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Research Article

Analysis of the Localization-based Model of the Pedestrian Zone Plans (Pedestrian-oriented streets)

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Abstract: Due to the increase in using the transportation and reduction in the environmental quality, especially in the central fabric of the cities, the efforts to improve the living conditions of people and returning the urban spaces to them are of significant importance. The pedestrian zone construction, as one of the policies towards the pedestrian orientation of the cities, has been significantly considered by many cities of the world since a half-century ago. However, the implementation of the pedestrian zones in different cities was associated with various results so that some of the pedestrian zones failed due to the lack of compatibility (localization) and were opened to the vehicles again. Therefore, the current study attempted to identify the valid indicators to study three pedestrian zones, including Chahar Bagh in Isfahan, Tarbiat in Tabriz, and 17 Shahrivar in Tehran. The research method was analytical-descriptive and based on the documentary and field studies. Also, Analytic Hierarchy Process Model was used for the comparative comparison of the samples to preserve all the relationships in the evaluation. The paired comparison of the nodes and clusters was conducted based on the opinions of the expert group (Delphi Method). The results showed that the quality of the Chahar Bagh pedestrian zone is higher than the others and has more compatibility with the conditions of the Iranian cities, and can be used as a successful model in the pedestrian zone construction in Iran.

Keywords: Model, walkability, localization, Chahar Bagh pedestrian zone.

1. Introduction

Problem Statement

Endless urbanization caused half of the world's population to live in the cities. Therefore, understanding the urban features, such as infrastructures, facilities, population distribution, occupations, and services that play a significant role in health, urban livability, and sustainability, is of significant importance (Bassolas et al., 2019, p. 2). Currently, the urbanization growth and broad use of motor transportations led to the emergence of various problems and issues in social, economic, and environmental areas of the cities. The issues, such as environmental pollutions, high traffic jams, and its unfavorable mental and psychological consequences, such as "Traffic madness" and the waste of a lot of time and energy, especially in the peak hours of traffic and increase in car crashes, are only a part of the unfavorable consequences of this issue (Appleyard, 2003, 76). The indicators of the urban organization were presented based on the population density, land use, employment, and distribution of the infrastructures (Kathryn et al., 2021, p. 2). Many cities take policies the purpose of which is to improve the transportation modes, such as walking and riding bicycles. Encouraging active transportation supports the sustainability purposes of the cities, and leads to the reduction in the air pollution caused by the traffic, and helps the road users to take a healthy lifestyle and increase their physical activity (Rushdi & Tarek, 2020, p. 3). Walking is the most natural way for human movement. Our body, mental and sensory perception has evolved over million years based on this movement system (Coch et al., 2018).

With the expansion of the various aspects of the urban instability, and consequently, the necessity to achieve sustainable development in the world's cities, numerous efforts were made by various organizations to achieve sustainability (Wann-Ming, 2018).

However, the studies showed that the reduction in using the automobile led to an increase in activities, and people have to take more trips to have the same previous access. Given the significance and broadness of the occurred issues caused by the increase in public transportation, its lateral consequences and issues were investigated in detail in the following, and its results were explained.

- The growth of urbanization and the increase of vehicles have increased the density in urban centers and increased the number of accidents in the road network, which are in no way designed to pass the volume and type of traffic that is currently passing through.
- The possibility of easy access to automobiles leads to the vicinity of the incompatible land uses, resulting in the high intervention of the pedestrian and vehicle, and has threatened the safety of the pedestrian.
- The air pollution caused by the traffic of the motor vehicles in the cities is one of the most vital and acute issues of the large cities. 70% of the air pollution of the cities is caused by transportation (Farzivad, 2005, p.41).
- Noise pollution in car movement causes people to lose their peace and prevents the necessary communication with the environment and establishing social interactions in addition to causing anxiety and reducing the efficiency of people.
- Motor transportation imposes high costs on the economy of the countries. The maintenance costs of the roads and intercity roads that are constantly repaired and maintained due to the pass of the vehicle are one of the considerable numbers in the urban costs.

The mentioned consequences made the urban designers find solutions to save the cities from the all-around dominance of the automobile. In this regard, the organization and planning for the pedestrian in the last two decades have become a global movement in urbanism, and its literature view has been various and broad. The master plan documents of the pedestaling in 14 important European and American cities as the master plans of the pedestrian indicates the attention of the urban management to the walkability. One of the examples is the urban policies of London, for which the plan of turning it into a pedestrian-oriented city was considered by 2015 (Moeini, 2006, p. 7).

As the researchers state, the presence of the pedestrian is vital for the vitality of a large city. Indeed, urban vitality means the number of the urban pedestrian who is present in the urban spaces of the city willingly. As a result, the intercity axes must be designed and planed in a way that the constant and consecutive presence of the people is possible within them. However, these axes are considered for the vehicle in Iran, and the citizens are forced to be present in these routes to meet their essential needs that nowadays, due to the attention and priority of the private vehicle and low width of the sidewalks, as it is the surplusage of the vehicle route, we witness the reduction in the presence of the pedestrian and the presence and consequently, walkability. The environmental pollutions, unfair distribution of resources, social inequalities, neglecting human needs, etc., have turned the urban space into a tense and in many cases, alien space. The results are the forcible segregation of humans, narrowing the circle of social interactions, and emptying the urban space of fundamental values, which can be manifested only by the active presence of people. In the meantime, the simple yet significant issues have become the urbanized human’s wish: the possibility of walking in a city, the matter that is very important according to many sociologists, environmental psychologists, and doctors to provide mental and physical health for the human and benefit the human with the possibility of the rich experience of the city. However, nowadays, it is very unknown in our cities. Before the Industrial Revolution, pedestrians had a strong presence in urban spaces and were the focus of the design of these spaces. But after that, the neglect of maintaining and organizing pedestrian spaces in modern cities has led to a decline in the quality of life in urban space and a reduction in the presence of pedestrians. That is why in recent years, a movement has been launched to revive pedestrian traffic in the city. What has been said in approaches, such as new urbanism, are often the same features that the city had before the hasty encounter with the car? Pedestrian safety, the vitality of the environment, diversity and mixed land uses, proper pedestrian

access to local services, the presence of different social groups in the urban space, the distinct center of a neighborhood, etc., are not unfamiliar elements in our traditional cities. It is the recognition of the forgotten values. Accordingly, considering the significance of the pedestrian traffic in the urban spaces, its context must be provided, and the planning and designing of the cities must be implemented in line with the desirable, safe, and convenient movement of the pedestrian in proportion with the urban space of Iran so that the citizens can step peacefully in a safe, peaceful, and attractive environment and have access to their required service and facilities. Indeed, the decline in the presence of the citizens in the public spaces originates from the physical conditions of the city, and due to the lack of localization of these models, the axes threaten the health of the citizens due to the indefinite intersections of the pedestrian and vehicle, noise and air pollutions, lack of safety of the pedestrian against the vehicle. Also, these routes do not create any motivation and willingness to be present and, more importantly, staying in these axes due to the improper visual situation of the walls, the lack of legibility in some of the routes, the lack of proper, attractive, and various land uses, etc.

In general, the main problem and obstacle of the pedestrian are the physical problems that by solving them, the walkability can be significantly improved. However, what is evident is that social issues are also of importance. The challenges and obstacles of the walkability and the weakening factors of the quality of the pedestrian zones in the Iranian cities that have been investigated so far were summarized in four following categories that were mentioned respectively. The current research aimed to answer the following question:

Have the requirements and process of localization and its adaptation to the needs of today's audience in the formation of pedestrian zone projects (pedestrian-oriented streets) in Iran been provided and considered?

Theoretical Foundations

Walkability has been recently entered in the dictionary of the theoretical discourses and was driven from walking. Although “walking” and “ability” were described separately, walkability was not mentioned in the Oxford university dictionary (Cowan, 2005, p.285). walkability is one of the significant worlds of the urban design literature around the meaning of which there are relatively significant differences. Some consider it as a type of transportation activity, and others know it as a leisure activity, including sports, recreation, and spending leisure time and social communications. In the Dehkhoda dictionary, the pedestrian is who walks on foot, not animals and alike (Aghamolaei & Lak, 2016, p. 72). Walking is known as a sustainable transportation type. This act has unique and social advantages, especially in improving health and social justice, and also has a positive effect on reducing greenhouse gas emissions (Rafe’ei Manzalat, 2017, p. 94).

Over a century ago, four approaches were introduced regarding the relationship between automobiles and urban spaces, including automobile orientation, walkability, modifying, and slowing down the traffic. However, if the sidewalks do not enjoy a desirable quality, people will be disappointed to spend their time in them and choose alternative routes (Ardalan et al., 2020, p. 211). The pedestrian zone refers to the road that has the highest social role in which the pedestrian is dominated, and the motor vehicles are only used to service the current life (Pezeshki & Alijani, 2020, p. 41). The pedestrian zones are the spaces that are expected to provide the required desirability in the space in terms of sense of place because they are the place for the presence of the citizens and their participation in the collective life. They also act on the urban space and must welcome different groups of citizens with various thoughts, feeling, and perceptions of space, gender, and physical abilities (Heidari & Mohammadi, 2020, p. 71). The pedestrian zone provides a lively, safe, and comfortable space for the presence of different social groups, the establishment of social interactions, and conducting social activities in which there is various land uses (Yazdanpanah et al., 2020, p. 75).

One of the main reasons for the construction of the pedestrian zone is increasing the safety of the pedestrian traffic. In the construction of the pedestrian zone, various factors must be considered, including the public needs and weakness of the facilities and movement of the buses and taxis. The effects of the construction of the pedestrian zone could be considered as follows: creating prosperity in the economy and commercial centers of the adjacent areas, facilitation of the relationship between the

sidewalk and the newly constructed buildings, creating coordination between various traffic factors, creating security and comfort (reducing noise and smoke), shortening the movement paths and enjoying the walking (Mousa Kazemi et al., 2018, p. 46).

Different opinions were presented on walkability, each of which evaluated the manner of walkability. New urbanism theory in urban design began to increase the movement of the pedestrian in the neighborhood units and continued its development to modify the various aspects in urban planning and urban design. This approach affected urban approaches based on the urban design standards (Elshater, 2016, p. 829). The pedestrianization movement became a global movement and achieved numerous accomplishments in Europe, America, Australia, Canada, and other parts of the world. In this regard, various models and methods were invented and common in creating the pedestrian zone, traffic-free zone, pedestrianization of the urban centers, developing new pedestrian spaces and places, traffic calming in residential areas, turning the streets and squares into recreational, artistic, etc. centers (Mahdizadeh, 2000, p. 15).

The high concentration of people and economic activities in the urban areas leads to improving the relationship between the city, health, and environment (Balaban & Oliviera, 2017, p. 69). According to the Organization Health World, the healthy city is a city in which the physical, social, and environmental conditions, and optimal use of the resources and the environmental facilities are provided along with the continuous creation and expansion and the society's people maximize their capabilities while supporting each other and group participating in conducting all life affairs under its influence. The program of the healthy cities results in improving the health and quality of life through modifying the living, housing, school, workplace, and city conditions and where people live and work. A healthy city is a city in which the physical, social, and environmental conditions, and optimal use of the resources and the environmental facilities are provided along with the continuous creation and expansion and the society's people maximize their capabilities while supporting each other and group participating in conducting all life affairs under its influence (Ridvan, 2012, p. 305). The basis of the healthy city is based on the principle that health is more than medical care. A healthy environment and fostering society are also the key characteristics (Rahnama et al., 2015, p. 19). 1. Improving the health and environmental services, 2. Increasing awareness and making capacity, 3. Unifying the society and government sector, 4. Health in the attention center and agenda, 5. Leadership and improving the participation spirit regarding the mobilization of the potential resources (Ghorbani et al., 2012, 299).

One of the most challenging parts of the society is the transportation sector that due to creating and intensifying various instabilities in economic, social, and environmental aspects on the one hand, and being a multifaceted subject, it is required to analyzed and investigated accurately (Robinson et al., 2018). Although the concept of sustainable transportation in the studies related to transportation planning is considered a new concept, due to the lack of attention of the various studies to this subject, it has been welcomed by researchers in recent years. According to Rinestra. The purpose of sustainable transportation is to maintain the quality of the environment and the safety of the users to an acceptable degree in the present and future and improve the economic and social function in transportation (Habibian & Ostadi Ja'fari, 2015). Richardson believes that sustainable transportation is a system that acts multilevel in fuel consumption, vehicle pollutants, safety, traffic jam, and achieving the economic and social objectives and meets the sustainability purposes in the future in all the mentioned areas without threatening the next generation in meeting their needs (Rasefi & Ostad Ja'fari, 2013).

As one of the simplest ways to achieve sustainable transportation and development, the importance of walkability is to that extent that many of the officials of the cities sought to codify plans and development prospects of the pedestrian network based on the prospect of the first decade of the 21st century. Walking is often the only way that many people can have access to daily activities. However, over time, the streets and public spaces were allocated to vehicle transportation so that it made the social life increasingly farther away than the pedestrian. Walking is the basis and foundation of a sustainable city and enjoys economic, social, and environmental advantages (Shamsuddin et al., 2018, p. 166). The various function and the degree of social activity in pedestrian-oriented cities have turned the public spaces into the houses outside the houses (Beately, 2005, p. 395). For instance, in the pedestrian zones of Koln city, the citizens increasingly use the pedestrian paths in the last business days of the week and after closing the stores (Pakzad, 2006, p. 274).

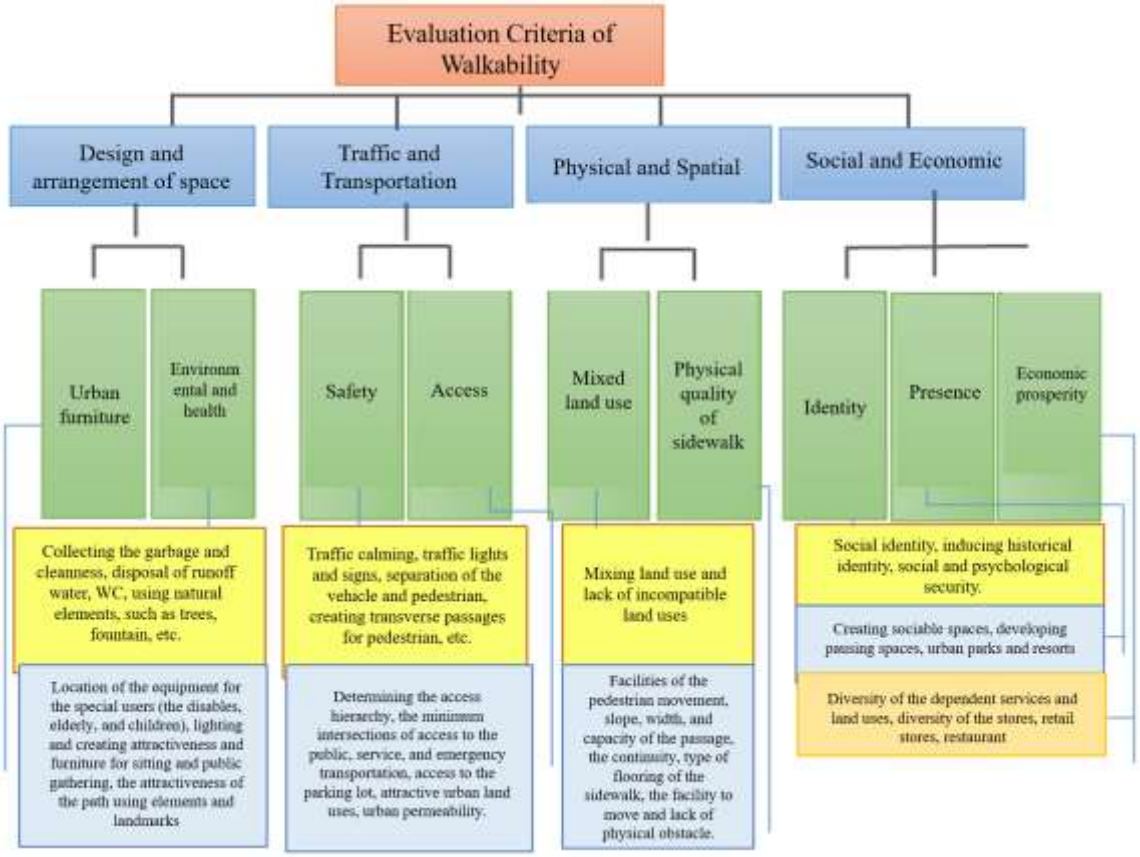

Figure 1. Conceptual model of the evaluation criteria of walkability

Table 1. The pedestrian zones understudy in the research

Pedestrian zone's name	Photo	
17 Shahrivar St.Tehran		

Tarbiat, Tabriz		
Chahar Bagh, Isfahan		

2. Research Method

The current research was fundamental-developmental research in terms of purpose, and due to its nature, to study the subject in detail, instead of using pre-determined information in the existing literature or relying on the results of previous studies, it is necessary to identify the problem accurately and gain a complex and partial understanding of the subject under discussion, which would be possible using qualitative and exploratory research. Therefore, the current study took the exploratory-qualitative methods to explain and study the considered components. In the first part of this qualitative research, the ground theory was used to analyze the concept of being active. First, after initial studies on the methods of achieving the study area, some prominent pedestrian zones were identified. While being present and referring to the available pedestrian zones initially, the history of the place was recognized. Then, the field study was used in the quantitative research. In the tool-making research, the purpose was to design a valid and reliable measuring tool, i.e., determining the psychometric features of the designed tool. The tool-making research was conducted in two main parts, phases, and their constituent steps. A purposeful sampling method was used for sampling.

3. Research Findings

The analysis of the first phase of Delphi of the concepts extracted from the literature subject and interview

In the preliminary phase, 12 experts in urbanism were interviewed, and an open questionnaire was given to the elites. According to the literature review and using the content analysis, the codes were extracted to achieve the indicators of the research. The extracted codes were presented in Table 3.

Table 2. The concepts extracted from the literature review and preliminary interview regarding localization of the pedestrian zones in Iran

Initial coding				**Conceptualizing the initial code**	**Category**
Documentation of the evidence	Respecting the original materials while implementing	The quantity of the implementation	The quality of the physique	The proper design of the surfaces and flooring, architectural features and elements, the proper lighting, vegetation and green space, fountains, artworks	Physical
Profitability	Capital	Project	Economy	Financial facilities, government sectors	Economic
Vitality	Revitalization	Social activity	Local solidarity	Inducing function, activity of the pedestrian, social solidarity	Social
Preservation	Modernization	Troubleshooting	Coordination	Paying attention to the environmental, climate, and natural features	Environmental
Being up-to-date	Adaptation	Tolerance capability	Standard	Capacity assessment of the roads, parking, public transportation, continuity of the roads, pedestrian	Traffic
Perspective	Restoration	People's participation	Cooperation	Integrated management, increasing officials' sensitivity to the localization	Satisfaction and cooperation of the owners, officials, and policymakers
Space	Construction	Expansion and addition of the building	Changes	Improving the sense of place, creating new spaces, additional components, stylish reconstruction	Contemporization

Tourists	Opportunity	Prosperity	Economy	Revitalization and application of the pedestrian zones, paying attention to the cultural values, improving infrastructure	Development of the tourism industry
Education	Promotion	Awareness	Attracting opinions	People's participation, public institute, cooperation in the project	Stakeholders and people of the region
The historical identity, originality	Culture	Social structure	Cultural beliefs	Recognizable temporal and historical layers, preservation of the historical identity, architectural and aesthetic values.	Cultural-historical and functional values of the sidewalk

According to the research purposes under the title of the main purpose, i.e., achieving a localization-based model of the pedestrian zone plans (pedestrian-oriented streets), a set of questions of the questionnaire were codified directly and focused on the micro purposes, which considers two sub-components under the title of redefining pedestrian zones based on rehabilitation and programmability capabilities and the latter; the use of pedestrian zones according to the characteristics of Iranian cities to explain the status of the main objective. Therefore, according to the information obtained from the indicators to develop a model and enter the first phase of AHP under the title of indicators can be achieved. It led to the fact that by entering the experts in the Delphi questionnaire, the priority and importance of the indicators were recognized, and their sub-criteria were extracted from the mentioned questionnaire. Based on the extracted codes and the elites' opinions, 22 recommended indicators were extracted in the first preliminary phase.

In this phase, after initial studies and coming back and forth and changes made on the questionnaire, eventually, 28 people presented their qualitative and quantitative opinions within the time interval that the researcher determined for the final phase. In the final phase, the research purpose was reminded for the participants to present their opinions regarding determining the criteria disregarding the evaluation of the criteria.

After collecting the data in the second phase of the Delphi, the simplest method, i.e., the sum of the scores and their average, was used to reveal the experts' consensus on each indicator. In this phase, generally, 12 qualitative indicators were presented out of which 2 indicators were removed, and its 100 related indicators determined for the indicators with priority were used for the localization of the pedestrian zones. The method of analysis of the results in this questionnaire is the Delphi technique by collecting quantitative information from the Porsal website based on the purpose of the research, and the structure of the rounds, according to the opinion of the researcher of this paper and the Delphi panel members were summarized and analyzed qualitatively and quantitatively as follows (Table 4).

Table 3. Statistical analysis of Delphi Table

Row	**Indicator**		**Sub-indicator**	**Average**	**Mean**	**Mode**	**The number of the qualitative opinions**
1	Physical	1-1	Proper design of	2.57	3.00	3	2

			surfaces and flooring				
		1-2	Architectural features and elements	2.14	2.00	2	0
		1-3	Proper lighting	1.89	2.00	2	2
		1-4	Vegetation and green space	2.43	2.00	1	1
		1-5	Fountains	1.89	2.00	2	0
		1-6	Artworks	2.36	2	2	0
		1-7	Proper location of the equipment required for the special users, such as the disabled, elderly, and children	2.54	2.00	1	1
		1-8	Maximizing the diversity of the land uses in the pedestrian area	2.82	3.00	3	2
2	Economic	2-1	Creating proper economic enterprises	2.32	3.00	3	0
		2-2	Comparing the income of the economic activists before after the implementation of the plan	2.35	2.00	2	0
		2-3	The vicinity of the land uses and creating population attractive land uses in the vicinity of the pedestrian zone	2.25	2.00	1	2
		2-4	The existence of the active and various retail stores along the pedestrian route	2.18	2.00	2	1
		2-5	Existence of 24-hour activities	1.88	2.00	2	0
		2-6	Creating the proper business enterprises	2.64	2.00	1	0
3	Social	3-1	Creating vitality (social dynamicity)	1.68	2.00	1	2
		3-2	Security	2.31	2.00	1	0
		3-3	Social participation	1.86	2.50	1	1
		3-4	Sense of belonging	2.000	1.00	1	2
		3-5	Creating public places for gathering and raising the level of cultural, artistic, and social interactions	1.54	2.00	1	0
4	Environmental	4-1	Paying attention to the natural and climatic characteristics of the area	2.43	2.00	2	0
		4-2	The situation of the vegetation and green	2.32	1.00	3	0

			space of the area				
		4-3	Protecting pedestrians against various weather conditions	2.21	1.00	2	0
		4-4	The situation of the cleanness and adornment of the environment	2.00	2.00	2	0
5	Traffic	5-1	Capacity assessment of the roads	2.39	3.00	2	0
		5-2	Proper access to the parking	2.27	2.00	1	0
		5-3	Proper access to the public transportation	1.71	2.00	2	1
		5-4	Creating alternative routes to distribute the traffic load on the surrounding streets	1.71	2.00	1	2
		5-5	Continuity of the routes	2.14	2.00	1	1
		5-6	Change in the direction of inner-city travel	1.89	2.00	1	1
		5-7	Separating vehicle and pedestrian routes	1.93	2.00	1	0
		5-8	Existence of traffic lights and signs	1.56	1.00	1	0
		5-9	The existence of the transverse passages of the pedestrian and bicycle	1.79	2.00	2	0
6	Stakeholders	6-1	Attracting the opinion of stakeholders, including officials and people of the region, and the possibility of people's participation in the localization of pedestrian zones	1.79	2.00	2	0
		6-2	Education, promotion, and public awareness to rehabilitate pedestrian zones	1.96	2.00	2	0
		6-3	Paying attention to the effective place of people's approach in pedestrian zone rehabilitation projects (utilizing the local human, social and cultural potentials of the region)	1.54	2.00	1	0

The results of investigating the research indicators in the final round

In this round, 6 qualitative points were presented, which were related to the indicators of the localization of the pedestrian zones. If the participants present a new average score for the indicators in

the final round, they will replace the previous scores, and if the participants offer a new priority for an indicator, that priority will replace the previous priority in the related calculations (Table 5).

The broad model of the indicators of the pedestrian zone localization as a result of three rounds of Delphi study

Finally, after qualitative and quantitative analysis of the questionnaire's data, the final indicators were selected to develop a localization-based model of the pedestrian zone plans, which were 10 indicators. By final changes, 6 indicators were important based on the experts' opinions, and there was consensus on them.

Table 4. The final number of the indicators in the final round

Classification of the indicator at the end of the second round of the Delphi method	**Number**	**The result of the achievements of the indicator in the final round of the Delphi method**	**Number**
Priority indicators: Indices that Delphi members considered important as the main indicators of localization and have a consensus on it.	10	All indicators in this category in the final round were among the main indicators of the research in developing the pedestrian localization model approach.	7
Boundary index: Indicators that were on the verge of rejection or acceptance.	1	Indicators that were accepted and added to the priority indicators.	6
Removed indicators: Indicators that were considered removed.	2	Indicators were added to the category of priority indicators according to the arguments and qualitative opinions of the final round participants.	6
Sum of indicators entered in the third round	3	The sum of the remaining indicators in the priority category and the broad model of indicators based on the localization of pedestrian zone plans	6

The second phase: Analytic Hierarchy Process of Data

Paired comparison

Definition of the specialized terms is required to input the data into Expert Choice software to conduct the paired comparison. The modeling in the software was done using the introduced specialized equivalents in the following. Table (6) presents a model of the process.

Table 5. The Goals of the level 1 input

Row	Main goal	Term in Expert Choice
1	Developing and explaining a model based on the feasibility and localization of implementation-based projects of pedestrian zones with an emphasis on the Iranian planning system.	Bomi sazi piyadeh Rah

Table 6. The sub-micro objectives of level 1

Row	Secondary goal	Term in Expert Choice
1	Development of contextual mechanisms	Development of contextual mechanisms

	(localization) in the implementation of pedestrian zone projects (pedestrian-oriented streets)	(localization) in the implementation of pedestrian construction projects (pedestrian-centered streets)
2	Identifying the criteria and indicators of the pedestrian city with an emphasis on Iran's planning system	Identifying the criteria and indicators of the pedestrian city with an emphasis on Iran's planning system

The third intermediate stage; selecting AHP options

The foundations considered for this part of the research were to select the AHP options, which require selecting model options that are to compare in the localization of pedestrian zones. In this section, according to the final indicators of the research, 8 faculty members and 14 urban planning experts were applied for the paired comparison.

Table 7. The indicators of the level 2 input

Row	Indicator	Term in Expert Choice
1	Physical	Kalbadi
2	Economic	Eghtesadi
3	Social	Ejtemai
4	Environmental	Zistmohiti
5	Traffic	Terafiki
6	Stakeholders	Zinafaan

Table 8. The parameters mentioned as the options of the model

Row	Options	Term in Expert Choice
1	Tarbiat Pedestrian zone of Tabriz	Conservation and Extension
2	Chahar Bagh Pedestrian zone of Isfahan	Fitting Out
3	17 Shahrivar Pedestrian zone of Tehran	Change of Use

Third phase: calculating the final weight of the indicators and sub-indicators in Expert Choice Software

In this part, the consistency in the assessments and consistency impact, as well as the final weight of each indicator, were calculated by Expert Choice Software by inputting the information from the paired comparison table. The Tables of the weight of the factors were explained in the third phase in detail. The available options were evaluated in pairs according to the considered indicator. It was done in the first phase using the questionnaire and elites' opinions. After collecting the questionnaires, the statistical interpretation of the data was formed and inputted into the software.

Implementing paired comparison of the indicators

According to experts' opinion, the weighting of the six main factors was compared in pairs in software to compare the criteria and determine the significance level of the indicators in the pedestrian zones using AHP and Expert Choice as mentioned in the previous section, and the result was presented as the following graph:

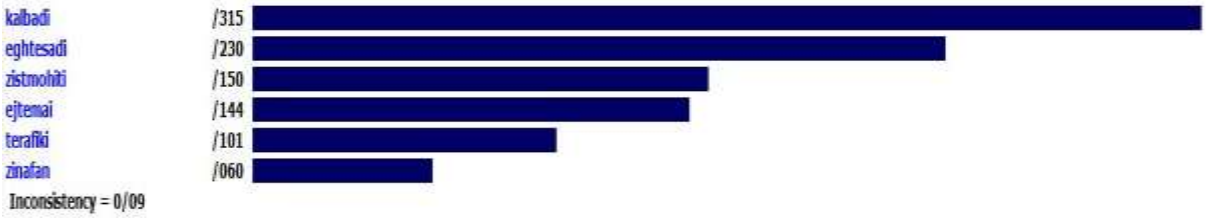

Figure 2. Graph of the calculated weights for the main indicators using the AHP method

As the results of the AHP show, the physical indicator with seven sub-indicators enjoys the highest importance. For the localization of the pedestrian zones, first, the weakness and strengths of the current situation must be determined to avoid the inconsistent and unprincipled construction with the physique of the pedestrian zone.

Prioritizing and analyzing the pedestrian zones based on the weight of the data

The pedestrian zones were prioritized based on the final weight of the data.

Table 9. The final weight of the data, prioritizing the pedestrian zones understudy

Number of the pedestrian zone	Name of the pedestrian zone	Weight of the data	The rank of the pedestrian zone
1	Tarbiat, Tabriz	0.395	2
2	Chahar Bagh, Isfahan	0.428	1
3	17 Shahrivar, Tehran	0.177	3

According to Table (10), the result of the final weight of the data and prioritizing the pedestrian zones under study are as follows: Chahar Bagh pedestrian zone of Isfahan was ranked first with the maximum weight among other pedestrian zones (alternatives).

4. Conclusion

Nowadays, the excessive emphasis on the vehicle movement and solving its various issues, neglecting the organization, and planning for the pedestrian movement are one of the shortcomings of contemporary urbanism. In recent two-three decades, as a result of arising and intensifying the urban issues, such as environmental pollution, the problem in commuting, the unsafe roads, the decline in historical centers of the cities, the decline in the quality of the urban spaces, reduction in the visual values, etc., a broad reaction was formed against the domination of the motor vehicle and reducing the pedestrian movements in the world. In this regard, recovering and developing the pedestrian spaces became one of the axes of urban planning and design, which is called the pedestrianization movement.

In recent decades and with the rapid information and experience exchanges among the countries, the urban approaches and ideas are also exchanged rapidly. Among these approaches are the pedestrianization movement, which in the last half-century, with a complete shift towards car-based approaches, puts the effort to return urban spaces (streets and squares) to the people on its agenda. Turning the street into a pedestrian zone, as one of the achievements of the pedestrianization movement, has been implemented in many cities of the world. Although the pedestrianization movement is confirmed by the experts in terms of nature, it is more complicated regarding turning the street into a pedestrian zone. In the feasibility process, it is necessary to consider various aspects of the physical, economic, traffic, social, etc., aspects of the street and its surrounding environment in designing and planning the pedestrian zone.

Although over the last two decades, various experimental samples and scientific research were done regarding the pedestrian zone, the quality of the pedestrian zones in Iran is far from foreign samples due

to modeling from abroad. Therefore, the current research attempted to implement a comparative study of a few domestic pedestrian zones by codifying the practical indicators and analyze their success regarding the local conditions.

Three pedestrian zones of Chahar Bagh in Isfahan, Tarbiat in Tabriz, and 17 Shahrivar in Tehran were studied in the current research. The results showed that the Chahar Bagh Pedestrian zone with the weight of 0.428 has the best place among the pedestrian zones understudy so that according to the people and urban officials, it is proportionate to the local conditions of Iran and could be used as a successful model in Iranian cities. In the end, according to the conducted studies, it is recommended to consider these factors in other pedestrian zones to be compatible with the Chahar Bagh pedestrian zone and, in general, all cities of Iran.

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