



**International Journal of Biology, Pharmacy
and Allied Sciences (IJBPAS)**

'A Bridge Between Laboratory and Reader'

www.ijbpas.com

**ANALYSIS OF URBAN FURNITURE SPACE AND LIMITATIONS OF URBAN SPACE
(CASE STUDY: VALI-ASRSTREET IN TEHRAN)**

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ABSTRACT

Urban furniture refers to objects and equipment that are existed in urban outdoors and provide specific services and applications for people. Although they are small in scale, play a key role in urban area. In order to apply different types of urban furniture adequately, different factors should be considered, among which the most important factors include climate, cultural, religious, social, and psychological conditions. The topic of urban furniture should consider aesthetics aspect of urban areas, in addition to meeting material needs of different people using urban areas. Aesthetic and attraction can be resulted from harmony, unity and variety and flexibility of involved elements in the urban design; otherwise, disorganization and purposelessness would be appeared would distort face of urban area, which has been appeared for these elements currently because of self-orientations and economic interest and also lack of suitable patterns and adequate and standardized regulations. The present study has investigated urban furniture in Vali-asrStreet in order to identify limitations of urban space and also the study

has been tended to present some solutions for improving urban furniture (street furniture) in urban streets.

Keywords: urban furniture, spatial limitations, public spaces, Vali-asr

INTRODUCTION

In space between buildings and structures, some complementary elements are required, so that they can organize urban life. Some facilities such as furniture have provided the conditions for living in trapped space among stone, concrete and glass. These components can provide movement process, silence, entertainment, and anxiety in cities and give them soul. Furniture, urban facilities or furniture or outdoor spaces are common terms for the facilities and equipment. The facilities are mostly known as “street furniture” in U.K and are known as “public furniture” and “outdoor furniture”. The most common combination of the mentioned terms is “urban furniture”, which can contain also implicit concepts. Conceptual and applied range of the term is so wide. Urban furniture refers to wide range of equipments, objects, instruments, symbols, substructures, spaces and elements that are known as urban furniture, since they have been installed and placed in city, street and totally in outdoor spaces.

The aim by urban design is improving quality of urban area in order to provide an area for citizens, in which they can feel relax and joy. Suitable and adjusted urban furniture with

other landscaping elements like urban architecture and space can have significant effect on improving public areas (**Samadi, 2012**).

Although many activities have been conducted in regard with designing furniture in internal limited areas and many creative cases have been designed and produced in optimal using of indoor space of buildings, in a few cases limitations of public spaces have been considered in designing urban furniture and guidelines in regard with optimal use of urban spaces have been presented.

Typically, designing urban furniture has been mentioned in urban studies clearly or has been presented in form of technical list in design guidelines (**Wall, 2014**). In fact, there are a few deep and comprehensive studies in field of urban topics based on physical, mental, environmental, and cultural perspectives. For example, recently design unit of Hong Kong Poly Technique University has conducted a series of applied studies in regard with designing public spaces in crowded cities in Asia like Hong Kong. Using applied approach, some solutions would be presented in order to propagate flexibility in designing,

implementing and protecting urban furniture, so that new and changing needs of current cities can be met. The present study has identified some main needs of congested cities in Asia and has also introduced limitations and problems with designing urban furniture. Using leaning rail system in Hong Kong is an example of these suggestions (Siu, 2001).

According to law, municipals are responsible for beautification and supplement of street furniture in Iran. Although a lot of money is spent on flooring, networking, and lightening, low costs are spent on urban furniture. Because of high costs and problems with protecting the furniture, new designs are applied rarely for urban furniture. Hence, the present study has been aimed at investigating and analyzing urban space furniture and urban space limitations in Tehran's Vali-asr Street, so that some solutions can be proposed in order to improve situation of urban furniture.

METHODOLOGY

At the present study, due to high rate of transportation of vehicles and pedestrians in Vali-asr Street and also historical background and cultural value of the axis, it has been investigated specially, so that urban furniture and spatial limitations of the district can be investigated using combined criteria of theoretical literature and existing studies and

also some suggestions can be presented for improving current situation. Relevant studies have been based on observation of behaviors and attitudes of individuals and also interviewing them in order to determine their satisfaction rate about existing urban furniture.

History of urban furniture

The origin of emergence of urban furniture is parallel with birth of early cities; although there are not sufficient documents and evidences available for works of that age. In fact, despite perfect studies in regard with formation of ancient age cities, no comprehensive study has been conducted in regard with different types of urban furniture in distant past. Certainly, every civilization and nation has designed and implemented urban spaces based on its culture, religion, and traditions. Location of some buildings and structures with public applications in public places could make a pleasant and suitable environment for rest of pedestrians. Some samples of these structures used to be considered as early elements of urban furniture (Vergunst, 2010).

In Iran historiography, there is no codified and separated history of different types of urban furniture and its evolution and the history has been gained in non-integrated form using historical documents of Iran. As

antiquity of ancient civilizations in Iran is more than most zones in the world and especially European civilizations, which are currently pioneer in regard with urban elements and furniture, appearance of early modes of some elements and urban furniture can be attributed to Iran's civilization such as different types of waterfronts at the time of Achaemenids in Iran, stone tablets, and stone statutes of kings, which indicate long lasting antiquity of urban furniture in Iran. In post-Islam age, when a powerful government was in power, appearance of its authority and power has been displayed in cities. For example, in Safavid architecture, Iranian houses included constantly private platform pattern in streets and alleys, which pedestrians were able also to use them. The manner of survival of pass ways used to be regulated using these platforms. Some of these elements were also rooted in religious beliefs of people such as "Saqakhaneh", which could be observed everywhere in the city (Maghsudi, 2007).

After overthrow of Safavid government, no powerful central government has been dominated on Iran and Iran faced many challenges and turbulences since that time, especially in Qajar Era in different fields and also urban elements, so that no opportunity

was provided for applying urban elements and furniture (Mortezaei, 2000).

Discovery and invention of some elements like power and phone out of state boundaries, economic weakness, and domestic conflicts could also make the country to remain undeveloped; although it included brilliant background in urban design and planning. Till now, except for rare measures in some cities, Iran follows developed countries in field of urban planning and equipment, especially urban furniture.

According to existing documents, Romans have introduced street furniture in Europe. By that time, street furniture was completely practical and used to be made of stone and wood. Street furniture is itself related to different types of transportation. Development of cities and advancement of technology indicate need for new methods in order to control it. Warships were outdated and their gun pipe were used for new applications as a barrier against entering specific pathways and placed in a constant place. The mentioned devices were stable instruments in order to avoid horses to enter pathway of pedestrians and to protect buildings against damages induced by crash of chariots (Shao, 2010).

The first pole was also made of pipes of cannon. They used to place cannon pipe on the ground vertically and then used to fill it

with sand and use oil for supplying light. Firstly, they used to be applied for crime prevention, since criminals used to abuse darkness of night as coverage. The first gas light in public space was installed by 1800 at Pal Mal West Minister. Cover of lights used to be applied in order to prevent them to be turned off, although today the cover is mostly decorative. Booming benches of railway gained attention of people. However, large groups of people had to wait for public

vehicles and facility of benches was so important, so that passengers could rest on them. Background of trash cans turns relatively back to late 1800s decade; although they have not been under attention considerably. Generally, the cans were made of wood and iron. Trash cans were promoted along with development of pedestrian-oriented urban spaces of fast foods. Netted windows around trees in urban spaces are relatively modern. kIASHCakl?



Figure 1: some samples of urban furniture in late 1800s

Netted windows around trees in urban spaces are relatively modern. It seems that French people have been first group of people, who applied them in order to protect trees. Since then, cast iron is being constantly applied for this purpose.

Classification of urban furniture

Urban furniture can be divided to 4 main groups including street furniture, park furniture, traffic furniture, information structures, and advertising structures. In

general, they are categorized under more than 100 titles.

Another type of classification for urban furniture is as follows:

- Elements and facilities for spending leisure time: bench and platform, water fountain, tent, water cooler, saghakhaneh, fountains
- Establishments and urban facilities: parkometer, fans and mast, pole, post box, fire hydrant

- Traffic facility elements: bus station, ticket selling counter, informing elements, guidance boards of places and pathways, address plaques, billboards, and announcement box
- Environmental and health elements: trash can, vases, and fans around trees

Effective factors in urban furniture design

Through having a review on spatial analysis of urban furniture, it could be found that these studies are focused on one of the relevant fields in urban furniture design (e.g. identity or aesthetics) and relationship among different factors have been denied. However, some works have been conducted in regard with generalizing subject of urban furniture design. Among existing examples in this regard, one can refer to “Approaches for Urban Furniture Design” work of **Mortezaei Seyyed Reza (2003)**, which includes study of urban furniture and has investigated them in form of 4 titles including generalities, street furniture design, destruction-orientation, and environmental adaptation.

Another example is also a comprehensive study on applied designing elements in different places (U.S, Japan and china) and proposed model on Hong Kong projects by Wan (2008). The study has considered different perspectives about urban furniture and also has presented comprehensive

designing elements for integration and reorganization of urban furniture. According to human-based approach, the model includes three main criteria including performance, continuity, and identity. However, the criteria are correlated with each other and using one element can result in achieving other elements and vice versa. Presented model in this study is flexible and has not investigated details independently (**Wan, 2008**).

According to variety of studies in regard with urban furniture, obtained results can be divided to three groups based on main applications of urban furniture as follows: visual, operational, and conceptual quality.

Criteria for evaluating urban furniture

Visual quality (aesthetics, variety and attraction)

Discussing on visual quality of urban furniture can be associated with aesthetic evaluation and adaptation of them in terms of form, color, adjustments, and adaptation with the environment. Studies in this field are usually subsets of urban design studies and rarely independent studies have been conducted on one or more elements of urban furniture. For example in Spain, effectiveness and satisfaction of citizens about method of trash collection and cleanness of streets have been evaluated (**Sevilla, 2013**). In Israel, an independent study has been conducted on

location of trees and other plants in urban streets (Amir, 1990). However, in many projects like designing tramway, visual aspects and also adaptation of the visual aspects with the environment have been investigated in details (Blerot, 2013).



Figure 2: a tramway station in Casablanca shopping center, which is adequately integrated with the urban area (Ibid)

On the other hand, it should be noted that some factors such as color and materials can have considerable effect on amount of using urban furniture. For example, in a study on 131 students, effect of physical features of spatial furniture on their imagination of surrounding area has been evaluated based on three criteria including preference, joy, and intention for return. The present study has been conducted in three places with metal and wooden furniture and without furniture. Obtained results indicated that metal furniture has negative effect on the three criteria. In addition, the space with wooden furniture has

also highest effect among all criteria (Pals, 2014).

Operational quality (adaptation with users and environment, sustainability of materials and production, standardization for purpose of cost-effective production)

As users of urban furniture are different classes of society, their design should be responsible for meeting various and even conflicting expectations of people. Such applications may be different over the years or even during a day. For example, horse stalls have been considerable works since the age before prevalence of motor transportation and usually an index for economic activities in the past, since they used to be made mostly in commercial places. However, more important role of animals in urban areas by that time, compared to current age, has been also considered (Stuart, 2007). Currently however, they have been omitted from cities and have been replaced by bus stations and parkometers. Another example is prevalence of transportation in the city before darkness and enhancement of need for safe and light environments and also different services during night time, which is message of technology development at the current age. Hence, time and space have key role in determining form and function of urban furniture. Today, the subject of sustainability

has been considered also in field of urban furniture design. Role of sustainable street design as safe and attractive environmental supplier in Egypt is a case of studies in this field (Rehan, 2013).

Now on early 21th century, the most significant issue is worldwide environmental destructions. Recently, some studies have been conducted in field of effect of materials in human's health (Plaisance, 2014), contamination rate of applied materials (Yuan Yao, 2011), and even recycling methods in developed countries like U.K (Curran, 2010), so that future products can be sufficiently adapted with natural environment.

Conceptual (sense of belonging and identity, motivating for using and affecting social relations)

Sung et al (2013) have evaluated Seoul city based on principles introduced by Jin Jacob in order to design dynamic urban areas. Living in public places in Bangkok and significance of considering needs of people has been considered by Mateo Babiano (2012). At the study, lifestyle and movement of people has been observed and modeled and also relationship between urban design, ecology and sociology has been investigated (Sung Hyun-Gun, 2013).

Role of urban furniture design in servicing and facilitating activities in night and using

urban furniture as case study to modify defects of designing public places for purpose of doing activities in night has been evaluated. When the society enters new stage in political, economic, and cultural terms, possibility of being active in whole day can be significant for movement and so on. In fact, variety in night activities is a feature that can depict social movements (Song, 2001).

One of the most important features of urban furniture components is their dependence on the culture. The manner of placing urban furniture and the location of them and that to what extent the furniture should be based on technical standards in public places is a significant issue that should be considered deeply. In urban design, how to build furniture in urban area is a significant issue. For example, how streets should be lightened desirably and whether urban signs and guidance boards are clear or not? In regard with bus stops that are one of the most important components of urban furniture and have key role in urbanization culture; they should be designed in a manner that their attractiveness can motivate citizens for having suitable view. It means that these places can be identified by citizens even in a relatively long distance. However, it could be mentioned that bus stop is the best place for required ads of citizens, which the ads should

be understandable and be limited to necessities. In general, components of urban furniture should be localized in desired place in a manner, so that urban areas can be considered as interaction place and social events for citizens. Urban furniture can motivate people for walking and spending time in public places, which can result in enhancement of safety in these places (Stevens, 2014).

Designing and implementing suitable places for sitting in outdoor places of residential areas can make attraction and concentration of different activities in such places. These activities are so vital for quality of outdoor places in a district that availability of desirable facilities for sitting or lack of these facilities can be considered as one of the most important required factors for evaluating quality of public places.

Urban furniture is a structural element that has key role in giving meaning to urban identity and facilitating social life. Evaluation of role of historical waterfronts in social relations and urban identity in Turkey can be considered as an example of studies indicating that considering national and traditional symbols can reinforce and enhance social spirits among citizens (Bulut, 2007). In fact, identity can decode design of urban furniture and elements and make them

acceptable for better perception. Consistency of urban furniture design with identity of citizens and urban areas is significant, since such consistency can make relationship between design and environment and this can make city desirable in view of supervisor.

Introducing case study

Vali-asr Street is one of the most famous and long streets of Tehran, which has antiquity more than 100 years. However, many physical changes have been created in this district over the time. Vali-asr Street with 36km in length is the longest street in the Middle East. The street can link Tehran's southern part to northern part. In Tehran with 10-13 million people, no citizen has remained without passing over this street. Vali-asr city that starts from Railway Square in its direction can make people remember a part of history of Tehran. In this direction, many cultural, religious and economic centers of capital are located. Tehran's Mahdiah is one the most important religious centers, which has been located at the beginning point of the street and in Amirieh Intersection. Many cinemas, theater centers and cultural and religious centers are located in this direction. Parks like Daneshjoo, Saei and Mellat, entertainment centers and commercial and administrative buildings have changed the district into the most dynamic part of Tehran.

However, the clearest landscape of the street is its plane trees that are about 70 years old. This street that has been known as Pahlavi Street at the first, later its name changed into Vali-asr after Islamic Revolution. The district is one of the most dynamic points of Tehran and generally application of buildings around it is commercial and administrative application. Improving axis of Vali-asr and also renewal of its sidewalks are considered by authorities for many years; although it is still in an undesirable situation. The district has been considered as studied area in this investigation because of its high potentials in attracting people and different opportunities for using urban furniture.

Analyzing urban furniture and spatial limitations in Vali-asr Street

Although presence of old and densely concentrated trees on both sides of the street and also showcase of shopping centers have caused inconsistent landscape of buildings to be unable to attract people, no specific attention has been paid to renewal and beautifying the district for many years. In terms of urban furniture status and also with presence of good opportunities and many attractions for attracting people and also presence of pedestrians, practically sufficient facilities are not prepared for people such as bench, trash can, etc.



Figure 3: cutting 100-year trees in Vali-asr Street



Figure 4: lack of using well-designed fences in Vali-asr Street and following problems



Figure 5: using suitable and attractive design in sidewalks of Vali-asr



Figure 6: old floors and carpet stones



Figure 7: lack of adjustment of designing bus stop and furniture of Vali-asr Street

As it is obvious in figures, Vali-asr Street is one of the best streets in Tehran in terms of urban furniture design, which sidewalks and designed furniture in the street have changed

it into a street that people prefer it for walking. Although there are many positive features in this street in terms of urban furniture, there are currently some

irregularities and negative features in it such as inconsistency of bus stops, cutting trees with about a few hundred years' antiquity, dirtiness on raceways, lack of considering quality of flooring and lighting. In addition, no desirable measure has been taken for renewal of texture, physic and space of the street based on rich and noble culture of Iran. In this regard, returning to some components of previous culture and traditional beautiful art can be considered as a solution for many visual irregularities in urban areas.

Suggestions and solutions for improving status of urban furniture in Vali-asr Street

Firstly, designers of urban furniture should have innovation and should combine modern technologies with new concepts. Like an artist, who encourages people to question their surrounding area, designers of urban furniture should present innovative and creative solutions for purpose of improving life quality (Blerot, 2013).

It should be noted that all studied areas have been placed inside old or relatively old textures of Tehran Metropolis and have been combined with the texture through a tight and close relationship. Hence, it could be mentioned that these places have been built above all for purpose of use of pedestrians, who have dismantled performance and character, not mounted. Doing total

modifications in these places without changing total texture of surrounding area is not possible and this can result in creation of an inconsistent space. In addition, this issue should not be a threat for desirable variety of spaces and urban elements. Therefore, some solutions can be positively effective in improvement of urban furniture status as follows:

1. Extending space for walking of pedestrians in the street
2. Preventing from high or low density of locating urban furniture
3. Placing urban furniture b determined places that have minimum passing of pedestrians
4. Using an integrated and adjusted and effective board system and guide signs
5. Omitting all inessential barriers such as billboards, bars, and fences in direction of pedestrians
6. Repairing and renewing surfaces of floors, bridges, kerbs and removing all inessential barriers in form of Protrusions and indentations and unexpected roughness
7. Evaluating amount of intention for public participation in regard with designing, building and

- maintaining different types of furniture in limit of studied area
8. Considering suitable space for sitting, so that the place can be independent from surrounding applications and cause no problem for passage of pedestrians
 9. Using specific barriers for preventing entrance of motorcycle riders to specific spaces for pedestrians
 10. Using innovation in designing furniture and bus stops: waiting in bus stops can be pleasant when users can move in linked spaces and use new services there. Possibility of having rest, using administrative services and discovering new senses of sounds, lights and different materials can be provided. In terms of sustainable development, future stations and bus stops should be adjusted with densely populated urban spaces. In addition, there should be a place for charging electric devices in these bus stops. Through this, waiting time in bus stops would become attractive and pleasant, instead of being tolerable (Aurel, 2013).

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