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Spatial Resilience In Traditional Bazaars; Case study: Esfahan Qeisariye Bazaar

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Abstract

Resilience in urbanization is a novel concept that has been globally concerned since the early 1990s. At the beginning, this concept had merely an ecological viewpoint; however, over time it has gradually been developed, and the other aspects and issues in terms of urban societies such as social, economical and so on has been considered. One of the important aspects of resiliency is spatial resiliency that is the continuing of the existence of urban spaces while preserving their identity during different variations. In the historical study of urban spaces, their different degrees of life, in other words, the difference degree in their resiliency is concerned. Therefore, this question rises that what factors influence the resiliency of an urban space? On the other hand, one of the types of urban spaces that despite its various environmental changes and crises throughout its history has desirably continued its life is the traditional bazaar. So this question is posed that what factors have led to the resiliency of traditional bazaars over a long period of time?. In this regard, the present study aiming to answer the proposed questions, especially in the case study of the Qeisariye bazaar of Isfahan, attempts to address the factors that have caused this urban space being resilient. The methodology is qualitative based on considering case study and content analysis and descriptive-analytical approach. First, by using deductive reasoning method and referring to authentic resources, two social and physical factors are introduced as indicators of the conceptual model of spatial resilience. Then, the indicators of the spatial resilience model related to the Isfahan's Qeisariye Bazaar were extracted by examining the case study of research and content analysis of the interviews concerning the reasons for using this place in order to scrutinize the effective factors in constant use of the case study. The brief results of this research indicate that the flexible and robust construction of the bazaar, with its constant protection and restoration along with diverse uses, unique identity of space, environmental comfort and beauty in the space, access to the various spaces and uses of this space, and belonging to the place in the Qeisariye Bazaar of Isfahan has led to the spatial evolution of this historical urban space.

Keywords

Resilience, Spatial Resilience, The Traditional Bazaars, The Isfahan's Qeisariye Bazaar.

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Introduction

Although resiliency is a new term in the field of urbanization, since human nature is based on survival, the discussion of resiliency has always been concerned by human and has attracted the thoughts of various theorists. Nevertheless, resiliency in urbanization has been considered since the early 1990s (Meilti, 1999: 10). Because societies include different physical, mental, psychological and cultural structures, it is difficult to fully measure all the components that enhance resiliency (Cutter, et. al, 2008: 11).

Therefore, in discussing about resiliency this question is raised that resiliency of what against what? The answer to the first what specifies the type of system that should be resilience. The answer to second what specifies the type of crisis that the system should be exposed to. Accordingly, the resiliency has various dimensions of physical, social, economic, institutional, livelihood, spatial, and so on (Lu& Stead, 2013: 201). The spatial resiliency is the aspect that is related to the continuous of the urban life spaces preserving their identities (Cumming, 2012: 901). One of the key components of the space of Iranian-Islamic cities has been the bazaar that their lives have been very influential in the social and economical life of Iranian-Islamic cities. Currently, these traditional bazaars are the urban spaces that commonly are in spatial structure of historical cities as a reflection of their spatial resilience. Now, this question is raised that what factors have caused these urban spaces to continue their life in spite of occurred evolutions in the cities. The answer of this question can be useful in investigating the resiliency of other spaces and finding spatial endurance of factors for designing and creating new spaces. In this regard, the current study was considering the case of the Isfahan Qeisariye bazaar that has desirably survived in the city of Isfahan since Safavid era. The purpose of this paper was to find out the effective factors in spatial resiliency of Isfahan's historical bazaar space against the changes in the urban community with reference to the needs and attitudes of the age during the advancement of societies from the creation of

the bazaar to present time. This survey attempted to answer the questions in the following section.

Research questions

What factors generally affect the an urban space resilience? And, what factors particularly have affects the spatial resilience of the Qeysarie Bazaar?

Research Methodology

As an urban space consists of two main factors of the body (physical factors) and content (social factors), in the resiliency of an urban space, the two factors, physical and social, must be resilient in the environment. Since human beings are the main factor in the discussion of the resiliency of both of these factors and due to the nature of human as a complex and sometimes-unpredictable creature, a qualitative approach is applied in this study mainly. This approach unlike the interpretative quantitative approach is a whole oriented and humanistic approach (Vaderstoep & Johnston, 2009: 166). The main feature of this research is using a deductive approach that carried out based on analyzing deep interviews with the purpose of understanding or interpretation of phenomena by the use of people's comments (Marshall and Rossman, 1998).

In this regard, in this study, in order to investigate the effective factors on the physical aspect of the resiliency of environment, with surveying a case study of the research, using descriptive and analyzing methods identify the effective factors. On the other hand, in studying the social factors' resiliency of the case study, deep and semi-structured interviews with the collaborators (users of this urban space) in order to investigate the factors affecting in the resilience of social factors, which means that the continuation of the presence in this bazaar is done. The interviews have been continued until they reach to theoretical saturation (specifically with 35 people of customers and businesses in this historic bazaar) and then with the approach based on the inductive content of analysis and without any sense of prejudice,

the extraction of factors from the text of related interviews has been done (Mohammad pour 2014, 110); (Fig. 1).

Research history

Before, Many researches have been carried out in the field of physical resilience, but especially in the field of the Bazaar there is one thesis with titled “ Corporal and Functional Durability Evaluation in the Conservation of Tehran’s Historic Bazaar “(Derakhshani, 2014) that deficiencies of the physical and functional resiliency of the Tehran Historical Cultural Bazaar was mentioned in and the article was extracted of entitled “ Attitude towards the Durability of the Historical and Cultural Values in the Conservation of Bazaar (Case study: The Attitude Research of the Tradespeople in Tehran’s Historic Bazaar)” (Razaghi & Derakhshani, 2016) which also assesses the attitude of the native community of Tehran’s historical bazaar in relation to the bazaar. In addition to the difference in the case study, research method, valuation method, foundations and factors, this research has been focused on reducing the amount of endurance of Tehran’s bazaar due to both physical and functional factors. Current present research is about the factors of resiliency and its causes in the historical bazaar of Isfahan, according to the physical and social factors that it is possible to consider these two studies as complementary and avenue for future researches.

Resilience

The term resilience in Webster’s dictionary has been

meant as the ability to return to original form in the course of the changes (Webster, 1984: 1210). The term “resilience” was first introduced in 1973 by Holling (an ecological theorist) in an article entitled “Resilience and Sustainability of Ecological Systems” with an Environmental View. (Gross, 2008: 1) The idea of resilience can be considered based on the comment of Heraclius “From changes of everything, nothing has been left yet” (Keck & Sakdapolrak 2013, 9). Holing (1973) define the term “resilience” the amount which an ecosystem can absorb disturbances while still being able to survive. In general, resiliency often refers to the extent to which a given system is capable of tolerance and resilience to various variations before it reorganizes itself into a new set of structures and processes. According to many researchers, resilience is one of the most important issues for achieving sustainability (Karrholm, 2014: 121)) Some theorists believe that based on the ability of how a urban community simultaneously balances the system and human activity, the amount of resiliency can be measured (Barnet et al 2007: 8). At the 2005 Gothenburg conference in Sweden, four general social, economic, physical and environmental dimensions was considered for the resiliency (Resilience alliance, 2007: 17). However, at the same time, variety of other dimensions, such as spatial, livelihood, Cultural and so on was considered for resiliency. Several decades after the introduction of the concept of resiliency, the idea of spatial resilience was introduced (Cumming, 2011: 90 1). For the first time, the spatial resilience in the research of Nystrom and Folke under the topic of Sp a tial

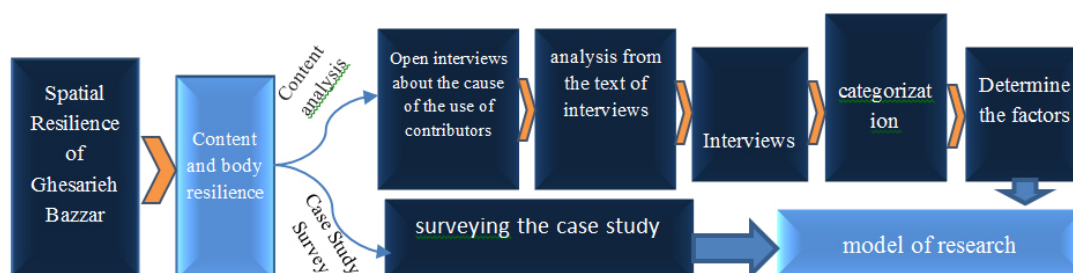


Fig.1. Research conduction trend. Source: authors.

resilience of coral reefs(2001) has been questioned (Nystrom & Folke, 2001: 407). Cumming (2011) writes in the definition of spatial resilience that is more a resilient place than a special favorite unit (Cumming, 2011: 901).

Spatial resilience

The spatial resilience implies the environment and human relationships with that environment. Biological memory and intra-system relations are vital aspects of spatial resilience (Allen, et. al, 2016). Basically, an urban space is formed from the interaction of objectivity, normality and subjectivity, which combines real, social, and individual affairs. In this way, spatial resiliency is associated with physical identity and social identity.

Many challenges in urbanism include spatial issues. Since urban design and planning knowledge relates to the sustainability or resiliency of the urban development scale to the scale of the design a small product, therefore it is imperative to pay attention to all the scales in spatial designing and planning. From a spatial point of view, the concept of resilient spaces or a resilient city includes similarities with the concept of flexible architecture. Flexibility has been widely considered by designers and structuralism architects since 1950 (Forty, 2000: 146) and as a concept; flexibility is often used to indicate the likelihood of a structural change or composition of the buildings in different ways. This concept was later up-dated by Hertzberger and linked to the concept of multi-capacity. According to Hertzberger, multiplicity represents a form or combination that could have various uses, without the principle of change, and that multi- capacity has the ability to adapt to diversity and change while retaining its identity (Hertzberger, 2001).The Hertzberger multiplicity concept is very similar to spatial resilience, and it may be possible from the urban planning perspective that follows Hertzberger, and spatial resilience is simply as capable of coping environments or spaces with variety and variations while preserve their identity. Therefore, spatial resiliency reflects the likelihood

of different uses, adaptations, coping and even accepting unchanged changes in identity which will become something else than its original one. Spatial design and planning can play an important role in the urban resiliency to deal with social and identity disorders through land use management, adaptation, etc (Lu & Stead, 2013).

Compilation of the initial conceptual model of spatial resonance

Since urban spaces consist of two general dimensions of the body and content. The disruption in two mentioned dimensions causes disturbance in the resilience of urban spaces, therefore, in order to study the factors affecting on the resiliency of each urban space and the Compilation of a model related it, surveying the effective factors in these two components is necessary. The final model of research will be obtained based on this preliminary modeling. (fig. 2).

Bazaar urban element

The bazaar is an ancient space, which has always played an important role in Iranian city since the beginning of the history of urbanization, and has provided a place for gathering and trading, the center of revolts and movements, the dissemination of public awareness and familiarity with people. Still, it is the most proper place for the Iranian craft and buyer. Although the construction of new streets and boulevards, to a some extent, craftsmen has dragged from the bazaars to the streets, it is obvious fact that the bazaar is the position of Iranian trade just (Memariyan, 2011: 100). The bazaar is generally composed of wide corridors and usually covered with arch ceiling and connected stores to each other on both sides of it. The unique architecture of the bazaar, with the maze of it, makes the bazaar more dynamic. As the long path is fatigue, in some places, it has special pauses. This movement and stagnation in the bazaar architecture make it attractive and diverse. The influence of factors such as the breadth

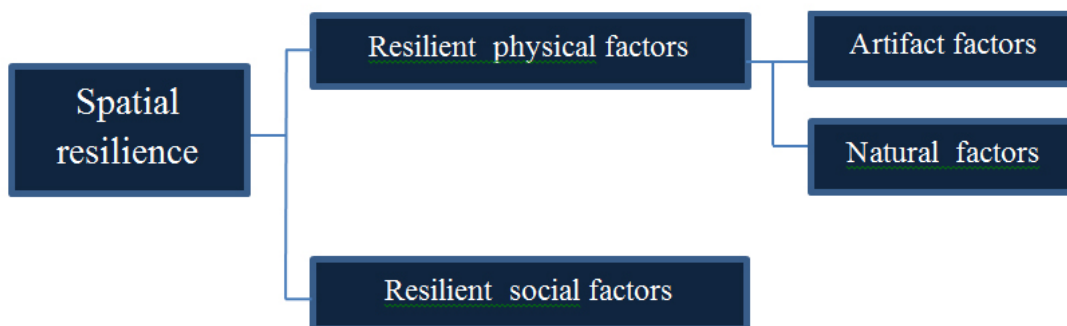


Fig. 2. Spatial Resilience model. Source: authors.

and scope of bazaar penetration, bazaar performance, and climatic factors have led to differences in bazaars in various points and they are becoming attractive in each region and level (Farzad Shad, 2007); (Fig. 3).

Historical bazaar of Isfahan

The Qeysarie bazaar is one of the most important urban spaces in Isfahan, which has played a key role in linking the new square (Naqshe Jahan Square) to the old square (Old Square) since the safavid era so far. This bazaar is the special place in urban spaces as a way of communication and a place for the provision of urban services, as well as holding cultural, social, religious ceremonies and so on (Fig. 4).

This bazaar consists of several components and elements, and in its design, commercial and administrative spaces with cultural sites has been subtly put together (Table 1). The Rasteh of this

bazaar have high arches (in accordance with the bazaars form in warm and dry climate) with building materials. This continuous arc with a distinct rhythm by creating a shadow-lightening during the bazaar gives a special effect to this urban space and balances the air temperature and biological conditions like a thermal capacitor overnight. The existing holes in the ceil provide the light required by the bazaar (Ghobadian, 2011: 192); (Table 1).

Findings and discussion

In studying the factors affecting the spatial resilience of the bazaar, it is necessary that the factors affecting the conceptual model associated with spatial resilience derived from the theoretical foundations of the research are analyzed so that the factors can be fully elucidated. It is worth noting that the factors - as they are described in each one - will often overlap each other and has a causal relationship. In each case,

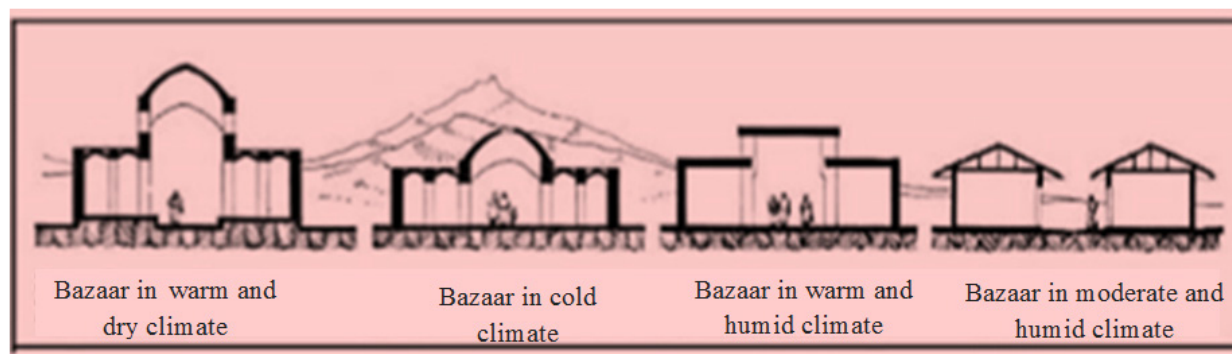


Fig. 3. The role of climate in bazaar form. Source: Ghobadian, 1998: 183.



Fig. 4. Location map of Qeysarie bazaar in Isfahan. Source: authors.

the factors are given weight and importance.

Factors Influencing Physical resilience in the bazaar (A Descriptive-Analytic Study)

• Flexibility

Flexibility is the ability of a system to adapt or respond to environmental changes (Beirão, 2011: 39);

This quality is considered to be the main attribute of the resilient city, because the flexibility of urban spaces makes it possible to change and adapt them without losing their original identity (Wikstrom, 2013). The city is a phenomenon that has a duty to adapt itself to the conditions of time, to meet the daily and long-term needs of the inhabitants (Pakzad, 2011:4). In discussion of flexibility, the form is the most fundamental organism that can be adapted to change. The factors that make this historical bazaar more flexible include:

proper proportion between mass and space: The combination of pauses (spatial opening in The chaharsus) and movement (with optimal width) along with the proper height composition of the building (generally one and two floors) cause physical and functional flexibility in the main corridor of the bazaar. In addition the spatial opening in the Saras and Timches and height restriction in the surrounding area increase the flexibility of the bazaar.

Modulation (standardization) along with unique and specific elements: In the bazaar's structure, both specific forms (the bazaar's main row) and non-specific forms (repetitive elements such as chambers, arches etc) have make it possible for the repetitive elements around to be repaired and replaced over time and, the resilience in the form will be thus desirably achieved because a resilient city needs both specific and non-specific modules (Arefi , 2012). In addition, the bazaar is capable of including new elements that fit its former physical structure for new functions and applications if necessary.

The bazaar's lengthy structure: It has provided easy access in a large area, and this urban element can be adapted over time to a new circulation system after changes to meet the users' new needs (Fig. 5).



The use of local building

Materials: it has facilitated building repairs in such urban spaces and increased the bazaar's flexibility over time.

Structural strength

Strength and consistency are key factors in building resilience against natural and man-made disasters. Design, implementation, and materials play the

.Table 1. The main elements of the spatial structure of the Isfahan Qeysarie bazaar. Source: Retrieved from: Farzam Shad: 2007

Element	Description	picture
Rasteh	The main path of the bazaar and the busiest place in it.	
Chaharsu/Charsu	The intersections of two principle Rasteh is named Chaharsu that form a pause in the bazaar.	
Dalan	The secondary Rastes that are covered whit arch (with low latitude and longitude) are laid between the main Raste and the sara.	
Shop Hojreh /Dokan)	The smallest component of bazaar	
Kargah (workshops)	Kargahs are mainly on the upper floor of the bazaar	
Timcheh	covered space has two or three storey buildings, which is generally reserved for a single uses.	
Tim	A larger scale from Timche that has several types of business.	
sara or khan	The equivalent to the current trading complex used for wholesale.	
Anbar(Barandaz)	The warehouse located in the vicinity of Sara	
Other related uses	Other related uses Such as Tejaratkhane, which are equivalent to today's bank. Uses like mosque, school, sauna, cafe, bathroom and ...	

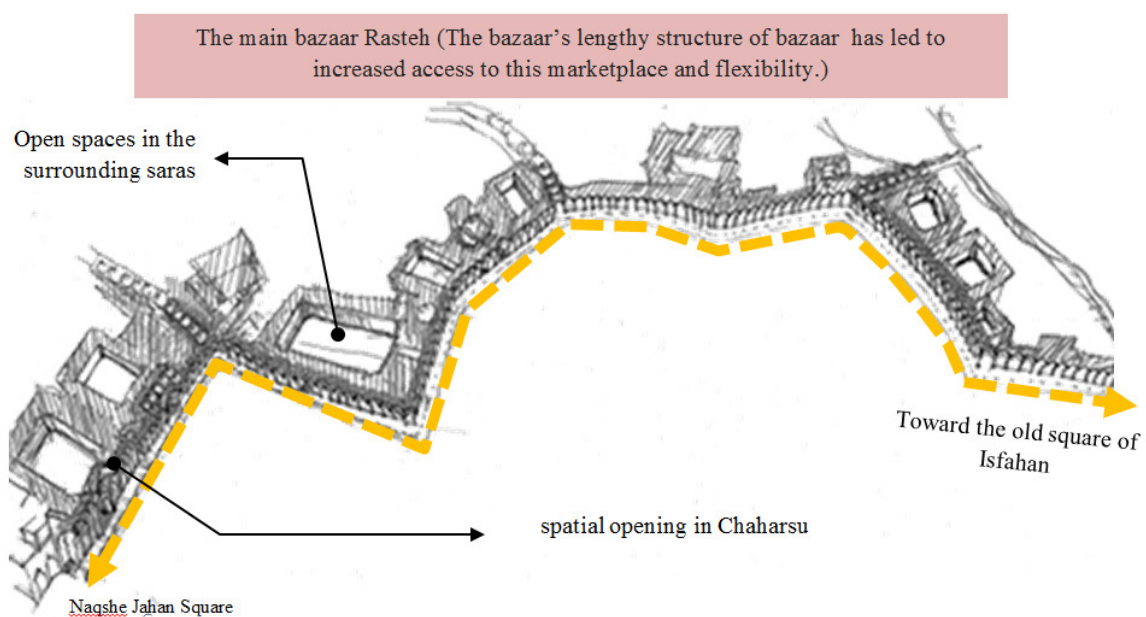


Fig. 5. Isfahan Qeysarie's Spatial Organization and its Impact on Flexibility. Source: authors.

major roles. The Qeysarie Bazaar has become resilient by achieving this to some extent, as well as maintenance and continuous building repairs over historical periods.

• Continuous repairs on worn out elements

Although the basis of urban resilience is standard construction, the continuous repair process that was included in the resilient design of this urban space has contributed to the resilience of the Qeysarie Bazaar in Isfahan.

Factors affecting the social resilience in the bazaar (inductive content analysis)

In a study on the factors affecting the social resilience in the Qeysarie Bazaar, the participants were asked about the reasons for their regular use of this bazaar. Through the content analysis of the interviews, the units of analysis were determined. In Table 2, some of the categories are listed. The significant factors (the major categories) were thus extracted, including environmental comfort, different functions, aesthetic factors, the bazaar's unique identity, and the sense of belonging to the bazaar (Table 2).

• Various functions

Due to the flexibility of the bazaar's physical structure, there will be a possible variety of functions, and each part of the bazaar can find its proper function depending on the everyday needs. The bazaar's today or modernized function and the traditional or modernized structure are the result of the resilience provided. Incompatible functions gradually disappear and those compatible are added to the bazaar for serving the people's everyday needs. In addition, universal design is a very important factor in making such traditional bazaars resilient because it can cover the needs of people from all strata of society.

Another major feature of this bazaar is the entanglement of cultural and economic spaces. The architects in the Safavid era skillfully combined commercial and administrative spaces with cultural places. Various functions in the bazaar's space has offered the wide choice of goods and improved the

flexibility in a limited space (Bentley, 2010: 157). The functions desirably support each other's life and resilience.

• Access and movement

As mentioned above, this historic bazaar in Isfahan was a communication path between the two squares, in addition to bringing of different guilds together in one place. Over time, there were other communication paths added leading to widening this path. Moreover, the communication network inside the bazaar has contributed to the communication rate, frequency, and speed. On the other hand, a number of different elements and sections in each of which there is a specific group of people from one guild based on a hierarchy of functions, has facilitated the access to each section and improved readability and positioning.

• Environmental comfort

The situation in which there are no industrial machinery, automobiles, and air polluters with less noise pollution, has provided a relaxing and comfortable space for both marketers and people. The architectural beauty, diversity of functions, enlivening spaces, proper ventilation, favorable micro-climate, and desirable lighting have made the bazaar a relaxing environment for the public, which is a motivating factor for using this space.

• Aesthetic factors

Due to the Safavid aesthetic criteria and the use of Islamic architectural elements of that period, the Qeysarie Bazaar is a combination of proportion, balance, harmony, repetition, and diversity, as the citizens still consider it a beautiful structure with aesthetic senses. This factor is associated with relaxation and is a motivating factor for activity in the historic bazaar and makes it resilient. Furthermore, the traditional elements and Iranian art manifestations in the Qeysarie Bazaar have given it an identity.

• A unique identity

There are historic, cultural, and social values in traditional bazaars with many specific rituals, customs, traditions, and cultural qualities that play

Table 2. The content analysis of the interviews with users of the Qeysarie Bazaar. Source: authors.

The interviewees' reasons for their regular use of the bazaar	Category	Main category
I come here because everything is available here, in other words, there are many different shops in the bazaar.	There is everything you need	Various functions
I pass through the bazaar every day on my way to school, so I often buy here.	To go to school	Access and movement
Here is a relaxing environment. I like walking in the bazaar.	Relaxing environment	Environmental comfort
Everything is fine here, the weather is good as well.	Good weather	
Isfahan's bazaar is very beautiful in terms of architecture.	Architectural beauty	Aesthetic factors
Walking in the bazaar is not only not boring at all, but it is also very enjoyable.	Not boring	
We both buy and enjoy the environment. It is very beautiful here.	It is beautiful	
Walking here reminds me of my childhoods and the people who used to work here.	old memories	Social and physical identity of the bazaar
My mother once brought me here for wedding shopping. Now, I like to do so for my daughter.		
The knocking sound of coppersmiths in the bazaar that evokes the spirit of life makes me happy.	knocking sound	
I love the historic buildings in the bazaar.	old buildings	
I feel a sense of belonging here and I cannot work anywhere else.	the sense of belonging to the bazaar	Sense of belonging

an important role in giving the bazaar's elements an identity. Collective participation in the preservation of such qualities leads to a sense of collective belonging.

• A sense of belonging

Given the fact that the Qeysarie Bazaar is a historic area and its architecture is indicative of a specific school of thought, period, and nationality, it has its own physical and social identity. This identity has resulted in a sense of collective belonging and attachment. The neighborhood including the mosque, cafe, public bath, zoorkhaneh, and other

social-cultural elements alongside the caravanserai, timcheh, and shops with economic functions has contributed to this sense of belonging.

The final model of research on spatial resilience of the Qeysarie bazaar in Isfahan

Based on the extracted factors affecting the two indexes of the study conceptual model (flexibility and factors in social resilience), the final model can be explained. The factors can also be applied to other urban spaces (Fig. 6).

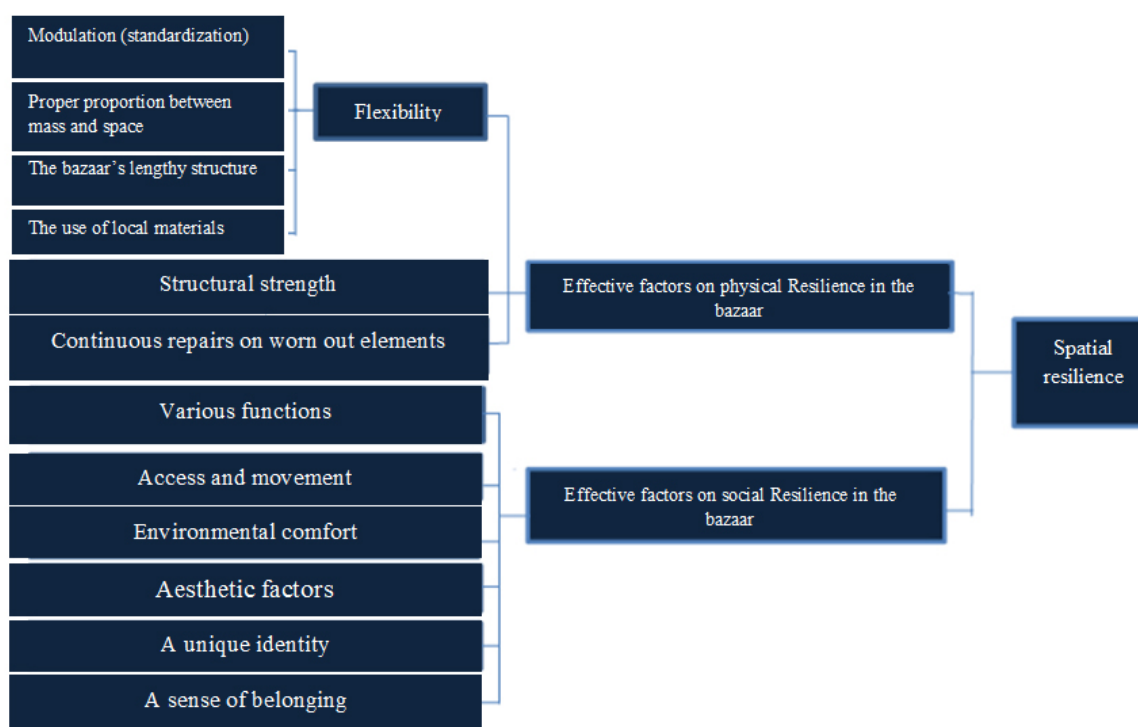


Fig. 6. Spatial resilience Model related to Isfahan Qeysarie bazaar. Source: authors.

Conclusion

Traditional bazaars have always played a key role in economic, social, cultural, and even political affairs. In addition to commercial use and the provision of urban services, they have been communication paths in the inner city, as well as places for rituals, ceremonies, and cultural-social and religious customs. The Qeysarie Bazaar in Isfahan is a traditional bazaar constructed in the Safavid era and has continued to exist in spite of the developments and changes in the city during different historical periods as a resilient urban space.

Given the fact that every urban space consists of two general dimensions, i.e. physical structure and society, the present study aimed to identify the factors affecting the spatial resilience of the Qeysarie Bazaar through this two dimensions for answering the question, what factors generally affect the an urban space resilience? And, what factors particularly have affects the spatial resilience of the Qeysarie Bazaar? After reviewing the theoretical basis, two indicators were introduced as spatial resilience indicators, including physical and social resilience. Then, factors associated with physical resilience was analyzed through a case study, and factors associated with social resilience was explored through the content analysis of the interviews with the users of the space about their continuous use in order to identify the causes of the resilience of the Qeysarie. In general, the factors affecting the bazaar resilience are as follows:

In physical terms: 1. The flexible structure of the bazaar that was achieved by considering the proper proportion between mass and space, modulation (standardization) along with the unique and specific elements, the use of local building materials, and the bazaar's lengthy structure. 2. The structure strength that was possible through appropriate design, implementation, and materials. 3. Continuous repairs which have made it possible to upgrade and adapt the function of the urban space, improved the bazaar's physical resilience, and subsequently its spatial resilience.

In social terms: 1. Various functions that are possible through flexible forms and universal space to fit the contemporary needs, the entanglement of cultural and economic spaces that facilitates the modernized functions

in the bazaar's traditional physical structure. 2. The possibility of access and movement through this space to the functions and communication function of the bazaar's main row. 3. Environment comfort in this space which is created by fresh air, and the elimination of sound pollution that is possible due to the bazaar's micro climate and other facilities in this space. 4. Attention to the aesthetic factors in the design of the bazaar, which is a motivating factor for continuing commercial activity in the bazaar. 5. The unique identity of the bazaar, which is due to the historical, cultural, and social values. 6. The customers' sense of belonging and attachment to the place has led to regular use and subsequently the spatial resilience of this historic bazaar.

Considering that the above items can be generalized to other urban spaces, the factors and results obtained can be thus considered in the design of resilient urban spaces.

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