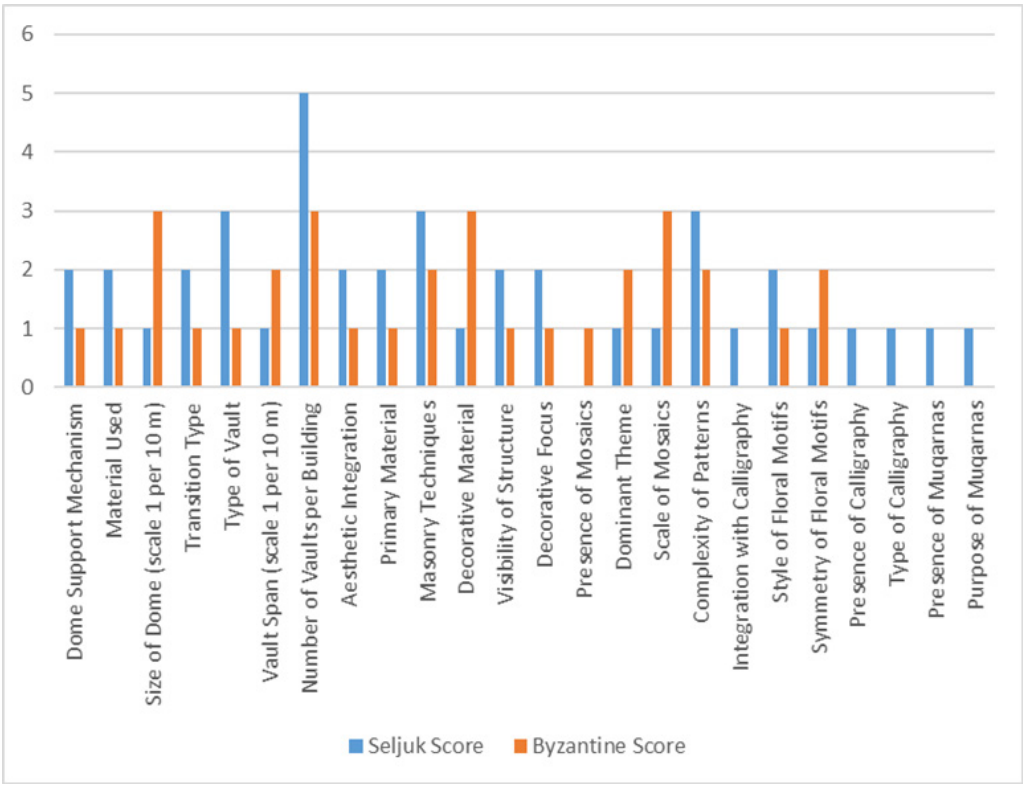



**Figure 3.** Metric-Based Comparative Analysis of Seljuk and Byzantine Architectural Practices in Medieval Anatolia, Source: Authors.

## DISCUSSION

The comparison of Seljuk and Byzantine architectural styles reveals fascinating differences in their priorities and approaches, shaped by the cultural and practical needs of their time. Seljuk buildings, such as the Green Mosque, showcase an inventive and adaptable style, often using squinch arches and incorporating locally available materials like brick and glazed tiles. These choices allowed Seljuk architects to create intricate designs that were both visually striking and functional. On the other hand, Byzantine structures, exemplified by the Hagia Sophia, emphasized permanence and grandeur through the use of stone and marble, with domes supported by advanced pendentive systems that conveyed a sense of monumental scale.

The vaulting systems of these traditions also highlight their contrasting philosophies. The Sultanhani Caravanserai's ribbed vaults reflect the Seljuk focus on creating intimate, utilitarian spaces, while Byzantine buildings like Hagia Irene employed barrel and groin vaults to craft expansive, awe-inspiring interiors. This difference in approach illustrates how each culture adapted its architecture to reflect its values and priorities.

In terms of decoration, Seljuk architects excelled at creating geometric patterns and incorporating calligraphy, producing works of exceptional intricacy, as seen in the İnce Minareli Madrasa. Byzantine architecture, however, prioritized rich mosaics and figurative representations that conveyed powerful religious narratives, most famously in the Hagia Sophia's detailed interiors.

Even the treatment of structural elements speaks to their distinct identities. Seljuk structures, like the Great Mosque of Divriği, often concealed their structural

frameworks, achieving a harmonious blend of form and ornamentation. Byzantine buildings, by contrast, celebrated their engineering feats, prominently displaying the complexity of their structural designs to inspire reverence.

These architectural differences reflect the diverse cultural, religious, and technological influences that shaped medieval Anatolia. Together, they contribute to a rich architectural heritage, offering insights into how two distinct traditions coexisted and left their mark on history.

Figure 4 highlights the contrasting priorities in architectural techniques and decoration between the Seljuk and Byzantine styles, illustrating how each tradition achieved a unique harmony between artistic expression and the practical demands of structural design.

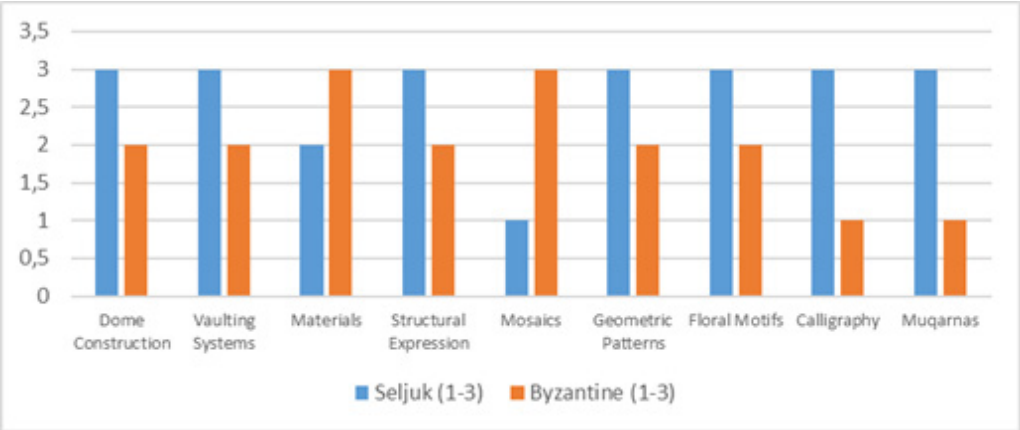



**Figure 4.** Comparative Analysis of art and technology in Seljuk and Byzantine Architecture, Source: Authors.

## CONCLUSION

This study has explored the intricate interplay between Seljuk and Byzantine architectural traditions, shedding light on how these two distinct yet overlapping styles coexisted and evolved in medieval Anatolia. While structural techniques were shared and adapted across cultural boundaries, decorative and symbolic elements retained their uniqueness, reflecting the divergent religious and artistic ideologies of each tradition. The Seljuk focus on ornamentation, geometric precision, and Islamic symbolism stands in contrast to the Byzantine emphasis on structural grandeur, religious iconography, and monumental stonework. Together, these approaches shaped a distinctive Anatolian architectural identity that harmonized technological innovation with artistic creativity.

The comparative analysis highlights the different architectural priorities of the Seljuk and Byzantine traditions. The Seljuks preferred lightweight brick structures adorned with intricate calligraphy and muqarnas, showcasing an adaptability to local materials and an emphasis on decorative detail. In contrast, Byzantine architects employed monumental stone construction, integrating religious figural mosaics and imposing structural elements to convey imperial and spiritual power. These contrasting priorities reflect the broader cultural, religious, and political contexts that influenced each empire's architectural choices.

By defining key structural and decorative elements—such as dome construction, vaulting systems, geometric patterns, and the use of calligraphy and mosaics—this study offers a systematic framework for analyzing the architectural legacy of both traditions. This framework not only enhances scholarly understanding but also emphasizes the dynamic cultural exchanges that the architectural heritage of Anatolia. The findings underscore how architecture serves as a medium of

cross-cultural dialogue, shaping identities and inspiring future developments in the region.

**Conflict of Interest**

No conflict of interest was declared by the authors.

**Authors' Contributions**

The authors contributed equally to the study.

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**REFERENCES**

Ashkan, M., & Ahmad, Y. (2012). Significance of conical and polyhedral domes in Persia and surrounding areas: Morphology, typologies, and geometric characteristics. *Nexus Network Journal, 14*(2), 275–290. https://doi.org/10.1007/s00004-012-0112-x

Azarpay, G. (1982). The Islamic tomb tower: A note on its genesis and significance. In A. Daneshvari (Ed.), *Essays in Islamic art and architecture in honor of Katharina Otto-Dorn* (pp. 9–12). Undena Publications.

Blair, S. (2008). *Islamic calligraphy*. Edinburgh University Press.

Blair, S. S., & Bloom, J. M. (1994). *The art and architecture of Islam, 1250–1800*. Yale University Press.

Blessing, P. (2014). *Rebuilding Anatolia after the Mongol conquest: Islamic architecture in the lands of Rūm, 1240–1330*. Ashgate Publishing.

Ettinghausen, R., Grabar, O., & Madina, M. J. (2003). *Islamic art & architecture, 650–1250*. Yale University Press.

Grabar, A. (1967). The art of the Byzantine Empire: Byzantine art in the Middle Ages. Crown Publishers.

Grube, E. J., & Michell, G. (1995). *Architecture of the Islamic world: Its history and social meaning*. Thames & Hudson.

Gülru, N. (2008). *The age of Sinan: Architectural culture in the Ottoman Empire*. Reaktion Books.

Hill, D. R., & Al-Hassan, A. Y. (1992). *Islamic technology: An illustrated history*. Cambridge University Press.

Hillenbrand, R. (2004). *Islamic architecture*. Edinburgh University Press.

Hillenbrand, R. (2010). Islamic art and architecture. In F. B. Flood & G. Necipoğlu (Eds.), *The Oxford handbook of Islamic art and architecture* (pp. 1–24). Oxford University Press.

Mainstone, R. J. (1997). *Hagia Sophia: Architecture, structure, and liturgy of Justinian's great church*. Thames & Hudson.

Mango, C. (1985). *Byzantine architecture*. Electa Editrice Press.

Mosavi, Z. (2002). Mogharnas in architecture. *Ketab-e Mah-e Honar, 348,* 45–46.

Nazer, Z., Belali Oskoui, A., & Keynejad, M. A. (2016). A study of transparency behavior of domes in Islamic mosques with emphasis on the notion of the spiritual lighting. *Journal of Research in Islamic Architecture, 4*(3), 94–112. http://jria.iust.ac.ir/article-1-549-en.html

Nazer, Z., Kovács, G. M., & Rabb, P. (2020). Comprehensive revelation on the tomb towers architecture; Persia and Anatolia. *ICONARP International Journal of Architecture and Planning, 8*(2), 801–820. https://doi.org/10.15320/ICONARP.2020.137

Necipoğlu, G. (1995). *The Topkapi scroll: Geometry and ornament in Islamic architecture*. Getty Publications.

Önkal, H. (1996). Anadolu Selçuklu Türbeleri. Atatürk Kültür Merkezi Yayınevi.

Ousterhout, R. G. (2019). *Eastern medieval architecture: The building traditions of Byzantium and neighboring lands.* Oxford University Press.

Pope, A. U., & Ackerman, P. (1981). *A Survey of Persian art from prehistoric times to the present.* Maxwell Aley Literary Associates.

Redford, S. (1993). The Seljuks of Rum and the antique. Muqarnas, 10, 148–156.

Schroeder, E. (1938). Islamic architecture: Seljuq period. In A. U. Pope & P. Ackerman (Eds.), *A survey of Persian art* (pp. 930–966). Oxford Press.

Tabbaa, Y. (1997). *The transformation of Islamic art during the Sunni revival.* University of Washington Press.

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