
Article

Art in Urban Spaces

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Abstract: This study investigated the effect of art on promoting the meaning of the urban space. After considering the semantic dimension of the urban space and the mechanism of transferring the meanings of art through the views of experts, a model is presented for examining the art's cooperation in promoting urban space meaning. In the first stage, the categories of space meanings influenced by art were extracted through using the qualitative method of Interpretative Phenomenological Analysis and by examining 61 in-depth interviews in six urban spaces eligible for urban art in Tehran. In the second stage, these categories were surveyed in these spaces through 600 questionnaires after converting to the questionnaire items. Based on the results, "Experience and perception capability", "Social Participation", and "Relationship with Context" were the main themes of the semantic relationship of art and urban space. Further, the lower scores related to the theme of "social participation" in the quantitative investigations indicated that this theme was weaker than the other themes in promoting the meaning of the urban space through the art in the selected urban spaces.

Keywords: Meaning; Urban Space; Art; Participation; Context; Experience; Perception; Urban Design; Interpretative Phenomenological Analysis; Tehran

1. Introduction

When the contemporary art has widely entered the public spaces of cities since the 1960s (Miles, 1997), its role in urban space, its relationship with the space, and its users have always been controversial (Kwon, 2002). Miles (1997) referred to the dichotomy between the role of aesthetics of art in the space and its semantic function and believed that an attitude beyond the aesthetic judgments should be considered to determine the role of the art in the social and the value areas of the public spaces.

A large number of studies have been conducted in various fields to examine the semantic function of art in the urban space such as strengthening the identity and historical continuity in the spaces (Morris, 1998; McCarthy, 2006; Karimimoshaver, 2013), creating the social links and strengthening the collective identities (Kwon, 2002; Amin, 2008), creating the social equity and inclusion (Deutsche, 1996; Bridgwood, 2002; Sharp et al, 2005), enhancing the sense of "self" and the place attachment (Hall, 2007; Kwon, 2002), increasing the perception and imageability of the space (Januchta-Szostak, 2010, 81), the role of art in the place making (Fiona et al., 2007; Massey & Rose 2003), and the impact of art on the cultural and social regeneration (Hall & Robertson 2001).

The major part of the literature in this field has sought the meaning of the urban art in the art production or the artworks itself (their symbolic role). Further, the role of the audiences, their experience of art, and their partnership in the meaning creation are less discussed (Hall, 2007; Eris & Karimimoshaver, 2018). Massey and Rose (2003) examined the role of art audiences and their participation in creating new dimensions of the place

by using place theories. Regarding the audience role in creating the art meanings, Hall (2007) referred to the more practical Audientia project, considering the art meanings of audiences by using creative, interpretive, and qualitative methods. He concluded that people mostly refer to the meaning raised by social engagement with the work of art, rather than the symbolic meanings. Further, there is a difference between the perception of people with the demands of institutions and the perception of the academic individuals (Hall, 2007). Other studies are conducted on the role of the audiences in the perception of art (Zebracki, 2013) or the participation of the audience in the art production processes (Cant & Morris, 2006; Gressel, 2016), which mainly focus on the meaning of art, rather than the effect of art on the meaning of the space. The interaction of arts and space is less considered in creating the meanings. In addition, these studies failed to provide comprehensive and practical principles for improving the meaning of the space. Therefore, this study aimed to provide a comprehensive and practical framework for the meaning-making of the space by the art in which all semantic aspects of the art (meanings related to the art itself and the meanings associated with the relationship of the audience with art) are involved. In this regard, the mechanism of the meaning-making and how art influences this process were first studied and then this mechanism was elaborated using field research in Tehran.

1.1. The meaning of the urban space

The studies conducted on the meaning of the environment revealed two categories of influential factors on the meaning of the urban space. The first category is related to the factors the meaning of space is formed in their context and the second category are the poles the meaning is created around them based on the Gustafson's (2001) place meaning model. The contextual factors include the cultural context and time. In the same vein, a large number of studies investigated the influence of the culture on the meaning formation of the urban space (Rapoport, 1990 & 1997; Carr et al., 1992; Rotenberg, 1993). Further, the time is regarded as a factor during which meaning is deepened and intensified (Gustafson, 2001; Manzo, 2005; Lewicka, 2011). The "person" is one of the poles around which the meaning is formed and through experience links the space with some processes such as identification, resulting in attaching to the space (Lalli, 1992; Manzo, 2005; Stedman, 2008; Antonich, 2010). The community is another pole, which has been proposed by many scholars as a source of collective meanings of the space (Jabareen, 2009; Peters & de Haan, 2011; Manzo, 2005). Many spatial meanings are appeared in the physical space of the space. In fact, the physics section of the spaces usually provides audiences with possible suggestions (Cochrane, 2006; Nasar, 2005; Kudryavtsev, 2011; Lewicka, 2011). Therefore, the meaning of space is formed over time and in the cultural context of the community among the person, community and physical space poles. The meanings may approach one of the poles although they cannot mainly be formed independent of the other poles in the environment (Gustafson, 2001). Figure 1 displays the poles and contexts, which form the meaning of the urban space based on the basic model developed by Gustafson (2001).

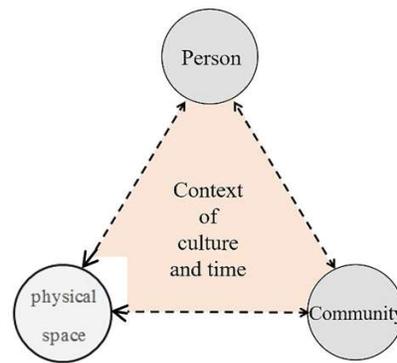


Figure 1. The poles and contexts which form the meaning of the urban space

1.2. Urban art and transfer of meanings

The semantic function of the art is considered from different aesthetic and philosophical perspectives and the different aspects. Ahmadi (2017) used the Jakobson's (1981) model of linguistic communication to sum up these views, and a model for how to transfer meanings through the art by considering art as a tool for establishing relationship. Based on this model, which is the basis for further analyzes, the meaning of the art is first formed by the artist and then, it is received by the audience and the historical and social fields (context), the cultural semiotics system (code), and the art transfer medium (contact) influence them **Figure 2** .

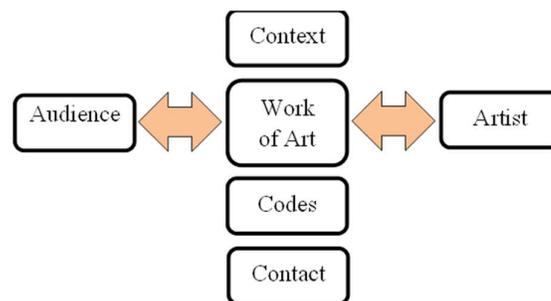


Figure 2. Diagram for transferring meaning through the art (Ahmadi, 2017)

With the advent of art in the public arenas of cities, the coordinates of the factors influencing the meaning of art change due to the impact of the locative conditions. In this regard, the authorities and institutions should be considered in inducing the meanings of art in the urban space (Miles, 1998). On the other hand, the audience of the art becomes public with the generalization of art (Kwon, 2002, 36). Therefore, the cultural context, personal and collective audience, and the artist and authorities influence the meanings transfer through the urban art. Regarding the assumption that the art is effective in the meaning of the space, the meaning-making factors of the urban art affect the spatial meaning-making poles. Figure 3 illustrates more explanation of this effect based on Gustafson (2001) and Ahmadi (2017).

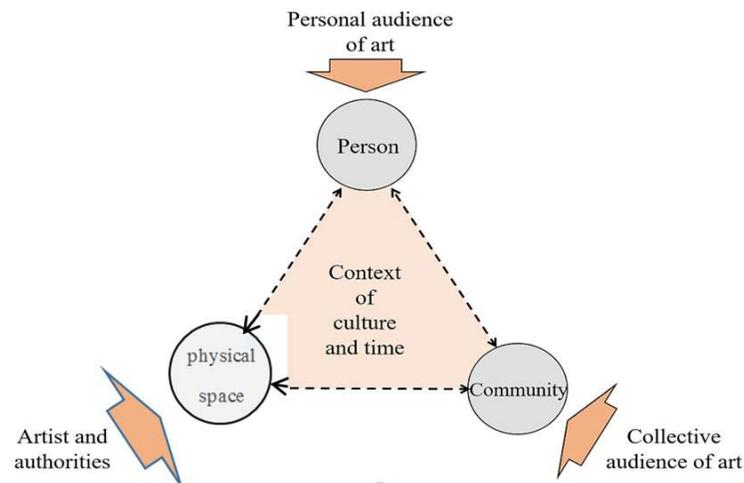


Figure 3. The diagram of how urban art influence the meaning of the urban space

- artists and authorities/physical space

Art has a layer of representation that reflects the physical aspect of the work of art. This layer is under the relative control of the artist. Under the influence of authorities (including influential individuals, institutions, and organizations in political and social affairs) and in the field of culture and society, the artists reflect their desired meanings in this layer.

- personal audience/person

Art can be effective in strengthening a person's relationship and shaping their lived experience in urban space, and play meanings related to space in the individual's mind and strengthen people's sense of "self" (Kwon, 2002). These meanings are directly the result of one's experience of art and are linked to one's feelings and emotions. These meanings are deep, influential and lasting, but they require a direct, immediate and everyday connection of people with art.

- collective audience/community

Urban art creates collective meanings through processes and events such as festivals and festivals that generally reflect shared social values (Hall & Robertson, 2001) in a way that no longer represents the past as a memorial monument, but is expressed as part of a discourse in the present (Papastergiadis, 2010).

Based on Figure 3., "artists and authorities/physical space", "personal audience/person" and "collective audience/community" are regarded as the main themes in the interaction of the art and space, which indicates how the constructive dimensions of the urban art influence the meaning maker poles. In other words, the artists and the authorities by influencing the physical aspect of the urban art affect the space meanings around the pole of the physical space. Further, the collective audience influences the space meanings around the community pole by participating in establishing the social meanings in relation to the urban art. A person, through his or her individual experience of the urban art, affects the space meanings around the pole of the person. In the following, a field research was designed to clarify the above model.

2. Methodology

A mixed method was used to examine the effect of the urban art on the meaning of the urban space. In a mixed method, the quantitative and qualitative approaches are used concurrently or sequentially (Creswell et al., 2003). In addition, an exploratory approach was used in the mixed research. This sequential mixed method, which is used to develop

or test the results of the qualitative stage, aims to influence the first method (qualitative) in the second method (quantitative) (Creswell & Plano, 2007). In other words, in the first stage, the effect of the urban art on the meaning of the urban space is studied by using qualitative method and its main indicators are extracted, while these indicators are surveyed in the study area in the second stage.

It should be noted that the ethics committee of the institute where this study conducted has approved the method of this research.

2.1. Scope of the study

Tehran is a city which has attracted a variety of arts in its urban spaces during the recent decades; however, they have often been top-down. The context of the effect has received less attention. In many cases, works of urban art (especially murals) have been considered as a cover for the ugliness of the city and the temporary beautification of the city has been considered by the authorities. The location of the works is in many cases inadequate and there is not even the possibility of physical access or enough time to read and interact with the works, for example on highways. The responsible institutions in this field are very limited and it is not possible for private institutions to operate. The process of selecting and creating works is under the complete control of government institutions and is closed to the people and society.

In the present study, six urban spaces were selected to examine the effect of art on the meaning of these spaces (Figure 4). The similar functional scale, relative dispersion in the city and the diversity in the urban arts have been the most important criteria for selecting these spaces.

The reason for choosing Tehran is that this city has more urban spaces containing urban art compared to other cities in Iran. The following criteria were considered for selecting these urban spaces:

- Adaptation to the subject and objectives of the research: The urban spaces in question should correspond to the proposed definition of urban space and include (at least) one of the forms of public art.
- Comparability: Relatively identical scales (in Tehran) in terms of perception and function can make spaces comparable in terms of semantic aspects.
- Covering all aspects of research: Variety in the types of arts located in spaces can be effective in discovering different aspects and dimensions of the semantic relationship between art and space.
- Considering research constraints: Research time constraints should be considered in order to limit the number of spaces.

A) Imam Hossein Square: This is one of the main squares in the eastern zone of Tehran, which has been important from the past as a traffic junction and activity center. In recent years, this urban space has become a ritual square during the improvement and organizing plan. Based on this plan, the space of the square is devoted to the pedestrians and religious ceremonies, and the designed metal elements are used as symbolic elements of religion (Figure 4-A).

B) Vanak Square: This is a square with administrative and commercial function located in the northern zone of Tehran. The urban art in this square is in the form of two murals around the square. The occasional visual art works and the street music are the temporary art manifestations of this square (Figure 4-B).

C) Ferdowsi Square: This square with the commercial and traffic position is located in the center of the city, which is regarded as one of the oldest squares in Tehran. The square has demonstrated three statues of Ferdowsi, a well-known Iranian poet, so far. The first statue of Ferdowsi, was situated in the square in 1945, and the current statue is placed since 1959 (Figure 4-C).

D) Azadi Square: This is the largest square in Tehran, which is located in the western zone of the city. This square was built along with a tower in 1970 to commemorate the King of Iran, called Shahyad Tower, which was renamed to Azadi (freedom) after the Islamic Revolution in 1978. The Azadi Tower is an artwork, known as the symbol of the Tehran city, which has always been the site of many collective events (Figure 4-D).

E) City Theater: The city theater complex, as the first modern theater hall of Iran, was opened in the city center of Tehran in 1967. A vast urban space in its front is the venue for street theater. Additionally, the modern visual works are established in this space (Figure 4-E).

F) House of Artists: it is a cultural complex located in the central zone of Tehran. The area and its building inside are historic, which has been abandoned until 1999 and has been dedicated to cultural activities after reconstruction. The open space is the venue for many artistic events. Further, there are permanent and temporary visual artworks in this space. Figure 4 demonstrates the location of these urban spaces in Tehran (Figure 4-F).



A) Ritual elements, Imam Hossein Square

B) Mural Painting, Vanak Square

C) Ferdowsi statue, Ferdowsi Square



D) Azadi Tower, Azadi Square

E) Temporary visual works, City Theater

F) Permanent visual works, House of Artists

Figure 4. A part of the artworks available in the selected urban spaces. Items E and F can only be experienced while walking. Case C can only be experienced while driving. Items A, B, D can be experienced in both walking and driving modes.

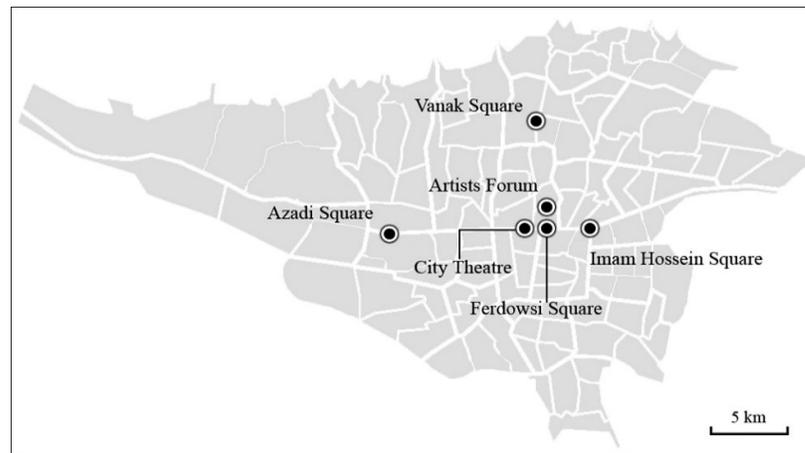


Figure 5. The location of the selected urban spaces in Tehran

2.1.1. First stage (the qualitative section of the study)

The unstructured in-depth interview technique and a goal-oriented sampling strategy and particularly, the intensity sampling method (see Teddlie & Tashakkori, 2009, 174) was used to select the samples (Potton, 2014). The sampling was completed by repeating the data, due to the qualitative nature of the research.

In phenomenological research, Creswell (1998) believes that the sample size can be 5 to 25. In the study, 9-13 phenomenological interviews were randomly done in each urban space (a total of 61 interviews) with people who had the necessary knowledge of the urban space in question and the desire to participate in the interview.

The interview questions were formed in the interaction with respondents and their main focus was on the understanding of the lived experience of the audiences in the urban space in relation to art. These interviews were conducted in May 2019.

The Interpretative Phenomenological Analysis (IPA) method was used to analyze the data, which aimed to examine in detail how individuals perceive their individual and social worlds (see Smith & Shinebourne, 2012; Smith & Osborn, 2008; Smith, 1996; Smith, 2004; Larkin, Watts & Clifton, 2006). In order to improve the validity of the method, in addition to considering the phenomenological reduction (Giorgi & Giorgi, 2003) and respondent validity (see Colaizzi, 1978), the results were controlled by five PhD candidates of urban design working on related issues (see Van Kaam, 1966).

According to Smith & Osborn (2008), the written interviews were read several times and important and interesting cases were extracted from them. They were divided into semantic units, and in each section the main implicit concepts were written. How respondents' language or emotions were used was recorded. Similarities, differences, repetitions, emphases and contradictions were noticed in the individual's speech. This process was done for the entire first interview. Returning to the beginning of the first interview, the margins were devoted to writing emerging themes and categories. The initial notes are changed to precise expressions aimed at expressing the meanings of the findings within the interviews, considering that categories represent higher levels of summary and use more specialized words. This method was repeated for all interviews and the categories that appeared in previous interviews were used in them.

The study result of this section was indicators through which art affects the meaning of the urban space. The results of the analysis of the first stage are the main themes, categories and subcategories that have been the result of the combination of art and space

in the creation of spatial meanings. These indicators have been measured and surveyed in the second stage.

2.1.2. The second stage (The quantitative section of the study)

The results obtained from the qualitative stage using the phenomenological method have neither weight nor a specific priority, and a quantitative measurement is needed to determine their degree of importance, weakness and strength.

During the second stage of the study, the indicators extracted from the previous section were surveyed quantitatively. Each indicator became an item of the questionnaire and the Likert scale was used to examine the degree to which people agree with the indicator in relation to the art and urban space (see Appendix 1). The 100 samples were considered for each urban space based on Cochran's formula for the unlimited statistical community (with an error level of $d = 0.1$). Accordingly, 100 questionnaires (a total of 600 questionnaires with different groups of people at each site) were completed in each urban space, in July 2019, with the people who had the necessary knowledge of the urban space in question and the desire to complete the questionnaire. Out of 600 questionnaires, 306 (51%) were female and 294 (49%) were male. In terms of education level, 39.7% of respondents were bachelors, 6% undergraduates, 30.3% diploma or associate degree, and 24% had a master's degree or higher.

The random sampling method was used and the questionnaires were analyzed by describing and analyzing the data obtained in the SPSS software and the reliability of the questionnaires was measured by Cronbach's alpha. The calculated Cronbach alpha was more than 0.6 in all of the main themes, indicating the appropriate reliability of these indicators. In addition, the Cronbach's alpha calculated for all of the indexes was 0.932, indicating the appropriate reliability of the questionnaire. De Vaus (2013) in his book, introduced the reliability of the indicators based on the Cronbach's alpha value of less than 0.3, between 0.3 - 0.6, and above 0.6 as low, medium and high, respectively.

3. Results

3.1. *The Results of the qualitative section of the study*

After implementing and rereading the interviews accurately, the right-side margin of the text was used to write the analytical comments and then, in the second stage, the left-side margin was used for the emerging categories. The comments included descriptions, detail, summaries, relationship or even initial interpretations. The categories represented higher levels of summarization in which more specialized words were used. After doing this section for all interviews, the themes and categories were listed and categorized with a theoretical and analytical order. Table 1 represents a part of an interview in Ferdowsi Square.

Table 1. A sample of the outcomes used to analyze the lived experiences in Ferdowsi Square and presenting the themes, categories and subcategories of the semantic relation of the art and urban space.

	The lived experience of the art in the urban space	The orientation of the experience	Implicit concepts	The main theme	Impact category	Subcategory
Interview No. 1	<i>Ferdowsi's name is very important for me, perhaps because of my attachment to the literature. But, when the name of this place is the Ferdowsi Square, I am looking for to make relationship and I look at the statue and make relationship with it when I get to the square ...</i>	Positive	Establishing the conceptual and subjective relation between the appellation of the square with the name of Ferdowsi	The relationship with the context	Symbolism	Symbolic utilization of the appellation
	<i>... The square is very busy and high traffic and this matter influences everything ... The square is full of cars and the poor Ferdowsi is already lost among the crowd and traffic. Perhaps in the past, the statue was seen more in the square unlike the now, due to these changes.</i>	Negative	Traffic and crowd prevent to establish the relationship with the statue.	The possibility of perception and experience	Experiencing	The impartial experience
	<i>Now, the statue becomes just a memory, and when I enter the square, I feel only a faint connection with the statue. For example, Azadi Square dominates the square due to the size of the building, but the Ferdowsi's statue is lost in the square and its dimensions are not proportional to the space.</i>	Negative	The disproportion of the size of the statue with the dimensions and characteristics of the square and the dominance of the space	The possibility of perception and experience	Subjective perception capability	Dominance and surrounding effect
	<i>Of course, the statue of Ferdowsi has been in the square for many years and has become a part of the memory of the square. It has a historical aspect and we feel it even if we do not look at it</i>	Positive	The durability of the artwork in the space has made it a part of the space identity.	The relationship with the context	The physical and structural interaction	The durability and being historical art and space

Finally, the main themes in the semantic interaction of the art and urban space, the categories and subcategories related to each theme were appeared after examining the lived experience of individuals in the six urban spaces including a variety of urban art (Table 2). The possibility of the experience and perception, social participation, and the relationship with the context were the main themes affecting the creation of space meanings through the relationship with the art. These themes are compatible with the themes of the conceptual model of the study, namely, "personal audience / person", "collective audience / community" and "artist and authorities / physical space". These themes were detailed by using a series of categories and subcategories.

A) Experience and perception capability

One of the emerging themes is the creation of the meanings during the person's relationship with an artwork or art event due to the everyday experience of the urban space. The meanings formation is influenced by how a person is confronted with the art in the space and this confrontation has what kind of visual and subjective quality. The main and secondary categories of this theme are as follows:

The visual perception capability: The capability and quality of the visual perception of art is a basic indicator in the lived experiences of the individuals. The "quality of performing" art works, the amount of "emphasis and distinction" of works in the space, the "visual appeal" of the works, and the possibility of establishing "visual communication" constitute the main subcategories of the visual perception capability.

The subjective perception capability: In many experiences, the subjective relationship with the works and space provide individuals with a deeper experience. This stage of the perception is in a deeper layer than the visual perception, and the subcategories of the observance of the "human scale", "the art and space order and clarity," and the "dominance and surrounding" effect of the art in the space are extracted during the interpretation of the interviews.

Experiencing: The features of the art and space, resulting in the richness of the experience and its continuity, are mentioned in interpreting a large number of lived experiences. During the interviews about the richness of their experience, people refer to the "repeatability" of an artwork or art event in urban space in different periods of time, "the presence and possibility of stopping" in the space, the possibility of establishing "physical access" to the urban art, "the possibility of exploring and reflecting on the art," "the impartial experience of the art and space", "Fit with the duration of experience" the art in urban space, as well as the creation of "the change and diversity" in artworks and events.

B) Social participation

The main part of the individuals' lived experiences of urban art is formed socially and by participating in the artwork or art event in various forms. The main categories and the subcategories are as follows:

The active participation in processes and events: The best form of participating in the urban art is the active participation of the audiences in producing and implementing the art, which refers to as a meaningful experience in the interviews. In the urban spaces studied in Tehran, the only experience, mentioned in this category, is "the participation in ritual ceremonies".

The inactive participation: The "participation in art events" is one of the manifestations of this kind of partnership in completing the urban art. The "sociability of the space" is another indicator related to the urban space and finally, "observing the art production process" is one of the issues extracted from the interviews.

Subjective and functional sharing: Another type of the community participation in the construction of the meanings is the individuals' subjective sharing about the art or collective function of the art. The "collective memories" of the art in the urban space, "emotional sharing", "the functionality of art" in the urban space, "the functional adaptation of the art and space" were subcategories extracted during the interpretation of interviews.

The interaction between the community and the art executives: One of the categories, discovered in relation to the creation of the social meanings by the art in the urban space, is the interaction between the urban art executives such as institutions, organizations, and artists and their collective audiences. "Paying attention to the existing activity and behavioral patterns" in the space by the authorities and institutions of the art executive, "building trust and proximity to the community", creating the possibility of the "dialogue between people and the art executives", "avoiding unilateral and top to down art", and "providing context for spontaneous and folk arts" are some of the indicators extracted from the people's experiences.

Considering all strata and groups: this category was discovered in relation to the possibility of meaning making by various group with different tastes, norms and beliefs. In relation to with this category subcategories including "providing the tastes and interests of all groups" and "opening the space to all groups and groups" appeared during the analysis of interviews.

C) Relationship with context

The relationship with the context indicating the relationship between urban art and the physical, historical and cultural context of urban space in the city. The results of the interviews demonstrate that the adaptation of art to the contexts leads to a deeper relation of art with the audiences. The categories of symbolism, physical and structural interaction, and cultural symbols application are extracted from interviews.

Symbolism: The use of symbols with familiar meanings and concepts for the space users is regarded as one of the categories, which links art to the context. In the context of Tehran, the use of "national and religious symbols" was mentioned by the people. Further, in some cases, the symbolic use of the space features such as its "appellation" in urban art has made a deep link between the meaning of space and urban art.

Physical and structural interaction: The relationship between the art and the physical and structural contexts of the urban space is deduced as a category in relation to the theme of "contextualism". The subcategories of this category include the "coordinated physical design of the art and space", "the relationship with the historical structure and elements", "the durability and historicity of the arts and space", "the relationship between the art and the cultural context of the space", and the availability of a "flexible and appropriate physical context" for implementing artworks.

The use of readable cultural signs: The application of readable cultural signs in the urban art make them meaningful for people in relation to space. The use of "traditional art and architecture" of Iran and the "cultural and religious symbols" in the art and space are the categories inferred from the interviews in this regard. Table 2 represents the themes, categories, and subcategories of the interpretative review of the interviews

Table 2. The themes and categories of the meaning of the urban space in relation to the urban art

The main themes of the meaning maker	The meaning maker categories	Subcategories
Experience and perception capability	Visual perception capability	Quality of performing
		Emphasis and distinction
		Visual appeal
		Visual communication
	Subjective perception capability	Human scale
		Art and space order and clarity
		Dominance and surrounding effect
	Experiencing	Repeatability
		The presence and the possibility of stopping
		Physical access

		The possibility of exploring and reflecting on the art
		The impartial experience
		Fit with the duration of experience
		Change and diversity
Social participation	Active participation in the processes and events	Participating in the ritual ceremonies
	Inactive participation	Participating in the art events
		The sociability of the space
		Observing the art production process
	Subjective and functional sharing	Collective memories
		Emotional sharing
		The functionality of the art
	The interaction between the community and the art executive	Functional adaptation of the art and space
		Paying attention to the existing activity and behavioral patterns
		Building trust and proximity to the community
		The dialogue between people and the art executives
		Avoiding unilateral and top to down art
Considering all strata and groups	Providing context for spontaneous and folk art	
	Providing the tastes and interests of all groups	
	Opening the space to all groups and groups	
Relationship with context	Symbolism	Utilizing national and religious symbols
		The symbolic use of the appellation
		The coordinated physical design of the art and space
	Physical and structural interaction	The relationship with the historical structure and elements
		The durability and historicity of the arts and space
		The relationship with the cultural context
		Flexible and appropriate physical context
	Applying cultural signs	Using traditional art and architecture
Applying cultural and religious signs		

3.2. The results of the quantitative section of the study

Among the 600 distributed questionnaires in the urban spaces, 306 (51%) were female and 294 (49%) were male. 43% of respondents resided around the urban space of the study area and 57% in other areas of Tehran. 29.7% daily, 29.3% weekly, 23.3% monthly, and 17.7% annually refer to the urban space questioned. In the following, the themes and categories in total of urban spaces and then, in each space separately were evaluated by using the 1 – 5 point Likert scale.

3.2.1. Reviewing the meaning-making themes and categories among the urban spaces

Table 3 indicates the average of the respondents' agreement on the existence of the categories related to the semantic relation between the art and urban space in total of the urban spaces. Among all the categories, the visual perception capability and the subjective perception capability have the most value of 3.40 and 3.34, respectively. Therefore,

the visual and subjective perception capability of the urban arts (based on the subcategories presented previously), were evaluated relatively appropriate in these spaces. The interaction between the community and the art executives and considering all strata and groups with an average of 2.5 and 2.96 have the lowest score, respectively. Thus, citizens believe that there is a little interaction between the society and art executives, and different strata and groups are neglected in implementing the urban art.

Table 3. Measuring the main themes of meaning-making based on the categories in total of the urban spaces

Main themes	categories	Frequency	Min	Max	Mean	SD
Experience and perception capability	Subjective perception capability	600	1	5	3.3422	.92168
	Visual perception capability	600	1	5	3.4092	.87100
	Experiencing	600	1	5	3.2057	.74237
Social participation	Active participation in processes and events	600	1	5	3.1967	1.11657
	Inactive participation	600	1	5	3.1850	.85138
	Subjective and functional sharing	600	1	5	3.1700	.99427
	Interaction between the community and the art executives	600	1	5	2.5090	.83792
	Considering all strata and groups	600	1	5	2.9633	.94789
Relationship with context	Symbolism	600	1	5	3.2033	1.04506
	Physical and structural interaction	600	1	5	3.0507	.92790
	Applying readable cultural signs	600	1	5	3.1650	.96271

The mean score of the main themes influencing the meaning of urban spaces was obtained by combining the scores of these categories. The evaluation of these scores indicated that the mean of the experience and perception capability, social participation, and the relationship with the context is 3.31, 3.0, and 3.13, respectively. In general, the mean of all three indicators is close to the average, indicating an average effect of art on the meaning of the urban space in a total of six spaces based on the criteria extracted from the qualitative section. Further, the experience and perception capability has the highest score, and the social participation has the lowest score. Thus, from the citizens' viewpoints, social participation in these spaces is in a weaker position, compared to the other two themes (Table 4).

Table 4. The final results of evaluating the main themes of the meaning of urban space through the art in total spaces

Themes	Frequency	Min	Max	Mean	SD
Experience and perception capability	600	1	5	3.3190	3.3190
Social participation	600	1	5	3.0048	3.0048
Relationship with context	600	1	5	3.1397	3.1397

3.2.2. Evaluating the themes and meaning categories in each urban space

In this section, the themes and categories are examined separately in each urban space. Based on the results, a significant difference was observed in the capability of ex-

periencing and perceiving the art in different urban spaces (Table 5). The Imam Hossein Square with a mean of 2.79 and Vanak Square with a mean of 2.94 obtained the lowest score for this theme and Azadi Square with a mean of 3.88 and the City Theater with a mean of 3.49 provided the most possibility of experiencing urban art in the space. Further, the Azadi Square has a higher score in categories related to this theme (experiencing= 3.41, visual perception= 4.17, and the possibility of subjective perception= 4.06). Only in the category of experiencing, the House of Artists and the City Theater received the higher score of 3.65 and 3.57, respectively.

Table 5. The mean score of the theme of "Experience and Perception Capability", "Social Participation", and "Relationship with Context" in each of the urban spaces studied (for more details see Appendix 2)

Urban space	Experience and Perception Capability	Social Participation	Relationship with Context
Vanak Square	2.9489	2.7800	2.6653
City Theater	3.4999	3.2926	3.3707
Azadi Square	3.8844	3.2752	3.6560
House of Artists	3.4210	3.2813	3.293 3
Ferdowsi Square	3.3624	2.7455	3.5413
Imam Hossein Square	2.7976	2.6542	2.3113
Total	3.3190	3.0048	3.3197

In terms of social participation, the urban spaces of the Imam Hossein Square with a mean of 2.65, the Ferdowsi Square with a mean of 2.74 and the Vanak Square with a mean of 2.78 obtained the lowest score, indicating the low impact of the urban art in attracting social participation in the meaning of these spaces. The review of the categories indicated that only the Imam Hossein Square obtained relatively good score (3.48) in the category of active participation, due to the ritual ceremony. The City Theater, the Azadi Square and the House of Artists obtained a close-to-average score (Table 5).

The Imam Hossein Square with a mean of 2.31 and Vanak Square with a mean of 2.66 received the lowest score in the theme of the relationship with the context, and the Azadi Square with a mean of 3.65 and the Ferdowsi Square with a mean of 3.54 obtained the highest scores in this regard (Table 5).

The significance of the descriptive routine observed in the mean of the themes in the urban spaces was examined by using one-way ANOVA. Based on the test results, see Appendix 3, the significance level of the test is less than 0.05, which means that the observed routine is statistically significant and the observed difference in the mean of the themes in the urban spaces is significant.

Regarding "experience and perception capability", Imam Hossein Square and then Vanak Square provide the least possibility of perceiving and experiencing works of art in urban spaces, and Azadi Square ranks first in most subcategories. Only in the category of "experience", House of Artists and City Theater provide a better opportunity, and that is due to the holding of temporary arts and a better opportunity that provide for the direct presence and experience of art. "Experience" in Ferdowsi Square is also low because it is not possible to stop, immediately understand the art and reflect on it due to traffic and the nature of the square and the lack of physical access through walking.

Regarding "social participation", Vanak Square has the worst results in most categories. Ferdowsi Square and Imam Hossein Square have not been very successful in this regard. Only in Imam Hossein Square, due to the holding of ritual ceremonies, the issue of active participation of the residents is prominent. Azadi Square, City Theater and

House of Artists have been among the most successful spaces in attracting citizens' participation in art. The memorable space in the minds of the people and the holding of art programs are the main reasons for this relative success. It should be noted that the category of "The interaction between the community and the art executive" has a very low score in most spaces.

Regarding "relationship with context", Azadi Square is at the forefront in all three categories, and art in this space establishes the best connection with the physical, cultural and historical contexts. City Theater and Ferdowsi Square are also in the following ranks in this regard. Perhaps one of the reasons for this success is the historical antiquity of these spaces and the urban arts associated with them. Imam Hossein Square and Vanak Square are the weakest urban spaces. The interesting point in this regard is the situation of Imam Hussein Square in the poll of people. Although the arts in this square have been designed for symbolic cultural and religious purposes, people have not understood the symbolism of the square and have not even seen the familiar signs of culture and connection with the field in this space.

4. Discussion

In the first stage of this study, the mechanism of the effect of art on the meaning of the urban space was determined by reviewing the opinions of the experts. Then, the obtained indicators were explained and surveyed through the qualitative and quantitative study. In this regard, the early studies focused on one of the dimensions of the art meaning, and failed to indicate the mechanism and comprehensive and applicable indicators for how art influences the meaning of the urban space. The present study paved the way for measuring the impact of art on the meaning of the urban space by providing a comprehensive set of indicators. On the other hand, this research emphasized on the semantic interaction of the art and urban space and indicators were examined in both fields. However, most of the early studies stressed on the art and its relation with the public audience.

The study of Indices in the urban spaces of Tehran indicated that the main themes of art cooperation in promoting the meanings are very close to the average. In general, the "social participation" index has the lowest score in the semantic effect of art on the urban spaces. Namely, urban art has less relationship with the urban space through the social participation and collaboration in the selected urban spaces, which is more influenced by the lack of proper relationship of the authorities and executives with the people. On the other hand, specializing certain spaces to particular classes and groups and neglecting the material and spiritual interests of all groups influence the overall failure of urban art in the theme of social participation in the spaces. Comparing this section with the qualitative section indicated that some types of participation, especially active participation, are not available in the urban spaces of Tehran, which were not mentioned by the interviewees. For example, interactive arts and the arts completed by the presence of the audience are not available in these spaces.

The "relationship with the context" is in the second rank of scores and the "structural and physical relationship" has the lowest score among the categories related to this theme, due to the relationship between the urban art with the physical, historical and cultural structures of the urban context.

The "possibility of the experience and perception" indicator is in a better position than the other two dimensions. That is, the art in urban spaces provides better possibility of the experience and subjective and perceptual relationship. However, experiencing the space index in this context, and providing the possibility of deeper engagement with the arts obtained lower scores, compared to the elementary relationship categories of the visual and subjective perception. This means that although arts relatively have better perception capability, the possibility of the deeper experience and perception is less provided. Given the diversity of spaces, the results are studied more precisely in different urban spaces separately and in comparison, with each other. The results of the study in-

icated a significant difference in the score of the themes and categories of the semantic effects of the art on urban spaces. In fact, the categories and subcategories provide the possibility for the comprehensive analysis of each of the spaces in Tehran, and their weaknesses and strengths represent a meaning-making element for the space in relation to the use of the art.

The themes and categories presented in the study were not separated from each other, some were devoted to the urban space, and some were related to the urban art, some belonged to the quality of the art production and space, and some dealt with the production process. These categories can be explored in the further studies separately.

This study was conducted on the urban squares and the other urban spaces and the impact of other indicators such as movement and speed in the urban streets can affect the results.

This study was conducted in Tehran and for more comprehensive findings, it is necessary to repeat this research in other cities and compare the results with this study.

It is also suggested that a future project could explore the relationship between social interactions in urban spaces and experience.

The type of urban art was not limited in the present study and the focus was on the presence of a combination of the artworks and art events in urban spaces. Other studies can be conducted on specific types of urban arts such as visual arts, drama, music, and how they affect space meaning.

In the quantitative section of the present study, the error level $d = 0.1$ in Cochran's formula was used for unlimited statistical population for calculating the sample number with respect to the research limitations. Further, the number of questionnaires and consequently, the research accuracy increased by placing $d = 0.05$.

5. Conclusion

The present study aimed to provide comprehensive and applicable indicators for how art affects the meaning of the urban space. Based on the results, the main indicators of "the possibility of the experience and perception", "social participation", and "the relationship with the context" are effective in forming the spatial meanings as a result of the presence of art in the urban spaces of Tehran. These themes are compatible with the main themes of the personal/ person, collective audience/community, and artist and authorities / physical space which are derived from the conceptual framework presented for the interaction between the meanings of art and the urban space. In addition, the possibility of the experience and perception establish the relationship between the personal audience of the art and the dimension of person in the meaning of the space. The social participation refers to the interaction of the collective audience of the art with the meaning dimension of the society in the urban space, and determines the relationship with the context of the role of the artist and authorities in using contextual concepts in the space.

Each of these themes is associated with a series of the categories and subcategories in interpreting the interviews. The main categories can be measured by the functional and normative indicators. A category of these indicators focuses on the urban art, another is related to the urban space, and a category is related to the interaction of the urban art and urban space. Thus, promoting the meaning of the environment by the art is an interactive process between the art and space and the indicators and constructive components of each of them.

Based on the results, the following suggestions can be useful in the field of semantic improvement of urban spaces in the case study city:

- Clarifying the role and mechanism of activities of urban art facilitators in relation to society
- Enabling the active participation of people in the creation of art
- Identifying different groups and strata in order to avoid specific topics

- Paying attention to spatial and context qualities in connection with the establishment of urban art
- Enabling closer and more direct communication between people and art

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Appendix 1

To what extent do you agree that the work of art in question has the following characteristics:

Subcategories	Strongly agree	Agree	No comment	Disagree	Strongly disagree
Quality of performing					
Emphasis and distinction					
Visual appeal					
Visual communication					
Human scale					
Art and space order and clarity					
Dominance and surrounding effect					
Repeatability					
The presence and the possibility of stopping					
Physical access					
The possibility of exploring and reflecting on the art					
The impartial experience					
Fit with the duration of experience					
Change and diversity					
Participating in the ritual ceremonies					
Participating in the art events					
The sociability of the space					
Observing the art production process					
Collective memories					
Emotional sharing					
The functionality of the art					
Functional adaptation of the art and space					
Paying attention to the existing activity and behavioral patterns					
Building trust and proximity to the community					
The dialogue between people and the art executives					
Avoiding unilateral and top to down art					
Providing context for spontaneous and folk art					
Providing the tastes and interests of all groups					
Opening the space to all groups and groups					
Utilizing national and religious symbols					
The symbolic use of the appellation					
The coordinated physical design of the art and space					
The relationship with the historical structure and elements					

The durability and historicity of the arts and space					
The relationship with the cultural context					
Flexible and appropriate physical context					
Using traditional art and architecture					
Applying cultural and religious signs					

Appendix 2:

The mean score of the theme of "Experience and Perception Capability", "Social Participation", and "Relationship with Context" in more details in each of the urban spaces studied

	Urban space	Frequency	Min	Max	Mean	SD
Experience and Perception Capability	Vanak Square	100	1.71	3.85	2.9489	.55816
	City Theater	100	2.27	4.87	3.4999	.60718
	Azadi Square	100	2.61	5.00	3.8844	.56378
	House of Artists	100	2.09	4.86	3.4210	.57476
	Ferdowsi Square	100	2.08	4.44	3.3624	.57145
	Imam Hossein Square	100	1.00	4.19	2.7976	.74188
	Total	600	1.00	5.00	3.3190	.70258
Social Participation	Vanak Square	100	1.57	3.81	2.7800	.52351
	City Theater	100	2.06	4.11	3.2926	.44321
	Azadi Square	100	1.95	4.43	3.2752	.59371
	House of Artists	100	1.88	5.00	3.2813	.63406
	Ferdowsi Square	100	1.24	4.08	2.7455	.56461
	Imam Hossein Square	100	1.30	4.32	2.6542	.70339
	Total	600	1.00	5.00	3.0048	.64490
Relationship with Context	Vanak Square	100	1.00	4.00	2.6653	.68411
	City Theater	100	1.73	4.67	3.3707	.52522
	Azadi Square	100	2.27	5.00	3.6560	.63622
	House of Artists	100	1.83	5.00	3.293 3	.71457
	Ferdowsi Square	100	1.47	5.00	3.5413	.62988
	Imam Hossein Square	100	1.00	4.10	2.3113	.90534
	Total	600	1.00	5.00	3.3197	.84361

Appendix 3:

The results of one-way ANOVA test of the main themes of the study

Main themes		Sum of squares	Df	Mean of squares	Fisher statistic value	Significance level
Between groups	The experience and perception capability	77.348	5	15.470	42.088	.000
Inside group		218.330	594	.368		
Total		295.679	599			
Between groups	Social participation	47.305	5	9.461	27.846	.000
Inside group		201.818	594	.340		
Total		249.123	599			
Between groups	The relationship with the context	141.604	5	28.321	59.091	.000
Inside group		284.690	594	.479		
Total		426.294	599			