

# Social Regeneration of the Historical Bazaar of Zanjan Based on the Recognition of the Physical-Spatial Dimensions Affecting the Sociability of the City's Public Spaces

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## Abstract

Iranian Bazaar, as one of the most prominent public areas of the city, have always been a platform for establishing citizen interactions and forming social activities. Following the developments of modernism, the architectural system of the Bazaar, especially the historical Bazaar of Zanjan, suffered much damage in the physical-spatial dimension, in such a way that the structural integrity of this historical complex is distorted to a significant extent and as a result, the level of sociability of the users of the space has also decreased. In order to regenerate the social relations and exchanges of Zanjan Bazaar, this research has tried to explain the solutions for organizing its physical-spatial system, and in this way, it has used a mixed methodology approach based on library and field studies. Field data was prepared by distributing a closed questionnaire and conducting semi-structured interviews with businesses of Zanjan Bazaar with a volume of 297 and 21 people. The results of measuring the significant relationships between the physical-spatial dimensions of Zanjan Bazaar and the sociability of the environment with the Pearson correlation test in the SPSS statistical analysis show that there is a direct and significant relationship between these two variables. This means that if the physical-spatial structure of Bazaar is improved, the level of interaction and social activities of the users will also be improved. The findings of the interview in order to understand the physical-spatial damage and challenges of the Zanjan Bazaar indicate that the most fundamental challenge of Bazaar is related to physical access indicators and aesthetic factors and the lowest amount of damage is related to factors of location, form, geometry, and flexibility. Considering the obtained results, solutions were also suggested in the direction of the social regeneration of Bazaar based on the existing physical-spatial challenges.

**Keywords:** public spaces, social regeneration, Zanjan Bazaar, physical-spatial dimensions, sociability

## 1. Introduction

Trade is considered as the most important form of social exchange, among the main human activities. An activity that causes the construction of special spaces and places called bazaar in various forms. The bazaar is an ancient space that since the beginning of the history of urbanization in Iran has been a place for gathering and trading, the center of rebellions and movements, spreading public awareness and getting to know people. It is still considered the most suitable place for Iranian professionals and buyers in Iranian cities (Memarian, 2011:10). Global experiences show that the public spaces of the city can be a carrier for the emergence of cultural values and a suitable platform for social interactions and activities, citizens' identification and identifiability, and the development of human sustainability.

Bazaars, both traditional and modern, are considered as identity documents of an urban society, so that the life of the city and Bazaar are linked together, and in many cases, cities are understood with Bazaars. Although the primary role of these centers is the economic role, their physical and architectural characteristics have turned them into a world of activities, social, cultural interactions and urban events (Mohammadmoradi, Bahmanioskoui, 2010:131).

Unfortunately, the historical Bazaars of Iran were dominated by contemporary developments before they could adapt to new needs, and finally, Bazaars with the unity that they had, lost their social credibility after losing their economic power (Falamaki, 2018: 113-114). In the meantime, the historical Bazaar of Zanjan, which was considered as a platform for the public life of the people and the place where social behaviors and activities occur, also did not withstand the contemporary developments and its physical-spatial organs were seriously damaged, and this has led to a decrease in the dynamics and dimming of the social identity of the Bazaar. Considering the recent transformations, the present research has sought the social regeneration of this valuable historical complex to organize its physical-spatial dimensions. Therefore, by posing two main questions: 1- What is the relationship between the physical-spatial dimensions of the historical Bazaar of Zanjan and the sociability of users? 2- What are the basic physical-spatial challenges of the historical Bazaar of Zanjan and what strategies can be explained in the direction of the social regeneration of this historical complex? in search of achieving the main goal. In this way, by reviewing written study sources about the concepts of sociability in public areas and urban regeneration and its

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social approach, as well as recognizing the physical-spatial dimensions that affect the sociability of public spaces, trying to identify the physical-spatial challenges of a case example (Bazaar of Zanzibar) from the point of view of the businesses of the Bazaar and finally presenting regeneration strategies.

## **2. Research Background**

Naderian (2017) in a research titled "The socio-cultural reproduction of urban spaces with the aim of promoting neighborhood identity (Case study: Stone Lion Neighborhood, Hamedan City)", has sought to analyze the factors affecting the promotion of neighborhood identity based on cultural regeneration indicators. The results show that a strong relationship between the criteria of cultural regeneration and neighborhood identity can help to improve the neighborhood identity of historical neighborhoods and thereby create a sense of belonging among citizens. Safaeepour and Damanbagh (2019) in a research titled "Analysis of Urban Regeneration Components in the Centralized Old Texture of Ahvaz City", tried to use the regeneration approach in order to identify the planning priority of centralized old texture of Ahvaz city. According to the experts of this city, economic regeneration is the main concern for regeneration in this context. Javan Majidi et al. (2020) in a research titled "Measuring the Social Sustainability Improvement Factors in Regeneration of Distressed Urban Areas (A Comparative Study of Historical and Marginal Context in Ardabil City)" acknowledged that the components of social stability in both contexts under study have an unfavorable situation, but the marginal context has a more unfavorable situation than the historical context. They also pointed out that the existence of inherent differences between historical and marginalized contexts requires the development of separate regeneration plans for each one, according to their characteristics. Heydari et al. (2022) in a research titled "Structural-Functional Reconstruction of Traditional Markets in Iranian Cities with a Futuristic Approach (Case Study: Zanzibar Historical Bazaar)", reached the conclusion that in order to regenerate the halls, it is necessary to increase and develop mixed uses, create variety and diversity, and strengthen and expand active edges. Ramlee et al. (2015) in a research titled "Revitalization of Urban Public Spaces: An Overview", investigated the issues related to the revitalization of public urban spaces and examined the reforms related to the revitalization process. According to the authors, by implementing an urban regeneration plan, the situation of an area can be improved, so that it has a higher performance than the previous situation. The city's revitalization is related to the physical, economic, social, environmental, cultural and historical aspects of the urban area. Bishop and Marshall (2017) in a research titled "Social Interactions and the Quality of Urban Public Space" based on multidisciplinary perspectives (Cooper Marcus and Francis, 1997; Gehl, 1987, 2010; Marshall, 2016, White, 1980), discussed the quality of urban public space and its consequences for social interaction and investigated the relationship between them. The results showed that public space has largely

resulted from top-down planning processes, and community-based participatory movements such as the placemaking movement are partly a reaction to this history. The motivation for this movement is ultimately to energize or re-energize urban public spaces for social benefit. Muminovic (2017) in a research titled "Place Identity and Sustainable Urban Regeneration: Public Space in Canberra City Centre", used the example of Garema Place in Canberra to discuss the interdependence of public space and place identity and their role in the regeneration of Canberra City Centre. The conclusion argues for importance of the place identity in the process of regeneration for more sustainable future of Canberra and its city centre. Nasution and Zahrah (2017) in a research titled "Public Open Space's Contribution to Quality of Life: Does privatization matters?" acknowledged that people engage in social activities in public spaces, which contribute to the cohesion, dynamism and economic development of the city. Santos (2018) in a research titled "Public Space in the Regeneration of the City", addresses how can the public space be an essential tool in land use planning, both in developed and developing countries through the proposal of quality public spaces based on their social, environmental and political-economic components. The main results show that progressively interventions in public spaces have been growing with diverse programs managed by organizations worldwide. Public space planning is going in the direction of participatory proposals, which emerge from the communities' own needs, encouraging a bottom-up process. Farhan Amran and Fuad (2020) in a research titled "The effect of public spaces' physical features on interaction between strangers. Case study: Jurangmangu transit space" investigates the physical characteristics of public spaces and their effects on interactions between strangers by observing a transit space near Jurangmangu Station, South Tangerang, Indonesia. The observation that was conducted shows that interaction between strangers does not only rely on the existence of physical features that generate opportunities to sit, pause, and think more in the space. However, spatial configurations within the pausing space also play a significant role in inducing interactions between strangers. Amir et al. (2020) in a research titled "Urban Public Space as Social Interaction Space: Case Study in Petaling Street" investigated the relationship between the characteristics of urban public space and the presence of visitors in Petaling Street. Based on the results, in terms of social interaction, the user's activities are interrelated with the sociability of the urban space. Manehasa and Çoniku (2021) in a research titled "The Use of Public Space as Urban Regeneration Tool: A Case Study in Residential Block "1 Maji" in Tirana", by Elaborating briefly the urban regeneration as a process of improving of the qualities of life of urban space in order to meet the social objectives of the people, focuses on a discussion on the role of public space concept as a tool in this process. The results show that public space concept, in its core, should be seen as an important and effective designing tool for restructuring the urban space in the urban regeneration process. Cerreta and Rocca (2021) in a research titled "Urban Regeneration Processes and Social

Impact: A Literature Review to Explore the Role of Evaluation", concluded that in urban regeneration processes, evaluation plays a decisive role in guiding strategic choices, empowering Engaged the involved communities, supporting decision makers and attracting funding. Zhang et al. (2022), in a research titled "Social Interaction in Public Spaces and Well-Being among older women : Towards Age-Friendly Urban Environments", have concluded that the social interactions of older women relate to both their physical and psychological situations. Public spaces can positively impact the psychological well-being and social participation of older women. Conclusions include insights regarding the relationship between social interaction and well-being among older women, as well as proposing a series of principles for shaping public spaces for an age-friendly urban environment.

The review of the research background shows that the majority of recent studies related to the regeneration refer to the regeneration of public areas at the urban level and scale such as neighborhoods, streets, squares, plazas, etc., and less research has been done with a regeneration approach on the scale of architecture, especially traditional Iranian Bazaar, which makes the present study innovative.

### **3. Theoretical Framework**

#### *3.1. Sociability in public spaces of the city*

Public spaces are where people and different social groups participate; they provide an opportunity for sharing thoughts and information due social nets formation. In addition, public spaces are more than just an experience of a space (Hajer et.al, 2001). Public spaces include streets, paths, squares, roundabouts, plazas, play grounds, city halls, malls, beaches and shores and other forms of spaces for gathering (Carr et al., 1992). These types of spaces have been described by urban designer Gehl (1987) as the "life between buildings" and by sociologist Oldenburg (1989) as "third places". Gehl (1987) offers a framework for understanding social interactions in his discussion of *Life Between Buildings* as beginning with simply a shared occupation of a public space, with no particular connection between the people, through to an optional use of public space in which users actively seek that spatial type for recreation or socializing. The entire social interaction continuum, beginning with social presence and ending with voluntary participation for shared social experience, is of value to urban life and the whole spectrum needs to be supported spatially through the design of public space. In *Cities for People*, Gehl (2010) further 64 Social Interactions and the Quality of Urban Public Space discusses "necessary" and "purposeful" public life as being driven by economic activities and the essential functions of daily life. According to Oldenburg, public spaces are

places that "host the regular, informal and happily anticipated gatherings of individuals beyond the realms of home and work" (Oldenburg, 1989). According to Carr, "The public spaces created by societies serve as a mirror of their public and private values. When public life and public spaces are missing from a community, residents can become isolated from each other and less likely to offer mutual help and support (Carr et al., 1992). Montgomery (2013) argues in his book *Happy City, The Power for Urban Design to Make Happiness*, that the public spaces and cities are capable of improving people's happiness, through pertinent design decisions and the chance to interact with each other, with nature, and everything the public space offer itself. Motloch believes that the key characteristics of positive public place are that a place is esthetically pleasing; functionally meaningful; and that there is a strong relationship between the anticipated behavior and the setting characteristics. He argues that in achieving positive placeness, the overall aim is to "maximize meaning, increase sensory pleasure and reduce environmental stress" for user groups. (Motloch, 2000). The public spaces provide locations where different groups within and between different age groups co-exist and observe each other even if they have little direct interaction. In other words, socially inclusive public spaces enable people of all ages to access essential services and facilities without physical barriers, safety concerns or transport difficulties in reaching them (Holland et al., 2017). The sociology of childhood (James et al, 1998), identifies public spaces as places where children and young people can construct a form of privacy in their own places, away from the familial control and surveillance of home (Malone, 2002). In public spaces, environmental comfort has always been emphasized, such as acoustic comfort (Yang & Kang, 2005) or sensation comfort (Xiao et al., 2018). The sequence of different environments, buildings, relaxation, temporary events, urban art and entertainment, commerce and climatic conditions are other factors that attract people into the public space (Chen et al., 2016; Garau et al., 2005). In total, the social success factors of urban public spaces are numerous and span physical, social, sensory, and personal considerations for users. In designing and planning urban public spaces, designers are engaging with all of these considerations whether they are conscious of them or not (Bishop and Marshall, 2014). The present research aims to develop and strengthen the social interactions of users in these urban spaces by recognizing the first type of considerations (physical considerations). Based on the opinions of prominent experts and researches in this field, the physical-spatial dimensions affecting the sociability of public spaces have been set in Table 1.

Table 1  
Physical-spatial components and indicators affecting the sociability of public spaces

Indicators	Components	Theorists (year)
Location/ Spatial proximity/ location of spaces	Location	Lerup (1972),
Determining physical privacy/ determining functional privacy	Privacy & Territory	Whyte (1980),
Physical access/ social access	Access	Lennard &
Inviting property	Invitation	Lennard (1984),
Spatial permeability	Permeability	Hillier et al.
Spatial configuration/ spatial diversity/ spatial continuity/nature of space	Spatial structure	(1984), Lynch &
Physical Continuity	Physical Structure	Hack (1985), Lang
Visual attractiveness / functional attractiveness / architectural attractiveness / physical decorations / color / materials / harmony & coordination/ rhythm / variety of dimensions & sizes / lighting	Aesthetics	(1987), Gehl
Form/Geometry	Form & Geometry	(1987), Marcus &
Proportion/ dimensions & size/ scale	Proportions, Dimensions & Scale	Francis (1990),
Spatial facilities/ comfort facilities & equipment/ Extra services	Facilities & Services	Carr et al (1992),
Spatial flexibility/ activity flexibility/ functional flexibility	Flexibility	Oldenburg (1999),
Natural elements (Water & plants)	Natural elements	Dines et al. (2006),
Thermal and climatic comfort/environmental comfort/physiological comfort	Comfort	Behzadfar (2003),
Physical signs & symptoms	Signs & symptoms	Pakzad (2003),
		Daneshpour &
		Charkhchian
		(2006), Rafieian et
		al. (2007),
		Salehinia and
		Memarian (2009)

(Source: Based on previous studies)

### 3.2. Urban regeneration and its approaches

Regeneration in the word is derived from the root of the verb "regenerate" (Colantonio & Dixon, 2011) and means to revive, renovate, and renewal (Christelle & Damidaviciute, 2016). Urban regeneration, revitalization, or renewal are terms used to describe the processes of land redevelopment in cities that suffer from urban decay. Such schemes aim to address issues of poor health, educational attainment, well-being, and employment rates, in an effort to raise the socio-economic status of an area, and individuals who reside within it (Colantonio & Dixon, 2011; Madden, 2014). In a more comprehensive definition, Sustainable urban regeneration is a regeneration for actions, policies and processes within a city, which address interrelated technical, spatial and socioeconomic problems to reduce environmental impact, mitigate environmental risk, and improve environmental quality of urban systems, lifestyles and assets (URBACT II, 2015). urban regeneration requires not only the improvement of the physical environment, but also the regeneration of non-physical parts such as economy, society, and culture (Ricca, 2018; Reynard et al, 2017; Boussaa, 2014). In most policy and academic circles, sustainable urban regeneration is agreed that it can be defined as an aggregate of four basic pillars: economic, environmental, social and institutional (Roberts, Sykes, 1999; Hussain Ali, Al-Khafaji, 2023). This research seeks to provide solutions for the social regeneration of Zanjan bazaar based on the recognition of existing physical-spatial challenges. Social regeneration' refers to social interventions and approaches which are typically embedded alongside physical and economic dimensions of a 'holistic' regeneration strategy; where an overarching vision for the community or area and co-ordinates all three aspects of regeneration (social, physical

and economic) (Kearns, 2003). Social regeneration appears to be an inherently less tangible process and one that is harder to articulate than either physical or economic regeneration. Seven principles have been defined for effective social regeneration and interventions, which are: 1. Longevity and commitment, 2. Developing meaningful relationships, 3. Inclusivity and accessibility, 4. Intensity and immersion, 5. Innovation and flexibility, 6. Collective and cooperative learning, 7. Excellence, aspiration and inspiration (Community Development & Regeneration Health Services, 2016).

### 4. Research Methodology

The present study is practical in terms of purpose and mixed method in terms of the nature and execution method which includes a mixture of statistical and qualitative methods . The required data in order to explain the physical-spatial dimensions affecting the formation and development of social interactions in the public spaces of the city (Iranian Bazaar), relying on two library and field approaches and using survey tools, questionnaires and interviews are obtained. Most of the library information is obtained through the purposeful review of written sources (articles, books, thesis) and searching in reliable scientific databases about the concepts of "socialization in public areas" and "urban regeneration" and the other part of it is prepared after analyzing the documents and first-hand sources of the cultural heritage and tourism organization of Zanjan city in relation to the historical Bazaar of Zanjan. The field data is also collected with to determine the significant relationships between the physical-spatial components of Zanjan Bazaar and the sociability of users, as well as identifying the physical-spatial challenges that affect the interaction of users in Zanjan Bazaar, through a researcher-made Likert scale questionnaire and a semi-

structured interview. The statistical community participating in the research is made up Zanjan Bazaar businesses including storekeepers, peddlers, manufacturers, brokers and middlemen, money changers, storekeepers, porters, etc., that were selected in a simple random manner. According to the statistics provided by the board of Bazaar trustees, the number of active businesses in this historical complex is reported to be 1300 people, and the sample size calculated for this number based on the table of Krejcie and Morgan (1970) was estimated as 297 people. The size of the interviewed community was also considered equal to 21 people based on the theoretical saturation sampling method. Theoretical saturation means a stage in which no new data appears in relation to the category and the relationships between the categories are established and confirmed (Glaser, Strauss, 1967). The analysis and interpretation of theoretical and field data is

done on two qualitative and quantitative levels: on a quantitative level based on SPSS statistical analysis software and relying on descriptive (Average, standard deviation) and inferential tests (Kolmogorof-Smirnov, Pearson correlation) and on a qualitative level based on the method of coding and categorization in 5 consecutive steps; 1- Implementing of the interview text, 2- Rereading the text and extracting short sentences (phrases), 3- Creating shortcodes and naming them (coding), 4- Categorizing codes and conceptualizing, and 5- Determining the final categories (Aberumand et al., 2023). Following the completion of the data interpretation process, based on the obtained results and alignment of the findings, solutions are suggested in the direction of the social regeneration of the Zanjan Bazaar based on the physical-spatial dimensions affecting the strengthening of social interactions. (Fig. 1)

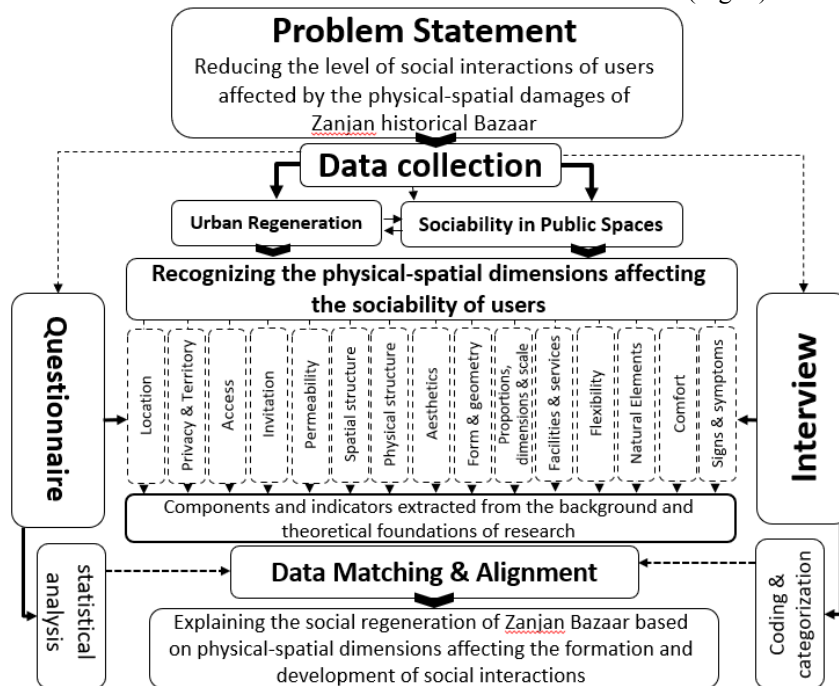


Fig. 1. Research implementation model and process

## 5. Research Geography

Zanjan Bazaar complex was built in the year 950 A.H. and on a land area of 18 hectares. 8 hectares of it are allocated to the economic sector, 7 hectares to the residential sector, 1 hectare to public places and 2 hectares to communication networks (Iranian Bazaar, 2009). The Zanjan Bazaar, which extends from the west front (Amirkabir Street) to the east (South Saadi), with a length of one thousand meters, is considered the most important commercial axis of Zanjan city. Examining the linear Bazaar plan of Zanjan shows that this complex is historically divided into two parts, called the upper Bazaar (Yokhari Bazaar) and the lower Bazaar (Ashaghi Bazaar). The upper Bazaar consists of Qaysarieh Bazaar, Bazazha row, Aghalig row, Abdul Ali Beik row and Imamzadeh row, and due to the establishment of

similar businesses in one place, it included small rows such as goldsmiths', cloth sellers', cobblers', saddlers', hat makers', fruit sellers' and liver cooks' rows. Until the beginning of the last century, in addition to supply and trade of local products, the lower bazaar has been fed through two existing caravanserai (Golshan and Malik) where products were transported there from Qara and Qasbat. Today, these spaces have become warehouses for imported goods (Meshkini, Mohammadi, 2007). These two parts of the Bazaar are similar in terms of architectural style, construction method and type of materials, and during the Qajar period, they were completed in several stages, and according to the needs, caravanserais, mosques, and thermal baths were added to the Bazaar complex (Maleki, 2014). (Fig. 2)

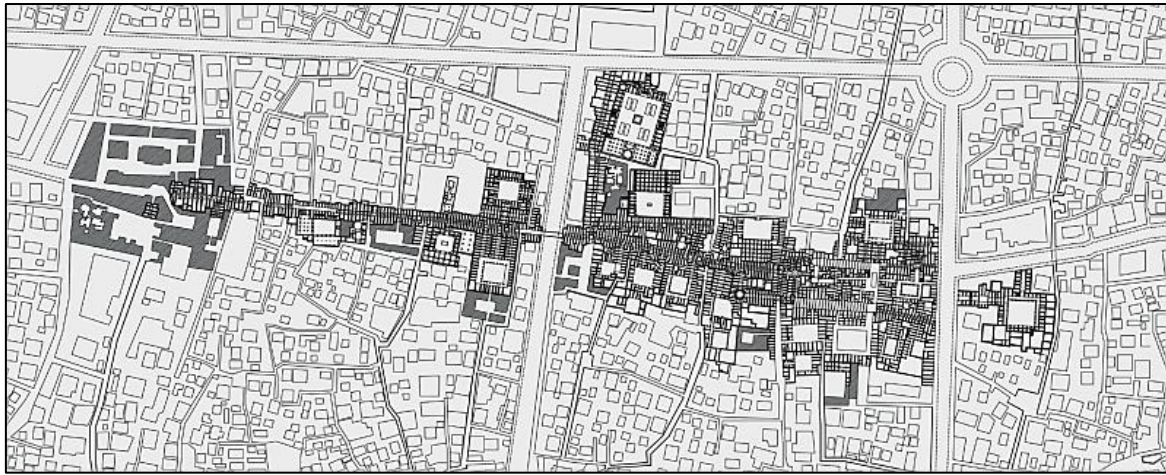


Fig. 2. The plan of the historical Bazaar of and its surroundings  
(Source: Archives of Cultural Heritage & Tourism in Zanjan, 2023)

## 6. Results and Discussion

The results of the analysis of statistical and qualitative findings in order to answer the questions of the present research are as follows:

### 6.1. Evaluating the relationship between the physical-spatial dimensions of Zanjan Bazaar and the sociability of users

In the process of quantitative data analysis, the Kolmogorov-Smirnov test was used to evaluate the degree of dispersion of the frequency of data and to check the normality of the research variables. Based on the results of this test (Table 3), the significance level for each variable is higher than 0.05, so all research variables have a normal

Table 3  
Kolmogorov-Smirnov (K-S) test results

Components	Number	Standard deviation	Degrees of freedom	sig. value	Result
1 Location	297	0.76±	53	0.083	normal
2 Privacy & Territory	297	0.69±	53	0.089	normal
3 Access	297	0.44±	53	0.053	normal
4 Invitation	297	0.53±	53	0.055	normal
5 Permeability	297	0.51±	53	0.064	normal
6 Spatial structure	297	0.49±	53	0.059	normal
7 Physical structure	297	0.47±	53	0.084	normal
8 Aesthetics	297	0.43±	53	0.057	normal
9 Form & Geometry	297	0.63±	53	0.071	normal
10 Proportions, Dimensions & Scale	297	0.57±	53	0.061	normal
11 Facilities & Services	297	0.60±	53	0.064	normal
12 Flexibility	297	0.55±	53	0.088	normal
13 Natural elements	297	0.61±	53	0.086	normal
14 Comfort	297	0.59±	53	0.079	normal
15 Signs & Symptoms	297	0.67±	53	0.080	normal

(Source: Statistical findings)

Table 4

Pearson correlation test results

Relation	Correlation coefficient	sig. value	Relationship type	Result
Physical-spatial dimensions of Zanjan Bazaar and user interaction	0/817	0/000	Direct	There is a direct and significant relationship

(Source: Statistical findings)

distribution with 95% confidence. As a result, it is necessary to use parametric statistical tests in examining the questions. In addition, the values of the variances are less than 1, which shows the relatively low dispersion of all variables around their average. Considering the normality of the variables from the point of view of businesses, Pearson's correlation test was used to determine the relationship between the physical-spatial dimensions of Zanjan Bazaar and users' interactivity. The results of the analysis indicate that there is a direct and significant relationship between the two variables, because the correlation coefficient is positive and also significant values are less than 0.05. In this situation, by strengthening the physical-spatial conditions of the Bazaar, the level of social interaction of users is also improved. (Table 4)

*6.2. Identifying the physical-spatial challenges affecting the sociability of users in the historical Bazaar of Zanjan*

The interview process began with the presence of the researcher in the research geography (Zanjan Bazaar) and direct conversation with the businesses of the Bazaar and asking them for their opinions regarding the physical-spatial challenges of the Zanjan Bazaar and ended with the repetition of the interviewees' statements about the topic under discussion. After the completion of the oral interviews, the opinions of the interviewed community were converted into text, and by carefully rereading the texts line by line, coding and conceptualization operations

were performed and a list of concepts was compiled, during which similar concepts (through continuous comparison between them) were determined and the final categories were formed. By implementing the interview text, about 35 short sentences (phrases) and 15 primary codes were identified. After sorting and classifying the identified codes, 15 final categories were compiled and adjusted (Table 5). The results of this table confirm that the most basic physical challenge of the Bazaar from the point of view of the businesses belongs to physical access and aesthetic factors and the least amount of damage is related to factors of location, form and geometry, and flexibility.

Table 5  
 Recognizing the physical-spatial challenges affecting the sociability of users in the historical Bazaar of Zanjan from the perspective of businesses

Final category		Coding & conceptualization	Phrases extracted from the interview text	Interviewees
1	Location	Located in a crowded urban area	Located in a crowded urban area	Physical-spatial damages of Zanjan market  markers
2	Privacy & Territory	Violation of Bazaar privacy	Heterogeneous constructions around the Bazaar due to lack of privacy	
3			Encroachments and illegal possessions in the area and privacy of the Bazaar due to the lack of approved privacy	
4	Access	Lack of ease of access	Difficult public transportation due to the narrow width of the streets and sidewalks leading to the Bazaar	
5			Access problems due to heavy traffic around the Bazaar	
6			The narrowness of the streets around the bazaar and impossibility of rapid access of the rescue team to the accident site in case of fire	
7			The narrowness of the streets around the bazaar and the impossibility of access of riders to the inner layers of the bazaar	
8	Invitation	Decreasing the sense of invitation	Decreasing the sense of invitation of the entrance gates of the bazaar due to the damage of their outer covering decorations	
9	Permeability	Physical impermeability	The impossibility of fire trucks to move in the narrow rows of the bazaar due to lack of physical permeability	
10	Spatial structure	Reduction of spatial coherence	Absence of an independent route to transport goods	
11			Reduction of spatial cohesion due to street construction and separation of parts of the bazaar	
12			Concentration of incompatible functions next to each other	
13	Physical structure	Erosion and physical damage	Unsuitability of bazaar floors for public transportation	
14			Injury and physical damage due to not determining the area and privacy	
15	Aesthetics	Decreasing the quality of physical and environmental aesthetics	Destruction of bazaar decorations due to increased humidity caused by mechanical ventilation	
16			Strong expansion of the population in the main rows of the bazaar, especially during holidays and occasions	
17			Reducing the visual effect around of the bazaar due to the presence of peddlers and spreaders	
18			Decreasing the quality of physical aesthetics of the bazaar due to erosion of internal and external components	
19			Reducing the visual quality due to hanging wires and electric cables	
20			Reducing the visual effect of the environment due to serious damage to the floors	
21			Decreasing the quality of the environment due to the accumulation of scrap materials and the discharge of construction waste	
22	Form & Geometry	Disturbance in the physical form of the rows	Disturbance in the physical form of the rows due to the unauthorized protrusion of some cells	

23	Proportions, dimensions & scale	Disturbance in the system of physical proportions	Disruption of the physical proportions of the bazaar due to the intervention of some businesses		
24	Facilities & Services	Weakness of service facilities and equipment	limited capacity of parking lots		
25			Improper placement of some bazaar facilities and equipment		
26			Lack of adequate and appropriate health facilities		
27	Flexibility	Functional inflexibility	Lack of functional flexibility of bazaar spaces		
28	Natural elements	Lack of natural elements	Lack of presence of natural elements (vegetation and water) in the inner space of the bazaar		
29	Comfort	Lack of environmental comfort	Non-compliance with environmental health, especially in rows, sara, & timche		
30			Lack of sufficient light in some interior spaces of the bazaar, especially in the rows		
31			Depriving users of comfort due to noise pollution caused by noisy businesses		
32			Lack of adequate and proper ventilation inside the bazaar		
33	Signs & Symptoms	Lack of visual signs and symptoms	Lack of signs and symbols to guide the public, especially tourists in the process of navigation		
34			Improper placement of some signs and symptoms in the inner fabric of the bazaar		

(Source: Qualitative findings)

### 7. Conclusion

Public spaces are a vital part of successful cities and are recognized as places that inspire socialization, culture and social capital. In other words, public spaces make the city livable and play an important role in achieving a safe, comprehensive, flexible and sustainable city. Iranian bazaars were considered as one of the most important public areas of the city, and a place for the expression of cultural values, interactions and social development, and citizens' identification and identifiability. In the meantime, Zanjan bazaar, as one of the most prominent economic centers of the country, has always been the place of many social behaviors and activities such as mourning ceremonies, religious holidays and celebrations, information and news, public gatherings, national decision-making, and so on. Following the developments of the advent of modernity, the physical characteristics of this historically valuable bazaar underwent major changes, which reduced the sociability of the space. By evaluating the significant relationships between the physical-spatial dimensions of Zanjan bazaar and the interactivity of space users, this research concluded that there is always a direct and significant relationship between these two variables, because the correlation coefficient is positive and the significant values are less than 0.05. In addition, the

intensity of this relationship is also strong because the value of Pearson's coefficient is equal to 0.817, which is close to 1. As a result, by improving the physical-spatial structure of the bazaar, the number of activities and social exchanges of users can be improved. The current physical-spatial challenges of the historical Bazaar of the Zanjan were identified during a semi-structured interview with the businesses of the bazaar (Table 5), and then strategies to solve these problems were proposed and presented. (Table 6). The distinguishing point of the present research compared to the researches carried out in the field of sociability of public environments is that improving the level of sociability of Zanjan Bazaar depends on recognizing its physical-spatial damages and explaining strategies to fix these damages. This is despite the fact that the majority of previous studies have focused more on identifying the factors influencing the formation of social interactions in the public contexts of the city and have paid less attention to the pathology of the city's public buildings from the perspective of sociability. Now, by identifying the weak points of the bazaar and explaining the constructive and practical strategies, it is expected that early measures to recreate this valuable historical heritage in order to strengthen social-cultural encounters and events will be placed on the agenda of the trustees and officials.

Table 6

Explanation of social regeneration strategies based on recognizing the physical-spatial challenges of Zanjan's historical bazaar from the perspective of businesses

Components		solutions
1	location	Necessity of fair and balanced distribution of per capita services in old contexts in order to establish social balance
2	Privacy & Territory	Determining the approved boundaries of the Zanjan historical bazaar complex under the supervision of the organizations and institutions
3	Access	Organizing the movement system of pedestrians and cars by implementing the widening and reopening of the roads leading to the bazaar under the supervision of the municipal organization
4		Improving the traffic situation by considering high fines for parked cars on the sidewalks and streets around the bazaar
5	Invitation	Improving the view of the entrance of the bazaar through the restoration of the damaged parts



6	Permeability	Organizing the narrow roads around the bazaar by implementing road in order to provide quick rescue of the fire team
7	Spatial structure	Separation of the public transportation route from the goods transportation route
8		Preventing the separation of continuous parts of the market by determining the bazaar privacy
9	Physical structure	Improving public transportation routes by replacing and implementing new and suitable flooring
10		Organizing crowding and population density by removing movement barriers installed in rows
11		Separating incompatible uses and locating complementary uses side by side
12		Determining the privacy of the historical monument (bazaar) within the framework of the approved rules and regulations of comprehensive and guiding plans
13	Aesthetics	knowledge of choosing the right place to install and place mechanical air conditioners
14		Implementation of the plan to organize fake businesses to increase the aesthetic quality of the urban environment and provide benefits of citizens and peddlers
15		Pathology and restoration of damaged parts according to the standards and principles of protection and restoration of historical buildings
16		installing ducts in order to integrate the passage of cables and electric wires in order to prevent possible dangers and improve the visual effect
17		Improving the environmental landscape by replacing and implementing appropriate floor coverings
18		Legal action against violators in case of unauthorized discharge of construction waste and orders to carry out collection and environmental cleaning operations
19	Form & Geometry	Organizing the cells by removing the protruding showcases in the way of rows
20	Proportions, Dimensions & Scale	Preventing the unruly intervention of the business by subordinate authorities and organizing the physical structure of the bazaar by maintaining the system of geometric proportions
21	Facilities & Services	Providing more parking spaces by using vacant lots adjacent to the bazaar or building multi-story parking lots at a suitable distance from the bazaar area
22		planning and correct placement of furniture and facilities in the bazaar
23		Providing appropriate health services and facilities according to the capacity and per capita of users
24	Flexibility	Providing relative functional flexibility in interior spaces by using flexible and movable furniture and elements
25	Natural elements	Increasing the amount of greenery and highlighting the presence of water in the interior of the bazaar
26	Comfort	Supervision, inspection and control of environmental health by the board of trustees of the bazaar and serious dealings with the violators of health principles
27		Providing sufficient natural lighting by widening ceiling skylights
28		Reducing the negative effects of noise pollution by placing noisy businesses (welding, blacksmithing, copper smithing, casting, etc.) in the quiet and Unreachable parts of bazaar
29		Providing adequate and appropriate ventilation using natural and mechanical ventilation systems
31	Signs &	Increasing the legibility of the route through legible visual signs to orient pedestrians correctly
32	Symptoms	Appropriate placement of signs and symptoms in the bazaar in order to guide tourists correctly

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