

Gender and urban space: An examination of a small Anatolian city

Yasemin İNCE GÜNEY

Balıkesir University, Balıkesir, TURKEY

Received: December 2013 Final Acceptance: August 2014

Abstract:

Public spaces can be defined as places of interaction, social encounter and exchange where groups with different interests converge. Accessible and open to everyone, they are designed for a variety of uses where people can participate in public life. They also contribute to the collective identity of the community as they represent the culture and values of its users. In recent decades, the different ways in which public spaces are used have been the subject of studies from different disciplines including but not limited to anthropology, geography, sociology, architecture, and urban planning. It has been argued that the way in which urban life is lived and experienced changes according to demographics of its users such as age, sex, and social class.

In this study, the use of public spaces based on gender differences is analyzed using space syntax methodology. The context of the study is the city center of a small Anatolian town, Balıkesir, which is located in western Turkey. The methodology of the study includes a visibility analysis of the historic city center and pedestrian movement observations on the selected locations within this center. The results indicate that male users dominate the city center at all times while the density of women users is much lower, and is even lower than that of teenagers. A major contribution of this study is the finding that there is a discrepancy between the most integrated streets in terms of visibility and the most densely used ones. Given that the users of this small Anatolian town are mostly its residents, this finding suggests that for route-choice decisions, pedestrians utilize prior knowledge and experience of the city center more than the visual information provided to them via the geometry of the space.

Keywords: *Gender, urban space, visibility, space syntax, Balıkesir.*

1. Introduction

Spaces in a city can be divided into those that are public and those that are private. Public spaces are social spaces such as streets, city squares, parks and beaches that are open and accessible to everyone. Private spaces on the other hand are related to individuals as they are privately owned and used including for example all different kinds of residences (Walzer, 1986; Franck & Paxson, 1989).

In various cultures and at different historical periods, women have been identified with private spaces. Houses, atria and backyards have been defined as spaces of women, while public spaces and especially city centers were meant to be used mostly by men. It has been argued that the traditional division of labor where men are the family breadwinners is a major source of this segregation: Women are naturally associated with private spaces as their traditional role requires them to stay at home and look after their children, while men are expected to use public spaces in their role as breadwinners.

The processes involved with the use of public spaces by women have been examined since the 1970s. Beauvoir in her seminal work (1993) declared that women have been the “second sex” within social structures almost all of history, and thus their access to the public sphere has been hindered. Women, according to Beauvoir, do not share the same mental, spatial and economic freedoms provided to men in society. Even though women have started to enjoy increasing freedom in modernizing societies, they cannot escape from their traditional roles as mothers and wives, and thus their use of public spaces are mostly limited to the areas near their houses (Pardo and Echavarren, 2002; Deutsh, 2000; Yılmaz, 2006; Inceiş, 2006).

Positivist urban analysis questioned why women suffer spatial constraints and suggested that they travel less because they make more stops; are less mobile because they had lower than average incomes, or have less access to cars. McDowell (1983) argued that there is a need to question the structure of social relationships that contribute to female oppression. Feminists began searching for the social roots of spatial problems and found that the city was separated into men’s spaces and women’s spaces, the “divided city”. Men’s spaces were public and economic and they were sites for production while women’s spaces were private and social and they were sites for reproduction (McDowell, 1983; MacKenzie, 1989; Alkan, 2005).

This sexually segregated, public-private dichotomy is considered fundamental to modern capitalist societies, and it is further suggested that this segregation has been reinforced by urban planning and design decisions (Mackenzie, 1989; Hayden, 1982; Hayden, 1997; Alkan, 2005; Kayasü, 2002). It has been argued that urban planning ignored gender divisions and overlooked women’s needs and experiences in urban spaces, while the male necessities and special mobility patterns required by men have come to be considered as a universal model (McDowell, 1983; Pardo and Echavarren, 2002; Garcia-Ramon et al, 2004).

Space syntax, is one of the significant research programs developed during the twentieth century to investigate the relationship between human societies and space, and it specifically focused on the effects of the physical properties of the space on observed patterns of human co-presence and movement (Hillier & Hanson, 1984; Hillier, 1996; Hanson, 1998). However, within the space syntax literature, gender issues have only been raised in studies of domestic spaces (Hanson, 1998; Forah and Klarqvist, 2001; Güney, 2008). Even though there has been considerable quantitative research conducted on human movement patterns in urban spaces, some under the subtitle of walkability, it is recently that the issue of gender differences in an urban context has been raised (Nes, 2009).

The aim of this study is to objectively examine the effects of gender on public space use in Balıkesir city center by utilizing space syntax techniques.

Balıkesir has a unique urban structure since it was able to keep its historic center as the only center as the city boundaries expanded over the course of its history (Güney&Uçar, 2007). It is only during the last couple of decades that new local centers started to emerge, and they have not been able to weaken the prominence of the historic center (Güney et al, 2009). In the following section a brief history of urban city development of Balıkesir is given before the methodology of the study is explained.

2. Urban development of the City of Balıkesir

Balıkesir is a small Anatolian city located in the western part of Turkey (Fig. 1). Over its long history, it has been home to various civilizations and first came under Muslim influence during the Arab occupation of the 7th century. It is believed that at this time, a city wall surrounded the settlement though its exact location is not known as there are no remains. Later, the town was ruled by the Byzantine Empire, in the 13th century it became part of the Karesi Beylik. In 1330, the town became the center of this Beylik and experienced its most prosperous period. Balıkesir became part of the Ottoman territory for the first time in 1359, and the different ethnic groups lived in Balıkesir side by side in spatial proximity with each other, either in mixed or in nearby neighborhoods, until the fall of the Ottoman Empire (Güney & Uçar, 2007; Güney et al, 2009).



Figure 1. Balıkesir between Istanbul and Izmir, Turkey.

There are no maps that show the urban fabric of the city from the Ottoman period. We only know that the oldest surviving architectural artifact is the Yıldırım Mosque and Complex which dates from the 14th century. With the establishment of the Zagnos Pasha Mosque and Complex during the 16th century, the development of the center started to follow the route of Anafartalar Street as it shifted towards south. The Government Building was also located next to the Zagnos Pasha Mosque, marking the main city square, Ticaret Meydanı (Trade Square), which is today named as Ali Hikmet Pasha (AHP) Square. At the southern end of Anafartalar Street, the Municipality Building and a prison were located and the square in front of these buildings was known as Municipality Square (Belediye Meydanı). The Hamidiye Clock Tower was also erected next to this square.

In the late 19th century, the train station was constructed at the eastern end of the city. A square, İstasyon Meydanı (Station Square) was created in front, and Vasıf Çınar Street was built following the train lines (Figure 2). When the 1897 earthquake demolished half of the building stock in the city, it enabled the establishment of Milli Kuvvetler Street which cut through the existing organic pattern to directly connect Station Square to AHP Square, which also acted as the intercity terminal until 2006. Kızılay Street was also established during this time to directly connect Municipality Square to Vasıf Çınar Street. The addition of these new streets created a stretched rectilinear grid marking the outlines of today's city center (Figures 2 & 3).

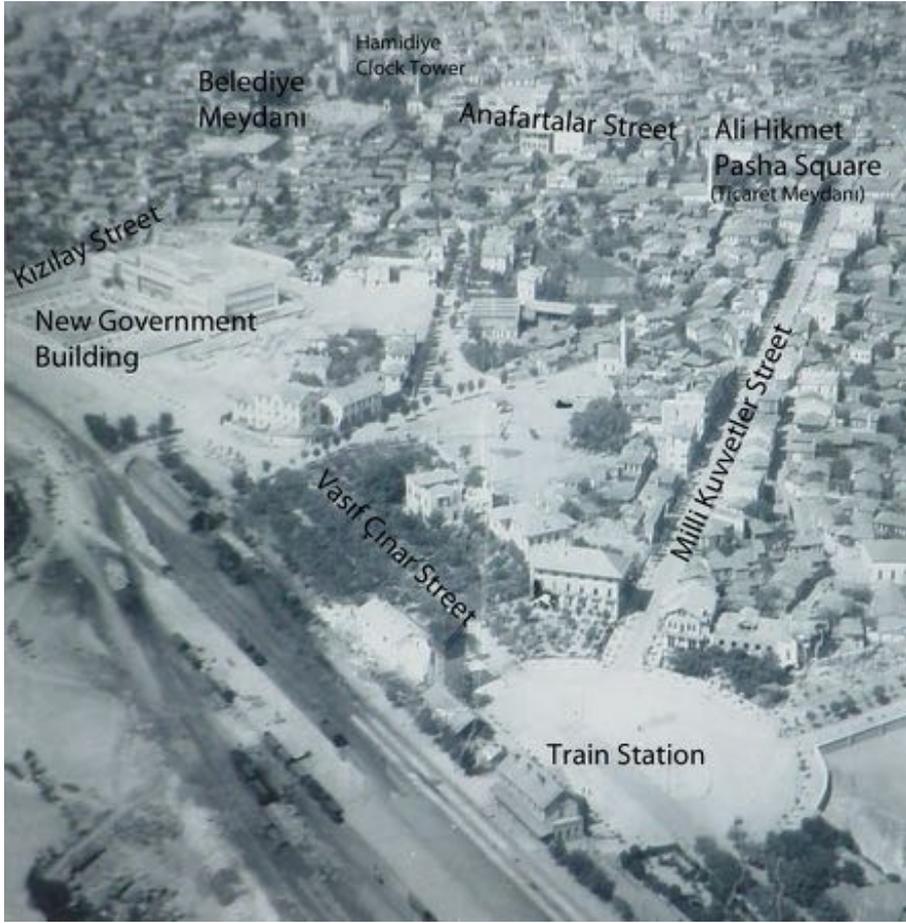


Figure 2. A view of Balıkesir from 1939.

After the establishment of the Turkish Republic, a new Government building was constructed at the intersection of Kızılay and Vasıf Çınar Streets and created the Government Square (Hükümet Meydanı) in front. As part of the neophyte Turkish Republic's aim to develop cities according to modern ideals, the German architect Ernst Egli was commissioned in 1939 to draw up the town's first master plan. The plan prepared by Egli is given in Figure 3. In the report that Egli prepared for the Municipality, he mentions that although the train will bring positive development opportunities to the town it will also limit the growth of the city behind the railroad to the southeast and similarly the hill to the west will limit the growth in this direction. Thus Egli proposed that the city needed to develop to the north, south and the auxiliary parts to the east. Although the city kept growing in these directions, the city center has kept its location and prominence: empty lots have been filled with new buildings and the existing building stock has been constantly renewed. It is also important to note that Government Square became an important junction point for the city center as it had the only bridge that connected the new developments on the east with the center.

Similar to smaller cities in Turkey, the urban macroform of Balıkesir has recently started to change with an ever-increasing speed as the effects of globalization have been felt in the form of new local development opportunities in sectors including industry, international trade, tourism and real estate. The period of rapid change for Balıkesir has significantly accelerated since the beginning of

2000s due to the restructuring of the transportation network, which included the relocation of the intercity terminal and the public transportation center. In the first months of 2014, Balıkesir has been declared one of greater municipalities of Turkey, thereby marking its continuing development.

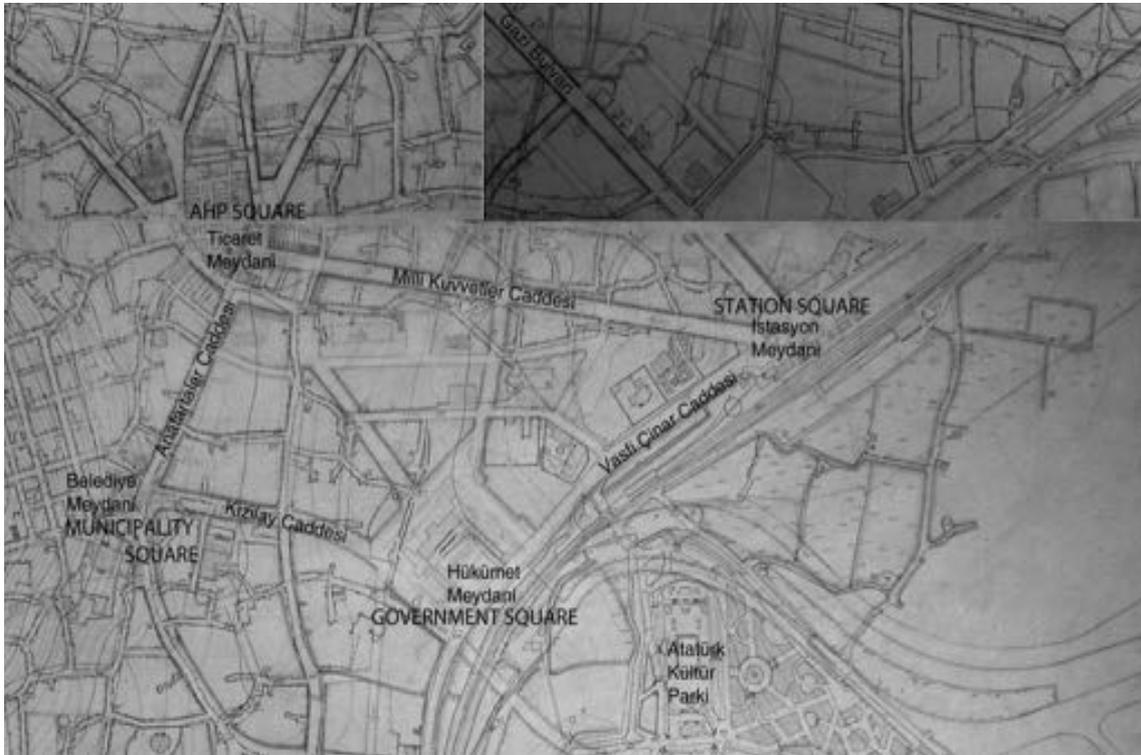


Figure 3. Balıkesir City Center, Ernst Egli, 1941.

2. Methodology

The methodology of the study includes two different analyses: pedestrian movement observations and visibility analysis.

2.1 Observations

The pedestrian counts were conducted within the city center in 2010. Using gate method, pedestrian counts were conducted at 82 observation points (Fig. 4) both on a weekday (Wednesday) and on a weekend (Saturday) for five different user groups: adult men, adult women, teenagers, the elderly, and children. The counts were done for five minutes at six different time periods: 08:00-10:00; 10:00-12:00; 12:00-14:00; 14:00-16:00; 16:00-18:00; 18:00-20:00. For teenagers, the elderly and children there was no gender differentiation. The results of this observation for each time period and for each category of users have been given in Tables 1 and 2.

As can be seen in Tables 1 and 2, men have always have the highest density both during the weekday (40%) and weekend(35%). The density is especially high during the morning hours between 08:00-10:00 and 10:00-12:00, and is around 45% during the weekday and 39% at the weekend. When the number of pedestrian men are examined according to the observed times, it can be seen that there are more men between the time periods 12:00-18:00 on both the weekday and weekend, peaking at 12:00-14:00 at the weekend (Figures 5&6).

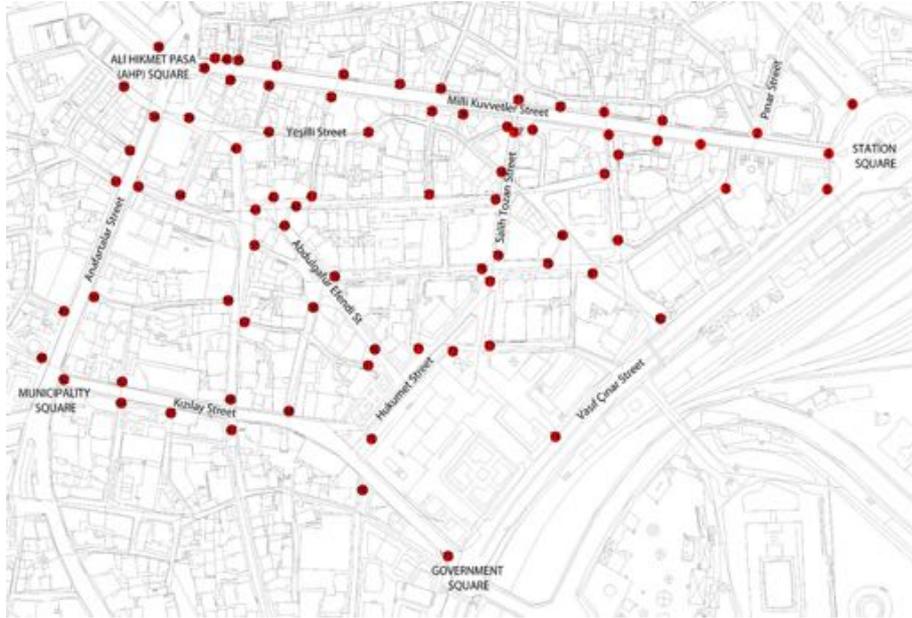


Figure 4. Balıkesir City Center observation points.

Table 1. Balıkesir weekday pedestrian counts and percentages.

BALIKESIR										
WEEKDAY	Man	%	Women	%	Teenage	%	Elderly	%	Children	%
08:00-10:00	1630	45,75	729	20,46	692	19,12	472	13,25	40	1,12
10:00-12:00	1877	45,70	824	20,06	577	14,05	737	17,94	92	2,24
12:00-14:00	2731	39,54	1348	19,52	1552	22,47	767	11,10	509	7,37
14:00-16:00	2991	36,93	1688	20,84	1827	22,56	1303	16,09	290	3,58
16:00-18:00	2962	38,03	1549	19,89	2130	27,35	722	9,27	425	5,46
18:00-20:00	2486	39,58	1087	17,31	1948	31,01	525	8,36	235	3,74
TOTAL	14677	40,92	7225	19,68	8726	22,76	4526	12,67	1591	3,92

Table 2. Balıkesir weekend pedestrian counts and percentages

BALIKESIR										
WEEKEND	Man	%	Women	%	Teenage	%	Elderly	%	Children	%
08:00-10:00	1790	39,12	743	16,24	1108	24,21	548	11,98	387	8,46
10:00-12:00	2203	39,15	1034	18,38	1378	24,49	671	11,92	341	6,06
12:00-14:00	3000	34,71	1656	19,16	2533	29,31	767	8,88	686	7,94
14:00-16:00	2694	31,43	1674	19,53	2886	33,67	661	7,71	657	7,66
16:00-18:00	2620	33,62	1616	20,74	2430	31,18	603	7,74	524	6,72
18:00-20:00	2426	34,85	1323	19,00	2390	34,33	464	6,66	359	5,16
TOTAL	14733	35,48	8046	18,84	11629	29,53	3714	9,15	2954	7,00

The second group of pedestrians who use the city center the most is teenagers. The highest density for teenagers is 22% during the weekday and 29% at the weekend. In terms of the number of teenagers on the city center, the highest-density time period is 16:00-18:00 during the weekday, 14:00-16:00 at the weekend (Figures 5 & 6). At the weekend, their peak number at 14:00-16:00 almost reaches the male peak at 12:00-14:00. The higher densities for teenagers in the afternoons of both for the weekday and weekend can be explained by the after-school study centers for teenagers that are mostly located in the city center.

The density of women is the next highest: 19% during the weekday and 18% at the weekend. The number of women at the weekend is higher even though their density is lower. Both during the weekday and at the weekend, the number of women is highest between 14:00-16:00, followed by 12:00-14:00 at the weekend and 16:00-18:00 during the weekday (Figures 5&6). The number of pedestrian women is lowest during the morning hours as is the case in most categories.

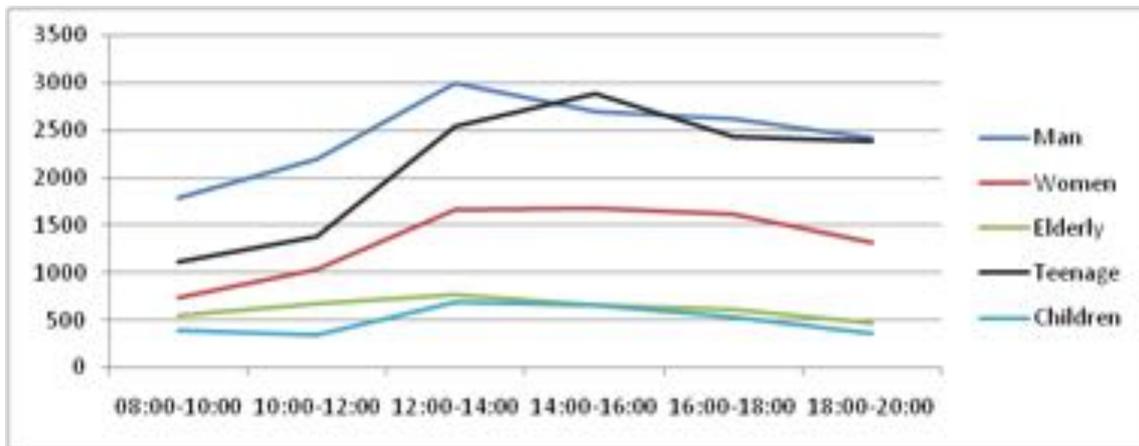


Figure 5. Weekday pedestrian counts on observed times for each category.

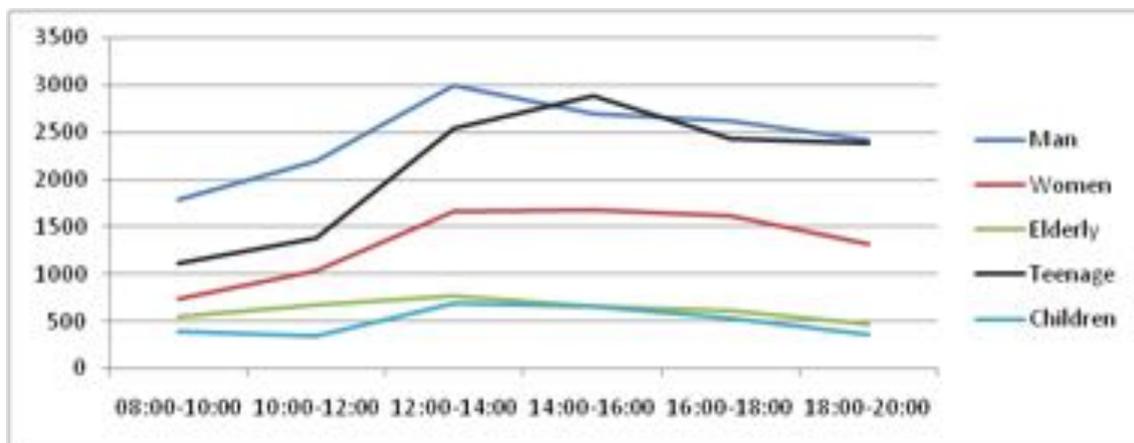


Figure 6. Weekend pedestrian counts on observed times for each category..

The lowest densities of pedestrians in the city center of Balikesir are those of the elderly and children. During the weekday their mean densities are 12% for the elderly and 3% for children, while for the weekend, the densities of elderly

becomes lower while for children it becomes higher. The highest numbers of elderly users occur at 14:00-16:00 during the weekday and at 12:00-14:00 at the weekend (Figures 5&6). The lowest densities of elderly users occur during the morning and late afternoon of the weekday. Both of these time periods are busy periods, thus, one might suggest that the elderly use the city center most when it is not very crowded as it might be more convenient for them. For the children, although their mean numbers are much higher during the weekend, the highest numbers of children occur at noon, 12:00-14:00, on both the weekday and weekend (Figures 5&6). This finding again might be interpreted as suggesting that children use city center with their parents at the times that is most convenient for them.

It can be observed from Figure 7 that the total number of pedestrian counts both for the weekday and the weekend show a similar pattern starts low in the mornings and comes to a peak towards the noon until late afternoon, at which point it starts to decrease. It is possible to suggest that in the mornings most of the users of the city center are people going to work, while between 12:00-18:00 when pedestrian density is highest, most of the pedestrians use the city center to satisfy their various needs such as banking or shopping.

The next step is to analyze the pedestrian movement differences based on

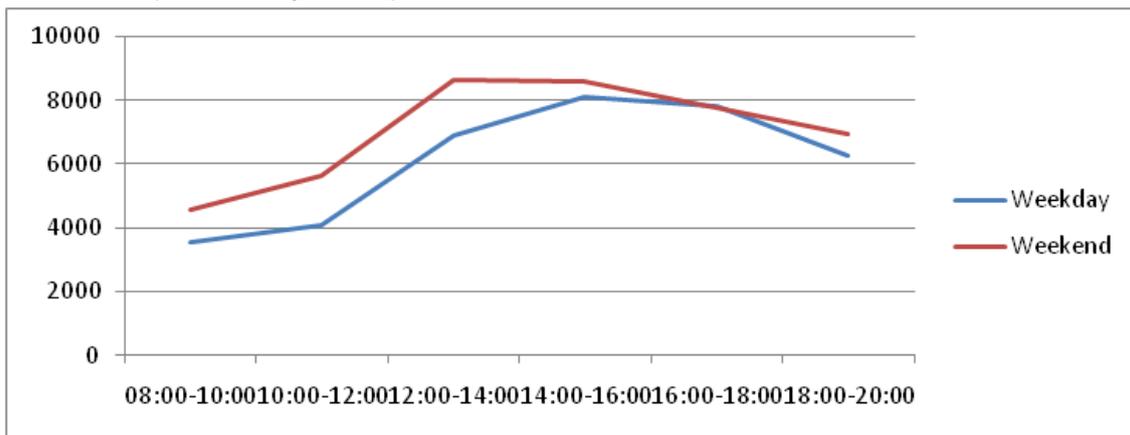


Figure 7. Balıkesir total pedestrian counts on weekday and weekend based on observation times.

gender differentiation by relating the male and female pedestrian counts to the specific gates observed in the study. For this purpose, several maps have been prepared (Figures 8 and 9) to show the male and female counts at observed points both for the weekday and weekend respectively and for each time period when the observations were conducted.

For the weekday as well as the weekend, the most consistent density was observed at the intersection of MilliKuvvetler and Anafartalar Streets, followed by the other end of MilliKuvvetler where it meets Pınar Street and connects pedestrians to the intercity terminal. The area where the density of male and female pedestrians were highest is located at the center diagonal of the city center that starts at the intersection of Milli Kuvvetler and Anafartalar, i.e. AHP Square, and after some smaller street junctions runs through AbdulgafurEfendi Street before terminating at Hukümet Street that leads to Government Square. During weekdays, this diagonal axis is emphasized during almost all time periods, but it is the most active part of the city center especially at 14:00-16:00 and 16:00-18:00. Given that this diagonal axis connects AHP Square, where

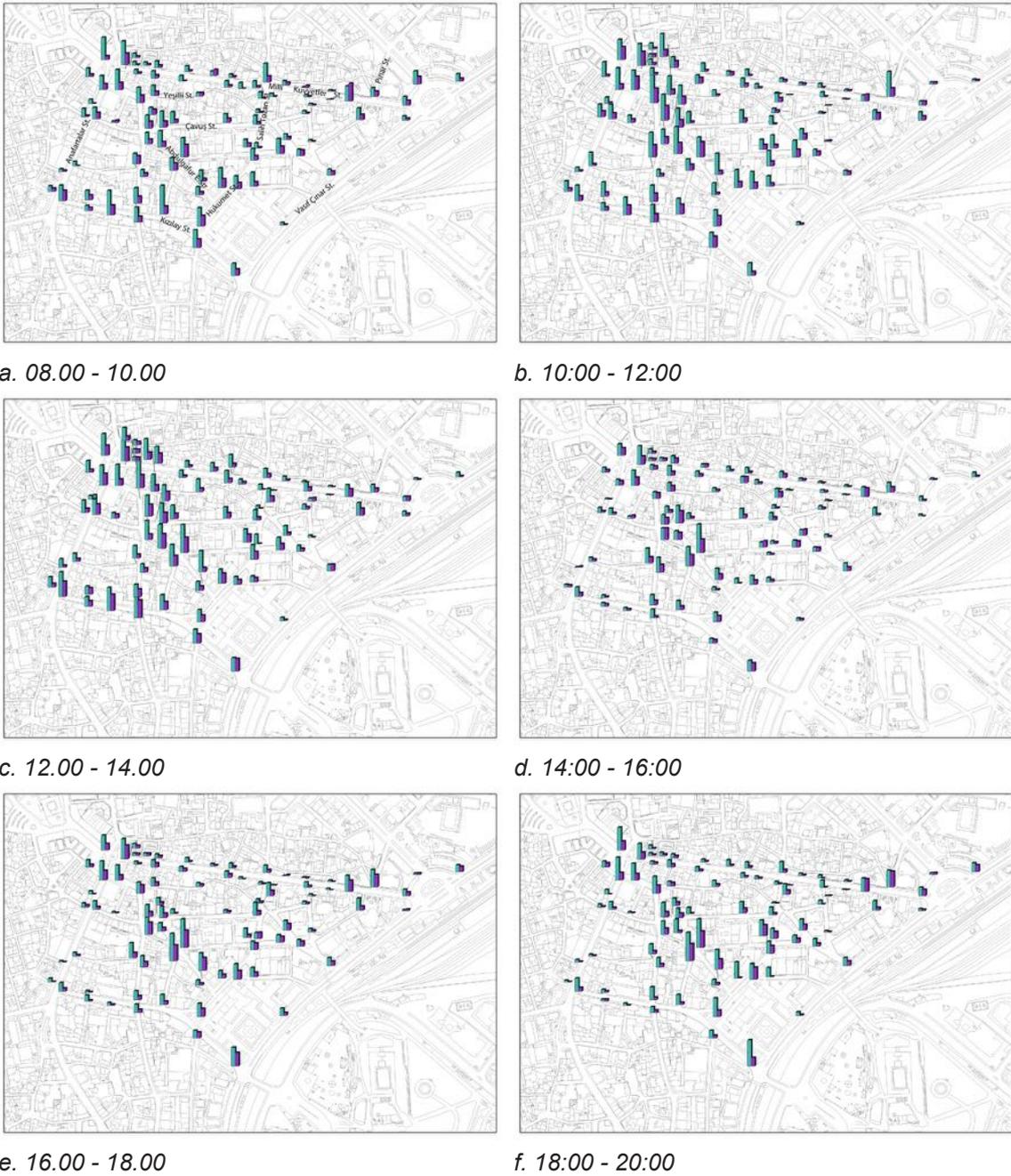


Figure 8. Balikesir City Center weekday pedestrian counts on observation points (male  female).

the intercity terminal is located, to Government Square where the only bridge connecting the city center with the developments on the east is located, the observed pedestrian flow on this axis might indicate the pedestrians' route choice decisions being directed towards the shortest path between these two squares.

It can be observed that at the weekend the densities are located similarly to those of the weekday but they are even higher. The main difference in density may be observed during two different time periods: Between 10:00-12:00 and

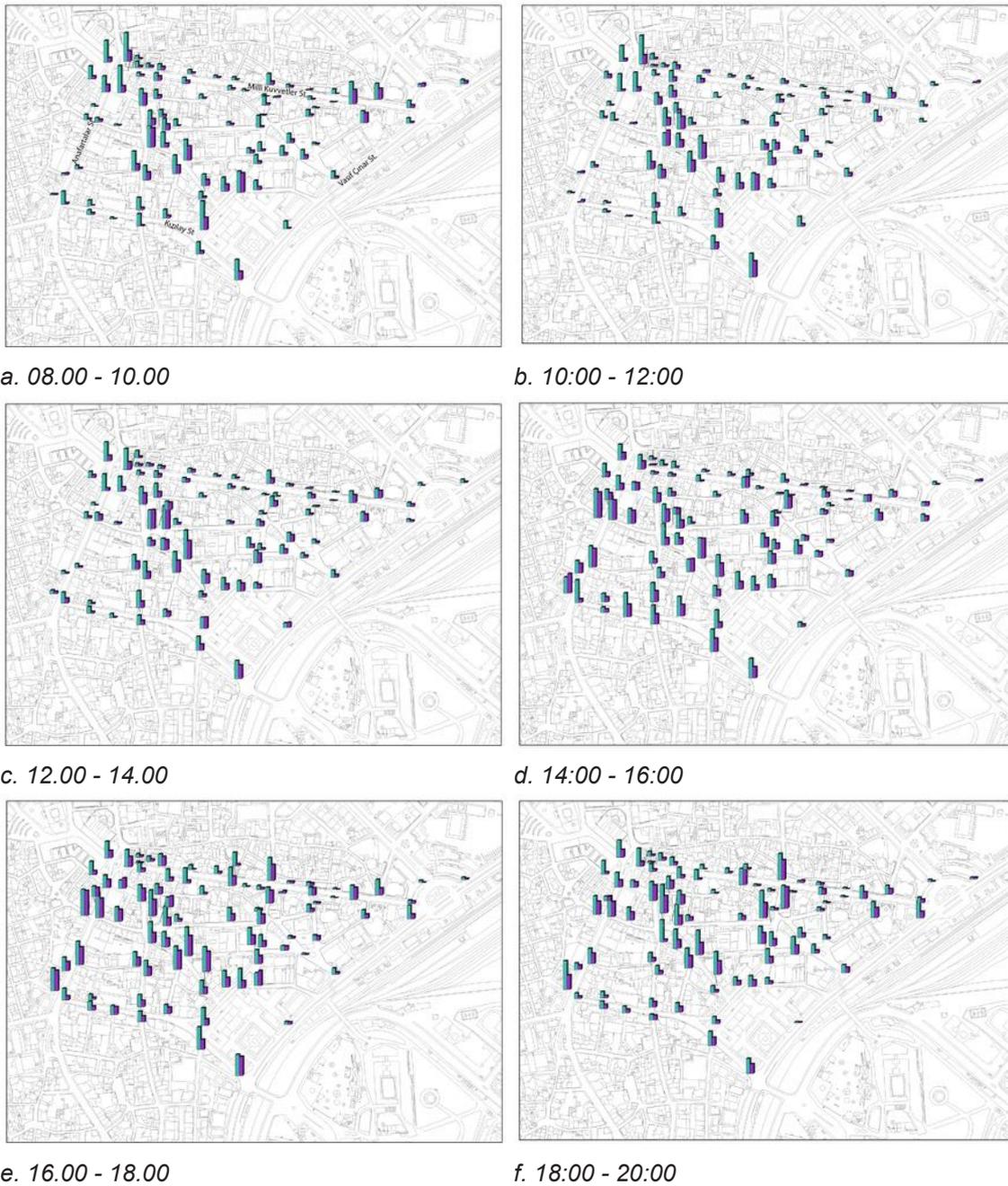


Figure 9. Balıkesir City Center weekend pedestrian counts on observation points (male  female).

12:00-14:00 the weekend densities are lower, while between 14:00-16:00 and 16:00-18:00 the weekend densities are higher than those of the weekday's. The densities in the afternoons between 14:00-16:00 and 16:00-18:00 are more evenly spread out in the center. It can be suggested that these results follow the general tendency of people to stay at home and rest on weekend mornings while weekend afternoons are for leisure activities.

2.2 Spatial analysis

Visibility refers to visual information provided to observers at any given

location and is directly related to the geometry of space as much as to the movement of the observer. The concept is based on Benedikt's method of describing space taking into account the perception of the moving observer, which is referred to as the 'isovist,' as the set of all points visible from a given vantage point in space and with respect to an environment (Benedikt, 1979). Visibility analysis suggests that visual fields have their own form that result from the interaction of geometry and movement, and that the shape and size of the isovist is especially significant in relation to the information provided to the observer.



Figure 10. Balıkesir City Center visual analysis - integration (HH).

In urban environments, the amount of information provided by visual fields might help the moving observer to decide where to go next. In this study, the software called Depthmap has been utilized for the visibility analysis of the city center. The visibility analysis offers some specific measures that represent local and global visual characteristics of the urban spaces. The measures taken into consideration in this

study include visual integration (HH), visual connectivity, clustering coefficient and visual control values. The map of the city center is colored in the Depthmap program according to these values (Figures 10-13).

Figure 10 shows the city center colored according to the visual integration values. Integration is a global measure that describes the average depth of a space to all other spaces in the system. As can be seen from the figure, the main roads that define the city center as a rectilinear grid stretched towards its northeast corner are the most integrated streets: Milli Kuvvetler, Anafartalar, Kızılay, and Vasif Çınar Streets. It is possible to state that the visibility integration of Balıkesir city center is very similar to its axial integration based on an earlier syntactic study of Balıkesir City Center (Güney et al, 2009). The most integrated locations within these integrated streets are at their intersections, especially at either end of Milli Kuvvetler Street. It can also be observed that the streets in the middle of this stretched rectilinear grid, running north to south direction, starting with Hukümet Street on the south and continuing with Salih Tozan Street towards the north, are also integrated. All other streets within this gridal network are less integrated. Another street that needs to be mentioned is Abdulgafur Efendi Street which starts from the middle of Hukümet Street and runs diagonally towards AHP Square. Even though Abdulgafur Efendi Street is highly used by pedestrians, as discussed earlier, visually it is less integrated than expected.

Another visual measure that is examined in this study is connectivity. This considers the number of immediate neighbors that are directly connected to

a space and thus highlights local centers. As can be seen from the Figure 11, there is only one local center that is highlighted in the map and that is at the intersection of Milli Kuvvetler and Vasif Çınar Streets, although there is a weaker center at the other end where Milli Kuvvetler meets Anafartalar Street. It is interesting to note that Connectivity does not pick up any local centers within the grid as all the secondary roads are colored blue.



Figure 11. Balıkesir City Center visual analysis - connectivity.

The Clustering Coefficient is a local measure that indicates how visual information changes within system (Güney, 2007). It can be suggested that when moving along the red areas of a Clustering Coefficient map, the visual information



Figure 12. Balıkesir City Center visual analysis - clustering coefficient.

available stays the same; whereas moving out of a blue area the visual information provided decreases drastically. As such, the junction points are highlighted blue in the map given in Figure 12. It is interesting to note that, as can be seen from the figure, the Clustering Coefficient colors the map in a manner that is very similar to the visual integration, only with reverse toning to highlight the most integrated locations with blue and the less integrated ones with red. However, it is possible to say that the Clustering Coefficient analysis is more sensitive to local centers as it highlights the junctions within the rectilinear grid that were not highlighted in the visual integration map.

The local measure visual control reveals locations that have the maximum visual control, i.e. spaces that are the most visually dominant based on how



Figure 13. Balıkesir city center visual analysis – control.

street within the rectilinear grid.

much can be seen (Turner, 2003). As demonstrated in Figure 13, the locations with high visual control values include some of the street junctions. In these locations the isovists, the set of all points visible at each junction, would have the maximum visual information. The junction point on Abdulgafur Efendi Street is also highlighted here, emphasizing the importance of this

2.3 Pedestrian movement patterns & spatial analyses

The next step of the study was to comparatively and statistically analyze the data obtained from the observations of pedestrian movement patterns and spatial analysis. For this aim, both the pedestrian movement data for male and female pedestrians, as well as the visibility values for each gate, was collected onto an electronic database. Using SPSS v16, statistical analyses were conducted to examine if there are any correlations between the pedestrian movement patterns and the visibility values; i.e. visual connectivity, visual integration (H&H), visual clustering coefficient, and control values.

The statistical analyses were carried out for each time period observed, and for each gate the number of all user categories both for the weekday and weekend were analyzed to see if there are any correlations with spatial variables. Results of the analyses show no significant correlations between visibility values and pedestrian movement patterns for any user category.

However, when the difference in numbers between male and female pedestrians was considered, the results of the analyses indicated some significant correlations with visibility values. For this analysis a new variable (Gender Difference, GD) has been created by subtracting the number of females from the number of males for each gate and for each time period observed both for the weekday and weekend. As can be seen in Table 3, the correlations between the visual integration measure and the gender differences are significant at the weekend between 14:00-16:00 and 16:00-18:00, -.273 and -.231 respectively. We can conclude that women prefer to use more visually integrated streets on weekend afternoons. The more visually integrated streets such as MilliKuvvetler, Anafartalar and Kızılay Streets are also physically more appealing streets where most of the shops are located. Thus, one can assume that when women use city center more for leisure activities such as shopping they prefer to use visually integrated streets.

Table 3. Correlations between visibility integration (hh) and weekend gender difference.

		Vint (HH)	WendGD 8-10	WendGD 10-12	WendGD 12-14	WendGD 14-16	WendGD 16-18	WendGD 18-20
Vintegration (HH)	Pearson Correlation N	1 82	-,174	,125	-,018	-,273(*)	-,231(*)	-,126

* Correlation is significant at the 0.05 level (2-tailed).

As shown by Table 4, the correlation between gender difference and visual connectivity is significant during the weekday between 10:00-12:00, -0.235. We can conclude that women use local centers more than men on weekday mornings.

Table 4. Correlations between visibility connectivity and weekday gender difference.

		V Connectivity	WdayGD 8-10	WdayGD 10-12	WdayGD 12-14	WdayGD 14-16	WdayGD 16-18	WdayGD 18-20
V Connectivity	Pearson Correlation N	1 82	,019	-,235(*)	-,065	,116	-,078	-,024

* Correlation is significant at the 0.05 level (2-tailed).

And lastly, as seen in Table 5, the correlations between the gender differences and the visual control values are significant on weekday between 14:00-16:00 pm and 16:00-18:00, +0.271 and +0.265 respectively. It can be concluded that males use spaces that are most visually dominant (i.e. spaces that provide maximum visual control) on weekday afternoons.

Table 5. Correlations between visibility control and weekday gender difference..

		VControl	WdayGD 8-10	WdayGD 10-12	WdayGD 12-14	WdayGD 14-16	WdayGD 16-18	WdayGD 18-20
V Connectivity	Pearson Correlation N	1 82	,162	-,047	,103	,271(*)	,265(*)	,119

* Correlation is significant at the 0.05 level (2-tailed).

3. Discussion and conclusion

One of the major conclusions of this study is related to the feminist idea of the "divided city", in which the city is seen as separated into men's spaces and women's spaces. The main finding indicates that male users dominate Balıkesir City Center at all times while the density of women users is much lower, even

lower than that of teenagers. From the results of earlier studies (Kubat et al, 2003; Kubat et al, 2005; Kubat et al, 2007; Özer, 2014), it is possible to suggest that the density of male users is consistently higher than that of females in various centers of Istanbul, such as Galata, Beşiktaş, Kadıköy and Bakırköy. It is also important to note that the dominance of males in city centers is not only valid in the Turkish context. Earlier studies, however limited, also suggest that the number of male users is higher in the city center in various parts of the world including Sharjah, a city in the United Arab Emirates where women started to find a place outside their home only after the 1960s and the discovery of oil (Kubat et al, 2012a; Kubat et al, 2012b), as well as in the Dutch cities of Breda and Vlissingen at all times and in Dordrecht and Maastricht at night (Nes, 2009) (See Appendix).

The finding of male dominance in the urban city center suggests that Beauvoir (1993) was right when she declared that women have been a “second sex” within the social structures throughout almost all of history. Women, according to Beauvoir, do not share the mental, spatial and economic freedoms that men enjoy. Even though women have started to enjoy increasing freedom in modernizing societies, they cannot escape from their traditional roles as mothers and wives and are thus relegated to being a “second sex”. Here, “otherness” has been emphasized as women’s inherent quality, which is hard to escape, as evidenced by their absence in urban city centers.

In recent decades however, the discourse allows for the possibility of changing women’s status from that of the “second sex”. Woolf (2008), for example, suggests that for women economic as well as spatial freedoms are forerunners of mental freedom which leads them to exercise choice. Being able to choose is the key to one’s freedom where one takes responsibility both for oneself and the world. Thus it is important that public spaces are used by women as much as men if women are to experience the mental freedom that will lead them to exercise choice, i.e. to choose to elevate themselves and to choose their own freedom.

Therefore, as designers we should question what we can do to ease, or even encourage, women’s spatial freedom to use public spaces. It has already been argued that architecture and town planning have been historically male-dominated professions and as a result, the vision of urban space that has emerged is homogenous and ungendered, as if men’s interests and needs were universal. However, one can argue that this approach is too limiting and misses the point that must be questioned: if urban public spaces are indeed masculine.

Within the space syntax theory, it has been argued (Hillier and Ida, 2005; Penn et al, 1998) that the geometric and topologic architecture of the urban grid is the most powerful shaper of urban movement patterns. It is further suggested that through its effect on movement flows, the architecture of the street network influences the evolution of land use patterns and consequently the whole pattern of life in the city (Hillier and Ida, 2005).

Accordingly, if the city centers are dominated by males, we need to question if the cities are formed in such a way that invites male users more than females, and if there are any factors related to gender that affect the generation of the street network in cities.

This study examined if there is any property of space itself that correlates

with the gender differences of its users within the context of Balıkesir city center. The findings suggest that there are no correlations between the spatial properties of urban spaces based on their visibility measures and pedestrian movement patterns. Given that the majority of users of this small Anatolian town are its residents, this finding suggests that for route-choice decisions, pedestrians utilize their prior knowledge and experience of the city center more than the visual information provided by the geometry of the space. This finding relates to a study by Conroy-Dalton (2003) that examined the significance of visual fields in observers' perception and decisions, albeit in virtual environments. Conroy-Dalton suggests that people attempt to follow as straight a route as possible with minimum angular deviation from a straight line on the condition that this choice always approximates the direction of their final destination. The findings of the current study corroborate that people will "follow their noses" even when the visual cues in the environment do not provide the necessary information and will try to keep their route as straight as possible by using their knowledge of the environment.

The only significant relationship between the spatial properties of Balıkesir city center and the movement patterns of different genders are found when the number of differences between male and female pedestrians was correlated with the visibility properties. The results suggested that women prefer to use visually integrated streets more when they use the center for leisure activities on weekend afternoons, while on weekday mornings they use local centers more. For males, the results indicated that on weekday afternoons they are using spaces that are more visually dominant providing them maximum visual control.

To conclude, the results of this study indicate the existence of some correlations between gender differences and the spatial properties of spaces within the context of Balıkesir City Center. The findings emphasized gender is an issue that is not just related to residential environments as the space syntax research has assumed. It would be important for future space syntax research to consider gender issues in urban areas as well.

Acknowledgements

The author would like to thank Özlem Özer in the preparation of Figures 8 and 9 and students of Balıkesir University Department of Architecture in helping with the collection of pedestrian data.

References

- Alkan, A. (2005) *Yerel Yönetimler ve Cinsiyet: Kadınların Kentte Görünmez Varlığı*, Dipnot Yayınları, Ankara (in Turkish).
- Batty, M. (2001) Exploring Isovist Fields: Space and Shape in Architectural and Urban Morphology, *Environment and Planning, B: Planning and Design*, Vol.28: 123-150.
- Beauvoir, S. (1993) *İkinci Cins* (trans. B. Onaran), Payel Yayınevi, İstanbul (in Turkish).
- Benedikt, M. (1979) To Take Hold of Space: Isovists and Isovist Fields, *Environment and Planning B: Planning and Design*, Vol.6: 47-65.
- Conroy Dalton, R. (2003) The Secret is to Follow Your Nose: Route Path Selection and Angularity, *Environment and Behavior*, Vol.35, No.1: 107-131.

- Çakır, S. (2008) Osmanlı'da Kadınların Mekanı, Sınırlar ve İhalaller, in A. Alkan (ed.), *Cins Cins Mekan*, Varlık Yayınları, İstanbul, pp.76-101 (in Turkish).
- Çelik, Z. (1999) New Approaches to the Non-Western City, *Journal of Society of Architectural Historians*, Vol.58, No.3: 374-381.
- Deutsch, S. (2000) *Women and the City: Gender Space and Power in Boston, 1870-1940*, Oxford University Press, New York.
- Farah, E. A., and B. Klarqvist (2001) Gender Zones in the Arab Muslim Houses, , in J. Peponis, J. Wineman and S. Bafna (eds.), *Proceedings of the 3rd International Space Syntax Symposium*, College of Architecture, Georgia Institute of Technology, Atlanta, USA, pp.42.1-42.15.
- Garcia-Ramon, M.D., A. Ortiz, and M. Prats (2004) Urban Planning, Gender and the Use of Public Space in a Peripheral Neighborhood of Barcelona, *Cities*, Vol.21, No.3: 215-223.
- Güney, Y.I., A. S. Kubat, O.Özer, and H. Uçar, (2009) A Syntactic Analysis of Recent Changes in CBD of Balıkesir, Turkey, in D. Koch, L. Marcus and J. Steen (eds.), *Proceedings of the 7th International Space Syntax Symposium*, School of Architecture and the Built Environment, KTH, Stockholm, Sweden.
- Güney, Y.I. (2008) Konutta Mekansal Organizasyon ve Toplumsal Cinsiyet: YirminciYüzyıl Ankara Apartmanları, in A. Alkan (ed.), *Cins Cins Mekan*, Varlık Yayınları, İstanbul, pp.102-135 (in Turkish).
- Güney, Y. I., and H. Uçar (2007) Küreselleşme Arada Kalan Kentler: Balıkesir Örneği, paper presented at the IAPS Conference, İstanbul.
- Güney, Y. I. (2007) Analyzing Visibility Structures in Turkish Domestic Spaces, , in A.S. Kubat, Y. Güney, O. Ertekin and E. Eyuboglu (eds.), *Proceedings of the 6th International Space Syntax Symposium*, Faculty of Architecture, İstanbul Technical University, İstanbul, Turkey.
- Hanson, J. (1998) *Decoding Homes and Houses*, Cambridge University Press, Cambridge.
- Hayden, D. (1982) *The Grand Domestic Revolution*, MIT Press, Cambridge, Mass.
- Hayden, D. (1997) *The Power of Place*, MIT Press, Mass., London.
- Hillier, B., and S. Iida (2005) Network and Psychological Effects in Urban Movement, in A.G. Cohn and D.M. Mark, (eds.), *Proceedings of Spatial Information Theory: International Conference, COSIT 2005*, Ellicottsville, N.Y., U.S.A., pp.475-490. Springer-Verlag: Berlin, Germany.
- Hillier, B. (2005) Between Social Physics and Phenomenology, in A. van Nes (ed.), *Proceedings of the 5th International Space Syntax Symposium*, TU Delft, Delft, The Netherlands.
- Hillier, B. (2007) *Space is the Machine: A Configurational Theory of Architecture*, Cambridge University Press, Cambridge.
- Hillier, B., and J. Hanson (1984) *The Social Logic of Space*, Cambridge University Press, Cambridge.
- Inceis, N. (2006) *Kentsel Kamusal Mekan Kullanımında Cinsiyet-GüvenlikEtkileşimi: Kadın İçin Mekanın Güvenliğinin Ankara Örneğinde İncelenmesi*, Masters Thesis, Gazi University, Graduate School of Sciences, Ankara (in Turkish).
- Kayasü, S. (2002) *Mimarlık ve Kadın Kimliği*, Boyut Yayınları, İstanbul (in Turkish).
- Kubat, A.S., Ö. Özer, and A. Özbil (2013) Defining a Strategical Framework For Urban Pedestrianization Projects: Assessment of Walkability in Three Urban Squares in İstanbul, in Y.O. Kim, H.T. Park and K.W.

- Seo, *Proceedings of the 9th International Space Syntax Symposium*, Sejong University, Seoul, Korea.
- Kubat, A.S., S. Rab, Y.I. Guney, O. Ozer, and S. Kaya (2012a) Application of Space Syntax in Developing a Regeneration Framework for Sharjah's Heritage Area, paper presented at the *8th International Space Syntax Symposium*, Pontificia Universidad Católica de Chile, Santiago, Chile.
- Kubat, A.S., Y.I. Guney, O. Ozer, and S. Kaya (2012b) Final Report of the research project titled "Application of Space Syntax in Developing a Research Framework for Sharjah's (UAE) Heritage Area", supported by the Emirates Foundation, UAE.
- Kubat, A.S., E. Eyüboğlu, and Ö. Ertekin (2007) A New Urban Planning Approach for the Regeneration of a Historical Area within Istanbul's Central Business District, *Journal of Urban Design*, Vol.12, No.2: 321-339.
- Kubat, A.S., Ö. Ertekin, E. Eyüboğlu, and Ö. Özer (2005) Movement Activity and Strategic Design Study for Istanbul's Historical Galata District, in A. van Nes (ed.), *Proceedings of the 5th International Space Syntax Symposium*, TU Delft, Delft, The Netherlands, pp.13-17.
- Kubat, A.S., E. Eyüboğlu, Ö. Ertekin, and Ö. Özer (2003) An Urban Redevelopment Proposal for Istanbul's Galata District, in J. Hanson (ed.), *Proceedings of the 4th International Space Syntax Symposium*, University College London, London, UK.
- Mackenzie, S. (1989) Women in the City, in R. Peet and N. Thrift (eds.), *New Models in Geography*, Unwin Hyman Ltd, London, pp.109-126.
- McDowell, L. (1983) Towards an Understanding of the Gender Division of Urban Space, *Environment and Planning D: Society and Space*, Vol.1, No.1: 59-72.
- Nes, A.v. (2009) Gender Differences in the Urban Environment: The Flaneur and Flaneuse of the 21st Century, in D. Koch, L. Marcus and J. Steen (eds.), *Proceedings of the 7th International Space Syntax Symposium*, School of Architecture and the Built Environment, KTH, Stockholm, Sweden.
- Özer, Ö. (2014) *Kentsel Mekanda Yaya Hareketleri: Morfoloji Ve Çevresel Algının Etkisi*, Unpublished PhD Dissertation, Istanbul Technical University, Graduate School of Sciences (in Turkish).
- Pardo, M., and J.M. Echaverren (2002) Transportation, Mobility and Women in Cities of Developed Countries, *The Encyclopedia of Life Support Systems*.
- Penn, A., B. Hillier, D. Banister, and J. Xu (1998) Configurational Modelling of Urban Movement Networks, *Environment and Planning B: Planning and Design*, Vol.25: 59-84.
- Secor, A.J. (2002) The Veil and Urban Space in Istanbul: Women's Dress, Mobility and Islamic Knowledge, *Gender, Place and Culture*, Vol.9, No.1: 5-22.
- Turner, A. (2003) Depthmap: A Program to Perform Visibility Graph Analysis, in J. Hanson (ed.), *Proceedings of the 4th International Space Syntax Symposium*, University College London, London, UK.
- Turner, A., D. O'Sullivan, and A. Penn (2001) From Isovists to Visibility Graphs, *Environment and Planning B*, Vol.28, No.1: 103-120.
- Woolf, V. (2001) *A Room of One's Own*. Broadview Press.
- Yılmaz, Z. (2006) *Kamusal Mekanların Gender Sistemik Yaklaşım Açısından Değerlendirilmesi*, Masters Thesis, Karadeniz Technical University, Graduate School of Sciences (in Turkish).

Appendix

The table below summarizes in various centers of Istanbul and in the city of Sharjah weekday and weekend total pedestrian counts based on different user groups and their percentages. The data has been taken from earlier studies (Kubat et al, 2003; Kubat et al, 2005; Kubat et al, 2007; Kubat et al 2012a; Kubat et al, 2012b; Özer, 2014; Nes, 2009).

GALATA	Men	%	Women	%	Youth	%	Elderly	%	Children	%	Total
Weekday	967110	59,68	168720	10,41	307320	18,96	144810	8,94	32640	2,01	1620600
Weekend	717870	56,39	114090	9,44	264030	21,85	79260	6,56	33390	2,76	1208640
BAKIRKOY	Men	%	Women	%	Youth	%	Elderly	%	Children	%	Total
Weekday	86832	33,50	78480	29,41	58080	21,63	35184	13,51	5568	1,95	522720
Weekend	84576	27,15	94128	28,21	92616	28,55	27456	8,57	24720	7,52	622272
KADIKOY	Men	%	Women	%	Youth	%	Elderly	%	Children	%	Total
Weekday	174600	40,53	124800	28,97	100320	23,29	27120	6,30	3960	0,92	430800
Weekend	201360	36,26	158904	28,61	162192	29,20	18888	3,40	14016	2,52	555360
BESIKTAS	Men	%	Women	%	Youth	%	Elderly	%	Children	%	Total
Weekday	89568	44,08	61464	30,25	34536	16,997	16032	7,89	1584	0,78	203184
Weekend	77592	38,81	57216	28,62	46968	23,493	11352	5,68	6792	3,40	199920
SHARJAH	Men	%	Women	%	Youth	%	Elderly	%	Children	%	Total
Weekday	107004	71,35	21396	14,27	4764	3,18	3864	2,58	12936	8,63	149964
Weekend	107448	74,59	19344	13,43	3612	2,51	3660	2,54	9984	6,93	144048
Friday	153732	78,87	18972	9,73	4932	2,53	3936	2,02	13356	6,85	194928

DUTCH CITIES

BREDA	Morning	Noon	Peak	Evening	DORDRECHT	Morning	Noon	Peak	Evening
Men %	61.5	52.9	60.4	61.9	Men %	61.8	47.0	46.3	54.7
Women &	38.5	47.1	39.6	38.1	Women &	38.2	53.0	53.7	45.3
MAASTRICHT	Morning	Noon	Peak	Evening	VLISSINGEN	Morning	Noon	Peak	Evening
Men %	44.8	46.0	49.1	51.9	Men %	53.3	52.9	58.1	73.3
Women &	55.2	54.0	50.9	48.1	Women &	46.7	47.1	41.9	26.7

Toplumsal cinsiyet ve kamusal mekan: Bir Anadolu kenti incelemesi

Kamusal mekânlar, tüm kentlilerin yararlandığı toplum yaşantısının en canlı olduğu mekânlar olarak tanımlanırlar. Herkese açık ve ulaşılır mekânlar olarak, insanların kamusal hayata katıldıkları çeşitli aktivitelerin düşünce, söylem ve eylemlerin üretildiği ve geliştirildiği ortak kamusal etkinlik alanlarıdır. Kullanıcılarının kültürel değerlerini yansıtan bu alanlar toplumsal kimliğin oluşumunda da etkilidirler. Son yıllarda, kamusal alan kavramı ve bu alanların nasıl kullanıldıkları antropoloji, sosyoloji, coğrafya, mimarlık ve şehir planlama gibi farklı disiplinler tarafından irdelenmeye başlandı. Bu çalışmalarda, kamusal mekânın nasıl kullanıldığı ve deneyimlendiğinin kullanıcıların yaş, cinsiyet ve toplumsal statü gibi demografik özelliklerine göre farklılaştığı tartışılan konulardan biri oldu.

Bu söylemlerde, toplumsal iş bölümünün yarattığı sosyal yapının izdüşümlerinin kent mekânlarının kullanımına yansıdığı ve eve para getirerek evin geçimini sağlayan erkeğin kamusal mekânları daha aktif olarak kullandığı, "anne ve eş" rolünü üstlenen ve öncelikle özel mekânlarla ilişkilendirilen kadınların ise bu mekânları kullanımlarının kısıtlı olduğu ifade edildi. Kamusal ve ekonomik alanları erkeklere, özel ve sosyal alanları kadınlara ait gören yaklaşımlar bölünmüş kent kavramını ortaya çıkardı. Cinsiyetçi açıdan ayrılmış kamusal-özel karşıtlığının modern kapitalist toplumların

temelinde olduğu ve kent tasarım ve planlama kararları ile güçlendirildiği etkin söylemlerden biri oldu.

Bu çalışmada, kamusal mekân kullanımında toplumsal cinsiyet farklılıkları mekân dizimi yaklaşımından faydalanılarak incelenecektir. Bu amaçla ilk olarak çalışma kapsamında örnekleme olarak ele alınan Balıkesir'in kentsel gelişimi tarihsel olarak kısaca sunulmuş, Ali Hikmet Paşa meydanı ile oluşan ve daha sonra Belediye, Hükümet ve İstasyon meydanları ile bütünleşerek kuzeydoğu ucundan çekilmiş bir dikdörtgen forma sahip olan kent merkezi tanıtılmıştır. Mekân dizimi yaklaşımına dayanarak oluşturulan metot, Balıkesir kent merkezinin mekânsal özelliklerini anlamamıza yardımcı olan görünebilirlik analizleri ile bu merkezdeki yaya hareketliliğini anlamamıza yardımcı olması için merkezde seçilen konumlarda gerçekleştirilen yaya sayımlarını içermektedir. Görünebilirlik analizleri için Depthmap programı kullanılmış ve kent merkezinin görsel bütünleşme (integration), görselbirleşiklilik (connectivity), görsel kontrol ve gruplaşma (clusteringcoefficient) değerleri elde edilmiştir. Kent merkezinde 82 farklı konumdaerkek, kadın, genç, yaşlı ve çocuk olmak üzere beş farklı kullanıcı için, altı farklı zaman diliminde beşer dakikalık süreler ile hafta içi (Çarşamba) ve hafta sonu (Cumartesi) olmak üzere yaya sayımları gerçekleştirilmiştir. Bu iki metot kullanılarak elde edilen veriler arasında olası etkileşimler istatistiksel metotlar kullanılarak araştırılmıştır.

Çalışma sonucunda, Balıkesir kent merkezinde incelenen tüm zaman aralıklarında erkek kullanıcıların kadın kullanıcılarından daha çok olduğu ve hatta kadın kullanıcı yoğunluğunun genç kullanıcı yoğunluğundan bile daha az olduğugözlenmiştir. Çalışmanın önemli bulgularından biri, kent merkezinde görsel bütünleşme değerlerinin en yüksek olduğu sokaklar ile yaya yoğunluğu en yüksek olan sokaklar arasında istatistiksel olarak bir etkileşimin var olmadığını bulmasıdır. Balıkesir kent merkezini kullanan yayaların daha çok yerli halk olduğu düşünüldüğünde, bu bulgunun cinsiyet farkı gözetmeksizin tüm yayaların kent merkezindeki rota seçimlerinde mekâna ait görsel verilerle değil kent merkezine dair kendi deneyimlerine dayalı bilgilerle hareket ettiklerini öne sürmek mümkündür.

Ancak, erkek yaya sayısı ile kadın yaya sayısı arasındaki fark bir veri olarak ele alınıp merkezin görsel verileriyle istatistiksel olarak karşılaştırıldığında, kent merkezlerinin kullanımında toplumsal cinsiyet bağlamında bazı farklılıklar olduğunu gözlenmiştir. Analiz sonuçlarına dayanarak, kadınların kent merkezlerini hafta sonu öğleden sonraları kullanırken daha çok görsel verilere dayalı hareket ettiklerinden, hafta içinde sabahları ise daha çok yerel merkezleri kullandıklarından bahsetmek mümkündür. Erkek kullanıcılar ise hafta içi öğleden sonraları daha çok görsel kontrolü en yüksek olan mekânlarda yoğunlaşmaktadırlar.

Sonuç olarak, kamusal mekân kullanımında toplumsal cinsiyet açısından bazı farklılıklar bulunduğunu gösteren bu çalışma toplumsal cinsiyet olgusunu daha çok eve ait mekanlarla ilişkilendirmiş olan mekan dizimi yaklaşımının gelecekte bu konuya önem vermesi gerektiği vurgulanmıştır.