

How to Integrate Old and New: A Proposal of User-Centred Design for Bazaars in Bursa

Tuba SARI

Dr. Öğr. Üyesi

The Faculty of Architecture and Design, Bursa Technical University, Bursa, 16330, Turkey

tuba.sari@btu.edu.tr

ABSTRACT

This research aims to develop a user-centered design model for shopping areas, traditional markets of Koza Han and Uzun Bazaar in Bursa. The research model evaluates the effect of user factor in the space through some principles analyzing the environmental and behavioral effects of the field. The data of physical environment including common circulation paths, public spaces surrounding built-up area, urban landmarks, historical articulations of the environment are observed. The behavioral analysis focuses on the characteristics of user groups, preferences and expectations. How these user factors can be integrated into design process is another main question. As the contribution to the field, it is aimed to set a questionnaire measuring the quality of end-user effect in the space. In conclusion, according to data of user-centered design analysis, the physical additions which destroy visual and perceptual continuity of space caused to a transformation through re-created spaces and functions in the area.

Keywords: Integration, Re-Created Spaces, Traditional Bazaars, Transformation, User-Centred Design.

1.INTRODUCTION

The research deals with the relationship between user and spatial experience asking how User-Centered Design makes a difference in architecture. User-Centered Design [UCD] focusses on the needs of the end user, rather than issuing prescribed typical solutions that may not address any actual needs.

The paper investigates the user experience quality of Koza Khan and its close structure - Uzun bazaar in the frame of User-Centered Design approaches. UCD regards through two interrelated subjects: first, how users are integrated into design and re-design of the built environment, and second, how users' experiences, current activities and movements can be incorporated into design process (Hi Chun, et al., 2015). This research mainly regards the second interest exploring the user experiences and existing practices in these traditional markets and its around. However, the user does not take an active role in design process or activity of the building, it creates new interfaces for user experiences as a medium of transformation which improves the limits of user-building-city relationship. Koza Han and Uzun Bazaar near it, which are close to Bursa Great Mosque are determined as research area, because both structures are located at the urban node and connected to common circulation areas in Han region (Fig. 1).

It is important to emphasize that these spaces need to develop re-creation strategies due to some structural and functional transformations resulted from urban interventions in time considering old-new relationships.



Figure 1. The Boundaries of the Case Study in Han Region of Bursa.

2. THE SPATIAL ORGANIZATION OF HAN REGION IN HISTORICAL CONTEXT

In 1326, Sultan Orhangazi made Bursa the first capital of the emerging Ottoman State. In Ottoman period, Bursa and Khans region was a major trade hub. Located at the silk road, the city functioned as an important commercial centre in the market of the silk manufactured both in the domestic market and in Europe during the Ottoman era. According to Atalan & Arel (2017), these commercial areas, integrated with the “külliye” a complex involves mosques, inns, baths, and stores, were engaged in trade and manufacture structuring and formed a central part of life for the residents (Fig. 2).

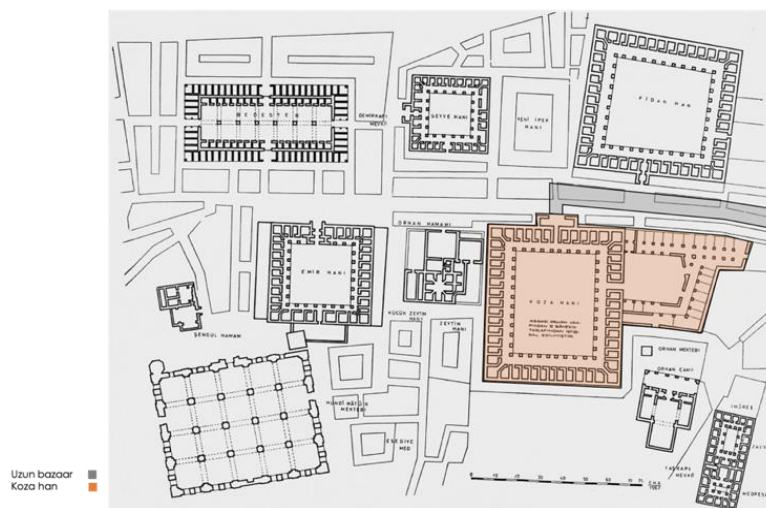


Figure 2. Site Plan of Bursa Han Region –Koza Han and Uzun Bazaar (Ayverdi, 1966).

This structuring of “külliye” between mosques and built environment displays an Islamic character of an urban foci which leads to the triggering urbanization in the area through a complex surrounded by a group of public buildings such as hospital, schools, dormitories, and kitchen. Bursa also followed the urbanization pattern of the earlier Ottoman capitals. The two essential characters of the Ottoman city (as in Bursa or Edirne, which are former Ottoman capitals) were a great mosque and a district of a commercial centre around it.

Khans and Covered Bazaar Region, which was a main commercial axis in Bursa, situated on the city centre had functioned also as a major place of social life through traditional bazaars for the Ottoman public (Dostoglu and Vural, 2011). These commercial and social complexes out of the walls of city took a crucial role in the urbanization pattern as new urban foci in Bursa (Fig. 3).

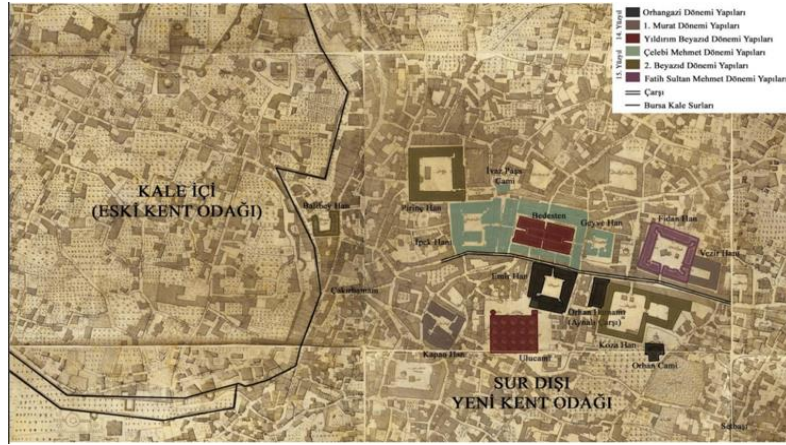


Figure 3. Early Urbanization Pattern in Han Region between 14th -15th Century.

Selçuk (2009) remarks that these structures are still in use in the heart of the commercial part of Bursa and have hosted silk-merchants to date. Accessibility also was an important factor for these commercial structures considering they took active role in trade and manufacture networks of the city. Large commercial structures or khans anchored the streets of the bazaar and often served the double purpose of storing goods and providing lodging for caravan traders. Generally, khans were two-story high and built on a rectangular plan around, a large courtyard with a fountain at the centre (Fig. 4).

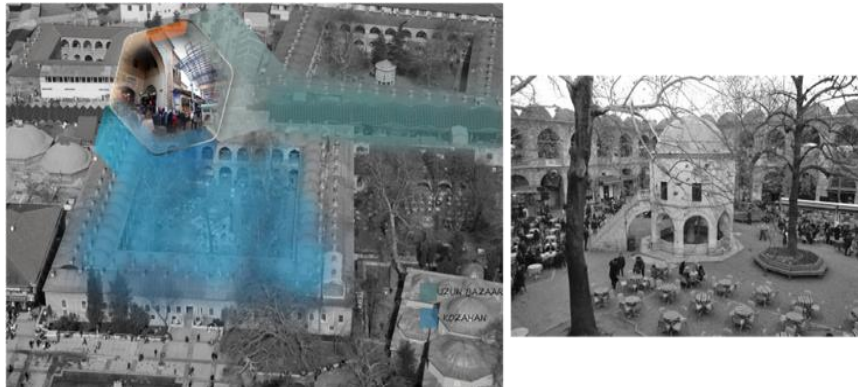
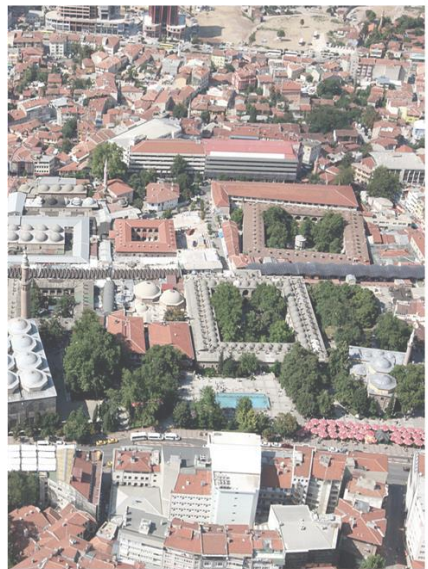


Figure 4. The Place of Koza Han and Uzun Bazaar in the Urban Texture; the Interior of Koza Han.

Covered Bazaar and Khans Region has sustained its place in this centre as the main location for trade and social facilities, so the place of the economic and social centre of the city has not altered for ages (Shakur et. al, 2012). However, the traditional covered bazaars and khans of Bursa have been exposed to various economic, social and physical transformations at different urban managements and periods. Especially, a rapid change has emerged in consumption habits because of the necessities of new way of life since 1980's. In parallel with the alteration over the economic and social activities, these commercial structures have transformed functionally and spatially through new physical additions over the structures.

Correspondingly, there are observed some deficiencies causing threats related to the physical environment such as deterioration of the historical texture of bazaar structures. Moreover, there are determined several physical interventions such as multi-storey building additions that conceal historical structures, as well as inefficient usages of common and public open spaces (Vural, et. al, 2013). These are several of the main problems which are questioned in the scope of the research, resulted in the hybrid image of the unity of new and old in parallel with various physical and spatial intervenes (Fig. 5).



	Strengths	Weakness	Opportunities	Threats
Physical Environment	<ul style="list-style-type: none"> Being in the city centre Existence of identical districts and monumental buildings (e.g. Covered Bazaar, 'Khan's, and Ulucami). Mixed uses within the district (retail, socio-cultural and religious activities). Labyrinth-like structure that interests visitors. 	<ul style="list-style-type: none"> Maintenance problems, especially in open-air retail streets. Inappropriate structural transformations in retail units that are placed in historical buildings. Chaotic appearance. Parking problems. Inadequate street furnishing elements. 	<ul style="list-style-type: none"> Existence of many defined urban squares that have the potential to be improved. Existence of many retail units that are actively used. 	<ul style="list-style-type: none"> Deterioration of historical buildings. Multi-storey building additions that conceal historical buildings. Physical obsolescence Inefficient uses of public open spaces
Social Environment	<ul style="list-style-type: none"> Being a pedestrian area. Existence of some social activities on specific days. Existence of warm relationships between shop owners and clients 	<ul style="list-style-type: none"> Decreasing safety Involvement of the environment 	<ul style="list-style-type: none"> Being an important place in the collective memory of the inhabitants of the city. Increasing interest to cultural tourism throughout the world. 	<ul style="list-style-type: none"> Rising attractiveness of suburban settlement patterns.
Economic Environment	<ul style="list-style-type: none"> Being an actively used commercial area for 500 years. Diversity of uses and retail mix (variety of shops, open air market, restaurants etc.). Variety of choices about some special products (e.g. jewellery, dowry, marriage outfit, and souvenir shops). Existence of some local stores and restaurants 	<ul style="list-style-type: none"> Lack of international brands Inappropriate size of shops for the trade of certain specific goods. Lack of leisure activities (e.g. cinema and entertainment centres). 	<ul style="list-style-type: none"> Being an attractive area for both tourists and local people. Being in the social and commercial centre of the city 	<ul style="list-style-type: none"> Rising attractiveness of out-of-town shopping malls. Changing consumption habits. Changing user profile from middle income to lower income
Management Structure	<ul style="list-style-type: none"> Having a well-organised retailers' association. Sultan Kulliyes and Cumalıkizik Management Plan 	<ul style="list-style-type: none"> Lack of specific management plan unique to this district. 	<ul style="list-style-type: none"> Being registered as a World Heritage Site. The existence of NGOs resembling the guild system in Ottoman history 	<ul style="list-style-type: none"> Lack of holistic approach to the revitalisation of the district. Being a place under the control of two different municipalities.

Source: Vural Arslan, T., et. al (2013).

Figure 5. SWOT Analysis of the management plan related to Covered Bazaar and Han Region (Arslan Vural, T., et. al 2013).

3. USER CENTERED-DESIGN APPROACH: DEFINING THE THEORETICAL BACKGROUND

In architecture, the need of flexible usage and adaptable functions in complex forms are all leading to increase of multifunctional complex structures. User-centred design (UCD) mainly focuses on user experience and its quality regarding user-building relationship. UCD is determined commonly through the activity and quality of user experience in the process of when a person interacts with a space or an artefact. It has been highlighted the quality of user-building interaction going beyond the pure efficiency of form and function (Bullinger, H. J. et al., 2010). In the architectural planning process, it is established form-function relationships serving different types of users and stakeholders. One of them is end users, who dwell in the resulting building complex and directly use the facilities provided, can be a dweller or temporary visitor. There are numerous potential descriptions of 'user' that are outlined in different theoretical investigations. Granath (2001) explains 'user' as people who actually use the building in their everyday activities. According to other authors, a wider frame has been drawn for the definition of 'user' – including all individuals and groups of stakeholders who can affect the spatial configuration. For instance, Kernohan et al. (1992) identifies three different types of users such as "residents, visitor and owners/tenant's organization". Olsson et al. (2008) enhanced the extend of the user groups through "indirect and direct service receivers besides service providers".

Hi Chun, et. al (2015) remark that user-centred design approaches propose to incorporate users' demand, experiences and need into design program. In this respect, User- Centred Design [UCD] focusses on the needs of the end user, rather than issuing prescribed typical solutions that may not address any actual needs. This structure reflects a flexible approach that develops bottom-up, productive and renewable. In this respect, the study aims to develop a user-centred model for shopping areas, Koza Han and Uzun Bazaar which are the traditional bazaars in Bursa.

3.1 The Role of User in Design/Planning Process

This part of the paper interrogates the relationships between user and context examining how users intervene the space through new spatial experiences. Eason (1995) emphasizes the difference between 'design by users' and 'design for users' as a way of involvement of user with design/planning process. In this paper, 'Design by users' refers

to 'active user involvement' defines users who take an active and determinative role in design/planning process. 'Design for users' which is called 'passive user involvement' collects the data relating user experience and behaviour in the spatial context. User involvement differs according to its role in the design and planning process of the built environment. Considering passive users' involvement, users are analysed as research subjects who provide the knowledge to design or redesign the resulting building. In this respect, architects and designers concentrate on 'objective components of space' (Hi Chun, 2015) through highlighting spatial patterns of behaviour and combining the spatial components of the social space with social area analysis. However, social area analysis is adapted in form of common space and public space analyses in this research. As Buttner and Seamon (1980) mention, social space is segmented to various concepts such as action spaces, activity spaces and behavioural fields and all these concepts actually analyses the user movement and experience in the built environment.

3.2 Discussing the Usability of Buildings in terms of User-Context Relationship

This part of the paper discusses the usability of buildings in terms of user-context relationship. Also, the idea is mainly related to usefulness/user benefits, it measures the user's perception of the building through some qualitative and quantitatively survey methods. According to Vischer's theory (2008a, 2008b) related to the user-centred design, it highlights that buildings are to support the essential experiences and activities of the users. In this theoretical approach, the user is accepted as an active manager and consumer of the building, and the user-environment relationship should be dynamic and interactive. The change in 'container-contained'- mode of relation blurred the limits of where architectural context ended and where user's experience began. Container has functioned as spatial environment which contains users', the integration between them creates a new user-context experience in spatial configuration. It works to trigger usability and functionality of buildings at different time and space (Fig.6).

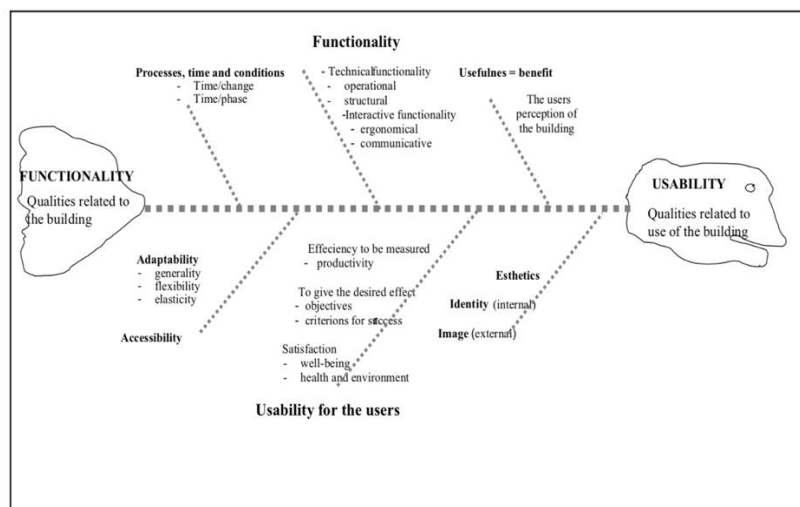


Figure 6. Ishikawa diagram. Criteria and Parameters Affecting Usability of Buildings (Hansen, 2004).

4. MATERIALS AND METHODS

The behavioural analysis focuses on the characteristics of user groups and preferences and expectations, supported existed functions and needs program according to environmental analysis, user types and preferences in the area. One of the main questions of the study mentions the user factors effecting the design of the Koza Han and Uzun Bazaar. How these factors can be integrated to design process is another main question developed in the frame of case study (Fig. 7). As the post-use evaluation process and contribution to the field, it is aimed to set a survey including questions measuring the quality of user experiences and end-user effect in the space.



Figure 7. Display of the Case Study on the Site Plan; Interiors - Koza Han and Uzun Bazaar.

In recent years considering bazaar structures that are part of the cultural heritage in Bursa, 'commercial restructuring and new articulations on to space damages historical texture and architecture'. The factors that constitute cafes, commercial stores that has unplanned and non-functional space configurations and new physical additions hinder the former texture and layout of the structure. Purposes of this research to examine users' relationship with these building through methods such as survey, environment/behavior observation.

4.1. Developing A User-Centred Model on Context

To plan a user-centred design process needs to several components combined to each other in an interactive manner. The key point of developing a design proposal is to understand and specify context of use of a structure or a product. Searching and identifying user requirements in the area ease planning of the needs and functions in the space. In addition to proposing new design solutions to meet user needs, it becomes important to re-evaluate usability of space against current requirements. Plan/design process in user-centred design focuses on measuring end-user effect in the spatial environment and aims to define the actions of improvement in the area within the limits of physical interventions (Fig. 8). User-centred model engaged with plan, research, design, adapt and measure process has been developed according to the positive and negative effects in bazaar structures on case study.

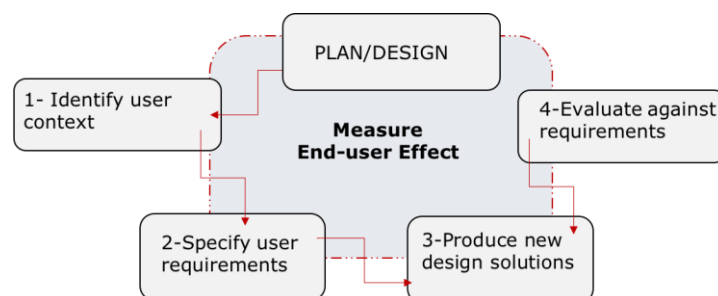


Figure 8. The Integrated Components of User-Centred Design Process.

4.2. Case Study: The Results of Survey

The questions of survey mainly focus on user types, preferences and usability of selected bazaars in the scope of the study. Graphic 1 displays survey result related to age range of users in Koza Han and Uzun Bazaar; the number of young people between 25-45 is higher in Koza Han while middle aged people between 45-65 is higher because of some functions such as bazaar afford user preferences and needs in Uzun Bazaar. Graphic 2 shows users' living areas; it is seen that the number of people that is coming from close districts/neighborhoods of the Bursa such as Heykel, Altiparmak, etc. is higher than people living out of the city. In the frame of Graphic 3, the purposes of visit by most people who come here are to resting/spending time and shopping, because these spaces are used as meeting point for commercial and social activities. However, users' purpose of visit to Koza Han differ as mainly spending time and resting because of interior possibilities of the courtyard. The reasons for users' shopping preferences are in parallel with some factors such as cheapness and bazaar tradition.

Graphic 5, 6 displays the causes of users' preferences; in Koza Han the main purpose of visit results from the historical texture and architecture of the building, while in Uzun Bazaar the economic cheapness and shopping are the main factors of the users to prefer this area (Fig. 9).



Figure 9. Graphic 1;2;3;4;5;6 (user groups, preferences and expectations).

The data related to the usability of spaces are analysed with the survey results displaying the frequency of visit, access types to the area, efficiency of informative elements, density level of commercial use and functionality of the spaces. Graphic 7 displays that most people usually come these spaces to afford their needs and the frequency of visit varies depending on the situation and user habits. Analysis of the choices of people access to both places shows that public transport is the easiest way to access these

areas, due to parking problem for private cars. In the frame of Graphic 9, the efficiency of informative elements and guide boards are analysed over semantic differential scale through scores from 1 to 7 measuring the level of insufficient/sufficient. According to data of this scale, users mention that the effective informative elements display the connection between bazaar structures and Han region are mostly insufficient. This lack causes some difficulties users to find their route while walking around (Fig. 10).

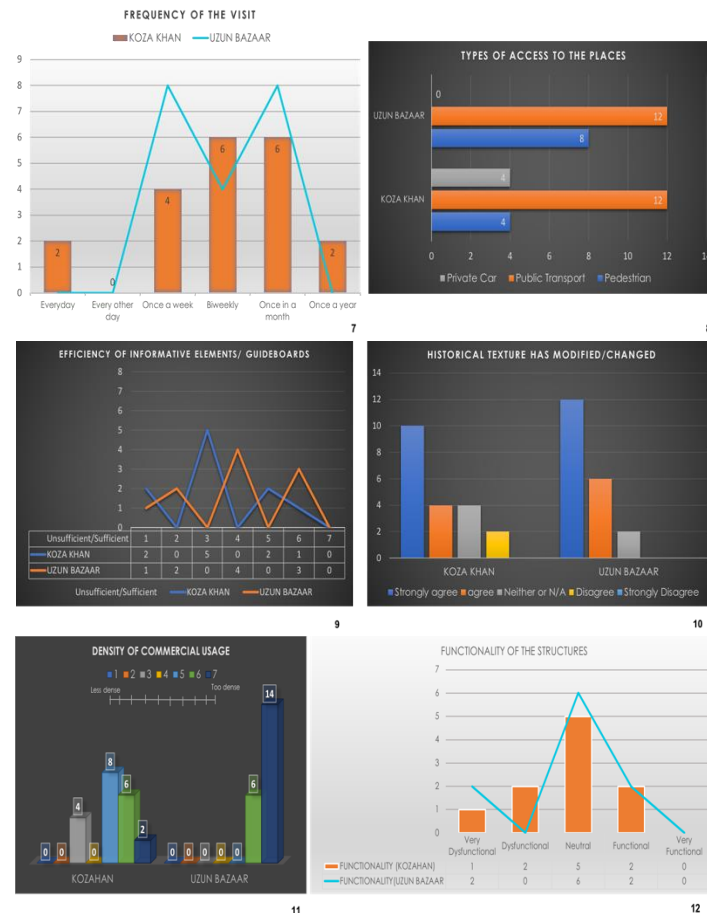


Figure 10. Graphic 7;8;9;10;11;12 (usability of spaces: Koza khan -Uzun Bazaar).

4.3. Discuss: Design Solutions and Improvements

The proposal of user-centred model is grounded on initially the integrated components of user-centred design process. In frame of user context, to identify users several parameters such as users' age range, living area, purpose of visit, shopping behaviour and spatial preferences have been analysed through a questionnaire. The questionnaire, which is shared 20 people, has had direct and indirect questions as well as analysed by Semantic differential and Likert question methods. In this respect, to specify user requirements the criteria through problems and needs on accessibility and usability of space have been questioned (Fig. 12).

Consequently, to measure end-user effect in the area it has been proposed new design solutions and improvements considering evaluation against requirements. The design and the planning process of the urban elements is an important way of user perception of the space. In terms of usability of spaces, user-centred model research proposes to intervene the physical and visual additions and redesign them with the urban design united parameters such as harmony, scale and proportion, texture, colour, form and function. Also, user centred approach emphasizes that design and planning of the urban elements, furniture and physical additions in the public areas are quite important besides the interior space design.

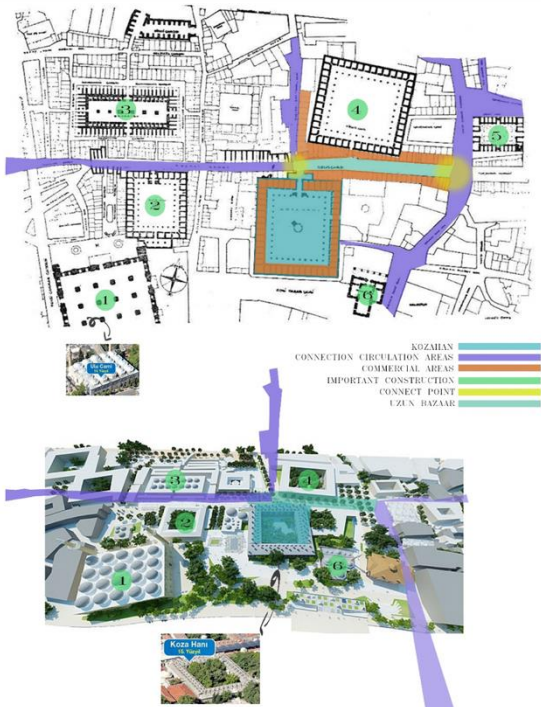
PLAN/DESIGN							
USER CONTEXT	Identify Users/ 20 people*		USER REQUIREMENTS	Accessibility of Space		Usability of Space	
	Age Range	%40-(25-45) %30-(45-65) %20-(15-25) %10-(65-over)		Frequency of Visit	%35-Once in a month %30-Once a week %25-Biweekly %5-Everyday %5-Once a year	Efficiency of Informative Elements	Unsufficient 12 p. Sufficient 8 p.
	Living Area	%45-Bursa –Heykel %50-Bursa (other) %5 –Out of Bursa		Types of Access	%60-Public Transport %30-Pedestrian %10-Private Car	Legibility of Historical Texture	Changed...S.A. 17 p. D.A. 3 p.
	Purpose of Visit	%50- Shopping %35-Rest and Spend Time %10-Eat and Drink % 5-Tourism				Density of Commercial Use	Less dense 2 p. Top dense 18 p.
	Shopping Behaviour	%45-Cheapness/Bargaining %25-Bazaar Tradition %15-Easy Transportation %15-Frendly Tradespeople				Functionality of Space	Functional 8 p. Dysfunctional 12 p.
	Spatial Preferences	%35-Hisorical Texture %35-Easy Transportation %30-Economic Cheapness		*Questionnaire, which is shared through 20 people, has had direct and indirect questions as well as analysed by Semantic differential and Likert question methods.			
	DESIGN SOLUTIONS/IMPROVEMENTS						
			Disadvantages		Proposed Solutions		
			Legibility of Historical Bazaar		-To Conduct <i>Maintenance Problems</i> in Courtyard and Street Limits to Criteria of a <i>Site Management Plan</i> .		
			Efficiency of Informative Elements		-To Define <i>Circulation Routes</i> through <i>Interconnection Points</i> between Bazaar Structures and Streets via Plans on the Guide boards		
			Functionality of Space		-To Incorporate Subsequently Added <i>Commercial Unites</i> into Bazaar Limits -To Balance the Density between Commercial Use and Other Functions through Cultural and Experience Structures		
			Chaotic and Eclectic Facades		-To Remove <i>Inappropriate Structural Transformations</i> in Commercial Units -To Re-design Boundaries of Articulation between Old and New in Appropriate to Context		
			Usability of Space		-To Increase <i>Public Use of Spaces</i> through Improving Open Air Streets and Inadequate <i>Urban Furnishing Elements</i>		
			Accessibility of Space		-To Extend the <i>Urban Interfaces</i> Through <i>Pedestrian-oriented Circulation Aisles</i>		

Figure 11. A Proposal of User-Centred Model on Design Solutions and Improvements.

Considering the usability criteria for Koza Han and Uzun Bazaar, most of the users consider that the former layout of the historical district has been damaged with new modifications and changes. Many users are not satisfied with the quality of user experience, they are neutral in terms functional and usability efficiency of the structures. This shows the functional aspects of both places are not efficient from end users' perspective. Although the density of commercial use in the Uzun Bazaar comes to forefront, this results from the shopping frequency of the users.

This redesign model aims to enhance usability of space through new interfaces between user and the space, considering proper integration of the new layout of the urban area.

The observations prove that there are new physical additions articulated to these structures; temporary stands of the sellers, new additions of the trade stores such as advertising boards, canopies as well as new constructed steel columns and beams for the canopy over Uzun Bazaar, are contrast with the former texture and layout of the space. These are all complicating the legibility of the space in addition to hinder user perception in the physical and visual relation with the space (Fig. 12).



Figure 12. The Images Displaying the Current Usage of Bazaar and Koza Han.

5. CONCLUSION

The research goal is to emphasize the relationship between user experience and the historical texture of bazaars which shapes the social and cultural identity in Bursa. By the usability of space, the research intends to observe user perception and legibility of space which are essential on reading the physical and visual relation with context.

In terms of the relationship with the user factor, Koza Han and Uzun Bazaar which are interrelated spaces are used through multi- purposes of visit such as shopping, spend time and rest. It is true that the circulation between the two has a potential to create a positive effect on the user. As a result of the analysis related to visual and social interaction between the spaces: While these spaces continue to reflect the urban vitality by trade activities with shopping, the historical texture and layout are concealed by the new artificial additions over the structures.

As one of the disadvantages, the legibility of historical bazaar structures leads to several maintenance problems in courtyard and street limits, the proper adaption to a site management plan is needed for the integration of different structural layers. In addition, to define circulation routes through interconnection points between bazaar structures and streets via plans on the guide boards is going to provide the efficient use.

In terms of functionality of space, it is proposed to incorporate subsequently added commercial unites into bazaar limits. Moreover, it is important to balance the density between commercial use and other functions through cultural and experience structures. Against to chaotic and eclectic appearance of facades, to remove inappropriate structural

transformations in commercial units is needed. To re-design boundaries of articulation between old and new in appropriate to context is another suggestion.

In frame of usability of space, the improvement of open spaces and urban furniture elements is needed to increase public use of spaces through. Considering the criteria accessibility to the bazaar spaces, it proposed initially to extend the urban interfaces through pedestrian-oriented circulation aisles. In addition, considering the users' access possibilities among the bazaar structures, it is not so easy to find the route for users as a result of insufficient informative sign elements which refer to the interconnection points among the circulation routes, common spaces and bazaar structures. Bazaar structures and their common spaces -paths, streets and in between spaces are mostly dense and crowded, therefore the scale of structure creates a chaos and contradiction due to lack of well-organized spaces and interactions.

To sum up, while the research emphasizes to develop a proposal of user centered model which aims to afford flexible usage, also the users' satisfaction for the experience of complex structures are of important in terms of effective usability of these public structures.

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