Review Article

Urban Landscape Reading Approaches:

A Systematic Review of Conceptual Model Development*

Mahdi Hoseinzadeh**

Department of Landscape Architecture, Faculty of Architecture, College of Fine Arts, University of Tehran, Tehran, Iran

Seyed Amir Mansouri

Department of Landscape Architecture, Faculty of Architecture, College of Fine Arts, University of Tehran, Tehran, Iran

Abstract | The urban landscape, as a multidimensional (holographic) phenomenon, emerges from the simultaneous interaction of the city's physical form and the observer's (citizen's) perception. Professional reading of the landscape relies on landscape knowledge and requires a holistic understanding of the city. This study systematically reviews various approaches to reading the urban landscape, analyzing them along a spectrum from reductionist to holistic. Reductionist approaches focus on the detailed examination of urban components and either the objective or subjective space features. In contrast, comprehensive approaches integrate both objective and subjective dimensions to achieve an integrated understanding of the urban environment. Holistic approaches, however, perceive the urban landscape as a unified entity shaped by human spatial perception. The aim of this study is to investigate different approaches to reading urban landscapes through a systematic process of searching, selecting, analyzing, and evaluating scholarly sources. This study employed a qualitative methodology to identify relevant sources from reputable national and international academic databases. The approaches toward key concepts and models of urban landscape reading were categorized and evaluated through content analysis. Findings reveal that the evolution of urban landscape reading approaches is closely linked to the advancement of landscape knowledge. Holistic approaches, particularly those employing integrated methodologies, provide the most comprehensive frameworks for studying the urban landscape. Furthermore, the interrelation of these approaches highlights the necessity of multidimensional analysis. Ultimately, reading the urban landscape as a multilayered process requires the application of precise scientific models and tools. Integrating various methods within a systemic and holistic framework contributes to a meaningful and enduring understanding aligned with the city's identity, essential for effective planning, management, and place-based urban interventions.

Keywords | *Landscape Architecture, Urban Landscape, Urban Landscape Reading, Landscape-Based Approach.*

Introduction| Urban landscape is a descriptive construct within the field of landscape architecture, referring to a process that results from the interface between human beings and the city. As such, humans not only shape the visual landscape of the city through their actions and activities but are also influenced by the urban landscape through their behavioral and perceptual experiences (Lazarevic et al., 2017, 4).

While early definitions of urban landscape focused primarily on the physical, objective aspects of the city, the concept has gradually evolved alongside advances in the discipline. Urban landscape can now be understood as a form of knowledge about the city that is shaped by the lived experiences of its citizens—citizens who have historically inhabited these environments and who, through their interaction with both natural and built forms, have constructed meaningful spatial associations that are essential to the continuity of their lived identity (Mansouri, 2010).

Professional reading of the urban landscape is grounded in landscape knowledge and requires a holistic understanding of the city. In this process, the urban landscape reader (landscape specialist) engages with both

**Corresponding author: +989156006436, mahdi.hoseinzadeh@ut.ac.ir

the city's physical structure and the citizens' perceptual experiences. A systematic review of different approaches to urban landscape reading is essential in order to compare the overarching paradigms of various disciplines that address the city and to trace the development of associated concepts, definitions, and interpretive models.

Research Questions

This section defines the central research questions clearly to guide the systematic search and selection of literature. The main questions of the study are as follows:
- What are the different approaches to reading the urban landscape, and how are they applied in urban landscape analysis?
- What are the strengths and weaknesses of existing approaches and conceptual models for reading the urban landscape?

Research Method

This qualitative study, conducted through a systematic review approach, aims to analyze and examine various approaches to urban landscape reading. The research involves several stages, including the search, selection, analysis, and evaluation of scientific sources. To identify relevant literature, reputable academic databases, including Google Scholar, Scopus, Web of Science, and ScienceDirect, as well as reliable domestic journal portals, were utilized. The primary search keyword was Urban Landscape Reading.

Ultimately, out of 356 sources, 55 high-quality and relevant publications were selected for detailed analysis. These sources were examined and categorized based on key concepts and models related to urban landscape reading.

Accordingly, in order to conduct a more in-depth investigation of the research domain, the study first explores different approaches to understanding and reading the urban landscape. Then, the models and tools associated with each approach are identified and categorized. Finally, the criteria and indicators for studying the urban landscape are presented based on the reviewed approaches. Furthermore, the existing approaches to urban landscape reading are compared, their strengths and weaknesses are identified, and the developmental trajectories of these models over time are analyzed.

Typology of Urban Landscape Reading Approaches

The paradigm of each disciplinary domain defines its interpretive framework toward urban phenomena. An approach refers to the overall conceptual lens or theoretical orientation; a method determines how tasks are performed, and a process outlines the step-by-step responses to a research problem.

Urban landscape, as a spatial and environmental domain, has been addressed by various disciplines in recent years, including architecture, urban planning, urban design, urban conservation, geography, environmental and landscape design, sociology, and environmental psychology. Each discipline contributes a unique perspective on the understanding and reading of urban landscape.

Among these, landscape architecture stands out as the most recent discipline that has approached urban landscape reading with a renewed definition of place, and by extension, city. This perspective aims to provide a more reality-based understanding of urban space by addressing the limitations of other disciplines.

Compared to its neighboring disciplines, which tend to focus less on the role of the cognizing subject, landscape architecture offers both a distinct epistemological stance and a methodological differentiation in its reading of urban landscapes (Hashemizadegan et al., 2020).

Based on the evolution of the urban landscape concept (Kasravi & Hashemizadegan, 2023), urban specialists have engaged with a variety of approaches, each emphasizing different aspects of the urban environment. According to the findings of this research, these approaches can be conceptually categorized into nine distinct typologies, which are explained in detail below:

• **Objective-visual approach**

This approach focuses on analyzing the visual and aesthetic aspects of the urban landscape. It investigates design elements such as proportion, rhythm, texture, color, and spatial composition to generate desirable visual impacts. Gordon Cullen (1961), in "The Concise Townscape", emphasized the connection between architectural forms, aesthetic perception, and the identity of place. He introduced the concept of "Serial Vision," which describes the aesthetic experience arising from the sequential transformation of urban images.

A study by Dorn de Oliveira et al. (2023) in Igüi, Brazil, examined citizens' emotional and visual responses to urban spaces, revealing that well-proportioned urban design can enhance not only visual appeal but also social functioning and well-being.

Simon Bell (2012), in his book, explored fundamental visual elements such as point, line, plane, and volume, underscoring the importance of organizing visual patterns in landscape design. Kamran Zekavat (2006) further discussed concepts such as visual corridors, visual coherence, and the design of visual gateways, all of which play critical roles in urban perception and visual management.

• **Subjective-cognitive approach**

This approach centers on the mental perception and cognitive processing of urban spaces by users. It pays particular attention to the formation of mental maps and their relationship with the physical environment.

Kevin Lynch (1960), in "The Image of the City", introduced five key elements—paths, edges, nodes, districts, and landmarks—for perceptual analysis of the urban landscape. He argued that a city's visual quality and legibility directly influence the urban experience.

Juhani Pallasmaa (2012), in "The Eyes of the Skin: Architecture and the Senses", stressed the significance of multi-sensory experience in the perception of architectural and urban spaces. He asserted that spatial design should engage not only the sense of sight but also hearing, smell, and touch.

• **Ecological-environmental approach**

This approach emphasizes the interaction between nature and the city, advocating for sustainability and the coexistence of natural and urban systems. Ian McHarg (1969), in "Design with Nature", recommended an urban design that aligns with natural features and promotes ecosystem health. He employed layered analysis to integrate ecological data into landscape planning.

Recent decades have challenged the dichotomy between nature and the city, showing their inseparable relationship (Cronon, 1992; Heise, 2016). The collection "Rethinking the Urban Landscape" (Way et al., 2022) explores the redefinition of urban-nature relations, advocating collaboration between the humanities and natural sciences. These studies also highlight the continuity between urban and rural areas, recognizing peripheral zones as integral to the urban landscape.

Paradigm shifts in urban landscape studies have encouraged scholars to rethink key concepts such as city, nature, culture, and environment (Brenner, 2009). The approach's simultaneous analysis of urban and ecological processes has opened new horizons for architectural history, urban studies, and environmental thought.

• **Semantic-cultural approach**

This approach emphasizes the analysis of meaning and cultural identity embedded in urban spaces. It recognizes the significance of history, culture, and social values in shaping the urban landscape.

Christian Norberg-Schulz (1980), in "Genius Loci: Towards a Phenomenology of Architecture", highlighted the importance of the "spirit of place" (Genius Loci). He asserted that urban spaces should reflect the historical and cultural identity of a society. From this perspective, the urban landscape functions as a semantic structure that communicates cultural and identity-based values to users.

Henri Lefebvre (1991) introduced the concept of "lived space," focusing on human experience and how people ascribe meaning to urban environments. Naser Fakouhi (2004) argued that urban spaces are the product of complex social and cultural interactions, viewing the urban landscape not merely as a physical structure but as a socio-cultural framework.

Kourosh Golkar (2008), in his article "Conceptual Evolution of Urban Visual Environment; From Cosmetic Approach Through to Sustainable Approach", traced the evolution of landscape design from decorative to sustainable approaches. He defined the visual environment as beyond mere aesthetics, emphasizing human interaction, sensory experience, and deeper spatial meanings. His critique of ornamentalism underscores the importance of sustainable design as a comprehensive response to environmental and human challenges.

• **Functional approach**

This approach analyzes the functional aspects of urban spaces in addressing the diverse social, economic, and cultural needs of users. It views the urban landscape as a functional system designed to meet citizens' demands, including transportation, housing, and recreation.

Jan Gehl (2010), in "Cities for People", emphasized the creation of high-quality public spaces that enhance social life and human activity. He advocated for human-centered design that is inclusive and accessible for all users, including children, the elderly, and people with disabilities.

Jane Jacobs (1961), in "The Death and Life of Great American Cities", highlighted the role of streets and public spaces in promoting social interaction and urban vitality. Wang & Foley (2021) demonstrated that the spatial structure and functionality of the urban landscape—including scale, proportion, and spatial organization—play key roles in its interpretation.

• **Phenomenological approach**

This approach focuses on individuals' lived experience of urban spaces, emphasizing subjective experiences, emotions, and the symbolic meanings users attribute to space. It aims to analyze feelings, memories, and interpretations that people associate with urban environments. Environmental psychology theories are relevant to this perspective.

Martin Heidegger (1971) and Christopher Alexander (1977) emphasized the human experience and non-measurable qualities of space. Alexander (ibid.), in "A Pattern Language", explored how spatial qualities influence the sense of place and human interaction.

Relph (1976) and Canter (1977) proposed a synthesis of objectivity and subjectivity in analyzing urban landscapes. Their central concept of a "sense of place" remains foundational. In "Place and Placelessness", Relph (1976)

approached the question of how and why places acquire meaning for people. He identified three interrelated components of place: physical form, activity, and meaning, asserting that meaning holds the greatest significance and is the most challenging to grasp. Similarly, Canter (1977)'s tripartite model of place consists of activities, conceptions, and physical form, highlighting the individual dimensions of spatial perception.

• **Systemic-integrated approach**

The systemic-integrated approach conceptualizes the urban landscape as a complex system composed of natural, human, and artificial components. It emphasizes the interconnectedness of these elements in shaping an integrated and sustainable spatial experience.

Bacon (1976), in "Design of Cities", laid foundational principles for understanding the form and perception of urban space, highlighting the interplay among physical, historical, social, and cultural components. His work underscores the psychological and perceptual dimensions of spatial experience. Similarly, Kostof (1991) emphasized the role of cultural and historical factors in shaping urban form, offering a narrative perspective on the development of urban landscapes.

Carmona (2009, 2019) proposed an integrative model linking urban form, function, and human experience. He argued that urban landscapes must achieve both aesthetic and functional coherence, thereby contributing to a sense of identity and belonging. His framework provides practical tools for the analysis and enhancement of urban landscape quality.

From a more philosophical stance, Benjamin's theory of memory and space positions urban landscapes as vessels of collective memory, integrating the past with the present through spatial forms (Valibeigi & Inanloo, 2021). This perspective highlights the interpretive role of context in the formation of urban meaning.

In the Iranian context, Heidari & Behbahani (2019) examined archaeological landscapes through perceptual and ecological layering, proposing integrative techniques for preserving historical coherence. Bahrami Hamedani & Taghvaei (2021) developed a landscape assessment framework based on the FVFL model, aligned with the Historic Urban Landscape (HUL) approach, bridging global preservation frameworks with local spatial identity. Collado Capilla & Gómez-Pardo Gabaldón (2018), adopting a European Landscape Convention (2000) perspective, defined urban landscape as the perceptual interface between humans and their environment. They distinguished between systemic elements (e.g., urban form, environmental physiology) and perceptive elements (e.g., street furniture, human activity), emphasizing the co-constitution of landscape identity through both tangible and experiential dimensions.

Faizi & Asadpour (2013) further expanded this by framing the urban landscape as a multilayered phenomenon encompassing physical, cognitive, emotional, and semantic aspects. Their research highlighted the semantic significance of high-rise structures in shaping urban identity.

Antrop & Van Eetvelde (2017), in "Landscape perspectives: The holistic nature of landscape", stressed the holistic and multisensory nature of the landscape, advocating for a return to multidimensional and interdisciplinary analyses that bridge objective spatial configurations with subjective human experience.

• **Semiotic approach**

The semiotic approach treats urban landscapes as cultural texts composed of signs and symbols that convey meanings embedded in historical, ideological, and social contexts. Rooted in linguistic and structuralist traditions, this perspective analyzes the triadic relationship between form, content, and interpretation.

Building on classical semioticians such as Peirce and Hjelmslev, Wang extended the semiotic model to landscape interpretation by identifying multiple layers of meaning—denotative, connotative, and ideological—embedded within spatial configurations (Sad Berenji et al., 2021; Wang, 2020). These models reflect the interrelations among physical forms, cultural symbols, and societal narratives (Raaphorst et al., 2016; Sojoudi, 2011). This approach, supported by theoretical models such as Peirce's triadic theory (object, sign, and interpretant), along with the analysis of concepts like simulacrum and hyperreality, and Foucault's notion of power/knowledge, explores the semantic complexities of the urban landscape and its social implications (Rose, 2012; Raaphorst et al., 2018).

Barthes (1972) and de Certeau (1984) pioneered the metaphor of the city as a "text," suggesting that urban space is read and interpreted through its spatial syntax and symbolic structures. Barthes focused on the relationship between spatial form and user perception, while Derrida (1993), in "Memoirs of the Blind", investigated the interplay between visibility, signification, and architectural form.

Zekavat (2011) employed a hermeneutic-semiotic lens to decipher the urban landscape as a communicative system, capable of being decoded by users through visual and experiential cues. Karimi Moshaver et al. (2016) explored the role of symbols and functions in urban streetscapes, arguing that perceptual and symbolic coherence enhances the experiential quality of the urban environment.

Popa & Enache (2019) emphasized the role of semiotic decoding in sustainable development, particularly in rapidly transforming urban landscapes. By identifying and interpreting identity-forming structures, their study

offers a tool for preserving urban character amid global change.

Lavrenova (2024) reinforced this perspective by proposing the metaphor of intertextuality, in which urban meanings are constantly reconfigured through both global narratives and local memory. This nonlinear reading enables users to construct multi-layered interpretations of space, fostering a pluralistic and dynamic urban identity.

• **Landscape-based (Holistic-systemic) approach**
The landscape-based approach to the city is a holistic perspective that integrates both objective and subjective dimensions. Within this framework, the urban landscape is perceived as an objective-subjective phenomenon emerging from the interaction between human beings and their environment. Neither the physical form of the city nor the perceptions of its inhabitants carry meaning independently; rather, their significance is completed through mutual interaction (Zandieh & Goodarzian, 2014). One of the key strengths of this approach lies in its consideration of temporal, spatial, and natural dimensions in understanding the city. Urban landscape is the result of an ongoing interplay between human presence and the natural-historical context, shaped continuously over time. This entwinement of nature and history renders the urban landscape a dynamic phenomenon, rooted in both past and present (Mansouri, 2005). The city is not merely a collection of disjointed elements, but a coherent whole whose internal relationships enhance citizens' spatial understanding and attachment. The more extensive and meaningful these interconnections, the stronger the urban identity perceived by its residents (Adelvand et al., 2016). In their applied study "Order: The main element in the scientific analysis of avenue landscape", Atashinbar et al. (2013) propose a framework to quantify the concept of landscape in the street — the city's most perceptible element — thus enabling its scientific evaluation. They analyze urban landscape based on spatial organization as a system and assert that "the complexity of urban dimensions has made the systemic approach an essential analytical tool for identifying key urban elements." Their research positions the street as the principal structural component of the city. Similarly, Hosseinzadeh et al. (2021), in a comparative study of the Bala-Khiaban and Paeen-Khiaban districts of Mashhad across three historical periods, applied a landscape-based approach to interpreting the urban landscape, demonstrating how a systemic reading enables the identification of landscape wholes and units.

Bernard Lassus (1998) emphasized the creation of dynamic interactions between humans, nature, and the built environment. His approach advocates for spaces that recognize cultural diversity while allowing critical reflection on the role of power in shaping public space.

Augustin Berque (1995, 2013), in turn, adopted a holistic and interdisciplinary perspective to reading landscapes, treating them as cultural, historical, and semantic constructs. He posits that landscape is not merely an external environment, but a relation—a space where humans and nature interact through cultural, social, and perceptual practices. His concept of médiance refers to the mediating role between humans and their environment, emphasizing that landscape must be understood through human and cultural experience.

Sprin (2008) defined landscape structure as the relationship between parts and the whole, enabling comprehension of the broader system. Hierarchical ordering, by making certain features subordinate to others, introduces coherence and legibility to the landscape. Karimi et al. (2023), in their article "Recognition of the components of the urban landscape visual system elements and values", conceptualize the urban landscape as an objective-subjective phenomenon shaped by human perception of form and activity. Their framework integrates visual data (acquired primarily through vision) with experiential and cognitive dimensions to define urban meaning. They focus on the role of human activity alongside the built form and propose a system for analyzing visual elements and aesthetic values—such as coherence, beauty, legibility, vitality, and identity—in urban landscapes.

• **Synthesis and classification of urban landscape reading approaches**
Urban landscape reading approaches may be analyzed through various theoretical lenses, ranging across a spectrum from reductionist to holistic paradigms. The nine major approaches referenced above can be positioned along this continuum. This typological spectrum reflects the inherently graded nature of concepts such as holism, comprehensiveness, and reductionism; no approach can be wholly reductive or fully holistic. Rather, each disciplinary framework expresses varying degrees of generality or specificity in its interpretation of urban phenomena.

Accordingly, urban landscape reading approaches can be categorized into three conceptual tiers: reductionist, comprehensive, and holistic (Fig. 1). It is important to note that the evolution of urban landscape reading approaches closely parallels the intellectual development of landscape studies. As landscape thought has advanced, the methodologies used to interpret urban landscapes have increasingly shifted toward holistic paradigms.

The reductionist approach, which is clearly traceable in certain urban planning perspectives, focuses on the study of the individual components constituting the city. This approach seeks to achieve a precise understanding of the urban environment through the analysis and

examination of its various elements. In this view, each component is studied separately to gain better insight into the functioning of the city. This type of reading places greater emphasis on the objective and tangible features of space, and pays less attention to subjective dimensions or individual experiential aspects of space.

Another group within this classification prioritizes subjective aspects and is mainly observable in disciplines such as psychology, social sciences, and sociology. This perspective endeavors to analyze the urban landscape based on individual psychological and cognitive perceptions. Scholars adhering to this approach emphasize the effects that the environment exerts on human psychology and how these influences shape the perception and experience of the city. In this perspective, material aspects of space are considered secondary, and the focus is primarily placed on mental and perceptual experiences of individuals.

The comprehensive approach simultaneously examines both objective and subjective dimensions of space, analyzing them as separate layers. This approach is predominantly found in architectural studies, urban design, and environmental design. In this perspective, each layer is studied independently, yet experts in the field still consider these layers as integral parts of a larger whole. However, a potential limitation of this category of studies is that the sum of various components may be mistaken for a comprehensive understanding of urban space, whereas an understanding of parts alone cannot lead to a full comprehension of the whole.

The holistic approach, wherein scholars argue that human perception of spatial objectivity can lead to the production of new meanings of those objective dimensions, adopts a different stance toward the urban landscape. In this view, human perception of space is conceived as a synthesis of subjective and objective experiences, and this process leads to the creation of a new spiritual or existential dimension of space that is dependent on the audience's perception

and lived experience. In fact, the subjectivity that emerges from human encounters with the objectivity of space gives rise to new meanings, encompassing emotions, symbolic interpretations, and cultural and social associations.

A distinctive characteristic of landscape is its capacity to scientifically articulate the holistic perspective. The philosophical concepts of holism, grounded in existential ontology, have been discussed by philosophers from classical antiquity to the present. However, the application of these ideas in practice can be attributed most significantly to the field of landscape. The proposition of place as geography interwoven with history introduced the first non-physical interpretation of space. The holistic view refrains from separating the objective and subjective aspects of space, as it regards them not as two distinct facets but rather as two interpretations of a single, unified reality (Van den Brink et al., 2020). In Table 1, a classification of various approaches to understanding and interpreting the urban landscape is presented.

Findings Analysis

Different approaches to urban landscape reading emphasize specific aspects of understanding and analyzing this concept; however, despite their distinctions, there are systematic connections between them that allow for synergy and complementarity. For example, the ecological-environmental approach, which focuses on environmental sustainability, can provide data and principles that support the semantic-cultural approach, ensuring that sustainable environmental designs also reflect local and historical identities. On the other hand, the visual-objective and cognitive-subjective approaches, when analyzing the interactions between form, perception, and emotions of users, have the potential to complement each other. These connections indicate that the analysis of the urban landscape requires a multidimensional and
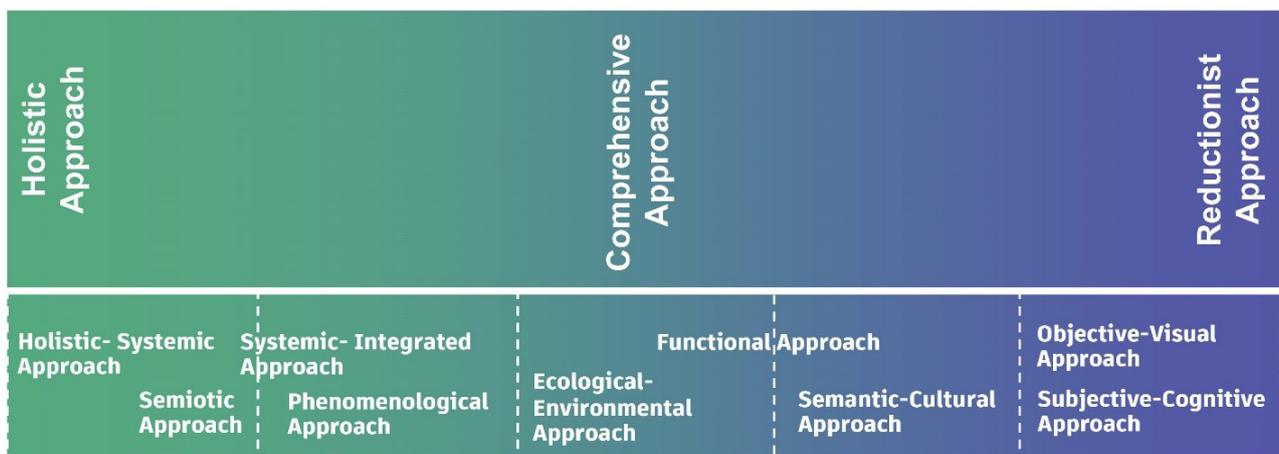

Fig. 1. Spectrum of disciplinary approaches across architecture, urban planning, urban design, urban restoration, geography, environmental design, landscape architecture, sociology, psychology, and landscape studies. Source: Authors.

Table 1. Typologies of urban landscape reading approaches. Source: Authors.

	Approach	Description	Researchers & Sources
The Reductionist Approach	Visual–Objective Approach	Focuses on analyzing visual and objective aspects of the urban landscape. Emphasizes forms, proportions, colors, and spatial composition to create proper visual impacts.	Cullen (1961), Dorn de Oliveira et al. (2023), Bell (2019), Zekavat (2006)
	Cognitive–Subjective Approach	Investigates the mental processing and perception of urban spaces and mental maps, emphasizing their relationship with real environments.	Lynch (1960), Pallasmaa (2005)
The Comprehensive Approach	Ecological–Environmental Approach	Examines the interaction between natural and urban environments and environmental sustainability.	Cronon (1992), Heise (2016), McHarg (1969), Brenner (2009), Way et al. (2022)
	Cultural–Semantic Approach	Focuses on the analysis of cultural identity and meaning in urban spaces and their influence on users.	Norberg-Schulz (1980), Lefebvre (1991), Golkar (2008), Fakuhi (2004)
	Functional–Operational Approach	Analyzes the functional performance of urban spaces to meet various social, economic, and cultural needs.	Jacobs (1961), Gehl (2010), Wang & Foley (2021)
The Holistic Approach	Phenomenological Approach	Emphasizes individuals' lived experience of urban spaces and their perception through emotions, memories, and symbolic meanings.	Heidegger (1971), Alexander (1977), Relph (1976), Canter (1977)
	Systemic–Integrated Approach	Views the urban landscape as a complex system composed of diverse elements and relationships aimed at understanding synergies and interactions.	Bacon (1976), Kostof (1991), Corner (1999), Carmona (2009, 2019), Valibeigi & Inanloo (2021), Heidari & Behbahani (2019), Collado Capilla & Gómez-Pardo Gabaldón (2018), Antrop & Van Eetvelde (2017), Faizi & Asadpour (2013), Bahrami Hamedani & Taghvaei (2021)
	Semiotic Approach	Analyzes the urban landscape as a social text through signs and symbols that communicate specific meanings.	Barthes (1972), de Certeau (1984), Derrida (1993), Wang (2020), Raaphorst et al. (2016), Raaphorst et al. (2018), Rose (2012), Lavrenova (2024), Popa & Enache (2019), Karimi Moshaver et al. (2016)., Sad Berenji et al. (2021), Sojoudi (2011), Zekavat (2011)
	Landscape-Based Approach (Holistic–Systemic)	Presents an evolved and refined model integrating all previous approaches, grounded in the logical advancement of landscape knowledge. Emphasizes how human perception of spatial objectivity generates new meanings and spatial dignity.	Lassus (1998), Berque (1995, 2013), Mansouri (2005), Zandieh &, Goodarzian (2014), Adelvand et al. (2016), Atashinbar et al. (2013), Hoseinzadeh et al. (2021), Spirn (2008), Karimi et al. (2023)

interdisciplinary approach that draws on all of these perspectives.

In current approaches, fundamental gaps such as the lack of comprehensive frameworks and interdisciplinary data are evident. Many studies, particularly in the subjective and phenomenological fields, face limitations in providing generalizable and practical results due to excessive reliance on individual interpretations.

Additionally, research related to ecology and sustainability often lacks attention to cultural meanings and social identities.

The reading of urban landscapes is a process in which the various elements of a city's landscape are analyzed in an interconnected and holistic system, requiring a systemic model for a deeper understanding. In this section, the background research on urban landscape reading models

Table 2. Comparison of models and tools for reading urban landscape: strengths and weaknesses of each. Source: Authors.

	Urban Landscape Reading Approaches	Urban Landscape Reading Models	Urban Landscape Reading Tools	Strengths	Weaknesses
1	Visual-Objective Approach	Visual analyses, visual sequences	Urban maps and images, façade and silhouette analysis. Visual assessment questionnaires	Accurate analysis of physical and visual aspects; provides a framework for visual design of spaces.	Focusing on objective dimensions, neglecting cultural and social aspects, and limitations in analyzing lived experience.
2	Cognitive-Subjective Approach	Mental maps, multisensory experience	Drawing mental maps: users are asked to depict a mental image of a city or a specific area. Structured interviews to collect qualitative data about users' perceptions of space.	Deep understanding of user experience and mental processes related to urban space.	Neglecting other senses and focusing more on visual perception, ignoring social and cultural dynamics, ignoring the dynamics and changes of cities.
3	Ecological-Environmental Approach	Layered analysis, ecosystem management	Use of GIS technology, quantitative and qualitative life cycle assessment studies, and environmental impact analysis.	Focusing on sustainability and environmental harmony, the design of spaces resilient to environmental changes.	Neglecting human and cultural dimensions, excessive focus on environmental sustainability.
4	Semantic-Cultural Approach	Spirit of place, historical-cultural analysis	Analysis of historical texts, ethnography, and social media content analysis.	Identification of cultural and social identity of spaces; attention to symbolic and historical values.	Complexity in analyzing meanings, difficulty in applying practical results.
5	Functional-Operational Approach	Spatial function evaluation, human and infrastructural usage analysis	Behavioral pattern analysis tools (e.g., movement observation cameras), Behavior and activity monitoring systems.	Providing practical solutions for improving space functionality; meets diverse user needs.	Focusing on functionality, neglecting aesthetic and semantic aspects, a mechanical view of space.
6	Phenomenological Approach	Cognitive mapping, analysis of lived experiences, sense of place, perceptions, and human experiences	In-depth interviews to understand users' lived experiences of space, Participatory observation: Researchers engage in the urban environment and record human interactions. Tools for recording lived experiences, such as videos and photos. C-IMAGE study using geotagged images for urban image analysis. Use of social media data for analyzing collective perception of cities.	Attention to the user's lived experience and the human meaning of space; comprehensive analysis of sense of place.	Subjectivity of analyses, difficulty balancing individual experience with a general perception of space by the community.
7	Systemic-Integrated Approach	Complex system analysis, multi-layered models	Hierarchical analysis (AHP): for weighting and prioritizing diverse criteria. GIS and location-based systems for analyzing quantitative data and matching them with maps. Surveys and questionnaires: for collecting qualitative and quantitative data from users. Network analysis.	Integrating all dimensions of the urban landscape (physical, cultural, environmental, functional, etc.); allows for comprehensive and holistic planning.	Complexity in analyzing interactions requires advanced data and tools.

Rest of Table 2.

	Urban Landscape Reading Approaches	Urban Landscape Reading Models	Urban Landscape Reading Tools	Strengths	Weaknesses
8	Semiotic Approach	Decoding symbolic meanings, analyzing the connection between symbols and urban identity. Reading the city as a text.	Linguistic and artistic critique tools. Text and content analysis tools.	Provides a deep understanding of symbols and signs; attention to communicative messages of space.	Requires cultural and historical knowledge, potential for varied interpretations of signs.
9	Landscape-Based Approach (Holistic-Systemic)	The spatial organization model as a complete system forming the city, identifying elements, structures, and landscape units	Expert observation. Reviewing and studying historical documents, Linguistic and artistic critique tools, Text and content analysis tools. In-depth 360-degree interviews.	Analysis of relationships and interactions among different elements; understanding the whole unit.	Difficulty in integrating various dimensions, time-consuming analysis.

and tools is classified (Table 2), and each is examined in terms of its strengths and weaknesses.

Conclusion

The examination of various urban landscape reading approaches demonstrates that this concept, due to its multidimensional nature, has been an alyzed from diverse perspectives. The visual-objective approaches focus on the physical dimensions of space, while the cognitive-subjective and semantic-cultural approaches explore the mental perception and social identity of urban spaces. Additionally, ecological-environmental and functional approaches emphasize environmental sustainability and social functions, while phenomenological and semiotic approaches investigate lived experiences and symbolic meanings of space. Holistic and integrated approaches, by synthesizing these dimensions, have been able to offer a more comprehensive understanding of urban landscapes. These approaches highlight the necessity of unifying the physical, cultural, and environmental elements to achieve a more genuine understanding of urban landscapes. Furthermore, the interaction between humans and the environment in these approaches is recognized as a fundamental principle, emphasizing the reciprocal influences between human experience and spatial structure. The analysis of urban landscape reading approaches reveals that these approaches can be classified along a spectrum, from component-focused to holistic. Component-focused approaches are more concentrated on the precise analysis of the individual elements of the city and emphasize the objective and tangible characteristics of space. In contrast, holistic approaches, by synthesizing the objective and subjective dimensions of space, aim to provide a comprehensive (objective-subjective) understanding of urban landscapes. The relationship of these approaches with the evolution of landscape knowledge indicates that as this knowledge has grown, there has been an increasing tendency toward more holistic approaches. In this spectrum, the comprehensive approach seeks to analyze the different dimensions of space as separate layers. However, this approach, in some cases, fails to adequately integrate these layers and present a cohesive overall view. On the other hand, holistic approaches, by focusing on human perception of space, combine individual and social experiences with the physical and environmental aspects, presenting the urban landscape as a unified whole. Ultimately, the study of urban landscapes as a multi-layered process requires the use of precise scientific models and tools. The integration of various methods within a holistic, systemic framework contributes to meaningful, sustainable understanding in line with the city's identity, which is essential for any type of planning, management, and spatial intervention in urban spaces.

Declaration of No Conflict of Interest

The authors declare that they have no conflict of interest in conducting this research.

Endnotes

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