Journal of Engineering Science and Technology
Vol. 18, No. 1 (2023) 563 - 583

SPATIAL AWARENESS AS A STEP TO HUMAN SPACE: AL-MUTANABBI STREET STUDY CASE

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Abstract

The issue of determining human dimensions is a controversial topic. Therefore, there have been various calls for returning human dimensions to urban space via urban design theories. Despite this diversity, this study chose to focus on spatial awareness in urban space as one of the dimensions that distinguishes the human urban space. On this basis, a research problem emerged, in the failure to deal with spatial awareness as one of the pillars that constitute human urban space, with ambiguity in the urban principles and spatial indicators that enhance the spatial awareness of urban space. A comprehensive theoretical framework was built based on previous urban studies to achieve the aim of creating a model of spatial awareness in urban spaces. The research model consists of four urban principles and eleven spatial indicators, and the validity and local character of this model were developed through a practical study of a traditional urban space in Baghdad. The study recommends the adoption of a research model to enhance human awareness of urban space and diagnose kinks in public spaces using it, and then to address them in order to enhance human spatial awareness as an essential factor in consolidating human existence in urban space.

Keywords: Al-Mutanabbi Street, Baghdad, Humanization of urban space, Spatial awareness, Spatial indicators.

1. Introduction

Since the middle of the last century, many urban design theorists have emphasized the importance of adopting human beings as a reference point in urban design applications. Lynch, 1984 defined design as the imaginative creation of form that aims to achieve some human purpose, be it social, economic, aesthetic, or technical [1]. Calls for the humanization of urban spaces continued, even at the turn of the millennium when the process of humanization was linked to urban development strategies and considered the biggest challenge in building an inclusive city [2]. The main goal of urban design was centred on creating more humanistic environments [3], meaning that humanity must be the primary concern of the city [4]. Consequently, human dimensions have become the main guideline for urban design processes.

In response to this, various calls have been made for the humanization of urban spaces, but these movements clashed with the dilemma of defining the essential dimensions of human beings. Describing the nature of man is a controversial issue. In this context. Descartes, 1637 pointed out that language is one of the essential features as well as mental causation, morals, and awareness of death [5], while Louden, 2011 determined the features of freedom, consciousness, rational control over instincts, desires, and dignity as the elements that transform a human in biological terms into a human in the total sense [6]. The qualities that characterize the human race are language, intentions, desire, freedom, awareness, and the ability to laugh and learn [7]. The human is a unique being because of its language, insight, ability to use its mind and intelligence, and culture and moral aspects [8].

Despite the different views of what a human being is, it has now been agreed that there are major dimensions that constitute this humanity. Given certain limits, this research, it will be limited to addressing the awareness dimension as one of the main dimensions of humanity, as well as linking this awareness to the process of designing public spaces through the urban design process.

Awareness refers to humans having sensitive and conscious existential attitude [9]. According to Kant, 1798 the human is free and possesses self-awareness and rationality [7]. For Nietzsche, 1878 human awareness gives meaning to humanity as we can see things from an analytical perspective [10]. The human being needs awareness to evaluate his/her actions and think about what we have done, in term of whether the person feels positive or negative about these attitudes and actions. Therefore, awareness is a prerequisite for considering human as a moral being [11].

Kant,1781 argued that space and time are a priori things that constitute humanity in empirical term and that we cannot think of the world as something other than a spatiotemporal thing [12]. Heidegger, 1927 called human existence Dasein, meaning being there, whereby human existence differs from the rest of existence in terms of having a world [13]. Lynch [14] argued that human is a spatial creature that uses space to manage and control its affairs, enable it to feel anxious, satisfied or proud. From a philosophical point of view, the human has a rational conscious existential attitude, with an analytical perspective. Consequently, human spatial awareness is an important factor enhancing human existence in a specific place.

Human spatial awareness is an essential part of environmental psychology, which studies the relationship between man and urban space [15]. It concerns all the information held in urban space, which determines the location of a person, how

it moves, its social behaviour, and understanding the urban system [16]. The human is able to realize its position in this world through spatial awareness, which can be enhanced by the characteristics of environmental elements [17]. Spatial awareness is important in the process of navigating within cities through mental mapping and realizing the structure of the city, wherein the person depends on their environment (place and time), which provides information that helps them to be aware of their place in the city. Spatial behaviour depends on awareness of distances, which is a product of a person's subjective psychology and objective environment, meaning spatial awareness varies from person to person [18].

Spatial awareness has been linked to satellite motion for route identification and mapping [19]. Spatial awareness has also been used in the process of acquiring spatial knowledge in the city through mental mapping [20]. In addition, the issue of differences in spatial awareness when moving within cities on foot or by car has been addressed [21]. Spatial awareness has also been linked to the state of spatial empathy resulting from the sensory experience in urban space [22] and how urban art is used to give a distinctive character to urban space with the aim of increasing spatial awareness during daily life [23]. The phenomenon of spatial awareness has been used as one of the solutions to stimulate a healing urban environment by creating beauty with colours, shapes, materials, and scale [24]. Modern technologies such as mobile phones and GPS devices have been used in the important process of developing spatial awareness in the process of orientation within cities, but these technologies are not necessary to improving this awareness. In addition, some studies have argued that these techniques have negatively affected spatial awareness [18].

It can be seen from the above that spatial awareness is a feature that distinguishes the human being from other creatures. Therefore, this study focuses on how to enhance spatial awareness in urban space, as this is one of the pillars of the human urban space that contributes to supporting human existence. Urban studies that deal with the importance of spatial awareness have focused on transportation in the city and mental mapping, as well as studying the spiritual dimensions of this awareness. Therefore, a research problem emerged in the absence of studies addressing the concept of spatial awareness as one of the dimensions of human urban space, and no urban principles and spatial indicators have been identified for urban space that enhance spatial awareness.

2. Methods

This research adopted a descriptive and analytical method to achieve its objective, which is to build a model consisting of urban principles and spatial indicators. These indicators will enable the human to be aware of space because human awareness of space is one of the pillars of human urban space. The research will employ the following method and steps to achieve its objective, as shown in Fig. 1:

i. Reviewing of the most important previous studies that deals with the importance of spatial awareness in the public space;
ii. Building a research model of spatial awareness;
iii. Applying the model to a human public space in the historical centre of Baghdad to verify the model, give it a local character, and diagnose the kinks in the study area in terms of spatial awareness.

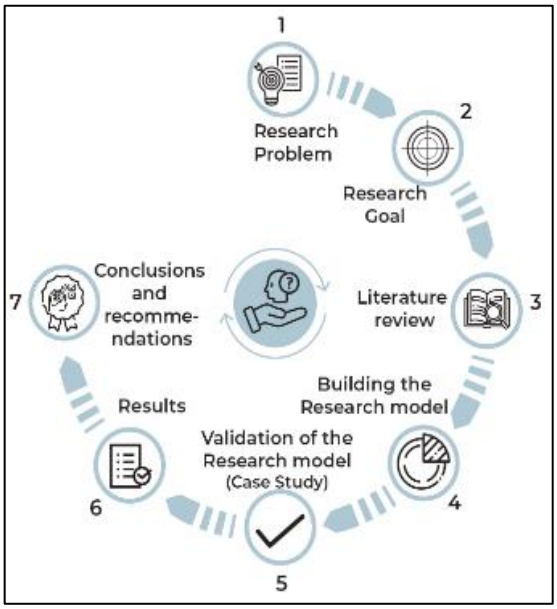


Fig. 1. Method and steps used in the research.

3. Literature Review

Given the importance of the spatial awareness dimension as one of the many pillars of human place, we perform a review of the urban design literature which has come up with concepts that enhance spatial awareness in an urban space in order to build the research model and determine its urban principles and spatial indicators.

3.1. Respecting the spatial context

Public spaces must be related to their spatial context through integration with local elements that, in order to create a coherent urban space within the urban network that facilitates the process of urban integration. This has been emphasized by [25-27].

Contextual integration is a method of dealing with urban and social characteristics; contextual urban design is an integrated system for developing a set of social, economic and urban characteristics related to the temporal and spatial aspects of a specific area, with consideration of its history and heritage [28]. One of the most important considerations in this context is to work on a human scale, and the streets must be distinctive and have a local identity [26]. Respect for the spatial context is developed based on the form, scale, appearance and materials in the context, as well as the local topography, geography, the character of waterways, the biodiversity, the local climate, orientation and noise, the pattern of uses and activities, social characteristics and demographics, economic factors, and the perceptions of the local community [27].

It can be seen from the above that respecting the context of urban space through its integration with the urban environment is one of the key principles of building a spatial awareness model.

3.2. Maintaining the sense of enclosure

The idea of spatial enclosure developed with the first formal human settlements [29]. Sitte, 1889 focused on the sense of harmony with space through the presence of an enclosed space [30]. Spatial enclosure is associated with the following aspects: privacy, an identity-enhancing space for everyone, high density at low altitude, a climatically appropriate environment, sound protection, air protection, active edges, safe spaces, and car-free and pedestrian zones [29]. In addition, it brings beauty to the urban space [31]. It must be taken into account that highly enclosed spaces evoke feelings of insecurity and danger, and the design of urban spatial edges contributes to the development of a state of relative permeability [32].

Urban enclosure has become one of the most prevalent considerations in urban design and has been defined as the process of designing buildings for public use through the ratio between height and width to create comfortable pedestrian spaces [33]. The three-dimensional mass of each building defines the public space, so cross-sections of a public space must be expanded to promote a sense of enclosure [34]. The establishment of continuous building lines along the edge of the block are more successful in providing enclosure to a street or yard and creating an active facade with many doors and windows to enliven the public realm [34]. The most direct way to create a sense of spatial enclosure is to group buildings around a central point, with the corners of the space open and forming a relationship between the centre and the edge [35].

It can be seen from the above that maintaining a sense of enclosure through the articulation of the built environment is one of the key principles when building a spatial awareness model.

3.3. Revitalizing the facades of urban architecture

Urban architecture defines the success of a building through its ability to make a positive contribution to an urban space [36]. Planners and designers often use the term “active facades” to describe a positive relationship between a building and the space [37]. Urban architecture consists of buildings created to be an urban space [38]. Therefore, it can affect human happiness and satisfaction [39]. Arnheim, 1977 pointed out, in *The Dynamics of Architectural Form*, that the role of architecture is to reconcile buildings and urban space. Schumacher,1988 argued, in *Skull and the Mask*, for the importance of the facade as a link between the interior and the exterior [40]. In fact, this idea is key to the word “facade” itself; its Latin root “facies” and its Greek origin “phàino” mean to appear or pretend, that is, to bring something to the outside [40].

The ground floor facade functions as a zone of exchange between people and space as it influences people's social behaviour and activity patterns in the street providing opportunities for activity, play and interaction [41]. Therefore, it is necessary to focus on the integration of the public space with the entrances and facades of the ground floor [25] because a lack of integration between them leads to the division of the urban world into a sharp dichotomy [42]. Gehl [30] argued that the edges between buildings and the urban space should be of the human scale, with a compact rhythm, filled with narrow modules and many doors, and they should be transparent, allowing the interior to be seen, stimulating human sensory experience, attractive ground floor, diversity of functions, and provide points of

exchange between interior and exterior, with vertical rhythms. In addition, Gehl [30] specified 15-20 doors per 100 m of ground floor to be practical.

It can be seen from the above that revitalizing the facades of urban architecture through the activation of building elevation and its surfaces is one of the key principles when building a spatial awareness model.

3.4. Enriching the urban meanings

Heidegger, 1927 argued that there is no world without explanation, and no explanation has meaning without a world, and that the human is the only creature to be explained by the interrogation of the urban environment [43, 44]. Thus, urban experience cannot be independent of the meaning ascribed to it [45]. Place is a part of space and bears meaning; that is, when any space acquired meaning for the individual, it turns into a place whereby place is an essential source of human identity [43]. The symbolic dimension is vital to the human presence in urban space because it gives meaning to the urban environment [46]. The symbol represented the link between physical reality and an intangible idea, belief or value. It is the visible that appears invisible in a specific spatial context [44]. The interpretation of symbols varies with different cultural contexts [46]. Urban space is a public space that includes different types of human cultures, which are sometimes in conflict, so it is necessary for urban designers to ensure the creation of inclusive spaces that do not allow any symbol that stimulates conflict between different groups [47].

Good urban design supports an architectural value that is capable of contributing to the generation of valuable meanings [48]. Kotkin [49] argued that great places often exhibit spiritual dimensions and generate meanings for their inhabitants. Spiritual meanings can also be acquired from the process of human contact with nature [49]. Heritage can be considered as a meaning generator [50]. In addition, architectural styles play an important role in the process of the transmission of urban meanings and identity formation [1], and land use is a primary way in which humans come to give meaning to places [51].

It can be seen from the above that enriching urban meanings through uses and urban symbols is one of the principles of building a spatial awareness model.

4. Research Model of Spatial Awareness

A comprehensive review of the urban design literature that addressed the factors that stimulate human spatial awareness led to the extrapolation of a research model that identifies 4 urban principles and 11 spatial indicators effective in the process of creating a space with spatial awareness, as shown in Table 1.

Table 1. The model of the spatial awareness dimension.

Principles	Spatial indicators	Details
Respecting the spatial context (*PC*)	Preserving the continuity of local character (*PC1*).	Continuity of local social, historical, cultural, and economic characteristics, topography, landscapes, and the building styles and materials used.
	Maintaining the integrity of the	Strengthening the values of local and global spatial configuration.

	part with the whole (*PC2*).	
Maintaining the sense of enclosure (*PE*)	A feeling of being contained (*PE3*).	Checking relative closure through buildings elements (width of place being twice the height of building). Taking into consideration the characteristic features of planes.
	Continuity of facades (*PE4*).	Matching the construction line to the plotline.
	Create a relationship between the centre and the border (*PE5*).	Centrally grouping elements in the square.
Revitalizing the facades of urban architecture (*PA*)	Increasing exchange points between indoor and outdoor (*PA6*).	Maintaining the number of doors on the ground floor with 15-20 doors per 100m.
	Enhancing soft rhythmic façade (*PA7*).	Relying on small blocks with a vertical rhythm.
	Reveal the inner life of buildings (*PA8*).	Increasing the percentage of visual permeability in the facades for public indoor spaces through glass and moving facades, especially on the ground floor, taking into consideration building privacy.
	Strengthening the external activities of the buildings (*PA9*).	Pulling the internal activities of the building into the public space provided that the flow of movement is maintained.
Enriching urban meanings (*PM*)	The presence of stimulating uses of meanings (*PM10*).	The presence of uses such as antiquities shops, offices, museums, heritage restaurants, and urban elements with a spiritual attraction.
	The presence of local symbols and icons (*PM11*).	Inclusion in the space of iconic signs that are linked to the culture of the community.

5. Practical Study

The research model was applied to a place in Baghdad to verify it and give it a local character, bearing in mind that there will be the possibility of excluding some of the indicators because they are not available in the study case area. Several criteria were adopted in the selection of the study case area, as follows:

i. A public place with humanistic dimensions that provides a state of spatial awareness is one of the most important human dimensions, so a traditional area was chosen because it is a historic human product, reflected in the material and moral human dimensions [30, 52-54];

ii. A public space allows significant activities of a fixed nature (square, plaza, public gardens) and significant activities of a mobile nature (street);
iii. A public space contains some heritage assets, such as cultural products that are difficult to create;
iv. A public space visited by people optionally and not compulsorily.

5.1. Data collection and analysis

In applying the research model to the study area, we aim to verify the validity of this model and give it a local character. The application process requires collecting information about the study case area and analysing data. This was done through the following steps:

i. Obtaining maps of the study case area from the relevant authority (Baghdad Municipality) and websites with aerial maps, such as HERE WeGo - Maps and Google Earth;
ii. Collecting data about the case study area;
iii. Field visits to the case study area and its urban context at different times of the day and week, conducting field surveys of the street and the surrounding area, photographing, recording notes, and conducting interviews with people;
iv. Making a three-dimensional model of the case study area using the Archicad program and modifying it with the Adobe Illustrator program;
v. Analysing the spatial configuration of the study case area to check the integration of urban space by inserting aerial maps into the program Arch view 3.3, enhanced with the AXWOMAN extension based on space syntax theory, which is used for analysing spatial configuration and human activity patterns in urban areas. These are fundamentally influenced by the relationships between that space and the network of spaces to which it is connected. These relationships can be objectively analysed using various measures [55].
vi. Making a questionnaire for each social category, as shown in the *Appendix*. The simple questionnaire questions were prepared in Arabic and were answered according to a five-points Likert scale, as shown in Table 2. The answers were classified and entered into a statistical program Excel 2019 in order to obtain the results.

Table 2. Likert scale.

	Very negative	**Negative**	**Neutral**	**Positive**	**Very positive**
Value	1	2	3	4	5
Range	1-1.8	1.81-2.6	2.61-3.4	3.41-4.2	4.21-5

5.2. Scoring method

Human dimensions are mainly divided into physical and moral dimensions. This division was reflected in the spatial indicators of the research model in the form of quantitative and qualitative indicators. For research purposes. The researchers assumed that the principles and indicators have equal weights because finding a weight for each indicator and principle of spatial awareness is complex. These weights will be developed in future research. To unify the values of indicators

measured in different quantitative and qualitative ways, a five-points Likert scale was used, as shown in Table 2. In addition, this scale was adopted to measure qualitative indicators via direct observation and questionnaires. Hence, the value of a principle is taken as the sum of its indicators score, and the value of the spatial awareness dimension is the sum of its principles, as shown in Fig. 2.

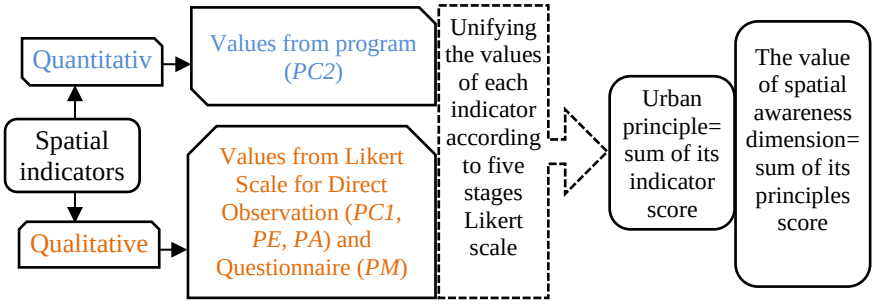


Fig. 2. Scoring method for the research model.

5.3. Description of the study case area

According to the study case area selection criteria, the researchers chose Al-Mutanabbi Street. It is located in the old Rusafa district within the city of Baghdad, and directly overlooking the eastern side of the Tigris River in the centre of Baghdad. Al-Mutanabbi Street is located in Jadeed Hasan Pasha neighbourhood in the old Rusafa area, as shown in Fig. 3. The history of this neighbourhood goes back to the days of the Abbasids; it was known as Darb Zakha, or Zakha Alley, where there were cultural and educational institutions and schools [56], and then it was called Jadeed Hasan Pasha neighbourhood, named by the governor of Baghdad, Hasan Pasha [57].

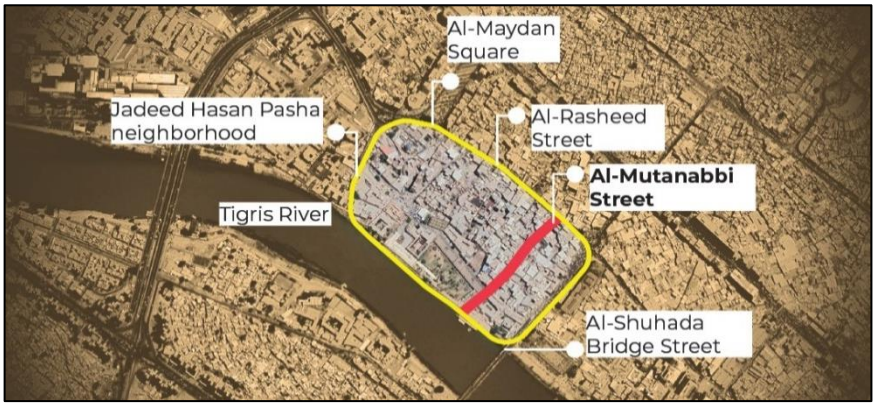


Fig. 3. Al-Mutanabbi Street, in context.

Al-Mutanabbi Street was named Ekmegkhana Street at the end of the Ottoman era, which means bakery or kitchen street in the Turkish language. It was called this because there was an old building belonging to the army in which people cooked food and bread for army [56]. The street was named Al-Mutanabbi Street in 1932 during the reign of King Faisal I in honour of the poet Abu Al-Tayyib Al-

Mutanabbi [58]. In contemporary period, Al-Mutanabbi Street was subjected to a terrorist bomb attack on 5 March 2007, which led to severe damage in the street, killing and wounding many citizens [59], as shown in Fig. 4.

Following this explosion, there was a rehabilitation campaign in 2008, during which the buildings were restored and cladded with bricks, the river facade and infrastructure were rehabilitated, a gate to the street was erected, the street was paved with stone, and a mooring for boats was constructed, as shown in Fig. 5.

Fig. 4. The terrorist explosion of Al-Mutanabbi Street 2007 [59].

Fig. 5. Al-Mutanabbi Street 2015 [60].

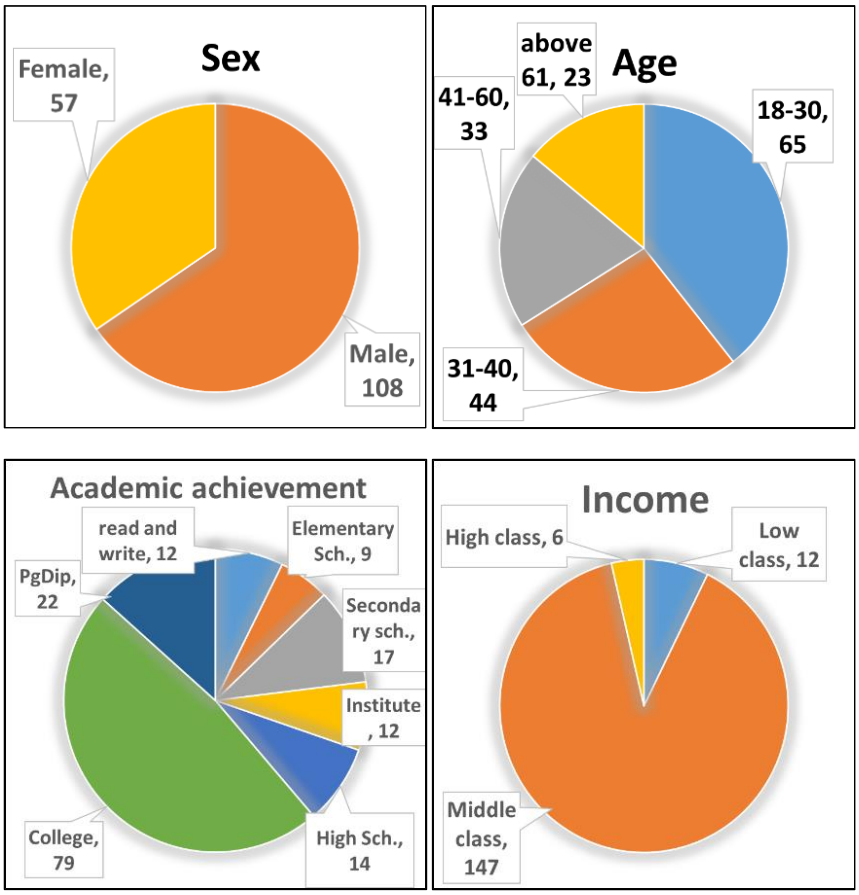
Recently, the street has witnessed a significant development campaign, and was opened with a new look on 25 December 2021. Al-Mutanabbi Street has become a cultural entertainment centre and includes many points of artistic and cultural activity and hosts various festivals. It is visited by Iraqis of different age groups and economic levels. This development campaign has greatly affected its working hours, which extend from seven in the morning until after midnight, as shown in Fig. 6.

Fig. 6. Al-Mutanabbi Street at present, by researchers.

6. Results and Discussion

The public life on Al-Mutanabbi Street was studied through a field survey, a questionnaire, photography, analysis with specialized programs, and 3D modeling. The temporal limits of the study range from 15 January 2022 to 1 May 2022, from seven

o'clock in the morning until midnight and on all days of the week. In total, 165 different people were surveyed at various times of the week and at different times of the day, as shown in the Fig. 7. The spatial boundaries are constrained within Al-Mutanabbi Street, whose length is from Al-Rasheed Street to Al-Mutanabbi's statue 310 m and the area around it, represented by the Jadeed Hasan Pasha neighbourhood, which is located between the river and Al-Rasheed Street on one side, and on the other side between Al-Shuhada Bridge Street and Al-Maydan Square, as shown in Fig. 3. The results of the application of the research model can be summarized as follows.



Fig, 7. The difference between the samples in the questionnaire according to gender, age, educational attainment, and income.

PC. focuses on respecting the spatial context had the following results:

PC1.The indicator of the preservation of the continuity of the local character scored 4/5 points (positive), according to the five-points Likert scale, wherein Al-Mutanabbi Street is considered a natural extension of the Jadeed Hasan Pasha neighbourhood, where the local social, historical, cultural, and geographical characteristics are maintained, as are the traditional style, materials, and land use as shown in Fig. 8. On the other hand, the recent developments have neglected contextual development and focused on Al-Mutanabbi Street only.

PC2. The indicator of preserving the integrity of the part within the whole scored 3/5 points (neutral), according to the five-points Likert scale; the configurational analysis in ArcView Gis3.3 shows that Al-Mutanabbi Street has moderate global integration (1-1.8) and moderate local integration (1.06-2.84). At the same time, it is located within the control core (1-8.95), as shown in Fig. 9. This means that Al-Mutanabbi Street has a moderate degree of integration within the urban structure at the holistic and local levels.

According to the results of all spatial indicators (*PC1+PC2*), the validation degree of the principle of respecting the spatial context (*PC*) is 7/10= 0.7.

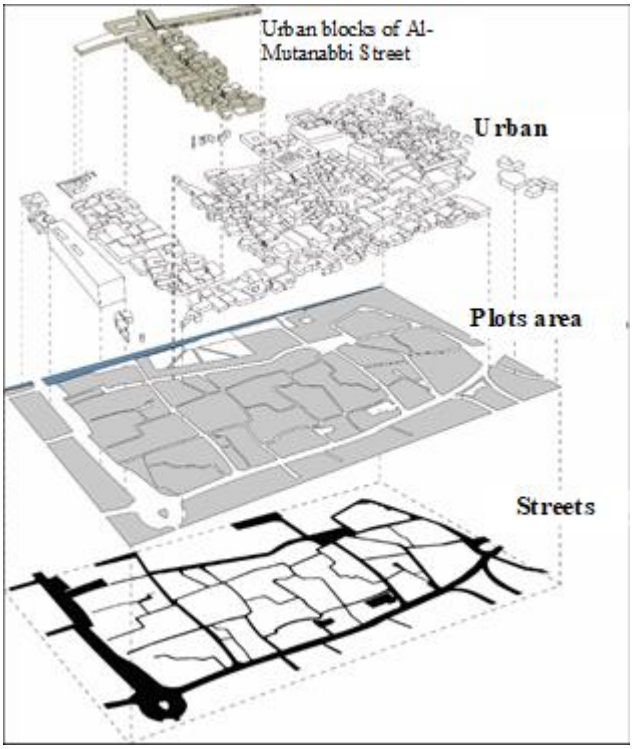


Fig. 8. Urban context of Al-Mutanabbi Street.

PE. The results of the principle of maintaining the sense of enclosure are as follows.

PE3. The indicator of enhancement of the feeling of being close scored 5/5 points (very positive), according to the five-points Likert scale, because of the human scaling of Al-Mutanabbi Street. The ratio of the street width to the height of the building ranges from 1:1 to 1:2. The width of the street is 7.6 m, which contains pedestrian path in the middle and buying activities. There are two sidewalks (an arcade) on both sides of the street; each one has a 2.5 m width. The maximum hight of the buildings is 14 m, and the number of floors ranges from one to four, as shown in Figs. 9 and 10.

PE4. The indicator of the continuity of the facades scored 5/5 points (very positive) according to the five-points Likert scale, as the buildings of Al-Mutanabbi

Street match the line of plots of the land plots, which generates continuity in the building line, as shown in Figs. 8 and 10.

PE5. The indicator of creating a relationship between the centre and borders was excluded due to the absence of a square within Al-Mutanabbi Street, as mentioned in the practical study.

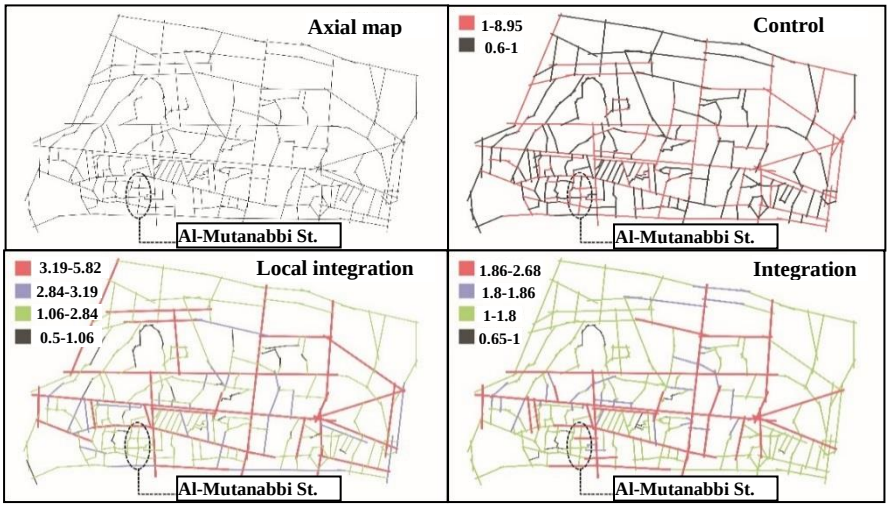


Fig. 9. The results of the spatial configurational analysis of Rusafa.

According to the results of all the spatial indicators (*PE3*+ *PE4*), the validation degree of the urban principle of maintaining the sense of enclosure (*PE*) is 10/10= 1

PA. The results of the principle of revitalizing urban architectural facades were as follows.

PA6. The indicator of the increase exchange points between indoors and outdoors scored 5/5 points (very positive), according to the five-points Likert scale, as the rhythm of the doors leading to the main stores repeats, with more than 25 doors per 100 m, as shown in Figs. 10 and 11.

PA7. The indicator of the enhancement of the soft rhythmic facades scored 5/5 points (very positive), according to the five-points Likert scale, as Al-Mutanabbi Street has a vertical rhythm resulting from the shops and corridor columns on both sides of the street, as shown in Figs. 10 and 11.

PA8. The indicator of the revealing of the inner life of buildings scored 4/5 points (positive), according to the five-points Likert scale, because the facades of Al-Mutanabbi Street's buildings allow visibility through their glass especially on the ground floor. Despite that, there is ambiguity on the upper floors, as shown in Figs. 10. and 11.

PA9. The indicator of the strengthening of the external activities of buildings scored 5/5 points (very positive), according to the five-points Likert scale, as Al-Mutanabbi Street allows outdoor commercial activities on both sides. The main outdoor activity is book sell and buy. The main outdoor activity is book selling and buying. In addition, there are secondary outdoor commercial activities, with street vendors selling books, foods, drinks, and different kinds of goods, as shown in Fig. 12.

According to the results of all spatial indicators (*PA6*+ *PA7*+ *PA8*+ *PA9*), the validation degree of the urban principle of revitalizing the urban architecture's facades (*PA*) is 19/20= 0.95.

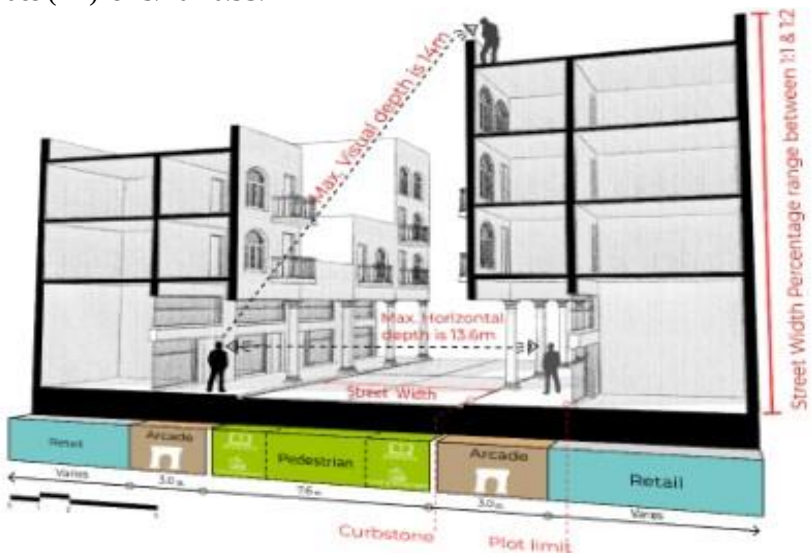


Fig. 10. Hypothetical section in Al-Mutanabbi Street.

Fig. 11. Revitalizing urban architecture facades by the repetition of shop doors, their vertical rhythm, and the transparency of facades.

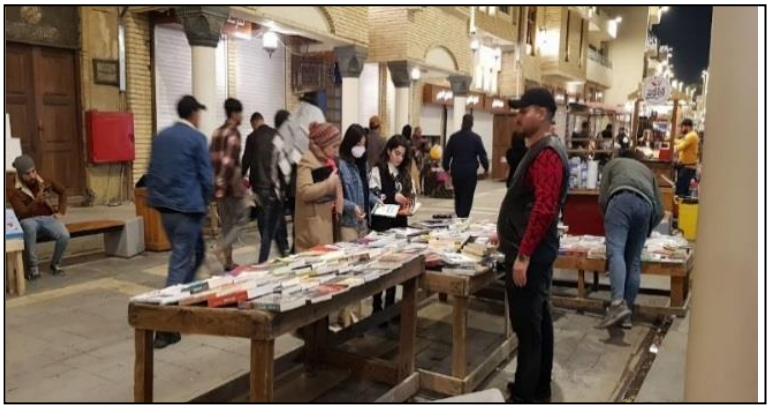


Fig. 12. Buying goods on the street.

PM. The results of the principle of the enriching of urban meanings are as follows.

PM10. The indicator of the presence of stimulating uses of meanings scored 3/5 points (neutral), according to the five-points Likert scale, as shown by the results of the questionnaire in Fig. 13. The results show a neutral attitude towards this indicator, the mean of which was 3.07 and the standard deviation was 1.02. Al-Mutanabbi Street has meaning-generating uses such as, museums, heritage buildings, and elements of spiritual attraction.

PM11. The indicator of the presence of local urban symbols and icons scored 4/5 points (positive), according to the five-points Likert scale, as the results of the questionnaire show in Fig. 13. The results show a positive attitude toward this indicator, the mean of which was 3.67 and the standard deviation was 0.87. Al-Mutanabbi Street includes symbols related to the culture of the local community.

According to total results of all spatial indicators (*PM10*+ *PM11*), the validation degree of the urban principle of revitalizing the urban architecture's facades (*PM*) is 7/10= 0.7.

It can be seen from the above that the verification degree of spatial awareness in Al-Mutanabbi Street (*PC*+ *PE*+ *PA*+ *PM*/4) is = 0.7+ 1+ 0.95+ 0.7 = 3.35/4.

The process of applying the research model to a human urban space (Al-Mutanabbi Street) has validated the research model and increased the possibility of adopting it to increase spatial awareness in urban spaces.

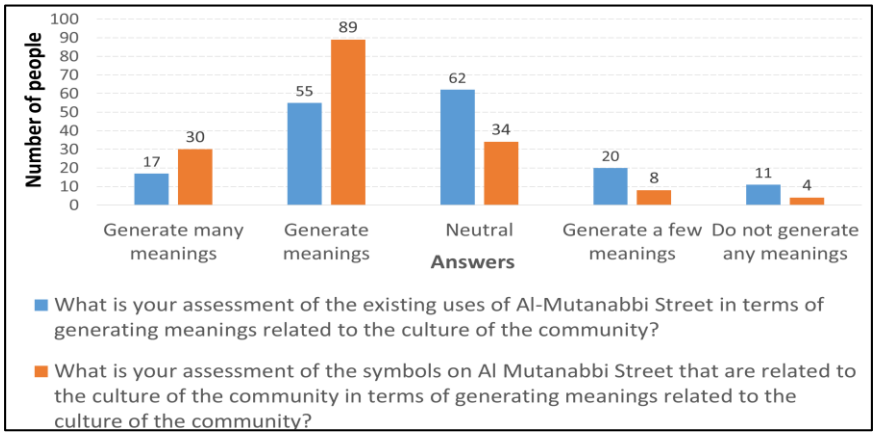


Fig. 13. Questionnaire results for the principle of enriching urban meanings (*PM*).

7. Conclusions and Recommendations

The findings of this research have to be considered in the light of two significant limitations. The first limitation emerges from the theoretical framework, wherein we encountered a diversity of views on the human city due to the multiplicity of points of view on the definition of the human being. In addition, there is a lack of research on spatial awareness in urban spaces, especially local research, which has led to the adoption of a research methodology based on a review of the previous literature to extrapolate spatial indicators. The second limitation emerged in the practical application of the research model, wherein problems emerged through the

difficulty of accessing specialized historical studies on Al-Mutanabbi Street, which forced the researchers to extrapolate information about the street from indirect references. There is also a problem with obtaining street data for the present because this is a traditional area of an organic nature. Consequently, these obstacles prolonged the field survey. We also faced limitations during the practical application of the research model resulting from the measurement tools used for each spatial indicator, during which the researcher relied on direct observation. The last obstacle in the field study involved the difficulty of finding a weight for each principle and spatial indicator that would enhance the awareness of the urban space.

The subject of the human city is one of the most vital topics of urban design at present, and the urban dimensions of the city are derived based on the essential dimensions of the human. The dimension of spatial awareness in urban space is essential and must be reinforced in public spaces through urban design processes. On this basis, this study is essential to the process of humanizing urban space, as it develops a model with spatial indicators that contribute to building an urban space that enables people to be aware of their space. The basic idea in creating this model is the link between human awareness of place, and urban principles and spatial indicators.

The strength of this research relates to urban design applications, as it contributes to the development of a theoretical model that can be applied to public urban spaces. The study developed a model of spatial awareness dimensions comprising four urban principles (respecting the spatial context, maintaining the sense of enclosure, revitalizing the facades of urban architecture, and enriching urban meanings). These principles are reflected in eleven spatial indicators that enable people to be aware of their place. In addition, the practical study has enabled the researchers to verify the research model, and gives the model a local character, allowing it to solve the research problem and give necessary recommendations to enhance the state of human awareness in a particular place.

With regard to the conclusions derived from the practical study of Al-Mutanabbi Street, we found that the state of spatial awareness in humanistic urban places is more affected by local physical spatial indicators (*PE* and *PA*) than the spatial indicators related to the urban context (*PC*) and moral aspects (*PM*). In addition, the spatial awareness model was verified to different degrees via the urban principles of the research model, because the street is a traditional urban space based on human foundations. We found the following:

- The principle of respecting the spatial context was verified via the continuity of local characteristics and the integration of Al-Mutanabbi Street within the urban system, because the Jadeed Hasan Pasha neighbourhood had a traditional organic urban fabric;
- The principle of maintaining a sense of enclosure was verified via the use of the human scale and the matching of the land plot lines with urban blocks, while the concentration indicator was excluded due to the absence of a square in Al-Mutanabbi Street;
- The principle of revitalizing urban architecture was verified via the increase in exchange points between inside and outside, the rhythm of the vertical facades, the revealing of the life of the buildings, and the containment of the street for commercial activities within open space;

- The principle of enriching urban meanings was verified due to the moderate presence of meaning-generation uses and the presence of urban symbols associated with local culture.

In general, we recommend that the authorities responsible for managing public places in Baghdad create urban spaces according to the human dimensions. In particular, the researchers suggest adopting the research model (urban principles and spatial indicators) to enhance the state of awareness of space in public places. The study recommends urban researchers work on identifying all urban dimensions that make up the human urban space, while determining the weights of urban principles and spatial indicators to create a public space humanity index that can be used to evaluate these public places objectively. As for the recommendations related to Al-Mutanabbi Street, it would be preferable to conduct a specialized historical study on Al-Mutanabbi Street, as well as a field survey, in order to document the cultural, historical, and social values that the street represents.

In particular, the study recommends enhancing the urban principle of respecting the spatial context, which can be achieved in two steps. The first step involves promoting investment in an appropriate manner, under the supervision of the relevant government authorities, including the urban context surrounding the are, in order to achieve the sustainable development of the Jadeed Hasan Pasha neighbourhood by restoring life to this historical area in the heart of Baghdad. The second step involves increasing the global and local integration of the street via the development of linkages that are directly connected to Al-Shuhada Bridge Street. The study also recommends enriching urban meanings in Al-Mutanabbi Street by increasing the uses that generate meanings, especially heritage ones, in addition to increasing the presence of physical symbols and organizing events related to the culture of the community.

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Appendix

Questionnaire form

University of Baghdad
College of Engineering
Architectural Department

Ladies and gentlemen
Greetings …

You have in your hands a questionnaire for collecting the necessary information for research (), which is part of the requirements for obtaining a doctorate in the philosophy of architecture. Given the importance of the topic, and in order to reach the desired results, please cooperate with us by answering the questions in the questionnaire accurately and objectively, knowing that the information we will obtain is used for scientific research purposes only.
Please note: Please mark (x) on the appropriate option. number (1) represents very negative, number (2) negative, number (3) represents neutral state, number (4) positive case, and number (5) very positive.

Thank you for your cooperation with us.

Personal Information
1. Sex: Female ☐ Male ☐

2. Age: (18-30) ☐ (31-40) ☐ (41-60) ☐ (above 61) ☐

3. Academic achievement: Just read and write ☐ Elementary School ☐
Secondary School ☐ Institute ☐ High School ☐ College ☐
postgraduate degrees ☐

4. Income: Low class ☐ Middle class ☐ High class ☐

Questions
1. What is your assessment of the existing uses of Al-Mutanabbi Street in terms of generating meanings related to the culture of the community?
Do not generate any meanings ☐ Generate a few meanings ☐ Neutral ☐
Generate meanings ☐ Generate many meanings ☐

2. What is your assessment of the symbols on Al Mutanabbi Street that are related to the culture of the community in terms of generating meanings related to the culture of the community?
Do not generate any meanings ☐ Generate a few meanings ☐ Neutral ☐
Generate meanings ☐ Generate many meanings ☐