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Interaction between interior space and environment: Current research and trends evaluation

İç Mekân ile Çevre Arasındaki Etkileşim: Güncel Araştırmalar ve Eğilimlerin Değerlendirmesi

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Abstract

Interior space is where individuals live, interact with their immediate environment, and carry out their daily activities. Individuals can only meet their social, psychological, and physiological needs in spaces designed accordingly. The adaptation of living spaces to individuals depends directly on their relationship and interaction with the interior space and its environment. Therefore, the interior space in which an individual lives cannot be considered independently of its surroundings. This study examines the interaction between interior space, individuals, and their immediate environment, focusing on the contribution and significance of the environment in the design of space. To achieve this objective, a bibliometric analysis method will be employed. Existing literature on space design and environmental interaction will be systematically reviewed, analyzing academic publications, citation networks, and thematic trends. This analysis will identify key contributions to the role of the immediate environment in space design, emerging research areas, and gaps in current knowledge. By adopting this methodological approach, the study provides a comprehensive, data-driven perspective that better understands the dynamics between interior spaces, individuals, and their environment.

Keywords: Environment, Interior Space, Bibliometric analysis, Interior Space-Environment Interaction, Interior Design.

Özet

İç mekân, bireylerin yaşadığı, yakın çevresiyle etkileşime geçtiği ve günlük aktivitelerini gerçekleştirdiği alandır. Bireyler ancak bu doğrultuda tasarlanmış mekânlarda sosyal, psikolojik ve fizyolojik ihtiyaçlarını karşılayabilirler. Yaşam alanlarının bireylere uyumu, doğrudan iç mekân ve çevresiyle kurulan ilişki ve etkileşime bağlıdır. Bu nedenle, bireyin yaşadığı iç mekân çevresinden bağımsız düşünülemez. Bu çalışma, iç mekân, birey ve yakın çevre arasındaki etkileşimi inceleyerek, çevrenin mekân tasarımına katkısını ve önemini ortaya koymayı amaçlamaktadır. Bu amacı gerçekleştirmek için bibliyometrik analiz yöntemi kullanılacaktır. Mekân tasarımı ve çevresel etkileşim konularında mevcut literatür sistematik bir şekilde taranacak; akademik yayınlar, atıf ağları ve tematik eğilimler analiz edilecektir. Bu analiz sayesinde, yakın çevrenin mekân tasarımındaki rolüne dair temel katkılar, ortaya çıkan araştırma alanları ve mevcut bilgi birikimindeki boşluklar belirlenecektir. Bu metodolojik yaklaşım sayesinde çalışma, iç mekân, birey ve çevre arasındaki dinamikleri daha iyi anlamaya yönelik kapsamlı ve veriye dayalı bir bakış açısı sunacaktır.

Anahtar Kelimeler: Çevre, İç Mekân, Bibliyometrik Analiz, İç Mekân-Çevre Etkileşimi, İç Mimarlık.

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Introduction

The relationship between the architectural environment and the individual is significant throughout every stage of life. Individuals continuously observe, interpret, and reshape their environments in response to their evolving needs, values, and expectations. This is not a static interaction; it is a dynamic, reciprocal process of adaptation and decision-making, through which space transforms into a living, personalized environment shaped by human presence and intent. Within this broader context, interior space emerges as the most immediate and influential domain through which this relationship is experienced and negotiated.

Interior space, as the most immediate physical layer of human experience, plays a pivotal role in mediating this relationship (Prince, 2014). It is within interiors that daily routines unfold, psychological needs manifest, and a sense of belonging is either reinforced or undermined. The interaction between interior space and its broader environmental context thus reflects a multidimensional necessity: the creation of spatial arrangements that align not only with functional requirements but also with emotional and cultural meaning. As Aygenç (2020) highlights, this is a "dynamic interaction" where both the individual and the environment mutually influence one another in an ongoing cycle of spatial exchange. However, while the centrality of interior space is widely acknowledged, scholarly approaches often fall short of addressing its connection to the surrounding environment in a cohesive manner.

Although scholarship on environmental design has grown in recent decades, a notable gap persists. Specifically, there is a lack of integrative, user-centered approaches that systematically link interior spaces with their immediate environments in both theoretical and empirical terms. This fragmentation limits designers' ability to develop holistic spatial solutions and constrains our understanding of how environments function as interconnected systems of human experience. Furthermore, very few studies have employed data-driven techniques—such as bibliometric analysis—to trace conceptual developments or identify thematic patterns in this domain (Tabatabaeifard et al., 2025; Gauer, 2024). To bridge this methodological and conceptual divide, the present study proposes an analytical framework that centers on spatial interaction.

This study aims to address that gap by exploring the role of interior–environment interaction within the design process. Given that interiors represent the first and most personal interface between individuals and their built environment, understanding how these spaces operate in concert with their surroundings is crucial for promoting spatial comfort, well-being, and long-term usability. Accordingly, this research adopts a bibliometric analysis methodology to examine the literature on interior and environmental interaction, mapping dominant themes, research gaps, and intellectual trajectories. Building upon these insights, the study also seeks to translate its findings into actionable knowledge for spatial design practice.

By clarifying these spatial dynamics, the study seeks to provide practical insight for architects and interior architects. Its findings are intended to inform user-centered design strategies and support evidence-based decision-making in a range of design contexts, ultimately contributing to more adaptive, inclusive, and context-sensitive spatial practices.

The remainder of the paper is structured as follows: Section 2 presents the theoretical framework that informs interior–environment interactions. Section 3 outlines the bibliometric methodology and data set. Section 4 discusses the results and thematic trends. Finally, Section 5 offers a discussion of implications and concludes with recommendations for future research.

Theoretical Framework

The relationship between interior space and the individual is not merely a physical interaction; it also encompasses psychological, emotional, and social dimensions. Considering that people spend a significant portion of their lives within built environments, the design of interior spaces becomes critically important, particularly in terms of health and well-being (Araya León et al., 2022; Mahmoud, 2017).

Recent studies have shown that designing interior environments in alignment with individual needs plays a crucial role in meeting psychological requirements such as safety, privacy, a sense of belonging, and identity. In this design process, the expertise of architects and interior designers extends beyond aesthetics to include the creation of psychologically supportive, user-centered environments (Malik & Jamil, 2019).

Furthermore, the integration and transition between interior space and the external environment significantly shape the quality of an individual's relationship with their surroundings. This highlights the necessity of designing not only interior spaces but also their broader environmental context with sensitivity to users' spatial experiences (Sameh, 2015).

In studies focused on individuals with disabilities, the accessibility and usability of interior environments have been directly shown to impact individual participation and quality of life. In this regard, universal design principles aim to create inclusive environments that are responsive to user diversity (Cassi et al., 2021).

Recent discussions in the field have also emphasized the limitations of traditional design models that treat interior and exterior spaces as isolated domains. In contrast, contemporary theories now advocate for an integrative approach, where the permeability, continuity, and overlap between spatial layers are central to user experience. These ideas are increasingly relevant in the context of post-pandemic housing, hybrid work environments, and the mental health implications of spatial confinement (Tabatabaeifard et.al., 2025).

Finally, various theoretical paradigms—objectivist, relativist, and critical—provide insight into the values and assumptions that shape design thinking. These theoretical perspectives help us to conceptualize interior space design not only as a physical production process but also as a socio-cognitive interaction (Gauer, 2024). For instance, while objectivist paradigms emphasize measurable spatial attributes such as ergonomics or lighting levels, critical paradigms draw attention to power dynamics, identity politics, and cultural symbolism embedded in design decisions.

This multilayered theoretical perspective offers a comprehensive framework for understanding the interaction between individuals and their interior environments. However, while these theoretical insights are invaluable, they remain largely conceptual. They often lack empirical mapping of how these themes have evolved, intersected, or diverged across disciplines over time.

To address this gap, the present study adopts a bibliometric analysis method to evaluate academic production on interior–environment interaction quantitatively and to uncover prevailing trends and knowledge gaps in the field. This method enables the identification of influential works, thematic clusters, and underexplored areas, thus bridging the gap between theory and empirical insight. In the following section, the methodological approach, including data sources, selection criteria, and analysis tools, is described in detail to demonstrate how the bibliometric study was structured and conducted.

Methodology

From the past to the present, the number of academic publications has been increasing daily, making it difficult for academics, students, and individuals interested in science to research related subjects and identify the deficiencies in the literature. Evaluating issues related to bibliometric analysis is a quantitative approach used to determine the current situation in the literature in terms of authors and topics (Gauer, 2024; Araya León et al., 2022; Wang et al., 2021). In this context, bibliometric analysis provides insight into the current situation and development aspects in research areas, enabling researchers to strategically position their work and make original contributions to the literature. Especially in interdisciplinary studies, it enables the discovery of new research opportunities by visualizing the interactions and information flow between different fields (Karunan et al., 2017). In this study, all bibliometric relationships related to the interaction between humans and the environment are presented to reveal the contribution of the interaction between interior space and the immediate environment to the design of space. The sequential structure of the methodological steps followed in this study is illustrated in Figure 1 below.

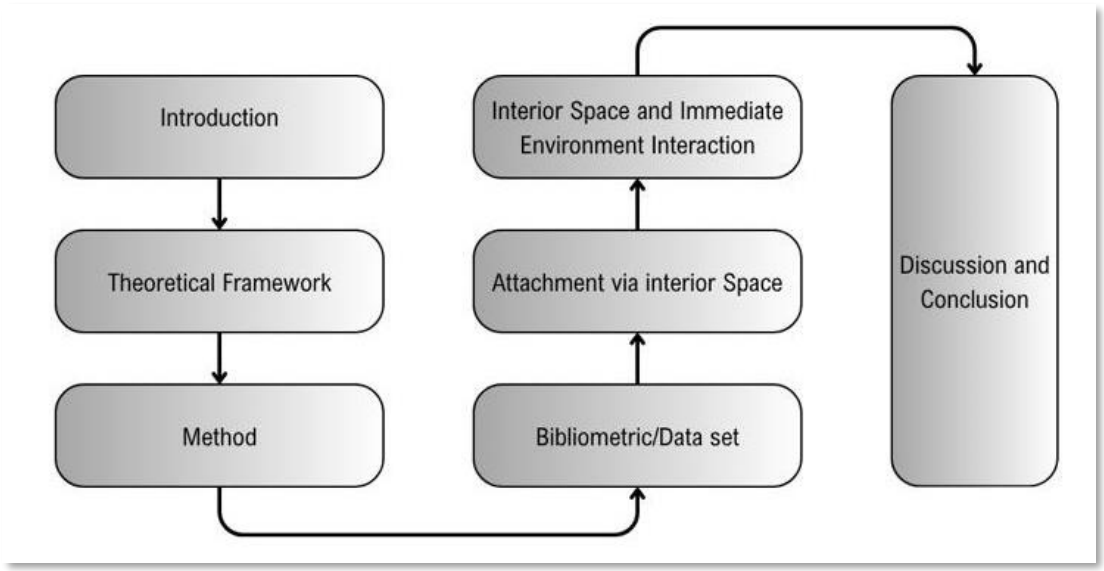

Figure 1. Flowchart of the study.
(Source: Author's work)

In examining these relationships, the Web of Science (WoS) database was preferred because it provides reliable and comprehensive data and high-quality and reliable metadata. The data set was constructed using a defined set of search terms and filters (see Table 1). Duplicates, incomplete entries, and irrelevant documents were systematically excluded by cross-checking DOIs, author names, and publication types. Data cleaning was performed in R-Studio using Biblioshiny tools to ensure consistency and accuracy in metadata fields such as keywords, author affiliations, and citation counts. Additionally, given the challenges in developing and merging concurrent databases, a rigorous evaluation strategy was followed in the analysis process.

All data used in this study were retrieved from publicly accessible academic sources (WoS) and did not involve any personal or sensitive information. Therefore, the research did not require institutional ethical approval. Nevertheless, data handling was conducted in line with the principles of academic integrity, transparency, and responsible research conduct.

Table 1.
Wos based research criteria

Parameters	Information
Database	Web of Science Core Collection
Software	R-Studio-Biblioshiny
Keywords:	TS=("Spatial Design" OR "Architectural Space" OR "Built Environment") AND TS=("Human-Environment Interaction" OR "Sense of Place" OR "Proximal Environment") Refined by: (Research Areas: (Architecture OR Urban Studies
Web of Science Category	
Document Type	All type
Research Areas	Architecture OR Urban Studies

(Source: Author's work).

Results

Conceptual Themes in Literature

The documents used in the study span the period from 2001 to 2025. The data were collected from 33 sources, including articles, book chapters, and 44 documents. Upon examining the publication types, 31 articles, four book chapters, three early access articles, four papers, and two reviews were identified. It

shows that most of these publications are research articles (70%). The average citation per document is 18.84, and the total number of references is 2134. The number of authors working on the subject is 93, and the number of authors writing articles with a single author is 20.

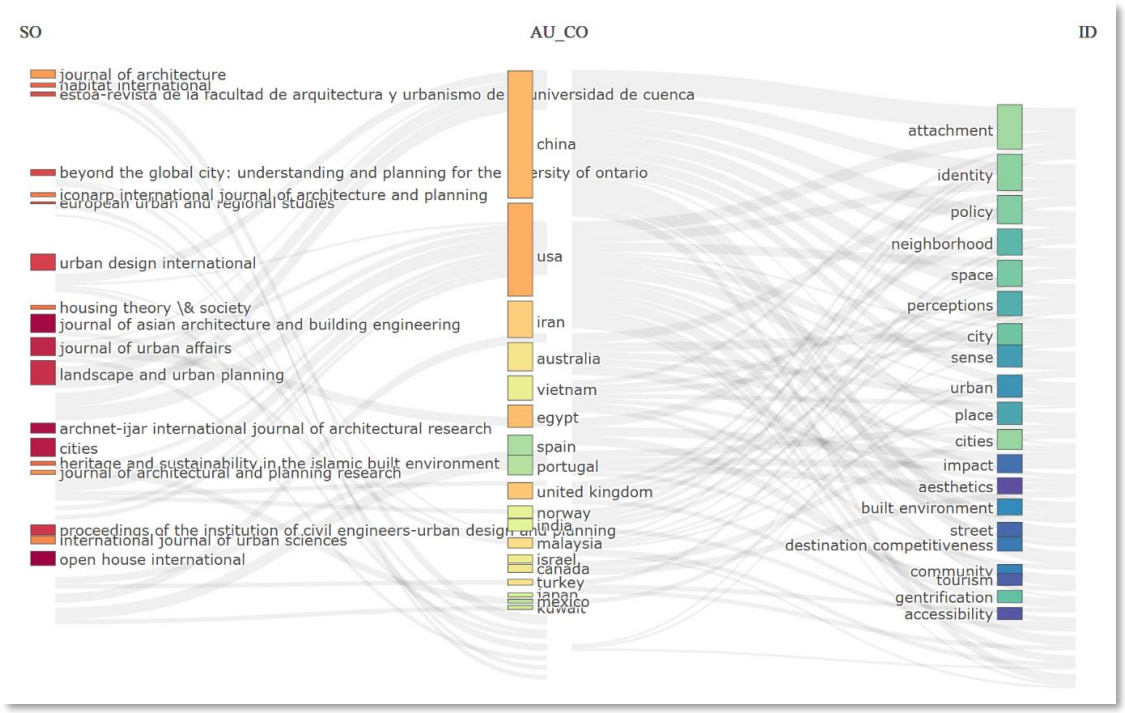

Figure 2. Three-field plot analysis.
(This figure was generated by the authors through the use of Biblioshiny software)

When three-field plot analysis is examined (in terms of country-source-keyword), China, the USA, and Iran are at the top of the list (Figure 2). Attachment, identity, and policy were the keywords most frequently used when examining the keywords.

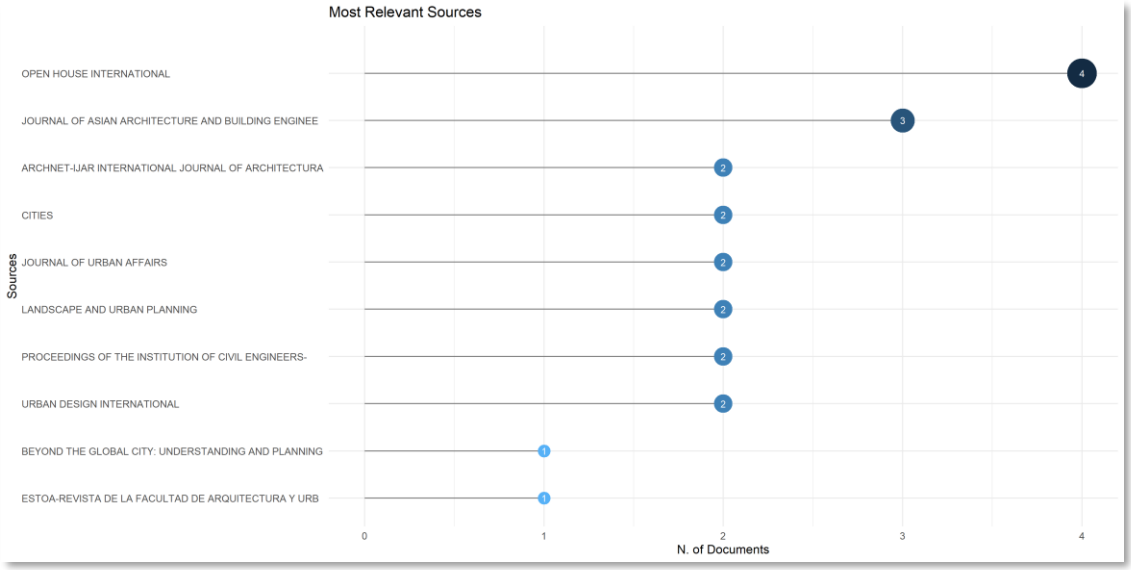

Figure 3. Most relevant sources.
(This figure was generated by the authors through the use of Biblioshiny software.)

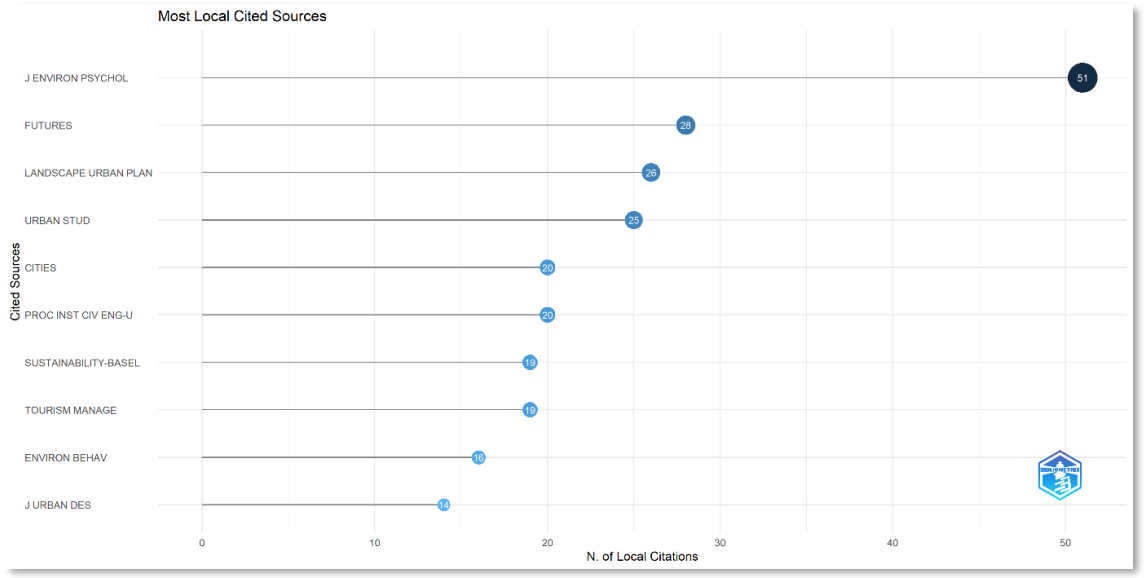

Figure 4. Most local cited sources.
(This figure was generated by the authors through the use of Biblioshiny software.)

Among the 44 documents examined due to the scans, the most relevant sources were Open House International and the Journal of Asian Architecture and Building Engineering. An average of two documents were identified in the journals examined in these scans (Figure 3). The most frequently cited sources in the reference list were the Journal of Environmental Psychology (51 citations), the Journal of Asian Architecture and Building Engineering (28 citations), Landscape and Urban Planning (26 citations), and Urban Studies (25 citations) (Figure 4).

Table 2.
Examining the Resource Effect

Source	h_index	g_index	m_index	TC	NP	PY_start
OPEN HOUSE INTERNATIONAL	3	4	0,176	19	4	2009
ARCHNET-IJAR INTERNATIONAL JOURNAL OF ARCHITECTURAL RESEARCH	2	2	0,222	11	2	2017
CITIES	2	2	0,4	73	2	2021
LANDSCAPE AND URBAN PLANNING	2	2	0,25	437	2	2018
URBAN DESIGN INTERNATIONAL	2	2	0,286	18	2	2019
ESTOA-REVISTA DE LA FACULTAD DE ARQUITECTURA Y URBANISMO DE LA UNIVERSIDAD DE CUENCA	1	1	0,125	1	1	2018
EUROPEAN URBAN AND REGIONAL STUDIES	1	1	0,167	9	1	2020
HABITAT INTERNATIONAL	1	1	0,045	20	1	2004
HOUSING THEORY \& SOCIETY	1	1	0,091	150	1	2015
ICONARP INTERNATIONAL JOURNAL OF ARCHITECTURE AND PLANNING	1	1	0,111	1	1	2017

(This table was generated by the authors through the use of Biblioshiny software.)

As a result of the analysis of the source impact (Table 2), it was determined that Open House International had the highest global citation count. Archnet-IJAR follows this journal: International Journal of Architectural Research and Cities, respectively.

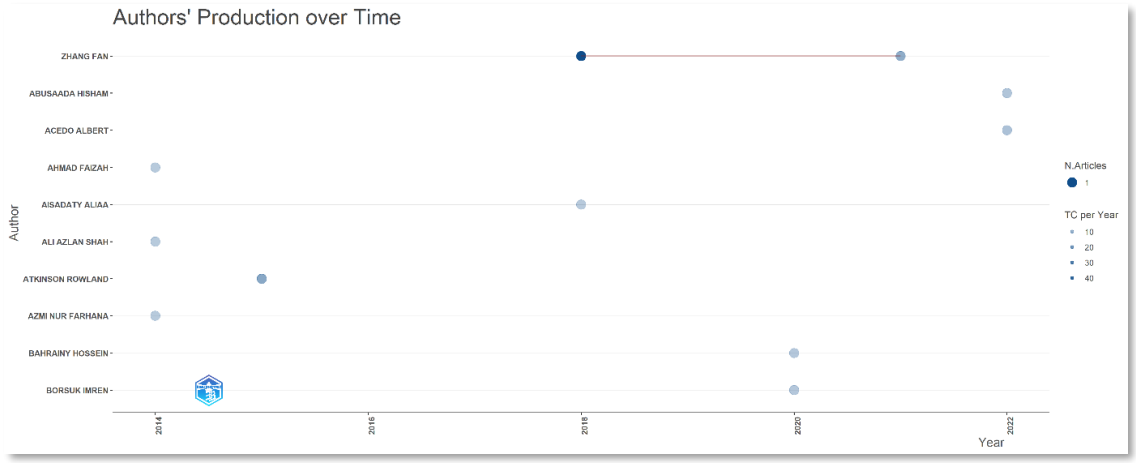

Figure 5. Production of authors over time.
(This figure was generated by the authors through the use of Biblioshiny software.)

Table 3.
Most Relevant Authors

Authors	Articles	Articles Fractionalised
ZHANG FAN	2	0,31
CARLO	1	0,17
JIAYU	1	0,14
ABUSAADA HISHAM	1	0,50
ACEDO ALBERT	1	0,33
AHMAD FAIZAH	1	0,33
AISADATY ALIAA	1	1,00
ALI AZLAN SHAH	1	0,33
ATKINSON ROWLAND	1	1,00
AZMI NUR FARHANA	1	0,33

(This table was generated by the authors through the use of Biblioshiny software.)

According to Table 3, Zhang Fan is the author with the most publications on this topic. These publications have been carried out since 2018. Examining the publications produced by the authors over time (Figure 5), it is evident that the intensity occurred between 2014 and 2022. In this regard, it can be noted that interest in the subject has increased in recent years.

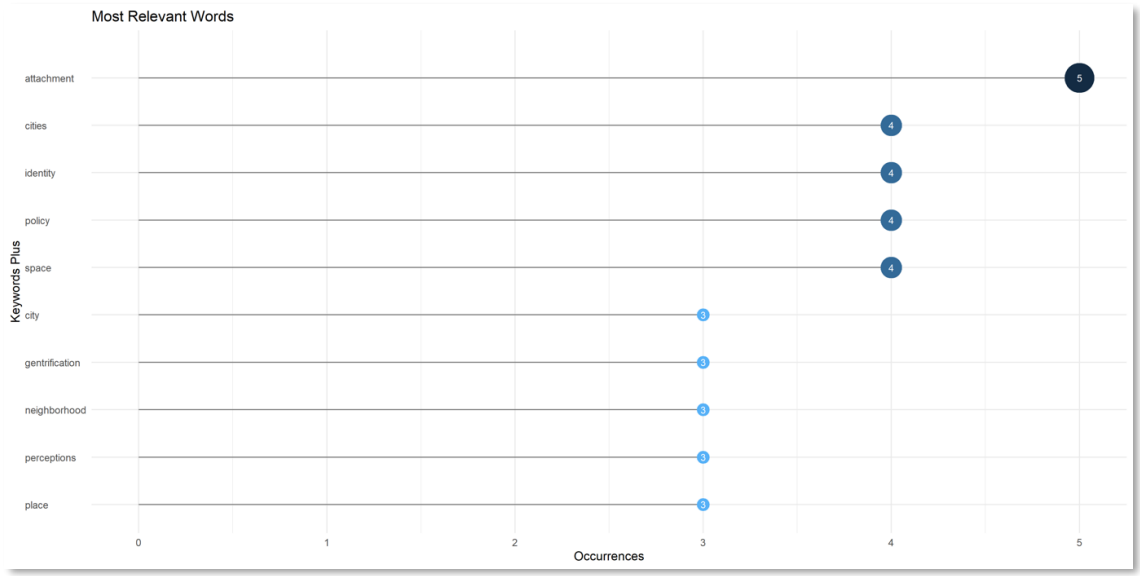

Figure 6. Most relevant words.
(This figure was generated by the authors through the use of Biblioshiny software.)

The most common keywords in the examined documents were Attachment (5), Cities (4), Identity (4), Policy (4), Space (4), City (3), Gentrification (3), Neighborhood (3), Perceptions (3) and Place (3) (Figure 6). It was determined that the keyword most frequently used by the authors was 'attachment.'

Figure 7. Concurrency network.
(This figure was generated by the authors through the use of Biblioshiny software.)

Co-occurrence networks are graphical representation tools that show how often variables appear together. A co-occurrence network can analyze many pairs of co-occurring variables simultaneously. In these networks, each variable is represented as a node or point, while the co-formation between two variables is expressed by an edge or link that connects the nodes. The size of the nodes (Figure 7) indicates the frequency with which the terms are repeated. In the Space and Environment literature, as the number of co-occurrence keywords increases, the size of the nodes also increases. The distance between the individual pairings reflects the similarity and comparative strength of the subjects. Different colors indicate individual clusters.

Figure 7 shows a network of five unique clusters representing different subfields of Space and Environment study:

Cluster 1 (Blue): Includes Attachment, Policy, and Destination Competitiveness studies.
Cluster 2 (Purple): Focuses on Space, Identity, Built Environment.
Cluster 3 (Green): Includes work on Community and perceptions.
Cluster 4 (Red): Focuses on Neighborhood.
Cluster 5 (Orange): Urban covers Cities (Figure 7).

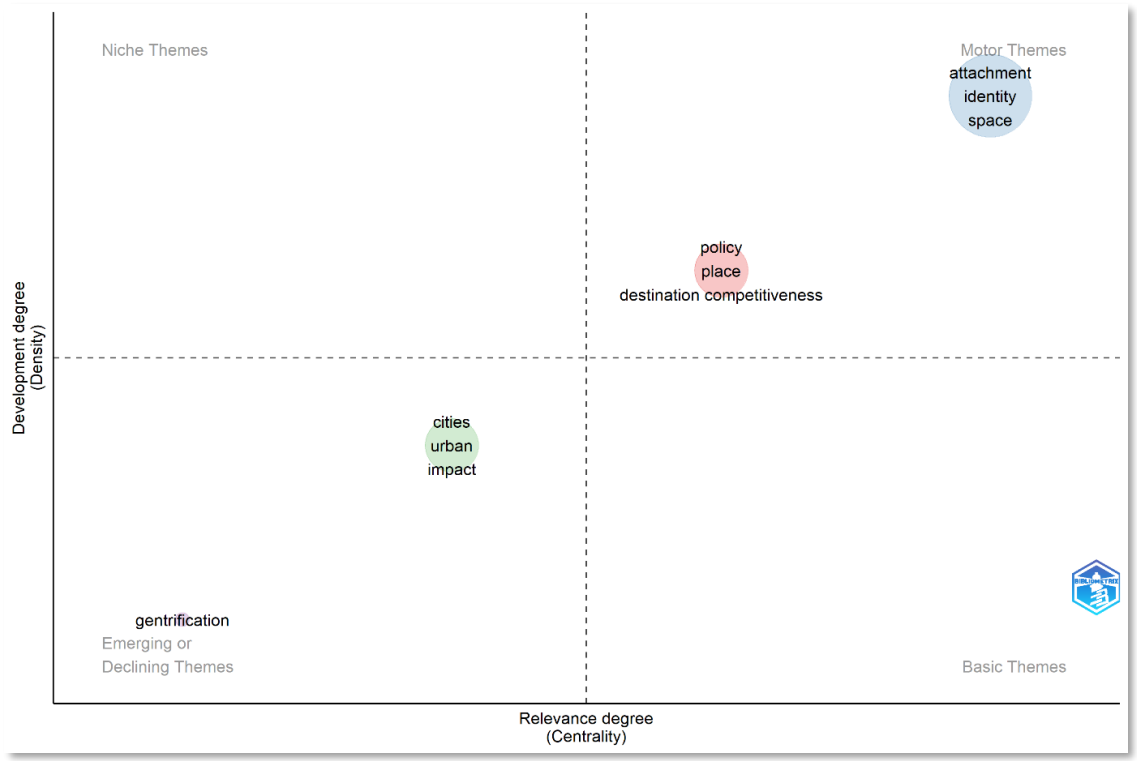

Figure 8. Thematic Map Via Keywords.
(This figure was generated by the authors through the use of Biblioshiny software.)

Thematic maps compile relevant information by focusing on a specific topic and visualizing the relationship between these themes and spatial locations. The thematic map, based on keyword analysis (Figure 8), shows that keywords are distributed across four quadrants. Words such as Attachment, Identity, Space, Policy, Place, and Destination Competitiveness constituted the main themes, while Cities, Urban, and Impact were among the other important themes. However, no keywords associated with simple themes and niche themes were found in this study.

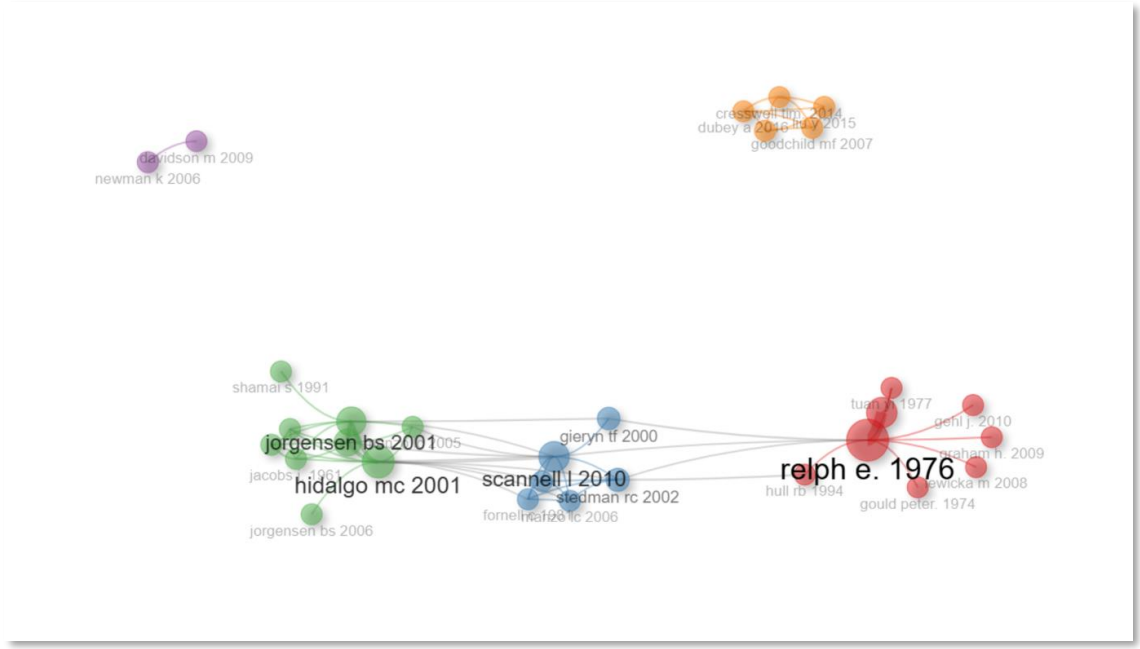

Figure 9. Common Citation Analysis
(This figure was generated by the authors through the use of Biblioshiny software.)

Co-citation is a semantic similarity metric for documents that use citation relationships, similar to Bibliographic Linking. The frequency with which other documents mention two texts together is defined as the joint citation. The common citation analysis is illustrated in Figure 9, where each circle represents a citation network in the Space and Environment literature. The size of the circles reflects the volume of citations; The larger the circle, the more citations the respective author's articles have received. Additionally, the proximity of the apartments to each other suggests a strong relationship between the jointly cited documents.

Discussion

Understanding Attachment in the Context of Interior and Surrounding Environments

The bibliometric analysis results indicate that "attachment" is one of the most frequently recurring concepts in literature. This finding aligns closely with the theoretical framework, particularly about the emotional bonds individuals form with interior spaces. Interior environments have the potential to support the construction of identity, psychological security, and a sense of belonging. In studies where the attachment is emphasized, residential layouts, neighbourhood-level continuity, and customizable spatial elements are noted to enhance user experience.

This result supports earlier findings by Williams & Kitchen (2012), who associate strong place attachment with improved well-being and community engagement. Similarly, Prince (2014) highlights the role of interior environments in shaping individuals' future aspirations and sense of agency. However, while these studies adopt qualitative or psychological lenses, the current analysis contributes a broader, data-driven perspective by quantifying the prominence of attachment across multiple sources and disciplines.

Moreover, attachment here emerges not as an isolated concept but as a node within a larger co-occurrence network involving identity, policy, and space. This relational positioning suggests that attachment is increasingly framed in literature not only as an emotional state but as a design-relevant construct with policy and planning implications. Such insight offers a foundation for theorizing attachment beyond phenomenology — as a multi-scalar mechanism influencing spatial configuration and user engagement.

For example, frequently cited publications suggest that attachment in spatial design transcends physical arrangement, incorporating users' personal histories, cultural backgrounds, and symbolic relationships. This demonstrates that space is not merely a physical construct but also a psychosocial one. Accordingly, spatial

design must accommodate the multifaceted nature of attachment, promoting flexible, participatory, and culturally sensitive design approaches that support emotional bonds between individuals and their environments.

This perspective is echoed in the work of Small & Adler (2019), who argue that spatial attachment is both shaped by and reflective of the social ties formed within specific environments. Similarly, Araya León et al. (2022) emphasize that psychological well-being is significantly influenced by the extent to which interior spaces accommodate users' personal and cultural narratives.

What distinguishes the present study, however, is its empirical demonstration of how "attachment" functions not in isolation but in strong co-occurrence with other themes such as policy, place, and identity—suggesting that attachment is increasingly recognized as a critical mediator between spatial planning and lived experience.

By identifying "attachment" as a structurally central node within the bibliometric network, this study elevates its status from a subjective design concern to a strategic design driver. For practitioners, this suggests the need to integrate emotional resonance and symbolic meaning more intentionally into spatial programming, particularly in residential and community-based projects.

To deepen the understanding of these dynamics, it becomes necessary to clarify what is meant by "environment" in academic discourse. The relationship between attachment and space is not confined to physical boundaries but unfolds within a broader environmental context. Scholarly literature defines "environment" as a multidimensional concept that encompasses physical, biological, social, economic, and cultural dimensions (Lyu et al., 2023). This comprehensive view enables the examination of interior spaces not in isolation but as distinct yet interconnected components within larger environmental systems, providing a robust foundation for understanding how attachment is both shaped by and shapes interior environments.

Environmental elements collectively form the environment, which can be broadly classified into two categories relevant to this study: the interior, representing the immediate physical environment closest to humans, and its adjacent environments, which encompass broader contexts closely related to interiors. Thus, interiors and their immediate surroundings constitute the defined physical environment for humans.

The environments humans inhabit vary symbolically and formally, shaped by cultural, geographical, and temporal factors. Therefore, humans simultaneously experience their environments through physical and socio-cultural dimensions (Tam & Milfont, 2020).

Rapoport (1977) categorizes environments into five types based on their characteristics: individual, physical, personal, suprapersonal, and social environments. The individual environment involves direct experiences and interactions. The physical environment includes geographic, climatic, and constructed elements that either facilitate or limit behaviour. Personal environments encompass influential social relationships such as family, friends, authority figures, and peer groups. Suprapersonal environments are shaped by the demographics and lifestyles of their inhabitants, including age, social class, ethnicity, and lifestyle. Lastly, the social environment reflects societal norms and institutional structures.

This categorization underscores two critical aspects of understanding the environment: its multilayered nature incorporating social, cultural, and physical dimensions, and the reciprocal relationship between the changing characteristics of the physical environment and spatial organization (Figure 10).

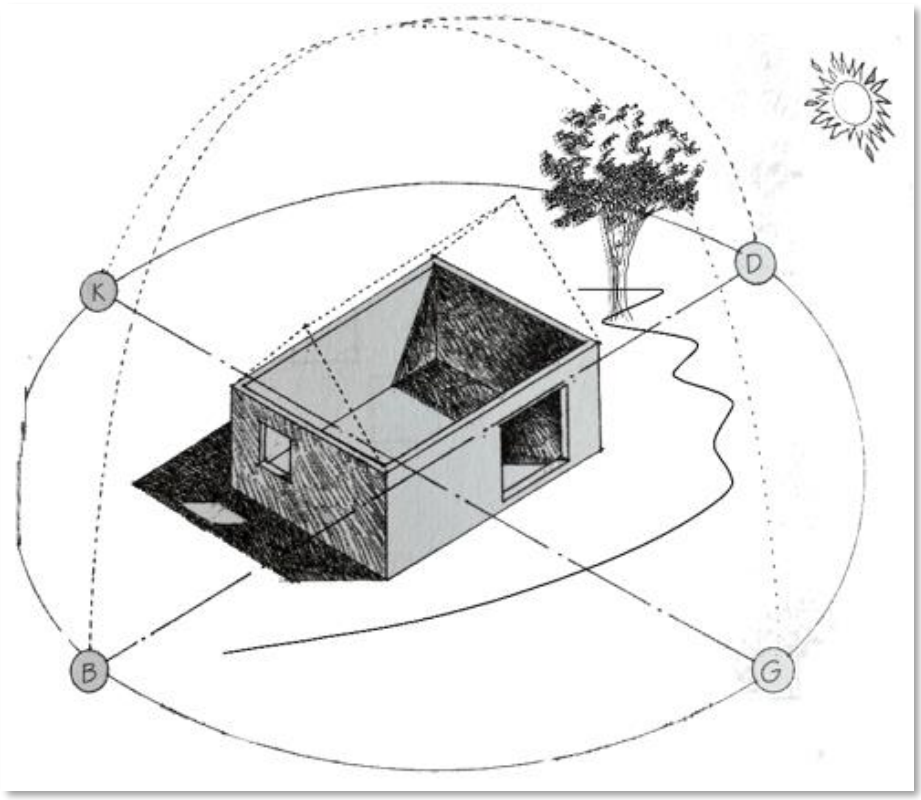

Figure 10. There is a link between the changing characteristics of the physical environment and interior space.
(Source: Author's work)

Interior space formation directly reflects the multilayered social, cultural, and physical characteristics of the environment. This interplay influences the form, functionality, and design of spaces, emphasizing the importance of understanding both physical and conceptual dimensions.

While traditional views often define space by its physical size and measurable features, contemporary discourse recognizes space as encompassing both physical and conceptual dimensions. Physical space involves boundaries, dimensions, and tangible elements. Conceptual space, conversely, includes social, cultural, and relational dynamics that guide human interactions and activities within it (Small & Adler, 2019).

Thus, the creation of concrete space cannot be viewed independently from its users. Instead, space formation must be evaluated in conjunction with human-environment interactions. This perspective leads to two central insights:

- Space is inherently multidimensional.
- Space cannot be understood independently of the life occurring within it (Çubuk et al., 1977; Oğuz, 1994).

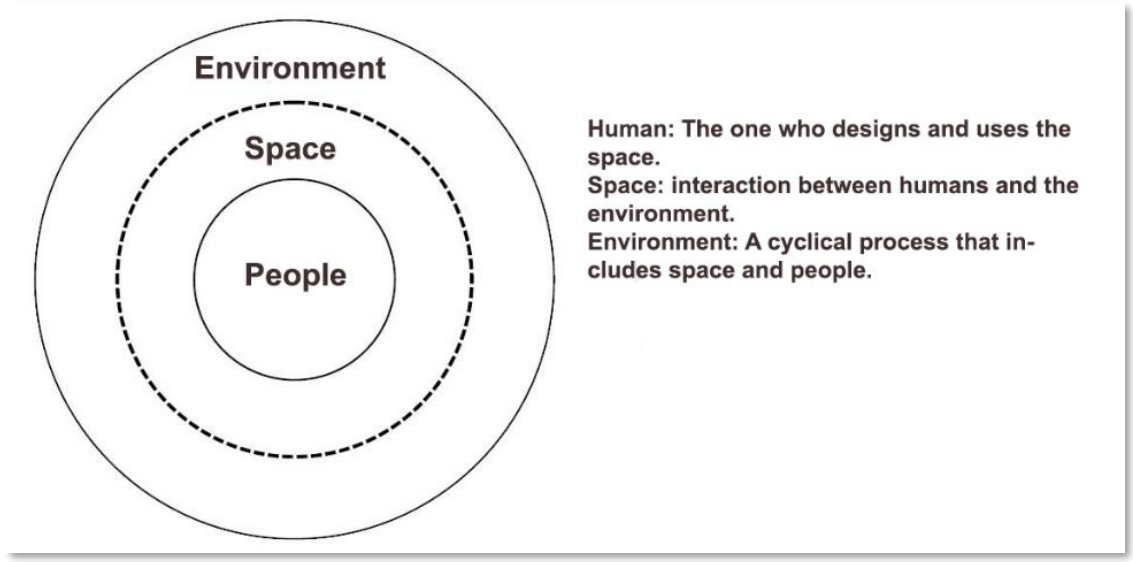

Figure 11. Human- Space-Environment interaction.
(Source: Author's work)

Space, therefore, is defined by human interactions, relationships, and associated infrastructure, framed by cultural, symbolic, and experiential conditions (Aksoy & Çebi, 2024). Humans are active subjects shaped and influenced by their environment, with the environment arising from human-environment interactions. Hence, space represents an environment specifically curated for human existence.

Modern living conditions, evolving human needs, and technological advancements necessitate a redefinition of the physical attributes of space. Utilitarian approaches highlight the need to evaluate space objectively and subjectively. Objective space is defined by its measurable three-dimensional attributes, corresponding to interiors. In contrast, subjective space is understood through sensory perception and experiences corresponding to external environments. Furthermore, spaces can be classified based on their level of privacy or social function, which influences their boundary flexibility or rigidity.

This refined perspective facilitates a nuanced exploration of human-environment interactions, enriching the understanding of how attachment shapes and is shaped by interior spaces.

Interior Space and Immediate Environment Interaction

There will be environments in which people live throughout their lives. Its relationship with its environment will continue to a certain extent and continuously. Thus, man and his environment will continue to exist in a cyclical process. Because human needs are constantly evolving, new requirements will necessitate the production of continuous solutions to meet these new needs (Aygenç, 2020).

Spaces that are in a direct or one-to-one relationship with humans and their environment are considered interiors. People spend most of their lives in these areas. Therefore, it is expected to meet all the needs and requirements of the interiors. Designing interiors that cater to all these requirements and needs is a collaborative process involving both the designer and the user (Nguyen, 2024).

Interiors play a significant role in shaping human-environmental relations. In the design process of a space, the following points should be considered:

- The structure of the environment in which the space will be shaped,
- Behavioural and cultural characteristics of users in space,
- The effects of spatial elements on the user,
- The relationships established by the components between human and space with each other,
- The effects of an individual's belonging to a space on the shaping of that space in spatial design.

In line with these principles, it is not enough to evaluate the space solely on an indoor scale; it must also be considered in conjunction with its immediate surroundings. This comprehensive approach enables a deeper understanding of the physical, social, and cultural context of the space. It enables a more holistic analysis of the interactions between the space and its surroundings during the design process. The relationship between the space and its surroundings has important dynamics in terms of user experience, perceptual dimensions, and functionality. In this context, the interaction of space with its immediate surroundings has been discussed in the light of various academic studies and evaluated from different perspectives (Aygenç, 2020; Ittelson et al., 1974).

The relationship between people, interior space, and the environment is in constant transformation. In this relationship, humans are the fundamental element that establishes the connection between interior space and environment, and cultural dynamics shape this process. While human-environment interaction gives meaning to the space, the space emerges as a physical reflection of this interaction. In short, interior space is a unity that the environment offers to human beings and is interpreted by them.

Interiors, in particular, play a significant role in the lives of individuals. On the one hand, people benefit from the environmental solutions developed by designers; on the other hand, they strive to create an environment in which they can feel comfortable and belong. For this reason, individuals should be allowed to make changes in the design of the interior and the immediate environment according to their needs, tastes, and personal preferences. When such flexibility is provided, individuals can make their living spaces more suitable for them and thus lead a more peaceful, comfortable, and healthy life.

Everyone perceives their environment uniquely, and the perceived environment may not always align with physical reality. A person's character, cultural background, and social experiences are crucial in shaping their interpretation of the environment. Consequently, the same environment may hold different meanings for individuals and can be described in different ways. Therefore, in the design of interior spaces and immediate surroundings, design decisions should prioritize enhancing the functionality and experiential quality of the space, independent of users' subjective perceptions. The designer must meticulously analyze user needs, environmental factors, and spatial relationships to create a space where these elements are harmoniously integrated.

Conclusion

This study aims to identify the prominent trends, research gaps, and potential future directions in the literature on the interaction between space and environment, utilizing bibliometric analyses and literature reviews. The findings provide a comprehensive evaluation of how this field has evolved, highlighting interdisciplinary approaches and the most frequently cited themes.

As a result of the bibliometric analysis, concepts such as attachment, identity, and spatial perception have emerged as central themes in the research on space and environment. Accordingly, future design practices are encouraged to incorporate customizable spatial solutions that enhance individuals' sense of belonging, integrate cultural identity through design details, and establish spatial hierarchies that improve user experiences.

By revealing the structural interconnectedness of key themes like attachment, identity, and place within a bibliometric network, this study offers an empirical foundation for rethinking interior design not simply as a functional endeavour, but as a culturally embedded, user-responsive practice.

Future research should expand upon these findings by employing mixed method approaches that combine bibliometric mapping with in-depth qualitative case studies, particularly focusing on underexplored user groups, cultural contexts, or adaptive reuse of interior environments. Additionally, examining how digital and virtual interiors (e.g., hybrid workspaces or immersive environments) affect spatial identity represents valuable new directions.

The thematic trends revealed in this study offer practical guidance for architects and interior designers aiming to develop user-centered, adaptable, and culturally responsive spatial solutions. These findings can support design professionals in creating environments that are not only functional but also meaningful and inclusive, ultimately contributing to enhanced user well-being and satisfaction.

The environment, much like human beings, is subject to continual change and development. The dynamic interaction between humans and their environments plays a decisive factor that shapes how interior spaces are perceived, used, and designed. Interior space thus becomes a tangible reflection of this relationship. Designers respond to these evolving interactions by producing spatial solutions that are sensitive to the diverse and changing needs of users. In this process, the individual is positioned at the center, with scientific data serving as a guide for achieving effective, evidence-based outcomes.

Understanding the human-environment relationship necessitates an in-depth examination of how individuals interact with their surroundings. Interior spaces are not merely physical containers defined by walls and boundaries, but holistic environments where social, psychological, and emotional dimensions converge. In these spaces, people form their identities and express their lived experiences. Therefore, interior design must go beyond the physical configuration and incorporate the psychological and sociological dynamics of users.

In conclusion, this research not only maps where the field has been but also illuminates where it must go—toward more integrated, data-informed, and human-centered approaches to space and environment design.

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