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Case Study

Affordances and Their Roles in the Conservation Process of Historic Urban Squares in Iran

(A Case Study of "Ganjali Khan Square, Kerman)*

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Abstract

Problem statement: Public spaces in general—and historical urban spaces in particular—are closely linked to users' behavioral patterns and needs. Perceived capability (affordance) is a key concept in environmental psychology that helps explain the relationship between user behavior and environmental features. One of the central challenges in the conservation of urban heritage in Iran, especially in historical squares, is the predominant reliance on top-down planning and directives from higher authorities. However, stakeholder engagement and their interactions with the environment play a critical role in the conservation of urban and historical spaces. The concept of affordance offers valuable insights into how stakeholders perceive and engage with spaces such as Ganjali Khan Square—a historic urban square—and can inform more participatory, bottom-up conservation approaches.

Research objective: This study aims to identify and interpret the perceived affordances of Ganjali Khan Square in Kerman as a public historical urban space, in order to inform conservation and restoration strategies.

Research method: In this applied research, stakeholders' perceptions of the characteristics of Ganjali Khan Square were collected through semi-structured, open-ended interviews. These perceptions were then categorized using the Gaver model of affordance classification. Through a process of logical reasoning and refinement via focus group discussions, the affordances were prioritized, and general strategies were proposed for use in conservation and revitalization planning.

Conclusion: The findings demonstrate that understanding the affordances of historical spaces—and how they are perceived by stakeholders—can significantly enhance conservation decision-making. Classifying these affordances into three categories—perceived, false, and hidden—provides conservationists with critical insights that can shift the conservation process toward more inclusive, bottom-up approaches.

Keywords: *Urban Heritage Conservation, Bottom-up Planning, Affordance Theory, Historical Urban Squares, Ganjali Khan Square, Kerman.*

Introduction

Users' and stakeholders' perception of the environment plays a crucial role in their behavior toward it and in shaping their expectations and

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needs. The more an environment provides suitable responses to their needs, the more value it holds in their view.

Contemporary approaches to heritage conservation from the perspective of historic urban environments emphasize participatory processes. On the other hand, urban heritage conservation is a complex process that ideally entails preserving all the values of the urban environment while simultaneously addressing the needs of multiple stakeholders and social groups, each of whom interacts with and utilizes the environment in some way. A good city, after all, has the duty to meet the needs of its residents in accordance with temporal changes (Mozayeni, 2006, 28). Therefore, judgments regarding the conservation process and its success are always based on the extent to which the values of the conserved subject have been preserved (Hazen, 2009, 169).

Coordinated, bottom-up approaches based on diverse cultural heritage values, rather than pre-defined, top-down approaches, are considered suitable solutions for the revitalization and conservation of historic urban environments (Rodwell, 2014). However, urban interventions in historic squares in Iran have predominantly relied on top-down master plans, and addressing stakeholders' needs often focuses only on basic contemporary living requirements, without attention to the diverse Affordances of historic squares. These needs, in particular, change over time and must be continuously monitored and considered (Khajepour Galousalari & Hanachi, 2025).

Historic urban squares are among public urban environments that, in addition to intrinsic values, encompass a set of values related to contemporary life and dynamism. Alongside historical and past cultural values, they are actively linked to present-day functional values (including economic, scientific, anthropological, and other values). Different groups of users and stakeholders encounter historic squares with varying needs, and each group, according to its perception of the square's features, exhibits distinct behaviors in interacting with the environment. Therefore, a square can be considered a space for the meeting of social groups, to stimulate social life (Ghaedrahmati & Nejati, 2019).

To understand stakeholders' needs in a historic square, specific methods grounded in established theories exist. One of these methods involves conducting interviews in various formats (particularly unstructured or semi-structured open-ended interviews) based on the hierarchy of needs proposed by Abraham Maslow. This approach has been widely applied in historical and cultural heritage spaces. However, the main issue in such processes is the relationship between stakeholders' perception in a historical space and their needs with the features and Affordances of the square, as a significant portion of these perceptions does not align with the features and, in particular, the diverse heritage values of the historic square.

Therefore, understanding stakeholders' perception of the Affordances of a square enables conservation planning to focus on managing this perception. Merely collecting stakeholders' opinions and their influence on the conservation process does not suffice for achieving optimal conservation. This is due to both the lack of familiarity of all stakeholder groups with the square's values and the accepted principles of heritage conservation. Consequently, stakeholders' opinions, based on their perception, may, if integrated into the conservation process, not only be unhelpful but may also conflict with the overarching goals of conservation (Khajepour Galousalari & Hanachi, 2025).

Research Background

Studies on historic urban landscape conservation have generally focused on the city, the concept of the city, and methods of conservation interventions in historic cities. Among the most significant are the works of Rodwell (2014), Bandarin & Van Oers (2012). Pulles et al. (2023), in a study on emerging strategies for the contemporary adaptation of historic urban places, examined seven

key drivers that yielded notable results. These seven drivers include: 1) user participation, 2) top-down perspective, 3) enriched places, 4) sustainability and reuse, 5) transformation and change, 6) urban fabric, and 7) quality of life. Their findings indicated that among these factors, user participation had the most positive impact, while the top-down approach had the most negative influence on the contemporary adaptation processes. These results highlight the importance of users' needs and desires and their influence on development projects within historic urban fabrics. Pourbahador & Brinkhuijsen (2023) also identified and analyzed five key principles for heritage management and the continuity of cultural heritage values from international documents: 1) raising awareness, 2) encouraging participation, 3) sustainable development, 4) managing change, and 5) continuous and ongoing monitoring of heritage.

James Gibson, Donald Norman, and William Gaver are among the most prominent theorists who have studied Affordances and their perception. Gibson argued that environmental affordances are fixed and not altered by the observer's needs; rather, they are phenomena inherent in the ecological properties of nature (Mohammadi et al., 2017).

Norman (1999, 39), departing from Gibson's definition, extended the meaning of affordance to both the actual and perceived properties of objects, considering each individual's perception—with all personal and cultural biases—as a component of affordances.

Similarly, Gaver, like Gibson, maintained that affordances (i.e., the possibility of an action in an environment available to entities) exist independently of users' perception; whether an observer perceives them or not, they are inherently present in the environment. Gaver also argued that culture, experience, and learning influence the perception of actual affordances, which are largely shaped by users' cultural background, prior experiences, and intentions (Gaver, 1991, 81).

In the context of built environments, Alwah et al. (2021) provided a quantitative tool for measuring the extent to which public spaces respond to users' needs. Alexander Koutamanis (2006), in his study titled Buildings and Affordances, addressed the relationship between affordances and buildings. A significant part of his study focused on the role of users in identifying affordances that a building—or parts of it—could provide.

Daneshgarmoghaddam & Eslampour (2013) examined the theory of environmental affordances from Gibson's perspective within the domain of human and built environment studies, reviewing various theorists' definitions of environmental affordances and the concept's place in environmental design. Emamgholi et al. (2013), in a study on environmental psychology as a shared domain of architecture and behavioral sciences, reviewed the history and development of environmental psychology.

Maier et al. (2009), in their research titled An affordance-based approach to architectural theory, design, and practice, concluded that the concept of perceived affordances is an established concept from ecological psychology that can serve as a conceptual foundation and unifying framework for theory, design, and practice in architecture. Stevens et al. (2024) emphasized that most applications of affordance theory tend to focus on design affordances, with less attention to "functionality," in the context of designing for public spaces.

Alves (2014) introduced the concept of perceived affordances into historic urban landscapes, examining the interaction between humans and their past from an ecological perspective. She analyzed tangible and intangible cultural heritage and their affordances, citing examples of material usage, architectural structures, and passage formation at the Çatalhöyük archaeological site, and explored the relationship between the reasons for their formation by residents and the affordances they perceived.

Amar (2017), in her doctoral dissertation at Bond University, Australia, titled Conservation of Cultural Built Heritage: An Investigation of Stakeholder

Perceptions in Australia and Tanzania, focused on stakeholders' perceptions of tangible cultural heritage. Although this dissertation did not directly address perceived affordances, it emphasized and investigated stakeholders' perception—the foundational context of affordances. He concluded that stakeholders' perception is a key factor for achieving sustainability in built heritage conservation. He further argued that heritage management systems should not limit themselves to a value-based approach but must also consider stakeholders' perceptions to address potential conflicts in decision-making processes.

Bareither (2021) demonstrated that emotional affordances in historic sites and interaction with digital media can shape visitors' experience and memory. Other studies indicate that perceiving spatial and functional features of heritage buildings and sites enables visitors to engage meaningfully with the environment and gain richer emotional and cognitive experiences (Gallou et al., 2022; Mulder et al., 2022). Recent research also shows that leveraging interactive affordances in digital and virtual reality environments can enhance heritage technology adoption and facilitate visitor engagement and learning (Jia et al., 2023; Lee et al., 2025). Moreover, the architectural design of historic sites considering affordances can strengthen spatial experience and human-environment interaction (Djebbara et al., 2024). Consequently, attention to affordances in heritage conservation, management, and presentation provides the basis for creating meaningful and effective visitor experiences (Wang et al., 2024).

Khajepour Galousalari & Hanachi (2025) proposed a conceptual model for applying the concept of perceived affordances in historic urban squares. They argued that understanding stakeholders' perception of a square's six features (historical, physical, functional, visual, Meaning, and social) can provide information that, when categorized according to Gaver's model, enables better decision-making in the conservation process of the square.

The above studies can be categorized into two main groups. The first group includes theoretical and empirical studies on perceived affordances within the paradigm of perception psychology, with Gibson, Norman, and Gaver as the principal researchers. The second group concerns the application of perceived affordances in cultural heritage, with Alves, Amar, Khajepour Galousalari & Hanachi, Djabbara, Wang, and others as examples. However, the necessity of implementing these principles on a tangible (or intangible) cultural heritage site to clarify details, demonstrate practical execution, and understand stakeholders' perception in context gives the present research its significance. Applying this strategy to a concrete subject, such as historic squares—which have the most diverse interactions among various types of cultural heritage and stakeholders, especially in Iran—can clarify the pathway to achieving these objectives and make stakeholder perception strategies more practical.

Therefore, in this study, the concept of affordance has been explicitly integrated into the conservation decision-making process of a historic urban square, and its results have been analyzed to determine its significance, impact, and the information it provides within a defined conservation action process.

Theoretical Foundation

The presence of diverse stakeholder groups in historic squares and participatory approaches, emphasizing bottom-up action, underscores the concept of a participatory process within a historic square. On the other hand, stakeholder groups change over time and across geographic space, simultaneously influencing the historic square and its features. Thus, these two factors are directly related to the behavior of stakeholder groups in a historic square as part of the historic urban landscape.

The behavior of stakeholder groups also depends on their perception of the environment. This perception is always influenced by two factors: their needs and the values derived from meeting these needs,

given the features of the square. Therefore, the relationship among the three components—square features, users' needs, and the values derived from addressing these needs—results in the perception of affordances in the environment, which varies among different stakeholder groups.

Given the importance of user and stakeholder participation in conservation processes, especially in the conservation of public urban heritage and historic squares, the concept of affordance and its relationship with users' perception of public environments has been examined and interpreted using the aforementioned approach, and its main concepts that contribute to the theoretical structure of the study have been presented. Since affordances are a dynamic perceptual process and the relationship between individuals and built environments develops over time, each person interprets the available information in the environment and perceives the practical possibilities suggested by that information. Consequently, affordances are transformed into knowledge that can support the relationship between the individual and the built environment.

- **Environmental affordances**

The term affordance was first introduced by James Gibson to describe the actionable properties and features between the environment and living beings (Bagheri 2014).

Environments, due to their constant change, are always rich in information and contain meanings far beyond what is immediately visible (Bell et al., 2005, 2). Despite their continual dynamism, environments are abundant in information, meaning that what is perceived from them is less than their actual meaning content (ibid.). The environments in which users are active have always been the subject of research aimed at analyzing the relationship between environmental variables and user performance (Bagheri 2014). Therefore, it can be argued that environments inherently possess affordances, which depend on users' perception. In environmental psychology literature, these types of affordances are often termed simply as "environmental affordances."

The role of perceived affordances in environmental design focuses on identifying activities that are possible or probable for users to perform, enabling responsive design from the environment (Liu & Lu, 2009, 43). From this perspective, understanding perceived affordances in a public space—particularly a historic square—not only aids in comprehending human needs but also makes the values derived from the environment's response to these needs observable and interpretable.

Gaver (1991), like Gibson, considers affordances independent of observers' perception; that is, whether perceived or not, they exist inherently in the environment. He also emphasizes that culture, experience, and learning play a crucial role in understanding affordances, and individuals' perception of them largely depends on social background, prior experiences, and objectives. Based on this approach, Gaver identifies three types of perceived affordances in the environment: perceivable affordances, false affordances, and hidden affordances.

In the field of cultural heritage and architecture, affordances serve as intermediaries between the physical features of a space and visitors' behavior, shaping experience, interaction, and environmental understanding (Bareither, 2021). These features encompass not only functional affordances of buildings and spaces but also sensory and emotional dimensions, enriching visitors' experiences and facilitating place-based memory recall (Gallou et al., 2022).

Theoretically, attention to spatial and functional affordances allows visitors to engage actively and purposefully with the environment, a process aligned with cognitive approaches and human physical interactions (Mulder et al., 2022; Djebbara et al., 2024). Moreover, the use of interactive and digital affordances in virtual reality environments and cultural heritage services enhances user learning and participation,

facilitating the adoption of innovative technologies (Jia et al., 2023; Lee et al., 2025).

In theory, affordances act as a bridge between physical features and visitors' cognitive, emotional, and social capacities, providing a basis for designing historical and digital environments that are both functional and experience-oriented (Wang et al., 2024). Accordingly, the affordance framework can serve as a foundation for theoretical and practical development in analyzing and designing visitor experiences in historic buildings, museums, and cultural heritage sites, as human experience in these spaces emerges from the interaction between environmental features and human perceptual and functional capacities.

- **The role of the conservator in identifying and classifying perceived affordances using Gaver's definition**

In the conservation decision-making process, the participation of stakeholders and users is considered essential and unavoidable; however, uncritical adherence to the majority opinion may lead to outcomes referred to in conservation literature as the "theme-park effect" (Vinas, 2018, 154). This effect refers to the physical or functional alteration of a historic site solely based on everyday needs or short-term preferences of users, without consideration of the site's core and authentic values. Under such circumstances, not only is the historical and identity continuity of the site compromised, but its authenticity is also threatened (Fig. 1).

Conversely, adopting a purely scientific approach based solely on specialized theories, without considering users' opinions and their lived needs, can also produce negative consequences. Many user needs in a historic square can be addressed while preserving the square's values and appropriately classifying them (Fig. 2). This approach, which reduces the conservator's role to that of a purely technical expert, disregards human interaction with the space and may result in the historic square becoming detached from the context of everyday life.

Fig. 1. Functional perception of the square's columns and façades, classified as a false affordance. Source: Author's archive.

Fig. 2. Functional perception of the arcade space in Ganjali Khan Square, classified as a perceivable affordance. Source: Author's archive.

Therefore, expert conservators, who possess both theoretical and practical mastery over the protected space, can serve as authoritative references for distinguishing, analyzing, and evaluating perceived affordances among different stakeholder groups (Fig. 3). Conservators' judgments are based not only on the overall values of the building but also

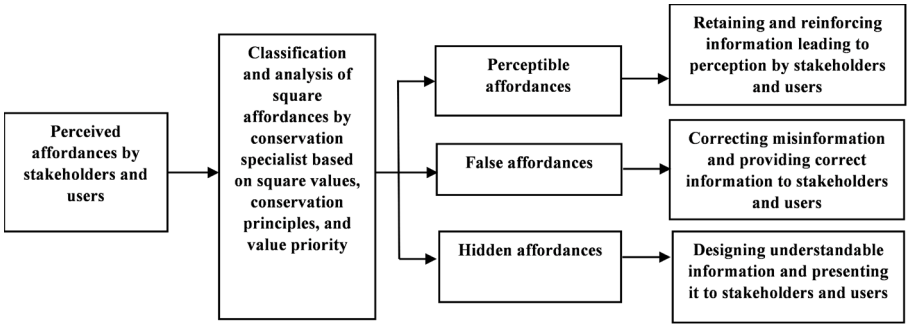

Fig. 3. The role of the conservator in the analysis and evaluation of perceived affordances and making decisions regarding them. Source: Authors.

on the conservation principles, including integrity, authenticity, legibility, minimal intervention, and reversibility (Raoufi & Khajepour, 2021) (Table 1).

- **The relationship between square features, stakeholders' needs, and perceived affordances**

Turgut (2020), in a study on the relationship between the city and the square, identifies six main components for analyzing the features of a square: historical, physical (formal), meaning, social, functional (operational), and visual features. Each of these features generates affordances, which, according to Gaver, may or may not be perceived by users. Each group of these affordances has the potential to address certain needs of the stakeholders and users in a historic square, and if properly managed, can create value for them (Fig. 4). Each feature also incorporates components of spatial quality (Khajepour Galousalari & Hanachi, 2025). For instance, the component of security can be realized within the physical (spatial) and social features, or the component of legibility within the visual and historical features.

Research Method

The aim of this applied study is to explain and examine the role of affordances in the conservation process of historic urban squares. Initially, in an analytical-inductive approach and using a descriptive method, reliable opinions and perspectives were reviewed, focusing on the concept of environmental affordance through documentary and library sources, as well as the scholarly discourse in this field. Subsequently, the relationship between perceived affordances, stakeholders' needs, and the features of historic squares was analyzed and clarified using the same process.

Table 1. The Five Precautionary principles in international charters and declarations on heritage conservation. Source: Raoufi & Khajepour, 2021.

Precautionary principle (criterion)	Supporting reference	Evaluation indicators
Integrity	Athens Charter (1930): Article 5; Venice Charter (1964): Articles 5, 9, 12	Preservation of the formal, visual, and structural integrity of the site
Authenticity	Athens Charter: Articles 2, 6, 7; Venice Charter: Articles 9, 11, 13; Nara Document (1994)	Preservation of the site's wholeness, identity, and authenticity
Legibility	Athens Charter: Articles 2, 4, 7; Venice Charter: Articles 12, 13	Distinguishability of added, replaced parts, and new materials in the site
Minimal intervention	Venice Charter: Article 13; Burra Charter: Article 8	Performing minimal physical intervention on the site, with efforts to prevent alteration and distortion of material evidence
Reversibility	ICOMOS (1998); Burra Charter: Article 15; ICOMOS (2003)	Ability to modify (remove, expand, revert) interventions without preventing future conservation actions on the site

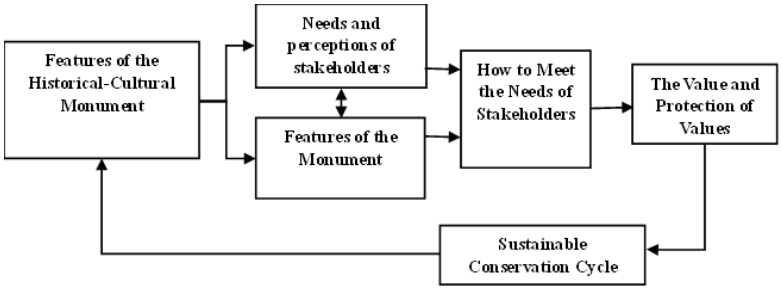

Fig. 4. Perceived affordances and the relationship between the features of a historic square and the conservation of its values. Source: Authors.

Ganjali Khan Square in Kerman was selected as the case study. In this research, first, through documentary and field studies, the six features of the square (Turgut, 2020) were examined and described. Then, the affordances perceived by stakeholders in Ganjali Khan Square were extracted through semi-structured open interviews with various stakeholder groups. Each interview consisted of six open-ended questions, each addressing one of the six features of the square. Interviews lasted between 30 to 60 minutes, were audio-recorded, transcribed, and analyzed using MAXQDA software. Due to the diversity of stakeholder groups, a maximum variation sampling strategy was employed, resulting in more than 20 interviews, and after excluding irrelevant or empty-data interviews, a total of 20 interviews were analyzed until data saturation was reached.

Subsequently, a specialist focus group (composed of three Ph. D experts in architectural heritage conservation from Kerman, familiar with the theoretical foundations of cultural heritage conservation, and knowledgeable about the diverse values of Ganjali Khan Square) classified the perceived affordances based on Gaver's definition into three groups: false, hidden, and perceivable affordances, and proposed separate approaches for each group.

Case Study

The Ganjali Khan complex is located in the central part of the old fabric of Kerman city, adjacent to the main historical bazaar corridor. The complex was founded and constructed by Ganjali Khan, the governor of Kerman, between 1005 and 1029 AH (approximately 990 SH) (Bastani Parizi, 1989, 67). The complex includes a central square, a school (caravanserai), bathhouse, water reservoir, mint, mosque, and part of the historical bazaar. The aforementioned architectural elements surround and define the edges of the central square. Consequently, Ganjali Khan Square can be classified into three physical layers.

The first layer is the central open space of the square, measuring 50 by 100 meters, rectangular and completely open without any central architectural elements. The second layer comprises the peripheral architectural elements that enclose and shape the central open space. These include the bathhouse and main bazaar street on the southern side, the school and mosque on the eastern side, the mint on the northern side, and the water reservoir on the western side. In addition, shops and commercial spaces adjacent to these elements form a second architectural layer. This layer connects to the central open space through columns supporting shaded arcades on three sides (except the eastern side with the caravanserai and mosque), unifying the two spaces. The third physical layer consists of the main passageways linking the surrounding urban fabric with the first and second layers (central space and peripheral architectural elements), including Golbazkhan Passage, Charsouq, and the castle square bazaar street, as well as the main bazaar street and Vakil and Haj Agha Ali streets.

The architecture of the Ganjali Khan complex

exhibits simplified geometry compared to previous periods, with the intricate past patterns replaced by simple geometric shapes and broken lines. Decorative techniques became more diverse, including brickwork, tilework, stucco, mirror work, and woodwork applied simultaneously. Following the formalization of the Shiite religion in the Safavid era and the rise of a form of Sufism, architecture and decoration related to these influences were reflected in buildings from this period, including the Ganjali Khan complex (Shayestehfar, 2005).

The functions of the Ganjali Khan complex, encompassing economic and service activities from its construction to the present, led to the concentration of urban activities and the creation of public, semi-public, and private spaces. The caravanserai provided accommodation for merchants and travelers, reinforcing social relations within the complex. The central open space served as a connection hub and a gathering place for social groups. On the other side, the mint (currently a coin museum) had governmental functions directly linked to trade and economic activities. Other sides of the square, including the water reservoir and bathhouse, provided public services, ensuring comfort for passersby and traders and attracting diverse groups. Islamic thought and wisdom established a connection between the square's worldly daily life and spiritual religious life through the mosque and school, adding meaning and symbolic value to the square. The traditional square-bazaar plan aligns Ganjali Khan Square with the concept of the Agora or Forum, primarily designed for economic and social activities, further reinforced by educational, religious, and service spaces (Ebrahimi, 2009). This physical and functional configuration transforms the square into a multifunctional space serving citizen interaction, a role it continues to perform.

In summary, Ganjali Khan Square in Kerman exhibits features in all six dimensions proposed by Turgut that generate affordances perceivable by the square's users and stakeholders (Table 2).

Research Findings

• Users' perception and the features of Ganjali Khan Square

Users' perception of the square is influenced by two main factors: the features of the square itself and the needs of stakeholders. The physical, historical, social, and meaning features of the square create a mental image in users' minds, which is qualitatively aligned with their needs and leads to the perception of the square's Affordances (Khajepour Galousalari & Hanachi, 2025).

Therefore, the perception of Affordances is inherently qualitative and varies from one user to another, depending on both the square's features and their individual needs. To capture users' actual

Table 2. The six key features of Ganjali Khan Square, Kerman. Source: Authors.

Dimension	Key features of ganjali Khan Square
Historical	High antiquity (Safavid period); concentration of the city's historical events during the Safavid era; historical continuity from the city's past to the contemporary period.
Physical	Human-scale and proportionate dimensions; central open spaces, side arcades, and adjacent commercial areas; physical connection of the bazaar to the city; physical spaces that link urban elements.
Meaning	Symbol of the history of Kerman; meaning of collective and communal life in the city; significance of social interactions and communal engagement.
Social	Center for interaction among social groups; hub of social diversity; focal point of the city's social events throughout history.
Functional / operational	Social functions; economic functions; communicative functions.
Visual	Use of rhythm in the landscape; defined perspective and skyline; harmony and balance in the color of materials and decorations.

perceptions, it is inappropriate to present them with closed or predefined options. Instead, semi-structured open-ended interviews are required (semi-structured due to the known features of the square and open-ended due to the indeterminate nature of users' perceptions) to allow participants to express their perceptions of the square's Affordances freely and without bias.

After collecting responses, the data were subjected to qualitative analysis. To better understand the prevalence and weight of each coded concept, the results were also presented as quantitative charts, enabling conservation specialists to assess the relative attention given to each Affordance and compare them with one another.

In the initial stage, more than 20 open-ended interviews were conducted with diverse groups of Ganjali Khan Square stakeholders, including tourists, residents, students, experts, and heritage managers. The Affordances mentioned by the interviewees were categorized according to the six dimensions of the square (Table 3).

Discussion

• Classification of affordances in Ganjali Khan Square based on Gaver's definition

The set of Affordances extracted from interviews was entirely derived from participants' perceptions, without any judgment, prior knowledge, or interviewer guidance, as reported in the previous tables. As explained in the methodology, these Affordances, in their various manifestations, may align or conflict with two primary criteria in heritage interventions: (1) the five fundamental conservation principles and (2) the heritage and cultural values of the site.

The assessment of these Affordances must be carried out by individuals with expertise in both criteria. Conservation specialists, with thorough knowledge of conservation theories and principles, and familiarity with the site's values (here, Ganjali Khan Square), are the most suitable evaluators. Moreover, consolidating the perspectives of multiple specialists increases the reliability and validity of the assessment. Therefore, a three-

Table 3. Perceived affordances of Ganjali Khan Square by stakeholders. Source: Authors.

Square dimensions	Perceived affordances by interviewed groups (number of mentions)
Historical	Learning the history of Kerman (7); cultural education and transmission (4); architectural education (4); establishment of historical exhibitions (3); historical reenactments (2); teaching social history of Kerman (1); attracting tourists (1)
Physical	Installation of aesthetic fountains and water features for play (3); use of planters and additional greenery (3); sitting on platforms and steps for recreation and relaxation (2); increasing benches and seating in the square (2); installation of lighting on columns and walls (2); authentic tilework on square columns (1); used as a model for artistic works (1)
Meaning	Place for relaxation (3); symbol of social unity and covenant (3); symbol of Kerman tourism (2); city center and gathering space (2); nostalgia and authenticity (2); pride in Iranian identity (1); symbol of resilience and durability (1); cypress trees as a symbol of steadfastness (1); symbol and meaning of life (1); public and communal space (1); symbol of Kermani resistance (1)
Social	Hosting public meetings and ceremonies (6); street music performances (4); accommodating diverse age groups and providing services (3); meeting place (2); establishing small markets (2); tourism revenue (1); use as a recreational area (1); gatherings of elders and storytelling (1); presence of marginalized social groups (1); free poetry nights (1); charity gatherings (1); political assemblies (1)
Functional / operational	Economic and commercial functions (6); craft booths (5); religious ceremonies (e.g., Muharram, Ramadan) (4); music concerts (2); cultural activities (2); provision of cultural products (books, traditional clothing, etc.) (2); restaurants (1); morning exercise sessions (1); marathon events (1); temporary tents and food sales (1); traditional accommodations (1); polo games (1); guided tours (1); establishment of art and architecture school (1); art gallery (1)
Visual	Creating visual order (6); photography of the landscape (4); use of shapes and forms in designing symbols and new logos (2); template for new urban designs (2); creating visual calmness (2); virtual space usage (1); visual diversity of ethnic groups (clothing, shape, color) as attraction (1); installation of related statues in the square (1); visual screens and ambiguities in the square (1)

member Focus Group of PhD-level specialists in historical building restoration from Kerman, familiar with the square's values, was formed. All Affordances identified from the interviews were assessed in a consultative qualitative session.

During the session, each Affordance was classified into two main groups:

Perceivable affordances: aligned with both conservation principles and heritage values.

False affordances: conflicting with at least one of the conservation principles or heritage values.

The number of mentions by interviewees was used as a fuzzy indicator for Hidden Affordances: Affordances with fewer mentions leaned toward hidden, whereas those with more mentions leaned toward perceivable.

• Affordances from historical features

Among the Affordances derived from historical features, learning the history of Kerman (7mentions) was the most perceivable among interviewees. Cultural education and transmission, and architectural education (4mentions each) were less perceivable. The Affordance of establishing historical exhibitions was judged by the focus group to conflict with conservation principles and was thus classified as false. Despite its significance, this false perception is reinforced by increased tourism promotion and the presence of social groups, alongside limited awareness of conservation principles and the visual/physical values of the square.

These findings indicate that conservation planning in relation to historical features should focus on enhancing users' understanding of the square's educational Affordances, particularly in cultural and architectural domains, while reducing the focus on structural changes for exhibitions (Fig. 5).

• Perceived affordances from physical features

Among seven physical Affordances, four (authentic tilework on columns, additional benches, planters and green spaces, and additional fountains and water features) were classified as false by the focus group due to conflicts with conservation principles or the square's values. Only three (sitting on platforms and steps, lighting installations on columns and walls, and serving as a model for artistic works) were considered perceivable, though with limited mentions, leaning toward hidden.

Overall, physical Affordances showed lower perceivability compared to other groups, highlighting the need for conservation interventions to focus on the correct introduction and utilization of the square's physical features (Fig. 6).

• Perceived affordances from meaning features

Meaning, Affordances also showed low perceivability. Although diverse, the limited

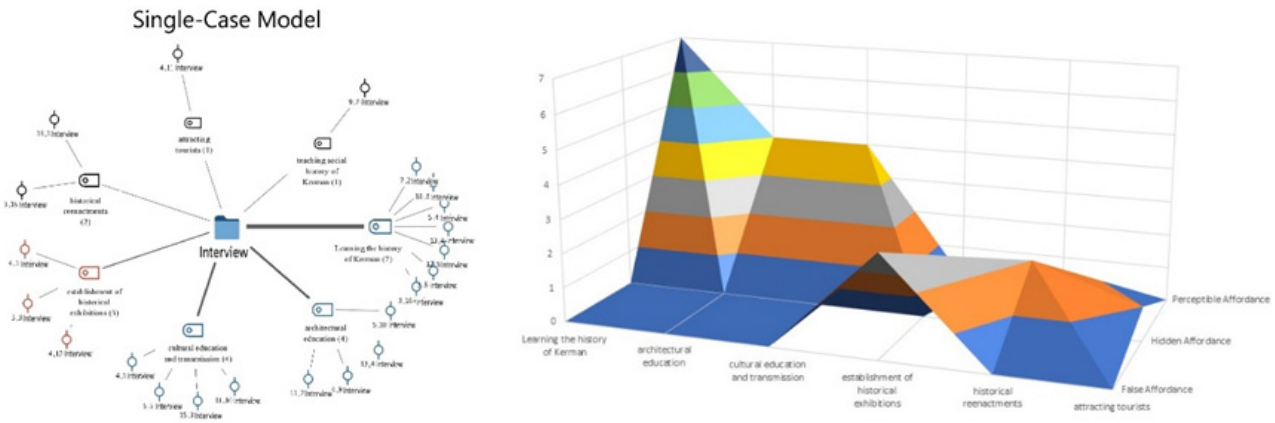

Fig. 5. The relationship between the type and number of affordances of the historical features of the square. Source: Authors.

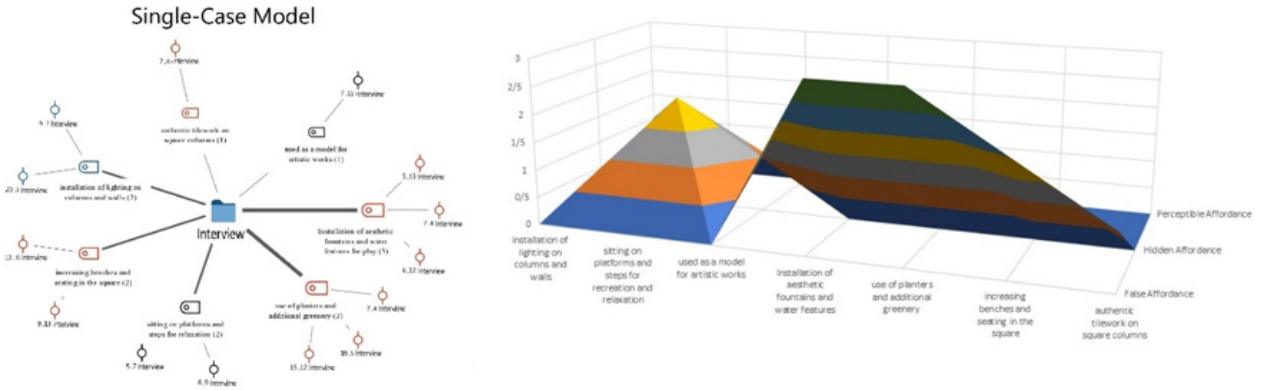

Fig. 6. The relationship between the type and number of affordances of the physical features of the square. Source: Authors.

frequency of mentions indicates that users and stakeholders have insufficient understanding of the square's meaning qualities. Some false perceptions arose, such as the square symbolizing Kerman resistance, cypress trees as a symbol of resilience, or pride in Iranian identity, due to a mix of meanings and a lack of heritage awareness.

Despite the diversity of meaning perceptions, low mention frequency suggests that meaning and symbolic Affordances are weak and require further study and intervention (Fig. 7).

• Perceived affordances from social features

Given the public-social nature of historic squares, social features and their Affordances are critical. They facilitate interactions among diverse social groups, generating various values that must be conserved to maintain the square's vibrancy.

Analysis shows that stakeholders' perception of these Affordances is limited. Although 12 distinct Affordances were identified (three false), most mentions were sparse, often only a single mention per capability. Hosting public meetings and local ceremonies (6mentions) and street music performances (4mentions) were relatively well perceived, whereas the remaining capabilities were closer to hidden.

Conservation strategies should prioritize enhancing perception of social Affordances to strengthen engagement with the square (Fig. 8).

• Perceived affordances from functional/ operational features

Functional Affordances showed the highest perceivability among the six feature groups, with 15 categories and 30 mentions. Although some were falsely perceived, this indicates a stronger cognitive connection between users and the square's operations.

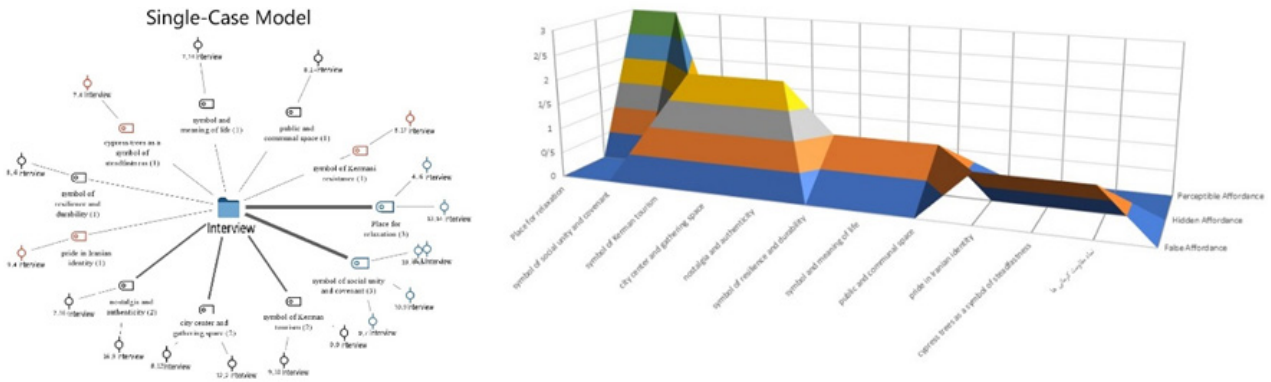

Fig. 7. The Relationship between the Type and Number of affordances of the Meaning features of the square. Source: Authors.

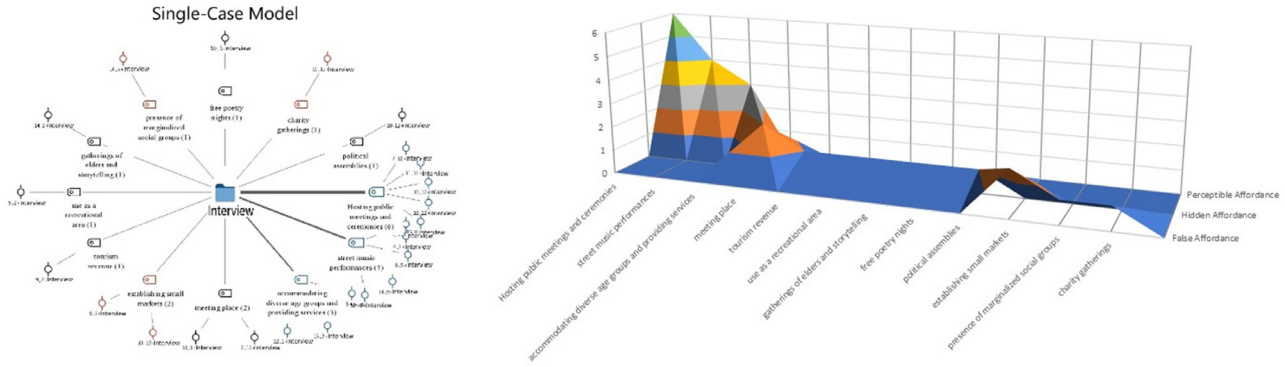

Fig. 8. The relationship between the type and number of affordances of the social features of the square. Source: Authors.

Notably, music concerts, despite high mentions, were classified as false by the focus group due to extensive social and structural interventions required, which conflict with other values. Conversely, street music performances were considered valid within social Affordances. Craft booths, while perceived positively due to economic interactions, were deemed sufficient in the current configuration; additional booths were classified as false.

Three functional Affordances—economic and commercial activities, religious ceremonies (with minimal physical interventions), and cultural activities—were classified as perceivable, supporting enhanced value perception for users (Fig. 9).

• Perceived affordances from visual features

Most visual Affordances centered on creating visual order and photography opportunities, reflecting the predominance of tourists' visual engagement. The square's skyline, column rhythm, symmetry, tile patterns, harmony, and perspective naturally attract visual attention.

Some visual perceptions, such as the installation of statues, were classified as false, resulting from prior visual experiences and enjoyment. Other subtle perceptions, like ethnic visual diversity, although minimally mentioned, represent hidden Affordances that could enrich users' visual experience if properly highlighted (Fig. 10).

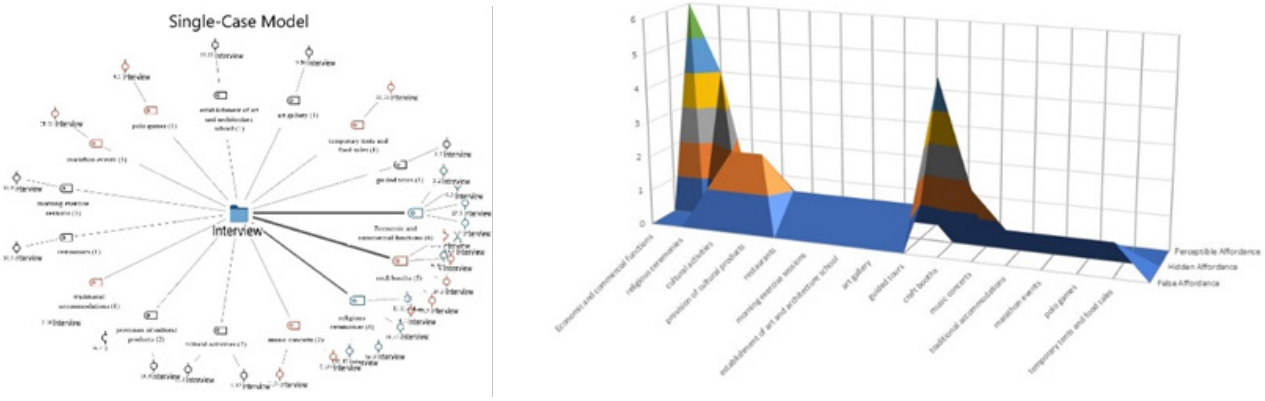

Fig. 9. The Relationship between Type and Number of affordances of Functional and Functional features of the square. Source: Authors.

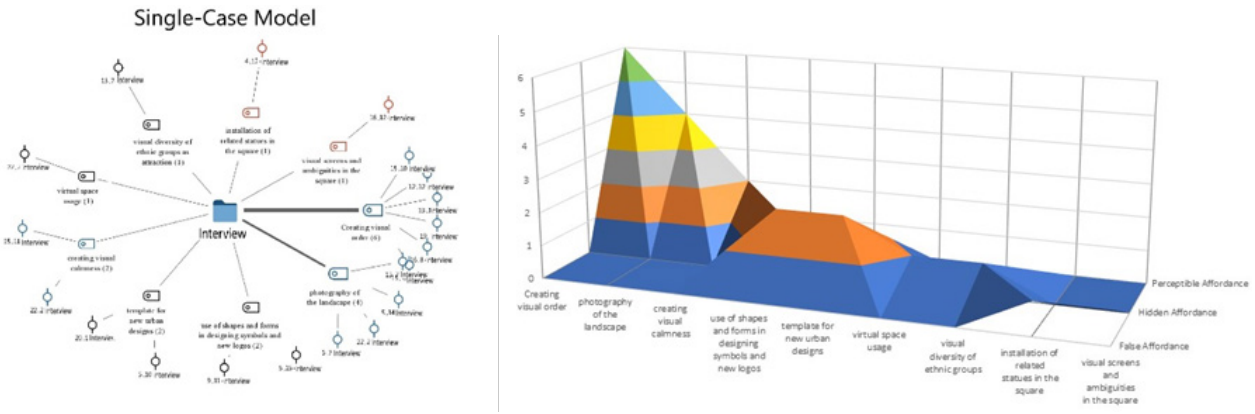

Fig. 10. The relationship between the type and number of affordances of the visual features of the square. Source: Authors.

Conclusion

In Iran, actions that conflict with the values of historic squares and conservation principles are often addressed through top-down approaches, such as statutory laws and regulatory directives. In this context, the concept of affordance offers an alternative to coercive methods by understanding stakeholders' perceptions of existing affordances and managing related information. By influencing stakeholders' perception of a square's affordances, this approach can strengthen sustainable conservation.

Through this framework:

False affordances can be removed or corrected via interventions aligned with the square's features and stakeholders' needs, reducing misperceptions.

Hidden affordances can be revealed and reinforced, guiding stakeholders' attention and actions toward these affordances to ensure accurate and effective understanding.

This process enhances stakeholder participation in conservation efforts and reduces conflicts with heritage values and conservation principles. Given that all types of cultural heritage—movable or immovable, tangible or intangible—have stakeholders whose actions directly affect the cultural asset, the concept of perceived affordances can be generalized across heritage categories.

Perceived affordances also enable conservation designers to simultaneously analyze and manage both the historic square's values, as part of the urban heritage landscape, and the needs of users and stakeholders—the key actors in historical environments. They provide a tool to encourage or guide stakeholder behavior toward preserving the square's values.

Affordances, derived from physical and meaning features of the square, create a communicative bridge between conservation plans and users' needs, serving as a shared language among stakeholders. They allow for comparison between stakeholders' behaviors and their expectations of the environment, facilitating correction of past errors in design and conservation, preventing recurrence, and supporting the development of refined strategies to achieve conservation goals. Additionally, perceived affordances can be used as a monitoring tool throughout all phases of conservation—from initial design to post-implementation evaluation.

The findings of this study regarding Ganjali Khan Square, as detailed in Figs. 5 to 10, can be summarized in Table 4, which outlines recommended actions for each group of square features based on stakeholders' perception of affordances.

Declaration of Conflicting Interests

The authors declare that they have no competing interests in conducting this research.

Table 4. Required measures for each attribute of Ganjali Khan Square based on stakeholders' perceptions of affordances. Source: Authors.

Feature	Recommended actions
Historical	Raise public awareness of the square's educational affordances; strengthen knowledge derived from cultural and architectural features; provide accurate historical information specific to the square and its related complex; avoid presenting unrelated historical data.
Physical	Ensure logical access to the square's physical form; facilitate use of seating areas; educate the public on the square's historical function as a social space rather than a park or water feature.
Meaning	Strengthen historical meanings of Ganjali Khan Square; avoid mixing unrelated meanings or symbols; refrain from providing services that conflict with the square's values and function.
Social	Enhance awareness of social features; promote public gatherings and interactions; hold seasonal local or religious ceremonies without physical interventions.
Functional / operational	Correct information related to the square's function; raise awareness of its physical-functional values; prevent misperceptions of possible alterations; avoid hosting exhibitions or commercial booths in the central square, especially with physical additions; encourage contemporary social uses that do not alter the square's main form and function.
Visual	Strengthen authentic visual elements; preserve and emphasize the skyline; prevent visual disruption of the square's perspective (e.g., new structures, tall trees); encourage diverse use by local ethnic groups with traditional attire; prevent disruption of rhythm, color, and materials, especially by shop owners and street vendors.

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