

## Determining the Role of Pedestrian-Orientation, Concerning the Public Places: Improvement of Urban Social Capital Quality

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### Abstract

Studying the status of urban social capital indicates that it is declining in contemporary cities. The experts in the field of social science have seriously warned on the consequences of this decline, by examining the components of social capital which is the result of forming norms of collective life and social interaction. In this regard, urbanization knowledge seeks to strengthen social capital through targeted interventions and efforts to improve the quality of urban life. Social interactions are significantly important factors contributing to the social capital and one of the most effective ways of realizing social interactions is making and developing of "public urban places". Regarding the previous studies which show that public places are created for people's presence and social mobility, this study seeks the ways for strengthening social capital by interventions in public places and increasing their quality by determining the role of urban spaces in improving the status of social capital. For a better study of the subject, using a desk research method, field observation and scrolling through a questionnaire, the market pedestrian located in the central area of Tehran was studied. The collected data were analyzed by SPSS software and the results showed that interventions with the aim of pedestrianizing and attempts to make a high quality place increase presence of people and cause a high tendency to establish social interactions. In fact pedestrian-orientation of urban areas has facilitated face-to-face and collective communication by influencing the social trust and solidarity, also it has helped with strengthening the tendency to participate and cooperate. Hence, adoption of the pedestrian-orientation policy and efforts to improve the quality of public places, have enhanced the social capital of city.

**Keywords:** Social Capital; Quality of Place; Public Place; Pedestrian.

### 1. Introduction

In the modernization era, due to the rate of urban population growth, efforts to meet quantitative needs, strengthening machine attitude towards man, too much inclination towards using vehicles, neglecting planning for walking, gradually have eliminated people from the city, and caused emergence of social insecurity anomalies, reduced safety, uncertain social interactions, public health threats, lack of identity, lack of belonging, and finally reduced quality of the area [1, 2]. This led many experts to focus on other human needs such as "psychological and social needs" and strengthening the "social capital" in addition to putting emphasis on providing quantitative needs. Thus, from 1980s the concept of social capital has achieved a definite position in social theories through the efforts of prominent experts like James Coleman, Pierre Bourdieu, Robert Putnam, and Francis Fukuyama, also it has involved the urbanization field and has influenced it so that nowadays, one of the main concerns of planners and priorities of urban designers is achieving a human-centered and social type city [4, 5]. In this regard public urban spaces as effective areas in the formation of civil life, while

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including the presence of people and face to face interactions, due to these interactions also convey a portion of the historical, cultural and shared values of the society, and are regarded as factors for "bonding members of society" [6].

The present study attempts to investigate and identify the role of public spaces as a type of urban places in renewal of the civil life and strengthening of social capital. It seeks to answer this question whether intervention in the urban spaces in order to make them pedestrian-oriented and increase the quality of environment, could have a positive effect on the composition of social capital? And finally is it possible to improve and strengthen social capital by pedestrianizing and improving dynamic flow of communication? In this research, we have applied "hybrid method" based on the descriptive analysis and scrolling methods. In the first method, the theoretical discussions and thematic literature of research in the field of social capital, urban and public area are formulated and during the discussion of principles, the strategies related to planning of pedestrian area is presented. In the second method, to collect the data, a surveying method is adopted with the help of a questionnaire and finally, the data have been analyzed by SPSS software.

## 2. Theoretical Discussions

In contemporary urbanization, new models and patterns have been proposed for development of cities and the main goal of these approaches is to achieve an environment with a desirable quality of life for people. The study of formative principles of these new patterns of development has emphasized on pedestrianizing and co-ed use to meet needs of the residents, creating a friendly environment for formation of social relationships that provide the ability to live in neighboring buildings, and finally strengthening the sense of safety, comfort, and satisfaction of residence [7]. So from the point view of experts, new urbanization is a movement that is linked with social ecology, social capital, urban morphology and social sociology. It strives to establish a logical and effective relationship between the designed environment for life and the social environment [8].

This movement that seeks to plan, design, and develop used environment by general and pedestrian orientation, intends (by strengthening social interactions and raising the level of social sense of people toward city and each other) to enhance urban life capabilities [9]. Based on this, the most important strategy of this movement can be the socialization of city through the development of public spaces with urban planning. This study not only will increase the level of environmental quality of urban life, but also provides suitable basis for production and strengthening social capital, which will be discussed in continuation.

### 2.1. Urban Public Places

Generally as it was mentioned before, in the new urbanization approach "public areas such as green areas, public squares and parks have particular importance". These spaces like similar areas in the traditional cities are considered as urban centers located in the advantaged and definite places in city center, and often represent local business use in connection with the main streets. Also for social facilities, a special place is considered in the vicinity of these areas which emphasize the importance of that institution and the constructive role of public areas in social life [10].

In this approach, public areas are places for formation of "social interactions" and realization of "collective life", they have an important role in increasing "social capital" in societies, through strengthening social interactions and could be accounted as places for the development and formation of "individual" and "social" identity [11].

With this approach, public areas are the most important parts of the cities, in which the greatest contact, communication and interaction occur between humans [12]. Therefore, focusing on the public areas as effective areas on the urban life in developing programs and plans, indicates the importance of these areas in improving the quality of cities in citizen's lives.

### 2.2. Pedestrian- Orientation and Developing Quality of Public Area

Among all kinds of public areas, studies have shown that urban pedestrian spaces have more impact on the inhabitants of city. In these spaces, pedestrianizing capability is considered as one of the main components of creating desired and satisfactory spaces for citizens [3]. In the new urbanizing charter also by proposing that "streets and squares must be safe and attractive, and must be designed in such a way to provide citizens' comfort" pedestrianizing of urban spaces has been stressed [13, 14]. Based on this view, strengthening as an effective quality on efficiency of urban spaces could be by "daily use access, creating connections in communication networks", encouraging people to participate and encouraging social interactions indicate the level of citizen's satisfaction or dissatisfaction of urban spaces [13-17]. Also it should be noted that the satisfaction obtained from considering this quality on the one hand is formed as a result of physical and environment noticeable interaction, and on the other hand, it is formed with respect to the patterns, cultural, mental, and cognitive backgrounds and capacities, and also through evaluation of the supervisor in the urban pedestrian oriented space [18-21]. Since in the public spaces "the supervisor's view point is emphasized through his active presence in the environment", it is necessary to provide conditions for this presence by strengthening quality of pedestrian-orientation [22]. Totally as in the past cities had their own identity in the high buildings, domes and monuments, nowadays they identify themselves with the pedestrian oriented streets" [23].

### 2.3. Strengthening of Pedestrian- Orientation and Movement toward Urbanizing

"Creation of the place" has always been considered as one of the main goals of urban design activity in improving quality of the cities. In this regard experts, like Edward Rolph, explain place as a semantic base that forms over time through events" [24]. Chown describes "the place as the focal point of space that is defined by events" [25]. Cantor explains "place consists of interaction and sharing between activities and physical properties and semantic concept" [26]. Shultz describes the place as a space that provides those things that the environment does not possess, He explains place as a space that it is sensed and perceived by human experience and can provide necessary basis for communication between people and can form a clear mental image in their audience [27]. With these definitions, "recognition of a place is a social phenomenon", and distinguishing a place from other ones could create a certain sense of the environment in its audience [28, 29]. Also in urban design literature, experts explain the concept of "place" in approximate connection with "urban pedestrian oriented spaces. "Because" pedestrians while provide valuable services for citizens, such as entertaining chances, aesthetic, environmental function and etc." also prepare the way to strengthen people's dependence on the environment, feeling of belonging and establishing social interactions [30]. In Table 1, some of the characteristics and results of urban area planning are mentioned through the presented pedestrian –orientation (Table 1).

**Table 1. Characteristics and results of pedestrian-orientation on the achievement of urban place [31-38]**

Input	Role	Function	Event	Results	Output
Effort for pedestrian-orientation of public spaces	Strengthening co-ed use	Developing coffee shop, restaurant, tea house on pedestrian course	Providing conversation and communication condition	-improving social communication and strengthening social capital -sense of trust and communication between people	Achieving urban place for more presence of people
	People's high accessibility to environment	Creating appropriate communication networks for presence of all people in community	Citizens' non-use of car and equal use of environment with people who do have cars	Extensive presence of citizens in urban areas(the existence of justice and prosperity)	
	providing basis for public and social activities	Creating and designing meeting, predicting centres and places for sitting and talking	Possibility to carry out cultural and social activities	-strengthening social participation -strengthening social and cultural values	
	Creating and developing green networks and protecting natural resources	Increasing green space area by planting trees and plants	Reduce environmental pollution and increase vitality	Providing needs of nature friendliness and achieving ecological goals	
	Improve health and increase safety and security	Design suitable basis for safe and secure walkways	Encouraging individual and collective walking in the environment	Increase mental and physical health level	

### 1.4. Social Capital as a Goal of Urbanization

Since the discussion of "social capital" and its importance in achieving stable urban development has recently been addressed by the urban planners and designers, two important factors of positive consequences of socialization and implications of creating scope of action for communication networks could be accounted important factors in connection with this issue. To explain this, it is worth noting that the concept of social capital has a social aspect because it implies that "resources are located within networks of relationships, and are a kind of capital, it means it possesses productive and generator nature" [39-40].

Thus, according to Putnam, this capital "is a feature of a social organization which facilitates mutual participation and confidence in order to achieve mutual benefits" and is a key factor in promoting flow of relations, [41, 42]. In this regard, experts like Bordieu, Coleman, Lynn and Hun, Francis, Taymom and Field also have presented definitions for social capital such as "total physical or non-physical, material and spiritual resources which allow creation of a constant network of low and more institutionalized relations" through which opportunities of using financial and human capital, and "shaping trust and facilitating actions" are established [43-45]. Also social capital includes "knowledge and resources that enhance individual and collective actions in human social systems "and form patterns of individual interaction in dealing with complicated social issues [46, 47]. According to the given definitions, social capital includes" institutions, relationships, tendencies, values and norms that govern the behavior and interactions among people which as an intangible asset creates a network of impressive relations [48, 49].

### 1.5. Dimensions and Components of Social Capital

In this regard, various models have sought to establish the way the social capital could affect our lives. But their review indicates that the major models have "weaknesses in terms of comprehensiveness." Some of these models apply only to the organization, others consider only some of the components of social capital and do not consider other components that are important. However each expert has presented a classification from the perspective of his studies, where the important ones are: Coleman presents the three dimensions of obligations, expectations and mutual trust,

communication channels, and norms and effective enforcement guarantees, Paxton suggests two aspects of the objective relationships between individuals, and mental connections between the same individuals on other hand [50, 51].

Ghashal and Nahapit also suggest these cognitive, relational, and structural dimensions [52]. On the whole, the model used in this research, regarding the comprehensiveness of the predicted aspects, is Ghashal and Nahapit's model which is incorporated for estimating the social capital in urban pedestrian-oriented spaces.

The considered dimensions in this model include the following ones:

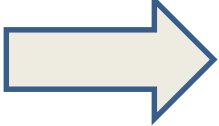
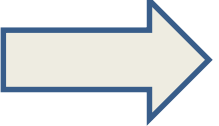
A) The cognitive dimension is: language, codes, and shared stories.

B) The structural dimension is: network relations between individuals, network configuration and appropriate organization.

C) The relational dimension is: trust, norms, requirements, expectations, and identity [53-55].

Also each of the mentioned dimensions have components that by proper identification of them, one could investigate the status of social capital in terms of the impact of pedestrian construction on users. Considering the studies carried out on the theories proposed in this research and study of proposal components, the most important ones for the study of urban public spaces are presented in (Table 2).

**Table 2. Components and sub criteria for measuring the social capital [56-63]**

Dimensions and components of estimating social capital in urban pedestrian-oriented spaces			Adaptiveness of Social capital of pedestrian-oriented space of Tehran from the users' perspective
	Dimension	Component	
	Structural	Social participation and cooperation	
		Civil participation	
		Knowledge and information sharing	
		Social coherence and solidarity	
	Relational	Social trust	
		Sense of social security	
		Mutual cooperation	
		Responsibility	
		Differences reception capacity	
		Sense of effectiveness and efficiency	
		Social mediation	
		Empathy and companionship	
		Identity	
	Cognitive	Life value (flourishing)	
		Social support	
		Individual interaction and intimacy	
		Commitment and loyalty to goals	
		Sense of dignity and pride	
		Cooperation	
		Common culture	
		Memorable	

## 2. Research Methodology

Since the main goal of the research is to strengthen urbanization policies based on the social capital in public open spaces, attempt to answer these questions as whether the urban social capital is affected by urbanization in the public spaces or not? And how pedestrianizing can enhance this sensitive and invisible capital? Has urged us to study the extent of social capital impact in two parts of 15 Khordad Street in Tehran, one the traffic section area and the other in intervention section for pedestrianizing in the pedestrian area of Tehran market. Based on this study, it will be determined whether application of urbanizing policies as well as strengthening the role of pedestrianizing in public spaces could have an impact on the level of urban social capital or not. In this regard, the present study is of descriptive type and is a survey research, therefore, in the first stage, the desk study and content analysis was used to identify effective components on formation of social capital in the urban environment. Also in the second stage, in order to measure the identified components in urban public spaces, the survey method was used by interviewing and distributing a 5-point Linkert type scale questionnaire. As there was no accurate statistics of the traffic flow of people in the study area, the maximum level of Morgan's table i.e. 384 people in each section was incorporated to determine the appropriate statistical population for distributing the questionnaires (pedestrian and street). Also the questionnaires were distributed



purposefully among young people aged between 19 to 29 years old. It should be noted that in the research made by the questionnaire, the components of Table 2. in the form of 27 questions were separately evaluated. Also the factual and content validity of questionnaires were confirmed by the prominent experts and the corresponding reliability was confirmed by .82 based on Cronbach's alpha, and finally the obtained data were analyzed by SPSS software and other statistical tests.

### 3. Case Study

In general, Tehran Grand Bazaar is one of the oldest places which has ancient buildings, mosques, shrines, palaces, tambours and many inns. Some of these places have been registered in the national monuments list. This market is located in an old and worn out section of the city located within 12th district of Tehran municipality) and is an assimilation of tradition and modern trade. This market is limited by north to 15Khordad Avenue, by south to Molavi Street, by east to Sirus street and west to Khayyam Street [65].

Tehran Bazaar is a unique monument of old Tehran and as a national and historical part of the capital forms a part of Tehran's identity and attracts many customers daily. In this regard, the set of streets or in other words, the pedestrian-oriented spaces of this area are known as a collection of "Tehran Bazaar pedestrian."

This area is located at the center of 12th district of Tehran and adjacent to the big and old bazaar and at the intersection of old Pamenar, Bazaar, and Sanglaj that is shown on Figure 1. One of the most important features of the collection of Tehran Bazaar is that, "considering its geography and its affiliation with Grand Bazaar, as well as daily traffic of about 2 million people in the 12th district of which about 500000 people are in the bazaar limit, and the fact that 80% of them travel from 15 Khordad St., to bazaar, can be considered as an opportunity to revive the sense of belonging to place and enhance the sense of delight and vitality in the region and the city" [64]. This pedestrian collection located in the historical context and regarding the importance of bazaar has always been an attractive spot for business trips. Also being adjacent to the historical elements such as Golestan Palace, Imam Mosque, it has the potential of becoming a special place for pedestrians [65] (Figures 2-3).

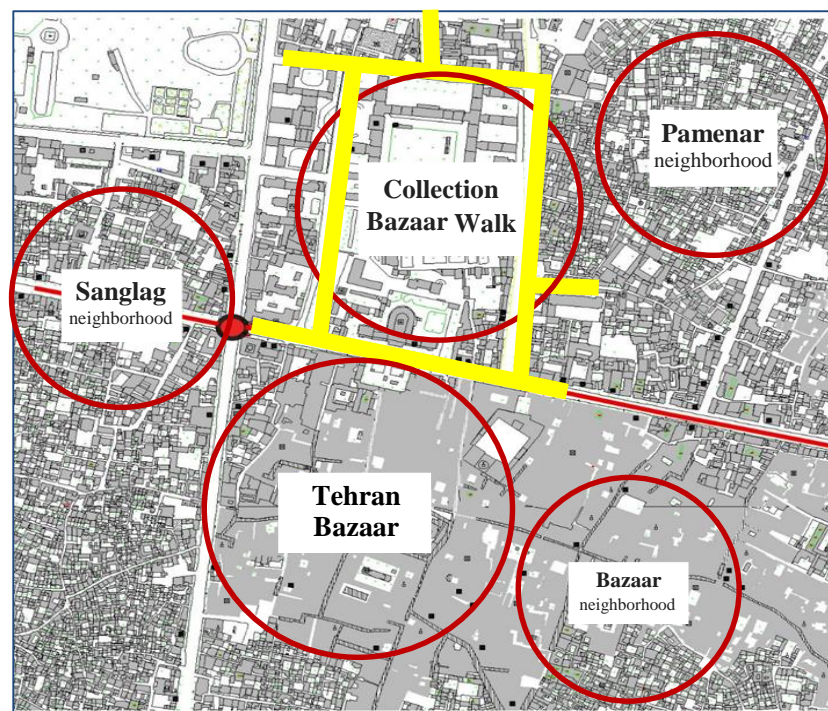


Figure 1. Position of the range of street walkways Bazaar Tehran in the region of 12



Figure 2. The space in front of entrance of Bazaar - 15Khordad pedestrian



Figure 3. Some activities in Tehran Bazaar pedestrian collection, Space creation in a part of Tehran Bazaar pedestrian

## 4. Analysis of Data and Research Findings

### 4.1. Analysis of Descriptive Data of Research

Based on distributed questionnaires among users in two sections of 15Khordad street and the pedestrian –oriented space of Tehran bazaar (including pedestrian-oriented section of 15Khordad street), the demographic characteristics of respondents to the distributed questionnaire are given in Table 3.

Table 3. Demographic characteristics of respondents at 15Khordad Street and the pedestrian

Components		15Khordad street		15khordad walkway	
		Frequency	Percent	Frequency	Percent
Gender	Female	192	50	192	50
	Male	192	50	192	50
	Total	384		384	
Age	Min age	19		19	
	Max age	29		29	
	Average	33.3		33.3	
		Frequency	Percent	Frequency	Percent
	15-19	151	40	98	25.5
	20-24	162	42	129	22.6
	25-29	42	12	157	40.9
	Total	384	100	384	100
Marital status		Frequency	Percent	Frequency	Percent
	Single	257	66.93	305	79/4
	Married	127	33.07	79	20/6

### 4.2. Descriptive Findings Related to the Components of Social Capital at the Streets and Walkways of 15Khordad Street

According to the research questions as well as the data obtained by distributing the questionnaire between the target community, the obtained results regarding the amount of social capital divided by the two sections of the street and values given in Tables 4 and 5 suggest that, based on the spatial interventions and attempts to reach a spatial location, these measures have largely been able to significantly increase the level of social capital at the pedestrian street toward the street (Tables 4 and 5).

Table 4. Descriptive statistics of data in terms of the social capital dimensions at the street

		Statistics		
		Communicative	Cognitive	Structural
N	384	384	384	384
	0	0	0	0
Std. Deviation		0.24387	0.25266	0.49214
Variance		0.059	0.064	0.242
Sum		83.63	74.15	82.80

**Table 5. Descriptive statistics of data in terms of the social capital dimensions at the pedestrian sector**

		Statistics		
		Communicative	Cognitive	Structural
N	384	384	384	384
	0	0	0	0
Std. Deviation		0.36935	0.39563	0.59774
Variance		0.136	0.157	0.357
Sum		125.61	102.80	122.77

Based on the results obtained in Table 6, the interventions in order to pave the way for construction, have been able to affect the public, social and cognitive and structural dimensions of social capital by increasing the presence of people in the place. This indicates that due to the dynamism of the communication process in the city and the strengthening of the presence of people walking, the degree of social inclination and social interaction has improved and the level of social capital at the pedestrian sector is more than the street segment (which has not been intervened) (Table6).

**Table 6. Comparing the results obtained for capital components at the streets and pedestrians of 15Khordad Street**

Dimensions	15Khordad Street	15Khordad street Pedestrian
Communicative	83.6	125.61
Cognitive	74.50	102.80
Structural	81.12	122.77
Social capital	79.7	117.4

## 5. Conclusion

Since today the concept of social capital is one of the key concepts in the field of social sciences, human beings have also enjoyed a special status in the field of urban planning. In recent decades, many urban planning theories that seek to perform targeted interventions in the public spaces to change the urban life process, have emphasized upon focusing on this invisible but valuable capital.

Also, many experts in this field propose the optimal utilization of the concept of social capital along with the city planning and design as one of the ways for solution of the problems and improving the contemporary problems. In this regard, one of the most effective means of utilizing this concept is the topic of urban public spaces. Considering that the importance of urban life and the quality of life of the urban inhabitants, attention has also been paid to the social dimensions of the urban life. Studies have shown that public spaces in the urban areas will have a greater impact on these dimensions. Therefore, the experts of urban planning have been involved in study of enhancing the level of quality in public spaces, increase the efficiency and vitality of these spaces, and thereby improving the social capital by strengthening the social life.

Accordingly, based on the studies, it is clear that, firstly, urban public spaces and social relations are inextricably linked and interact with each other. Based on this relation, social action is shaped by the urban spaces. Secondly, even these spaces are somehow created by the community. Hence, the existence of the capabilities and environmental qualities for understanding and receiving space and, as a result, the pause and presence of individuals, in the sense of the spatial arrangement, while providing a way to see and be seen at lower levels and at higher level of the social interactions, would influence the creation and improvement of the level of urban social capital and its constructive dimensions. One quality which influences the urban spaces is the quality of the pedestrian-orientation which in this research its impact on the social capital is investigated. In this regard, the structural, communicative and cognitive dimensions as constructive variables of the social capital have been studied in both walkways and streets. The statistical inference from the data showed that the amount of social capital significantly varies with the quality of urban spaces, so that by increasing the urban spaces, the average social capital has also increased.

The results of this study indicate that pedestrian-orientation and spatial spaces are approaches that increase the level of targeted presence of citizens in the urban environments, and affect the dimensions identified for the social capital. Pedestrian-orientation in the urban public spaces by strengthening the social activities and promoting the level of social interactions, indicates the impact of this quality on the creation of urban social capital. Therefore, considering that the paved spaces as general places have different functions, one of the most important of these functions is to improve the status of the constructive dimensions of social capital. Dimensions which are classified according to the performed studies are the structural, communicative, and cognitive dimensions, and include components that generate the social capital in urban public spaces. Therefore, according to the findings of the research, the amount of social capital in the pedestrian sector is much higher than the street segment. In this regard, suggestions and strategies for strengthening the quality of the pedestrian sector are presented to further increase the level of social capital (Table7).

Table 7. Suggestions and Strategies for Strengthening Urban Walkways

Social Capital Dimensions	Strategies for Increasing Spatial Quality		Proposed General Criteria and Action Plan
Structural Dimension of Social Capital	Form	Paying attention to the right access	Creating convenient access routes; Design the appropriate input and output paths;
		Accessibility to the pedestrian axis	Setting up of public transport (using train, metro, etc.); use of bicycles and other non-motorized vehicles;
		Attention to the public sphere to attract people	The construction criteria for the weather protection of pedestrians in all seasons; Use the form and materials to increase the sense of invitation; Participation of pedestrians;
		Suitability and adaptability of pedestrians to riding axes	Complete removal of the cranks in the desired range; Compatibility of pedestrian movement with rudder axis through speed control; Predictions of the entirely separate paths of the roadside for pedestrians;
	Activity	Adhere to user compliance by walking	Creating diversity in adjacent users; Observe the conformity of the objective representation of the user with the type of activity;
		Setting up user relationships and attracting people	Existence of incentives and incentives;
		facilities to meet all the needs of all social sectors	The establishment of appropriate sanitary facilities tailored to the needs of citizens; Creating the necessary utilities, such as places for rest or activities; Creating General facilities for Nutritional needs of Pedestrians; Creating the necessary facilities for some businesses, such as newspapers,
	Implication	Sociability improvement	Appropriate layout for urban furniture to increase invitations; Communication paths; Reading proper signs and symptoms at the inlets and exits;
Communicative Dimension of Social Capital	Form	Attention to environmental and health status	Green space (green space development); Preventing environmental pollution (cleanliness and cleanliness); Climate protection (climate protection); Avoid inappropriate plantations in space to provide visibility; Proper design and placement of waste bins;
		Observing the human scale	Avoiding design of useless spaces; Harmony between the number of floors and construction volumes in the building body;
		Enhancing visual features	Attention to creating attractive buildings and landscapes; The harmony between the type and color of materials in the body of spaces;
	Activity	Adhering to pedestrian proportionality with social behaviors	Application of space for pedestrian side activities; Provision of proper space for standing pedestrians (where necessary); Provision of enough space to sit; Provision of proper space for walking;
		Removing pedestrian intruder	Removing environmental pollutants; Prevention of constructing high-rise buildings at the first layer; Prevention of construction of health services at the first layer; Prevention of gradual construction of administrative offices, banks, etc., which are not attractive to citizens during night;
		Paying attention to the compulsory activity	Designing suitable entry and exit paths for passing people;
		Predicting selective activity	Presence of a space to sit (sitting);
		Enhancing social activity	Provision of seats for sitting and the possibility of social interaction by them;
		Enhancing safety	Provision of good paving and avoiding non-standard slopes and heights; Avoiding vertical obstacles; Observing vision limits and speed of the pedestrian in design of signs and devices; Removing Front obstacles to the users' route; Avoiding creation of special facilities or unprotected spaces that may threaten the safety of pedestrians; Avoiding design of inappropriate horizontal surface difference in pedestrian spaces;



<b>Cognitive Dimension of Social Capital</b>	Implication	Increase of security	Provision of sufficient light at night; attention to the quantity and quality of lighting; Appropriate lighting for lights; Avoid inappropriate plantations in the space to provide visibility;
	Form	Reducing the impact of vehicle on the pedestrian	Control of air pollution and noise caused by the passage of motor vehicles; Reduction in vehicle crashes and its effects on pedestrians; Combination of pedestrians and riders on the street through either level or non-level passages;
		Investigation of the cavalry's role on sensory perception	Reducing the intensity and speed of the riders on the axes of adjacent pedestrian walkways; Reducing the width of the pedestrian walkway to allow pedestrians to use the visual view; Suitable for maintaining space constraint;
	Activity	Attention to environmental diversity	Diversity in activities appropriate for the governing culture or local values or Diversity in space suited to the age, culture, and history; Visual diversity in line with displaying the historical and native attractions;
		Attention to the non-occurrence of non-civic behaviours	Functionality in physical components according to local the culture and values; Avoid improper design of L and U spaces;
	Implication	Attention to environmental perception	Upgrading the quality of visual perception; hearing; smelling; visual; tactile; readability in the form of the physical status.

## 6. Conflicts of Interest

The authors declare no conflict of interest.

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