

Original Research Article

A Systematic Review of Life Cycle Assessment in 3D Printing Concrete: An Analytical Investigation of Methods, Processes, and Assessment Tools in Architecture and Construction

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Abstract

Problem statement: Isfahan's historic urban fabric, a UNESCO World Heritage site, functions as both a visual attraction and a dynamic space for pedestrian experiences. While pedestrian-oriented development gains prominence, existing research focusing on physical metrics has overlooked how tourists construct place meaning, creating mismatches between urban interventions and actual user experiences in heritage settings.

Research objective: This study analyzes tourists' lived experiences in Isfahan's historic context to identify semantic themes shaping the sense of place and examine physical, social, and aesthetic factors' roles in this process, aiming to bridge theoretical models and human experiences.

Research questions: 1. How do tourists describe walking experiences in Isfahan's historic fabric? 2. What factors influence place experience quality? 3. What discrepancies exist between spatial models and real pedestrian experiences?

Research method: Using Interpretive Phenomenological Analysis (IPA), data from 16 tourists collected via semi-structured interviews were analyzed thematically, revealing six core themes.

Conclusion: Four primary themes emerged: "Signs and Wayfinding," "Visual Beauty and Legibility," "Socio-Economic Activities," and "Environmental Comfort." The "Spatial vs. Experiential Discrepancy" theme showed quantitative models' limitations in capturing meaning-making. Domestic tourists demonstrated emotional/identity-based perceptions while international tourists exhibited aesthetic/analytical perspectives. Pedestrian experience in Isfahan is multidimensional, formed through physical-sensory-social interactions. Findings advocate for place-based, human-centered policies in historic urban management to enhance tourist experiences while preserving cultural heritage, recommending integration of qualitative data with conventional approaches.

Keywords: *Pedestrian orientation, Meaning of place, Historical fabric of Isfahan, Interpretive Phenomenological Analysis (IPA), Tourists' lived experience.*

Introduction and Problem Statement

The historical fabric of the city of Isfahan, as one of the outstanding UNESCO world heritage assets and an original example of Iranian vernacular urbanism, is not only a tourist destination with visual attractions, but also a dynamic setting for the pedestrians' lived experience,

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where the meaning of place is made personally and dynamically. The increasing importance of pedestrian orientation in the success of urban destinations (Hassanshahi et al., 2023) is not a secret to anyone, but previous research in this field has often focused on objective and quantitative evaluations of environmental physical characteristics such as the quality of the

visual area, urban furniture, or proximity to destinations (Yang et al., 2020; Rezaei Adaryani & Taghvaei, 2024). This focus on tangible dimensions, although essential for infrastructure improvement, has neglected to understand the psychological and emotional phenomena that determine tourist satisfaction and loyalty (Hannam et al., 2021). The result of this approach is a fundamental gap in the literature that ignores the personal, situational, and dynamic nature of the tourism experience (Manfreda et al., 2023).

The main problem of the current research is rooted in this methodological and theoretical failure. Urban planning in historical fabrics, without understanding how the meaning of place is constructed by users, leads to interventions that are inconsistent with the cultural identity and actual needs of tourists. Understanding the experience of presence (including subjective interpretation of events, expectations, and social interactions) is critical for sustainable urban development in heritage destinations (Dihingia et al., 2022; Safari et al., 2025). The organic and dense texture of Isfahan, with its network of historical passages and high levels of spatial depth (Tekin et al., 2023), creates a unique experience. Elements such as sabbats and historical monuments give a distinct identity to the passages (Jafari Sharami & Hosseini, 2024). However, studies are limited from the perspective of tourists and in the spatial continuum and are often limited to single sightseeing points, without considering the cumulative effect of continuous routes. Walking is considered not a physical movement, but a moving performance (Hjalager, 2015) and an immersive experience (Belliggiano et al., 2021) in which human and cultural interactions play a central role in enriching the experience of a place.

Adopting an Interpretative Phenomenological Analysis approach (IPA) is precisely to fill this gap. Quantitative models such as space syntax evaluate the degree of integration and physical accessibility (Maniei et al., 2024), but cannot explain why tourists with an exploratory attitude and lower speed (Dihingia et al., 2022) feel a sense of belonging to a place or how aesthetics and visual legibility shape the experience (Zhou et al., 2023). The Interpretative Phenomenological Analysis approach, as a qualitative

method, explores inherent meanings and deep feelings and focuses on the meaning-making process.

The importance of research for urban planning in Isfahan is twofold. Historical context requires strategies beyond mere preservation to improve the quality of life and user experience (Maniei et al., 2024; Shafieiyoum & Zamani, 2021). Understanding the impact of landmarks, cultural heritage, security, socio-economic activities (Hassanshahi et al., 2023), and environmental comfort (Rezaiee Adaryani & Taghvaei, 2024) on the overall satisfaction of tourists enables targeted policy making for walking routes. For example, the role of historic architecture and cobblestones as cultural symbols in enhancing the sense of place (Zhou et al., 2023, 2) determines the prioritization of restoration. By combining in-depth qualitative data and spatial analyses, this study provides a more comprehensive model for the experience of place that takes into account the perceptual differences of groups (Kirillova et al., 2017) and creates environments for feeling “away” from everyday life and psychological recovery (Kim & Jeong, 2025, 20). Thus, it not only contributes to the limited pedestrian-oriented literature on eastern heritage destinations but also provides a practical framework for urban designers to create efficient and meaningful spaces.

Theoretical knowledge gaps mainly stem from reliance on quantitative methods and linear models that do not capture the human-centered complexity of lived experiences (Manfreda et al., 2023). These studies often assume the same behavior of tourists as residents (Kim & Hall, 2022, 2023) and ignore differences in motivation, speed, and depth of engagement. Tourists seek immersive, exploratory, and psychological recovery experiences that go beyond functional considerations (Dihingia et al., 2022; Kim & Jeong, 2025). Therefore, specific models of active tourism mobility with behavioral and psychological dimensions need to be developed (Kim & Hall, 2022).

Also, the lack of a comprehensive framework for walking as a mobile performance in historical fabrics is evident (Rabbiosi, 2021). Many consider walking research to be about displacement and neglect the role of rhythms, speeds, and fleeting encounters in shaping

the tourism landscape (Lohaus et al., 2023). This calls for a dynamic ontology that examines precognitive and cognitive implications. The lack of phenomenological studies in urban tourism exacerbates this gap, as most tourists' satisfaction is focused on measuring environmental characteristics rather than subjective interpretation (Yang et al., 2020).

From an empirical and geographical point of view, the literature is mainly conducted in Western cities and reveals the need for research in non-Western contexts (Giddy & Hoogendoorn, 2018; Hannam et al., 2021). Iranian contexts, such as Isfahan, with unique urban morphology, high spatial depth, and heritage preservation limitations, create different challenges and opportunities (Jamei et al., 2021; Safari et al., 2025). Empirical studies are often limited to single landmarks and ignore the cumulative effect of continuous trajectories (Zhou et al., 2023). Spatial heterogeneity in aesthetic perceptions has also been neglected.

The methodological flaw is in not combining objective and subjective data. Tourists' cognitive maps and orientations are not always consistent with predictions of space syntax, because spatial memory and historical landmarks are affected (Maniei et al., 2024). This mismatch between space syntax maps and experience is an important empirical gap that calls for an integrative approach. The lack of in-depth data about the experience of tourists in Isfahan and the lack of comparative studies in Iran make a case study with IPA necessary (Giddy & Hoogendoorn, 2018).

The research objectives are formulated to fill these gaps: a deep understanding of the walking experience through lived experiences; Identifying central meaning-making themes; Providing practical guidelines for urban planning. The key questions are:

How do tourists describe the experience of walking in the historical fabric of Isfahan, and what meaning-related themes are prominent?

What physical and environmental factors have the greatest impact on the quality of the place experience?

What is the difference between the predictions of space syntax models and the experience of pedestrians?

These questions provide the framework for in-depth qualitative research to discover the hidden layers of meaning and feeling in the interaction of humans and

places. This research is based on IPA to consider the meaning of place as an emerging phenomenon in the interaction of tourists and the historical environment (Belligiano et al., 2021). This is critical in tissues with high spatial depth (Jamei et al., 2021).

The theoretical contribution of the present research lies beyond the identification of walking experience themes, in the reformulation of the existing conceptual frameworks in the literature of tourism mobility and the meaning of place. While Rabbiosi (2021) analyzes walking as a moving and immersive performance, the findings of this research show that in dense heritage contexts, "social capital and economic vitality" are not merely the consequence of movement, but one of the building blocks of place meaning-making. Also, compared to the existential transformation approach of Kirillova et al. (2017), which focuses on individual transformation, the current results show that the pedestrian-oriented experience in Iranian historical fabrics is based on "rereading collective identity and cultural memory" rather than individual transformation. Moreover, unlike the aesthetic perception models of Zhou et al. (2023), who mainly focus on visual evaluation, the present phenomenological analysis shows that aesthetics in this context is formed in simultaneous interaction with movement rhythm, socio-economic activities, and embodied comfort. Based on this, this research proposes a "multi-layered and interactive" framework for pedestrian-oriented experience in heritage destinations, where the meaning of place is a simultaneous product of spatial organization, physical embodiment, social capital, and cultural context; A model that can complement and expand previous approaches in urban tourism literature.

The investigated route is the historical central part of Isfahan, a cultural artery connecting historical, social, and aesthetic fields. It starts from Naqshjahan Square, passes through the large market and traditional passages, reaches Chaharbagh Abbasi, and continues to Zayandehrud and the edges of Si-o-se-pol and Khaju bridges. This continuous path from the closed spaces of the market to the open riverside includes diverse rhythms, socio-economic activities, and cultural landscapes, and provides an ideal platform for analyzing the lived experience and constructing the meaning of place from the point of view of tourists.

Research Background

Studying the experience of tourists walking in historical fabrics requires a theoretical framework that goes beyond objective evaluations and focuses on the subjective and meaning-making nature of the place. Phenomenological approaches consider place as a living and dynamic phenomenon. The concept of “being in a place” is rooted in Heidegger’s thought and considers the meaning of a place to be formed through a person’s lived experience (Rabbiosi, 2021). This view introduces placement as a product of gathering diverse spatial elements that leads to a special identity (Jafari Sharami & Hosseini, 2024). Urban aesthetic evaluation is also a subjective judgment that is formed from personal presence and strong emotions in the urban scene (Zhou et al., 2023). Embodied experience considers movement as a state of thought and is critical to understanding the construction of heritage destination meaning (Rabbiosi, 2021).

In the field of tourism, the mobility paradigm emphasizes the unbreakable link of tourism with movement and stillness. As an active mode of transportation, walking provides a deep engagement with the rhythms, sounds, and sights of a destination (Hannam et al., 2021; Sheller & Urry, 2006). This action is a moving action that constructs the tourism landscape through socio-material interactions (Edensor, 2010). Rhythm analysis shows that pedestrians in unfamiliar environments participate in meaning-making by improvising and harmonizing with local rhythms (Sarmiento, 2017). This embodied engagement is a combination of thought, action, feeling, and expression that shapes emotional and cognitive experience (Adey, 2010).

The subjective experience of place is influenced by cognitive factors such as legibility and imageability (Lynch, 1996). Landmarks play a central role in facilitating perception, enhancing imageability and orientation, and creating a sense of belonging (Hassanshahi et al., 2023). Aesthetic quality, including the harmony of architecture, landscape design, and historical monuments, affects the positive mental image (Zhou et al., 2023). In heritage contexts, preservation of indigenous elements is necessary to strengthen cultural identity and legibility (Maniei et al., 2024). However, the heterogeneity between aesthetic perceptions and

the actual mental image shows the complexity of the perception process (Daniel, 2001).

The quality of walking experience is tied to sociomaterial conditions. Socio-economic activities such as local businesses create vitality (Zhou et al., 2023). Walkability is achieved when the environment provides comfort, safety, destination connectivity, and visual appeal (Southworth, 2005). Key influencing factors include street furniture, variety of uses, and visual quality (Liang et al., 2022). Environmental comfort, such as shade and ventilation, is essential for physical comfort and longevity (Rezaiee Adaryani & Taghvaei, 2024).

Objective spatial models, such as space syntax, examine the influence of street network configuration on behavior and relate the degree of integration to movement potential (Hassanshahi et al., 2023). Natural movement theory explains the distribution of attractors in areas suitable for movement (Hillier et al., 1993). But these models are unable to explain cognitive and experimental factors. The discrepancy between predictions and actual flow is due to spatial memory and historical significance (Zhou et al., 2023). This limitation highlights the need to combine quantitative and qualitative data.

The current theoretical framework targets the challenges of the intersection of heritage preservation and modern mobility in contexts such as Isfahan. Cultural and architectural values create a strong attraction in the destination. The integrated approach considers human, social, and cultural dimensions (Belliggiano et al., 2021) and offers place-based planning strategies by combining phenomenology and spatial configuration (Safari et al., 2025).

Isfahan is a manifestation of Iranian vernacular urbanism and a UNESCO World Heritage. The vernacular architecture of this city emphasizes the hierarchy of access, compactness, variety of uses, and environmental compatibility (Jafari Sharami & Hosseini, 2024). These routes are designed for social and business interactions (Shafieiyoum & Zamani, 2021), and Naqshjahan Square, historical bridges, and bazaar create identity and visual appeal.

However, the increase in tourists and urban changes has created a tension between heritage preservation and modern mobility (Safari et al., 2025). Dense fabric

with fragmented network and inadequate infrastructure reduces livability (Tabrizi & Jafarpishe, 2022). Understanding these tensions requires a framework beyond general indicators that includes the cultural and socio-economic context (Zhou et al., 2023).

Research Methodology

This research was carried out in the framework of the constructivist paradigm, a paradigm that considers social reality not as an objective and independent thing, but as an intersubjective construct and the result of the interaction of actors with cultural and historical fabrics (Cohen et al., 2002). Interpretative Phenomenological Analysis (IPA) epistemologically aligns with this approach because it is based on “dual hermeneutics.” This means that the participant is interpreting his lived experience, and the researcher is also reflectively interpreting this interpretation. In this process, the meaning is neither discovered nor imposed, but is formed in the context of the interaction between the individual’s narrative, the cultural context, and the interpretive horizon of the researcher. From an ontological point of view, Interpretative Phenomenological Analysis considers the experience of place as a situational, contextual, and emerging phenomenon (Rabbiosi, 2021), which is compatible with the constructionist assumption about the fluidity of social reality. Therefore, choosing this method is not just a technical choice, but a choice in accordance with the epistemological foundations of the present research in understanding the intersubjective meaning-making of tourists in interaction with the historical fabric of Isfahan (Lin et al., 2025).

The first step included a thorough familiarization with the data, which was obtained through repeated reading of the implemented texts of the interviews and compilation of preliminary notes and field observations. In the second step, initial codes were generated, which included the careful marking of meaningful parts, key phrases, and emotional statements in the interview texts. In the following, the researcher looked for themes and grouped similar codes based on conceptual and semantic similarities so that subcategories and main themes emerged. After that, the identified themes were checked to ensure internal consistency and accuracy in representing

the lived experience. Finally, six core themes were defined with precise naming and analytical description, and the final report was prepared using direct and supportive quotes from the interviewees to ensure the transparency and verifiability of the findings.

The selection of the research sample in this qualitative study was based on the logic of purposeful sampling and emphasized the richness of experience instead of statistical generalization. The sample size consisted of 16 tourists, which is completely aligned with the methodological requirements of Interpretative Phenomenological Analysis, an analysis that emphasizes intensive and in-depth case analysis. The main criteria for entering the study included having the experience of at least 4 hours of experience walking in the historical fabric of Isfahan during the last 3 years to ensure that the participants had enough opportunity for sensory and cognitive engagement with the environment.

Although the age range of the participants (32 to 73 years) and the presence of domestic and international tourists have created a significant diversity, this did not contradict the logic of Interpretative Phenomenological Analysis. In IPA, the analysis is done on a case-by-case basis, maintaining the internal coherence of each narrative, and then semantic convergent patterns are identified among the cases. In this research, each interview was independently analyzed, and its meaning structure was extracted, and only after establishing the intra-case themes, an inter-case comparison was made. Hence, age and cultural diversity were not considered as confounding factors, but rather as an analytical opportunity to reveal common interpretive layers and contextual differences in pedestrian-oriented experience. This approach is in line with IPA’s emphasis on understanding experience in cultural and situational contexts (Cohen et al., 2002; Lin et al., 2025).

Primary data collection was done through in-depth semi-structured interviews, which are known to be an effective method for exploring general and personal experiences of tourists. These interviews, which lasted an average of 45 to 60 minutes, were held face-to-face and in quiet and private spaces near the historical fabric. The focus of the guiding questions was on eliciting phenomenological narratives, and participants

were asked to describe their hiking experience, express their feelings, and refer to human and cultural interactions with local people. All interviews were recorded with the full consent of the participants and then fully transcribed to ensure accuracy in the analysis process. The geographical area emphasized in the interviews was the market area and Naqshjahan Square, Chaharbagh Abbasi, Khaju Bridge, and Si-o-se-pol (Fig. 1). Also, the demographic characteristics of the participants are shown in Table 1.

Findings and Analysis

The implementation of the interpretative phenomenological analysis method led to the extraction of 123 primary codes, which were ranked based on the frequency of repetition in the text of the interviews. Tables 2 shows 30 of the most frequently extracted codes by the frequency of each one.

Rather than fixed categories, themes in Interpretative Phenomenological Analysis act as frameworks for making sense of personal experience. What emerges here - six core ideas - goes beyond describing surroundings; it reveals how visitors feel and understand being within historic environments. Through movement, perception,

history, and shared routines, these themes highlight the bodily engagement shaping each journey on foot (Rabbiosi, 2021; Hannam et al., 2021).

Next came sorting ideas into groups meant to capture the full picture using as few categories as possible. This led to six central topics being mapped out clearly (Fig. 2). Looking at how often each topic appeared across the 16 people gives an early look at what shapes walking through old Isfahan. Among them, three stood out - "visual beauty and legibility," "landmarks and wayfinding," along with "socio-economic activities" - each mentioned by over 93.8% of those involved.

In contrast, the themes of "Environmental comfort and weather conditions" and "Wayfinding" were identified as very common themes with a frequency of 87.5% and 81.2%, respectively. Finally, the theme "discrepancy between space syntax maps and actual experience" appeared with a frequency of 50%. (Fig. 3) shows the distribution of six core themes in the opinions of each of the 16 interviewed tourists.

After extracting the themes, in each of the interviews, an attempt was made to determine the distribution of the themes based on the tourists' answers, and an example of this process is shown in Fig. 4.

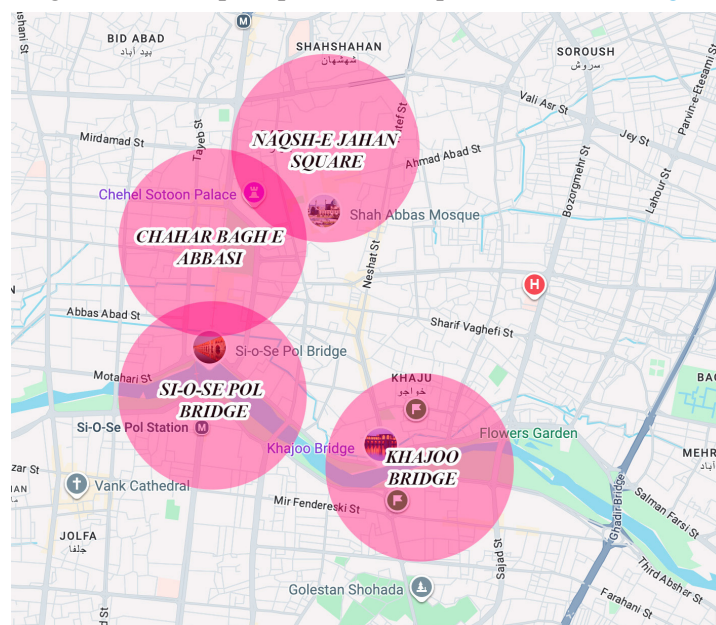


Fig. 1. The geographical area of urban walking was used in assessing participants' opinions. Source: Authors.

Table 1. Demographic distribution of tourist participants in the survey (16 persons). Source: Authors.

Nationality		Gender		Age range		
Domestic	International	Female	Male	Minimum	Maximum	Mean age
4 persons	4 persons	7 persons	9 persons	32 years	73 years	34 years

Interpretative Phenomenological Analysis shows a multi-layered meaning structure in the experience of place. The first four core themes, including “landmarks

Table 2. Thirty core codes identified with the highest frequency in the interview texts. Source: Authors.

No.	Word	Frequency	No.	Word	Frequency
1	feeling	28	16	historical	13
2	architecture	24	17	experience of	13
3	activities	23	18	visual	13
4	social	21	19	landmarks	13
5	Isfahan	18	20	route	12
6	experience	18	21	space	12
7	continuation	17	22	deep	12
8	comfort	17	23	unfortunately	12
9	beauty	17	24	fabric	10
10	alive/vibrant	16	25	creation	10
11	walking	15	26	dynamic	10
12	heat	15	27	urban	10
13	environmental	15	28	interaction	10
14	suggestion	14	29	commercial	10
15	wayfinding	14	30	friendly	10

and wayfinding”, “visual beauty and legibility”, “socio-economic activities”, and “environmental comfort and weather conditions”, due to their widespread presence in the narratives, form the main cognitive, emotional, and physical core of the pedestrian experience.

The theme of landmarks and wayfinding goes beyond a tool for navigation and acts as a cognitive anchor in the complex urban context. In the meantime, Khaju Bridge and Si-o-se-pol, as well as Naqsh-e Jahan Square, are not just a destination; Rather, they are meaningful peaks and orientation reference points for tourists that strengthen the imagination of the environment.

The theme of “Visual Beauty and Readability” emphasizes the importance of tourists’ sensory engagement along the route. Material details such as the play of light and shadow on tiles and artistic decorations set the rhythm of walking and increase the desire to slow down and have a deeper interaction with the environment (Shaer & Haghshenas, 2021).

In the theme of “socio-economic activities”, the presence of

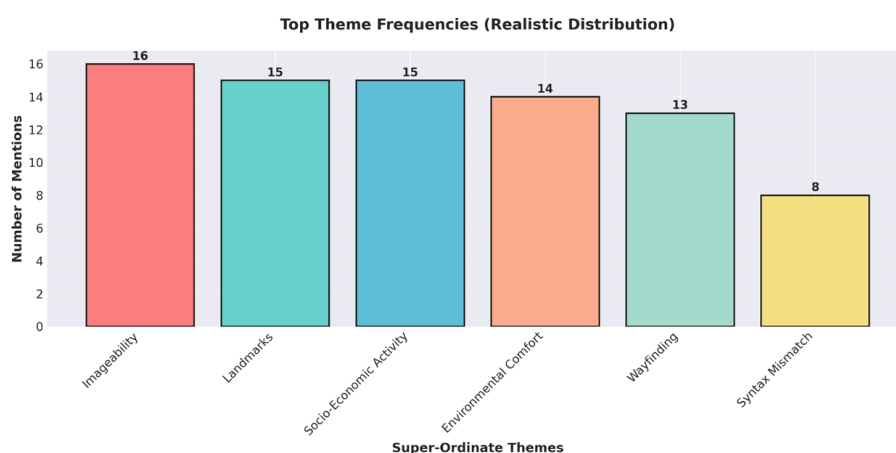


Fig. 2. Core themes. Source: Authors.

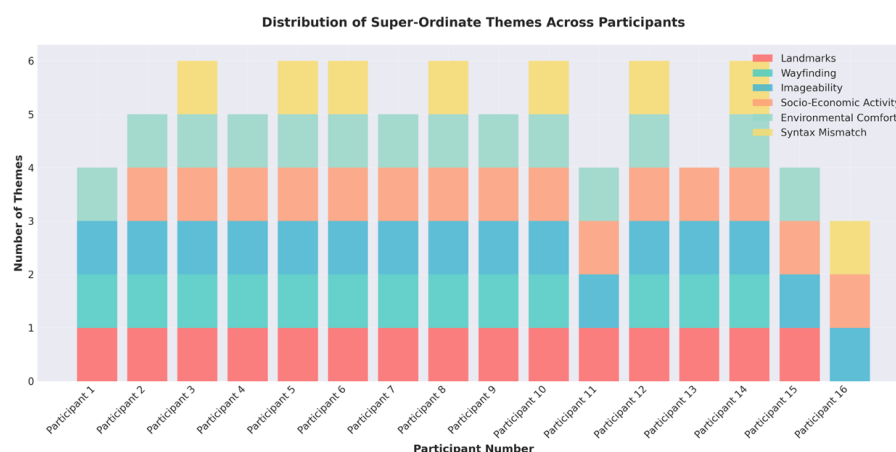


Fig. 3. Distribution of core themes among participants. Source: Authors.

vendors, cafes, and handicraft workshops is introduced as a key factor of vitality and coexistence, which transforms the historical fabric from a mere “museum object” into a dynamic and pulsating settlement (Anzani, 2022).

Also, the theme of “Environmental comfort and weather conditions” focuses on embodied aspects of place experience. In this regard, the presence of shade, natural ventilation, and urban furniture acts as a moderator of fatigue and thermal stress, and on the other hand, the lack of these elements can disrupt the tourist’s emotional enjoyment and cognitive understanding of the space (Hannam et al., 2021).

Finally, the interference of visual aspects with socio-

economic activities shows the fact that tourists consider “vitality” to be an integral part of the aesthetics of Isfahan’s historical fabric. This multidimensional structure clearly depicts the complexities governing the experience of place (Fig. 5).

In this research, the methodological trinity strategy was used with the aim of going beyond purely spatial explanations and achieving a comprehensive understanding of the complex relationship between the physical structure of the city and the tourists’ lived experience. In this approach, in-depth qualitative data obtained from interpretative phenomenological analysis were combined with field observations of the actual flow

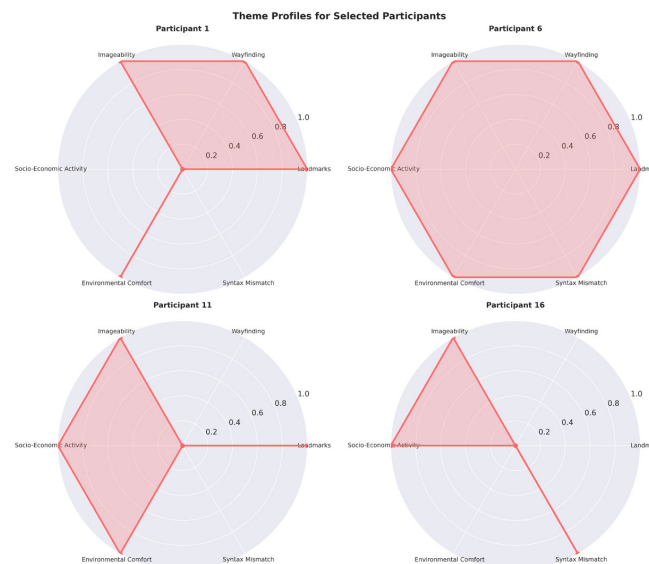


Fig. 4. Profile of theme distribution among four selected respondents (randomly selected). Source: Authors.

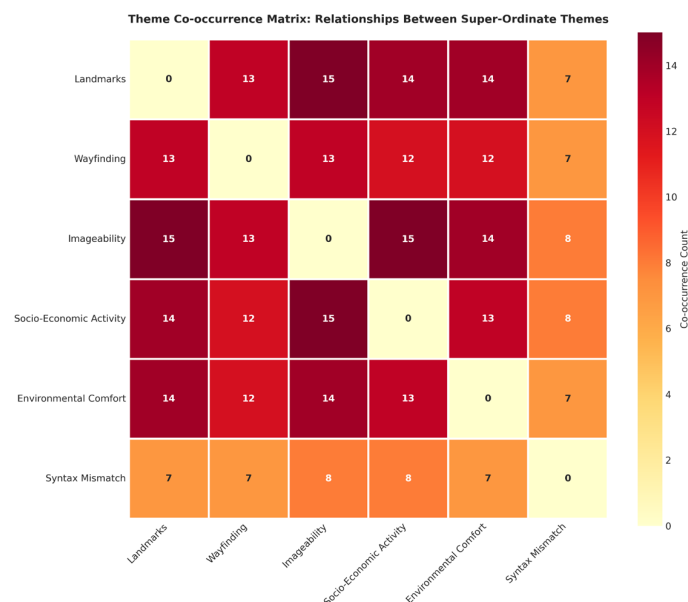


Fig. 5. Co-occurrence matrix of themes, showing the relationship between core themes. Source: Authors.

of pedestrians and comparative analyses based on the spatial characteristics of the historical fabric of Isfahan. The purpose of this action was to analyze the core theme of “mismatch between the spatial organization of the city and the actual experience of tourists”. The trinity analysis focused on three key places, each of which revealed different levels of congruence or conflict between spatial characteristics and tourists’ experiential perceptions.

Naqshjahan Square: This place is a clear example of a strong harmony between physical structure and lived experience. Due to its central place and high accessibility, the square acts as the main hub of urban interactions and tourism; The findings from the interviews indicated the strong emphasis of tourists on “visual beauty and legibility” and “socio-economic activities” in this space. **Traditional Bazaar of Isfahan:** On the other hand, a kind of inconsistency was observed in this place; This means that despite the complex structure and great spatial depth, the actual flow of pedestrians was much more than expected. Phenomenological findings explain this difference, that the presence of “socio-economic activities” (such as handicraft sellers) and “social capital” (human interactions) strengthens the sense of vitality and urban trust. In addition, the narratives emphasized the specific “visual beauty” of the bazaar (such as tilework and traditional architecture), which, by creating a kind of fascination, encourages tourists to stay longer (Kim & Jeong, 2025).

Khaju Bridge: A similar inconsistency was also revealed in the case of Khaju Bridge. Despite its central place, this place becomes one of the busiest places in the city in the evening and at night. Qualitative analysis showed that Khwajo Bridge is not only a “landmark” with high visual beauty, but also serves as a place for “social activities” and “coexistence” at certain times of the day (Wu & Lai, 2022).

Qualitative factors such as visual beauty, socio-economic activities, and social capital explain the actual flow of pedestrians better than purely physical indicators. This finding emphasizes that in heritage spaces with historical and symbolic architecture, visual legibility is a powerful attraction that can determine the direction and intensity of tourists’ movement and shape the experience of the place beyond the mere physical structure (Zhou et al., 2023).

The analysis of the perceptual differences of domestic and international tourists in this research was not done as a demographic comparison, but as an interpretive comparison in the framework of IPA. After establishing the common themes at the sub-case level, the way of interpreting and making meaning of these themes was investigated among the two groups.

While both groups experienced the themes of ‘visual beauty’, ‘marks’, and ‘social activities’, the way these elements were given meaning was different. Domestic tourists interpreted these themes on the horizon of “cultural memory and rereading collective identity”; In such a way that walking became a process to reconnect to the cultural background and strengthen the sense of belonging (Maniei et al., 2024). On the other hand, international tourists interpreted these elements in the context of “newness and cultural distance”; Their focus was more on the architectural form, visual composition, and visual registration of the space, which is consistent with the literature of aesthetic perception (Zhou et al., 2023).

Thus, the difference between the two groups was not in the presence or absence of themes but in the interpretive horizon and cultural context of their meaning-making. This finding is in line with the constructionist approach of research, because it considers the experience of place as a product of the interaction between the individual and the cultural context (Cohen et al., 2002).

Domestic tourists described their experience with a deeper emotional and personal perspective due to prior familiarity with the places and shared cultural background. Their greater focus on cultural and historical aspects indicates that hiking for this group is not just a recreational activity, but a process to strengthen cultural identity and sense of belonging. In heritage contexts, this group specifically seeks to reinforce identity and “cognitive associations” with place (Maniei et al., 2024). In addition, the higher importance that domestic tourists placed on social interactions with city residents emphasizes the vital role of social capital in their experience.

International tourists, who enter the historical fabric of Isfahan with the dominance of the factor of youth, had a more analytical and aesthetic view of the urban space.

Their stronger emphasis on architecture and urban design shows that aesthetic perception acts as a cultural interpretation process for them (Zhou et al., 2023). This focus on architecture is aligned with their greater interest in photography; Here, photography acts as a cognitive tool for processing and recording cultural differences and is considered part of the digitalization process of tourism mobility (Hannam et al., 2021).

Interpretive analysis shows that these themes do not function in isolation but organize the lived experience in an interwoven mechanism. Visual beauty does not remain stable without embodied comfort; Socio-economic activities without spatial readability lead to perceptual confusion; And city signs without social capital are reduced to mere physical elements. From this point of view, pedestrian-oriented experience in Isfahan has a “multi-layered and synergistic” structure in which the body, movement, cultural memory, and social rhythm simultaneously participate in the production of the meaning of place. This finding provides a reading beyond linear models of walkability and aligns with the paradigm of mobility and embodied experience (Sheller & Urry, 2006; Rabbiosi, 2021).

Discussion

The findings of this research show that the experience of tourists walking in the historical fabric of Isfahan is a multi-dimensional phenomenon that occurs at the intersection of architectural, environmental, social, and psychological components. This experience goes beyond purely functional assessments of “walkability.” One of the theoretical findings of the current study is to highlight the role of “social capital” and “coexistence” in the process of making sense of place, a topic that has been less explored in Western phenomenological studies due to the dominant focus on individual experiences and personal belonging (Rabbiosi, 2021). The strong presence of the theme of “socio-economic activities” in the narratives of the participants indicates that in the historical fabrics of Iran, urban vitality and human interactions act as vital layers of meaning and elevate the place from a mere “historical object” to a “dynamic social settlement”. This finding is consistent with previous research in the mobility paradigm that considers walking as a moving and immersive activity (Hannam et al., 2021). These explanations are the result of

a dual hermeneutic process in which the narratives of the participants have gained meaning in interaction with the interpretive horizon of the researcher.

On the other hand, the high importance of the theme of “environmental comfort and climatic conditions” emphasizes the “embodied” nature of the walking experience. In this research, physical comfort is explained as a “threshold factor” whose presence is necessary to activate deeper cognitive and emotional processes. According to the “recovery theory”, physical discomfort caused by extreme heat or lack of shade directs a person’s conscious attention to himself and prevents him from achieving a state of emotional detachment and psychological recovery (Kim & Jeong, 2025). This issue doubles the vital importance of climatic conditions in the historical fabrics of hot and dry regions and is in line with the results of previous studies in the field of environmental comfort (Rezaiee Adaryani & Taghvaei, 2024).

Another central finding is the identification of the theme of “inconsistency between spatial-configuration maps and actual experience”, which confronts purely spatial models with a methodological and theoretical challenge. This inconsistency shows the limitation of spatial configuration models in explaining “active movement” behavior, because these models often fail to capture the effects of “symbolic meaning” and “cultural memory” on orientation decisions (Maniei et al., 2024). In the historical fabric of Isfahan, visual legibility and heritage assets act as determining variables in prioritizing routes and overcoming predictions based on geometry; A finding that is in line with the results of similar studies (Hassanshahi et al., 2023). This suggests that qualitative components such as visual aesthetics and social capital explain the actual flow of pedestrians more accurately than physical indicators (Zhou et al., 2023).

In addition, significant perceptual differences between domestic and international tourists confirm the determining role of “cultural context” in aesthetic evaluations. Influenced by the “newness” factor, international tourists focus more on objective and formal features of architecture to shape their mental image (Sarmiento, 2017). On the other hand, through cultural affinity, domestic tourists seek to strengthen their identity and reread emotional associations with the place and

prioritize social interactions (Maniei et al., 2024). This distinction is consistent with the existing literature on the perceptual differences of tourism groups and emphasizes the necessity of adopting differentiated approaches in planning (Kirillova et al., 2017).

These findings cover the gaps in the research background, where previous studies have mainly focused on quantitative and linear models and have neglected people-centered complexities in lived experiences (Manfreda et al., 2023). The “Interpretative Phenomenological Analysis” approach, focusing on the “how” of the meaning-making process, provides a comprehensive framework for understanding walking as a moving performance (Rabbiosi, 2021). Also, combining qualitative data with spatial analysis reveals the limitations of spatial configuration models in non-Western heritage contexts and emphasizes the necessity of using combined methods (Safari et al., 2025).

From a practical point of view, the results of this research have important managerial implications that derive directly from the extracted themes. Based on the theme of “landmarks and wayfinding”, it is necessary to strengthen urban signage systems and the integrated design of digital and physical guide systems, considering the trend of “digitalization of tourism mobility” (Hannam et al., 2021). Qualitative findings showed that historical landmarks are not only navigational tools, but also cognitive anchors that strengthen perceptual coherence and a sense of spatial security in a complex historical fabric.

In connection with the theme of “visual beauty and legibility”, the preservation of architectural harmony, control of visual disturbance, and adherence to the principles of “urban self-control” are important to preserve the physical identity of the historical fabric (Jafari Sharami & Hosseini, 2024). Phenomenological analysis showed that the aesthetic quality shapes not only visual perception, but also the rhythm of movement and the tendency to linger and interact more deeply with the space.

Also, the theme of “socio-economic activities” emphasizes the need to support local businesses, handicrafts, and micro-interactive spaces. The findings showed that social vitality is one of the foundations of meaning-making of a place, and the weakening of these activities can reduce the experience to a mere museum level.

In connection with the theme of “environmental comfort”, climate interventions such as strengthening traditional awnings, improving natural ventilation, and improving the quality of urban furniture should be prioritized, because the embodied comfort is the condition for the possibility of a deeper aesthetic and social engagement with the space.

At the macro level, according to the theme of “mismatch between spatial organization and actual experience”, it is suggested that the policy strategies of historical districts should not rely solely on physical indicators or spatial configuration models, but should include subjective, perceptual, and social capital criteria in a consolidated evaluation framework. Also, the development of balanced tourist distribution strategies through revitalizing lesser-known spots or implementing joint ticket schemes can prevent excessive focus on the main centers and create a more balanced experience (Safari et al., 2025). Such an approach, while protecting the cultural heritage, helps to improve the quality of tourists’ lived experience and realize sustainable tourism.

Conclusion

This research was started to answer three basic questions: How do tourists describe and interpret the experience of walking in the historical fabric of Isfahan? What factors shape the quality of this experience? And what are the discrepancies between the predictions of spatial models and the actual experience of pedestrians? The findings showed that the pedestrian-oriented experience in Isfahan is not a purely physical phenomenon, but a multi-layered and interactive structure that is organized through urban symbols, aesthetic quality, socio-economic activities, and embodied comfort. Also, the analysis of inconsistency between spatial organization and lived experience showed that qualitative and symbolic variables have a more decisive role than purely geometric indicators in guiding the movement of tourists.

The results explain the fact that the pedestrian-oriented experience in the historical fabric of Isfahan is a multidimensional result of the dynamic interactions of physical, cognitive-sensory, social, and cultural components. The extraction of six core themes forms the central core of this phenomenon. These findings clearly

confirm the limitations of quantitative and mathematical models in the analysis of the complex meaning-making process by tourists and emphasize the necessity of transitioning to “place-oriented” and “human-oriented” policies in the management of valuable contexts; An approach that goes beyond the physical protection of heritage, focuses on improving the quality of the users’ lived experience. The results of this study not only add richness to the limited pedestrian-oriented literature in non-Western heritage destinations but also provide an operational framework for designers and urban planners to create efficient, meaningful, and responsive spaces.

In addition to the general limitations of qualitative studies, the application of interpretative phenomenological analysis in dense heritage contexts is also associated with certain challenges. In destinations such as Isfahan, which have established cultural memory, extensive media representations, and official tourism narratives, participants’ experience may be partially influenced by previous discourses and preconceived images. In this sense, what is expressed as “lived experience” is always formed in interaction with collective memory and cultural expectations. Therefore, although this method allows a deep analysis of individual meaning-making, it may not be able to fully reveal the layers of discourse and macro-structures of representation. This limitation shows that combining Interpretative Phenomenological Analysis with discourse approaches or broader cultural analyses can provide a more comprehensive picture of tourism experience in heritage contexts in future research (Rabbiosi, 2021; Hannam et al., 2021).

From the perspective of qualitative research, the aim of this study is not statistical generalizability, but rather providing the possibility of “analytical transferability” through providing a rich contextual description. The present findings have the greatest transferability to heritage tissues with similar characteristics; Among them: (1) organic and dense morphology with high spatial depth, (2) strong presence of traditional socio-economic activities in the center of the space, (3) hot and dry climate that turns environmental comfort into a threshold factor of experience, and (4) strong link between cultural memory and collective identity. In contrast, in reconstructed historical fabrics, less dense

or devoid of indigenous social life, the pattern of construction of experience may be different. Therefore, transferring the results to other heritage cities of Iran or the Middle East with a similar structure requires attention to the degree of overlap of these background conditions. Despite the theoretical and practical achievements of this research, it should be acknowledged that the present study, like other qualitative research, faces limitations such as a limited sample size and the impossibility of direct statistical generalization. Therefore, some directions for future research are suggested. First, conducting comparative studies in other heritage centers of Iran can help to evaluate the “transferability” of the place meaning model in different contexts. Second, it seems necessary to design an extensive quantitative stage based on the extracted themes to more accurately examine the role of variables such as age, gender, and travel motives while achieving statistical generalizability. Third, paying attention to the “temporal dimension” of the walking experience through the study of seasonal changes and circadian fluctuations can clarify the less obvious layers of this phenomenon. Finally, conducting effect evaluation research using pre-test-post-test designs to measure the effectiveness of specific physical interventions, such as the revival of traditional canopies or the improvement of urban furniture, can provide the basis for formulating evidence-based policy strategies.

Declaration of Conflicting Interests

The authors declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

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