ICONARP
International Journal of Architecture and Planning
Received: 11.05.2021 Accepted: 07.07.2021
Volume 9, Issue 2/ Published: 21.12.2021
DOI: 10.15320/ICONARP.2021.185 E- ISSN:2147-380

Research Article

ICONARP

Evaluation of Crime Prevention Theories through Environmental Design in Urban Renewal: A Case Study of Ankara- The Vicinity of Hacı Bayram Mosque

Erman Aksoy

Res. Assis. Dr., Faculty of Architecture, Gazi University, Ankara, Turkey, Email: eaksoy@gazi.edu.tr

Abstract

Purpose

The aim of this study is to obtain novel results in current conditions by evaluating the built environment with Crime Prevention through Environmental Design (CPTED) principles, in the prevention of crime in urban space.

Design/Methodology/Approach

The methods of this study; identification of CPTED theories, principles and implementation tools and CPTED principles are evaluated on a particular space due to the fact that the relationship between crime and space varies according to place-specific factors. Therefore, the vicinity of the Hacı Bayram Mosque was determined as the case study area and the physical-spatial characteristics of this area, which is a part of the historical, cultural, religious and tourism centre of the city of Ankara, were defined. Then, the transformation process of the area into a focus of crime and the crime data of 2009-2010 were evaluated with Crime Intensity Analysis to determine the crime types, rates and space-time relationship. It was evaluated whether crime data and CPTED principles were taken into account in the built environment created by the implementation of the 2010 urban design project in the renewal process of the case study area. Finally, with the inferences obtained for the development of CPTED principles and implementation tools, suggestions for the built environment in the study area were developed.

Findings

CPTED principles applied in urban design projects should be developed with factors such as time-space interaction in the built environment, change of crime types. Values to be preserved in cultural heritage sites and areas adjacent to sacred sites are not obstacles to the implementation of CPTED.

Research Limitations/Implications

The lack of crime data for the area after 2010 is the most important limitation of this study.

Social/Practical Implications

The methods and results of this study will contribute to the creation of safe urban spaces and to the planning literature and practices.

Originality/Value

It has been determined that the effectiveness in the time-space relationship, of the CPTED principles adopted in urban design projects, may decrease after the implementation.

Keywords: *Crime, security, crime prevention through environmental design, the vicinity of Hacı Bayram Mosque, the city of Ankara*

INTRODUCTION

Security is one of the conditions of a sustainable city (Spadaro & Pirlone, 2021, p.1). Currently, global urban spaces where traditional and local values are denied appear (Papps & Winkelmann, 2000, p.54). The economic crisis especially during the Covid-19 pandemic, has made security a vital phenomenon by accelerating economic problems and criminal tendencies. According to basic economic models regarding crime (Dursun *et al*, 2011, p.127); unemployment, which is one of the most prominent macroeconomic variables affecting crime, is parallel to the increase in crime rates. (Witte & Tauchen, 1994; Yıldız, *et al*, 2010, p.16; Terande & Clement, 2014, p.131). Unemployment creates a foundation for crime in social, moral and religious means (Dolu, 2015). Therefore, the relationship between crime and the place where it's committed, should be revaluated with precautions against crime (Eck & Weisburg, 1995, p.4-7). This is one of the important spatial policies not only for the creation of new urban spaces but also for the urban renewal processes focused on the sustainability of historical and cultural heritage areas that have turned into ruins (Çöteli, 2016, p.553). The theories and principles of Crime Prevention through Environmental Design (CPTED), which is a strategy to prevent crime in urban areas, must be taken as a basis on these processes. In this article, the study area of Hacı Bayram Mosque, which is one of the historical, cultural and sacred places of the city of Ankara, has been selected, taking into account the spatial variability of crime. The renewal process has started with the transformation of this area into a crime centre in the 1990s. The built environment created by the implementation of this project together with the urban design project made specific for its renewal is analysed according to CPTED principles. Thus, the aim of this study is to examine the effectiveness of CPTED in the process of preventing and reducing crime in urban spaces.

CONCEPTUAL FRAMEWORK

Prevention of crime in the city, minimizing the fear of crime and criminal incidents are the most principal and effective components of creating sustainable urban spaces. Determining the interaction between the location of crime and the types of crime is a precondition to preventing crime. Information about crime and relevant tendencies associated with space are obtained through crime maps. Crime geography studies show that crime and violence vary in different parts of the city according to socio-cultural, economic and built environment characteristics (Göppinger, 1971). Generally, areas where crime rates are high and continuous are located in commercial, administrative and religious centres where the population density of the city is high and human mobility is constant (Ataç, 2007, p.18). These places where crime is focused are defined as "hot spots". These hot spots can be explained under three types: "crime generators" (shopping and entertainment centres, office gathering areas, stadiums and the like.), "crime attractors"

DOI: 10.15320/ICONARP.2021.185

(unsafe parks, transit corridors, lost areas and the like) and "facilitate the occurrence of crime" (shopping malls, squares and the like) (Ataç, 2007, p.18; Brantingham, & Brantingham, 1995, p.10). In these regions where crime rates are high, physical, functional, spatial collapse and social transformation and/or the disintegration of social structure are generally observed. These regions gradually turn into crime centres and spread crime and the fear of crime starting from their immediate surroundings. This situation changes depending on the local social balances and the ability of the built environment to prevent crime. Hence, the types and rate of crime specific to the space gains importance in the physical restructuring of urban space in preventing crime. Among the priorities of urban planning CPTED is today's most common implementation tool (Crowe, 2000, p.46).

CPTED Theories

The CPTED theory has been on the agenda since the mid-20th century (Lynch, 1960; Jacobs, 1961; Angel, 1968; Newman, 1972; Jeffery, 1977; Gardiner, 1978; Poyner, 1983; Coleman, 1985). Newman (1973), one of the pioneers of this theory, defines the "Defensible Space" and states that "making the residential areas of cities liveable and controllable by reconstructing them can only be done by a community sharing a common space, not by the police." In other words, in order for the urban space to be defensible, citizens must be able to watch after each other, own the place where they live, and take an active role in ensuring security by communicating with each other and with the police forces when there is a security problem. CPTED, which aims to prevent crime, defines design strategies based on the space where crime is committed rather than the criminal. Thus, human labour, equipment and operating costs are also reduced in crime prevention (Brantingham & Brantingham 1981; Cozens 2008; Cozens *et al,* 2005). However, with this theory's emergence, a series of criticisms related to the crime space have also been developed (Adams, 1973; Hillier, 1973; Kaplan, 1973; Bottoms, 1974; Mawby, 1977; Mayhew, 1979; Booth, 1981; Poyner, 1983). With such criticism, the 2nd generation CPTED theory was developed with improvements to the 1st generation (traditional) CPTED theory. This theory predicts that crime can be prevented by creating friendship between individuals and community spirit (Saville & Cleveland, 1999). This content was developed by practitioners and policymakers and expanded with social and economic factors alongside physical improvement (Cozens *et al*, 2001). Throughout the process, risk assessments, socio-economic profiling (Saville, 1996; Plaster Carter, 2002), and active community participation have been added to this context (Sarkissian & Perglut, 1994; Sarkissian & Walsh, 1994; Saville, 1995; Sarkissian *et al,* 1997).

With the 2nd generation CPTED, it is claimed that crime is deterred by optimizing surveillance opportunities, clearly defining physical space boundaries and creating a safe "image" through urban design and

administration (Cozens & Love, 2015). This theory is based on the fact that criminals have a higher potential to be caught when they are under constant and careful observation by law-abiding citizens. Thus, CPTED is thought to be more effective in developing more practical and long-term solutions (Geason & Wilson, 1990; Saville & Cleveland, 1999).

As a result of research on how citizens react to crime and security in the urban space (Leclerc & Wortley 2014; Gajos *et al,* 2016; Gilderbloom 2016), 3rd generation CPTED has been developed with the evolving synthesis of the interaction between space and crime. The development of the "dream of a sustainable, green city" as an urban design strategy has also been a theoretical bridge in conceptualizing and operationalizing the 3rd Generation CPTED. Thus, this theory has been strengthened along with the principles of the first two generations. (Cozens, 2016; Fennelly & Marianna, 2018).

In summary, 1st generation CPTED, developed in the 70s, had a great impact on criminology with a situational approach to reducing crime. Later, during the early 2000s, the 2nd generation CPTED combined the social structure and its actors in society as the key to both crime reduction and community harmonization. In 3rd generation CPTED, user satisfaction has also been accepted as the component that reinforces security. (Mihinjac & Saville, 2019, p.6; Arabi *et al*, 2020). In this study, in the prevention of crime in the city, all CPTED theories and practice principles, tools and success are evaluated with the principle of spatial variability.

Principals and Implementation Tools of the CPTED

Newman's (1973) basic principles of space design at CPTED are Surveillance, Access Control to Space, Maintenance, Territoriality and Activity Support.

Surveillance*:* Natural surveillance facilities include any action that increases residents' chances of observing others (Lab, 2000). These actions can be developed by Natural, Organized and Mechanical Surveillance methods (Wekerle & Whitzman, 1995; Crowe, 2000).

Informal/Natural Surveillance: The ability of an individual to observe the environment where they live and feel that they are observed increases the feeling of security and decreases an individual's fear of being affected crime. Thus, residents can recognize each other and distinguish between strangers or potential criminals. This can be achieved by design principles that allow frequent encounters in urban spaces, such as common and street entrances, lighting systems, obstructive landscape elements, and transparency of the area (Jeffery, 1971; Newman, 1973). In addition, windows facing squares, doors opening to the street on the ground floor, shop windows and similar transparent facades deter criminals in the urban space. In Jane Jacobs's work titled "The Death and Life of Great American Cities", published in 1961, the concept of "Eyes on the Street" is explained in which people watching the outside from inside

DOI: 10.15320/ICONARP.2021.185

of a building ensure that people outside the building feel safe (Jacobs, 1961).

Formal/Organized Surveillance: It is the participation of individuals employed by an institution, such as security guards, police patrols and guards, in natural surveillance activities with lawful limits. Organized surveillance, when supported by local stakeholders such as merchants, can be a very powerful type of surveillance. Merchants can play a crucial role in reporting possible criminal activities and suspicious behaviour to the police (Kubilay, 2009).

Mechanical Surveillance: It is a type of surveillance supported by mechanical and physical systems such as Closed-Circuit Television (CCTV) and appropriate lighting. CCTV is a highly effective tool in reducing crime and improving the sense of security (Lab, 2000). Lighting systems that are widely used in mechanical surveillance are effective in increasing the duration of natural surveillance.

Access Control: It is the ability to control incomers and outgoers' access to restrict and block access to venues and illegitimate users. This is considered as "set of measures" that show criminals that the risk is high and force the target (Lab, 2000). These measures can be explained by design principles and elements such as defining the difference between public and private spaces, reducing the number of entrances and escape routes, using unbreakable glass, using fences and walls surrounding the area, and preventing access to roofs.

Territoriality: Sense of belonging increases the motivation of users to claim rights in the field by enabling them to own the space (Newman, 1973). With spatial design that will create a sense of belonging, individuals' control of the space they feel that belongs to them will lead to less crime being committed (Armitage, 2014). Thus, the potential criminal will immediately perceive this new spatial effect and avoid taking risks (Gündüzöz, 2016, p.359).

Maintenance and Operation: Continuous care, belonging and constant nuse in urban spaces is the most effective tool in crime prevention. When these tools are underestimated, especially in the public space, the space becomes outdated and becomes the place of residence of unwanted persons and/or potential criminals. Thus, whether intentional or not, unrepaired damage will result in misuse of space, which will increase the tendency to crime (Wilson & Kelling, 1982; Sarkissian Associates Planners, 2002).

Activity support*:* Activities that encourage pedestrian use in urban spaces prevent and reduce crime. In the urban space, existing or planned activities, pedestrian flow, space permeability and transparency will enable the space to be lively and dynamic, while also allowing surveillance. As a result, the activities will be a deterrent to criminal acts while increasing the community value of the space. Therefore, spatial design that enables social activities will increase security (Wilson & Kelling, 1982).

METHOD AND IMPLEMENTATION APPROACH

The five consecutive phases of this study are described below. Firstly, in the first phase, the CPTED theories and principles focused on spatial arrangement were determined by a literature review. Secondly, due to the fact that the relationship between crime and space varies according to the specific conditions of the place, the environment of Hacı Bayram Mosque was determined as the study area, and the built environment was defined. Then, the process of transformation of the study area into a crime focus and data (crime regions, types and rates, space-time relationship) gathered from police stations in 2009-2010 were evaluated with Crime Intensity Analysis (Kernel Analysis) and crime intensive -hot spots- were determined (Figure 4). Thus, physical, functional, spatial slum, social transformation, disintegration and dissolution of the social structure are defined as a hot spot in the study area. As a result, the crime generator and crime attractor character of the area has been analysed. Fourthly, the built environment created by the implementation of the urban design project during the process of renovation of the area was examined critically to determine whether it is in accord with CPTED principles in preventing and reducing crime. The implementation of this project was examined in a holistic approach, both individually and according to their interaction with each other, according to the principles of CPTED and design principles. Finally, with the CPTED, suggestions have been developed with the inferences obtained for the development of these principles and implementation tools.

In this study, the socio-cultural and economic structure change has been given importance in the limited framework of this article with its dimension reflected on urban space.

THE CRIME EVENTS AROUND HACI BAYRAM MOSQUE AND ITS VICINITY BEFORE RENOVATION

The study area is located in the vicinity of Hacı Bayram Mosque, in the historical city center of Ankara, in the Hacı Bayram District, on the hill that has been considered sacred since the founding of the city, between Hükümet Street and Hacı Bayram Veli Street. The study area is an area of 13 hectares in the north-west of Ulus Square, where the main transportation arteries of the city (Atatürk Boulevard-Çankırı Street and Hisar Park-Anafartalar Avenues) intersect. In this area, there are Hacı Bayram Mosque and Shrine and Temple of Augustus and Rome, retail trade and gastronomy units and foundation buildings surrounding the square and square in the south (Figure 5-6). There is Ahi Yakup Mosque in the northeast of the area and Ahi Tuna Mosque in the south. It is within walking distance to many public institutions (1st and 2nd Assembly Buildings, Ankara Governor's Office, Ankara Revenue Office, Customs Undersecretariat) and commercial buildings (Anafartalar Commercial Complex, City Bazaar).

DOI: 10.15320/ICONARP.2021.185

The Urban Position and Importance in the Historical Process

The ancient core of the city of Ankara (Ancyra) is a military garrison located within the castle dated to the Hittite period (15th-12th centuries BC). In the Phrygian period (8th-3rd century BC), the city was established on a hill (930 m.) located to the northwest of the castle. On this hill which is named to be a sacret place, it is thought that the temple attributed to Kybele, the mother goddess of the Phrygians, was renovated in the name of Men the Moon God. With the domination of the Romans (25 BC) and the city becoming the capital of Galatia (Asian Minor), a new temple was built on the ruins of this temple and dedicated to the founder of the Roman Empire and the first Augustus emperor, Julius Caesar Octavian (64 BC - 14 AD). In the middle of the 4th century, when the Byzantine regime converted pagan temples into churchs, the The Augustus Temple was converted into a church in 362. At the beginning of the 15th century, adjoining to the north-west wall of the temple, a mosque was built in 1428 in the name of Hacı Bayram Veli, who founded Ankara-based Bayramiye cult in 1412 as the first local Sufism school of the Ottomans, and his tomb in 1430 (Kara, 1990, p.280; Bayramoğlu, 1989, p.11). From this date forward, the sacred hill began to be known as Hacı Bayram District.

Since the Ottoman Empire (1356-1923), the religious centre function of Hacı Bayram District with its residential and commercial areas developed due to its proximity to the city centre and administrative centre. In the 1960s, multi-storey buildings contradictory to the urban texture around the Hacı Bayram Mosque, were started to be built with the Regional Floor Plan. Nevertheless, the historical texture was preserved in the Hacı Bayram district and around the Ulus square until 1990 (Figure 1). Since 1990, the judiciary has continuously cancelled the conservation and renewal plans for the Ankara-Ulus Historical City Centreof 2000, 2007 and 2010, which includes the Hacı Bayram District. During the period when these plans were in effect, some renovation work was carried out around the Hacı Bayram Mosque.

1924 **1930s** **1950s** **1982**

Figure 1. Hacı Bayram Mosque and Its Vicinity (Kültür Varlıkları ve Müzeler Genel Müdürlüğü Fotoğraf Arşivi, 2016)

According to the Ulus Historical City Center Conservation Improvement Development Plan, a huge square was built in the place of 44 demolished historical residential buildings in front of the Hacı Bayram Mosque and Augutus Temple in 1990. An extensive second regulation was initiated by the declaration that Ankara Historical City Center as a “renovation site,”

in line with the Council of Ministers' decree, dated 08.08.2005 and numbered 2005/9289, within the framework of Renovation Law dated 2004 and numbered 5366. In 2006, within the conservation development plan pertaining to the renovation site, it was decided that the mosque would be enlarged, the square would be re-organized, and new non-residential buildings would be implemented (covering 51% of the area) around the square where demolished buildings used to stand. From 2006 to 2011, projects regarding single construction scale, street reclamation, and those relating to public spaces were partially applied. Including 254 buildings, these applications changed the physical and social structure of the historical city center at an unprecedented scale.

The fact that, at the sacred hill, two shrines of different beliefs stands adjacent represents the multicultural structure of the city of Ankara (Figure 2). As such, remains of the Augustus Temple and the Hacı Bayram Mosque and tomb were registered as immovable cultural assets in 1972, and in 2008, these shrines, along with the historical residential texture surrounding them, were registered as protected urban areas. Moreover, Hacı Bayram Mosque and Augustus Temple were included in the World Temporary Cultural Heritage List in 2016 (Gültekin & Canbolat, 2019, p.259).

Figure 2. Hacı Bayram Veli Mosque and the Temple Augustus

The Transformation of the Area into a Crime Center

Along with the historical trade center that became dilapidated due to migration to the new (modern) city established by the modernity project of the Republic and migration from the country into the city in the 1950s, this area underwent economic, social, and physical deposition causing an increase in incidents of crime. Until the renovation and restoration work initiated in 2004, this area transformed into a crime center – not used on days other than those sacred for Muslims. This is verified by the fact that the area of the Hacı Bayram Mosque and its vicinity was identified as one of the five subareas with high crime density based on the crime data, from the years 2009-2010, of Anafartalar and Demirfırka Police Stations assigned to the area (Figure 3, B Subarea).

According to 2009-2010 crime data, intensive human mobility arising from easy access to the area and inadequacy of pedestrian spaces have facilitated crime in Area B (Hacı Bayram Mosque and its Vicinity). That the area is not utilized at night and becomes deserted and that spaces like

DOI: 10.15320/ICONARP.2021.185

coffee houses and alehouses bordering the area are populated by the unemployed and the homeless have created a crime attractor. Buildings vacated in 2009 for renovation that have not yet been demolished have provided criminals the opportunity to escape and hide (crime generator).

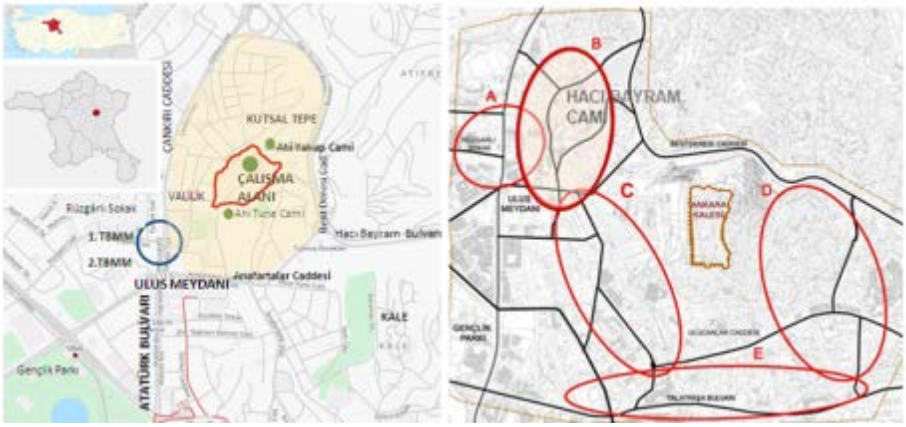

Figure 3. The Urban Location of the Hacı Bayram Mosque's and Ankara Historical City Center – Areas with High Crime Density – 2010

Types of Crime

The relationship between street-based crime data, pertaining to the years 2009-2010 obtained from police stations, and the space has been determined through Kernel Analysis. It has been observed that, in the area under scrutiny, crime types, such as pickpocketing, fraud, damage to property, burglary of commercial spaces and places of business, harassment, threat and insult, and injure, were high in density (Figure 4).

Figure 4. The Synthesis of Criminal Events in the Study Area (Intense Crime Areas) (Prepared according to the crime map data (Aksoy 2011))

Temporal Distribution of Crime Incidents

On Wednesdays, Fridays, and Saturdays, incidents of harassment injure, and pickpocketing have been frequent on Çankırı Avenue where places of entertainment are located; on Saturdays and Sundays, incidents of

pickpocketing, burglary, and fraud have been frequent on Rüzgarlı Street which is the center for construction supplies sale. On week days, incidents of pickpocketing, harassment, and burglary have increased on main transportation routes where trade units are located. Due to the fact that this area is heavily used on Fridays, for Friday prayers, human mobility increases on Fridays as well as when funerals are held. This has transformed this area into a location of crime attractor and crime generator (Table 1).

Table 1. The Distribution of Crime Types According to Days of the Week (Aksoy, 2011)

Types of Crime	Day							Total
	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	
Injure	2,2%	3,1%	3,2%	3,1%	3,6%	1,8%	1,6%	18,5%
Pickpocketing	2,0%	1,1%	0,7%	3,1%	2,7%	1,3%	1,4%	12,2%
Arson	0,4%	-	-	0,2%	-	-	0,4%	0,9%
Threat	1,6%	1,6%	0,7%	1,4%	1,3%	0,5%	1,3%	8,5%
Harassment	1,3%	0,9%	0,2%	0,9%	0,2%	0,5%	0,5%	4,5%
Auto Burglary	0,5%	1,6%	1,8%	0,7%	1,1%	0,7%	0,7%	7,2%
Auto Theft	0,2%	0,2%	0,5%	0,4%	0,7%	0,5%	0,7%	3,2%
Damage to Property	0,5%	0,5%	0,5%	-	0,9%	0,7%	0,4%	3,6%
Gambling	0,2%	-	0,4%	0,2%	0,0%	-	-	0,7%
Insulting Officers on Duty	0,2%	0,4%	0,2%	0,2%	0,7%	-	0,4%	2,0%
Prostitution	0,4%	0,2%	-	-	0,2%	0,2%	0,4%	1,3%
Home Burglary	0,2%	0,5%	0,4%	0,4%	0,5%	-	-	2,0%
Fraud	2,0%	1,3%	1,1%	1,1%	1,6%	2,2%	0,5%	9,7%
Other Crimes	2,0%	1,3%	2,3%	0,7%	1,6%	1,8%	2,0%	11,7%
Business Place Burglary	1,6%	1,6%	2,5%	2,9%	1,8%	2,5%	1,1%	14,0%
Total	15,1%	14,2%	14,6%	15,1%	16,9%	12,8%	11,3%	100,0%

It has also been determined that, in the vicinity of the Hacı Bayram Mosque, unresolved crimes (at a 57% rate) are high, and frequent after 21:00.

THE EVALUATION OF THE BUILT ENVIRONMENT IN THE VICINITY OF THE HACI BAYRAM MOSQUE ACCORDING TO CPTED PRINCIPLES

In line with the Conservation and Renovation Urban Design Project for the Hacı Bayram Mosque and Its Vicinity, dated 2010, the current built environment in the area under scrutiny consists of the mosque, the square that provides opportunities for worship, trade and social life around the shrine, and new or renewed buildings of different functions surrounding the square. When the area is evaluated according to CPTED's basic principles of spatial design;

DOI: 10.15320/ICONARP.2021.185

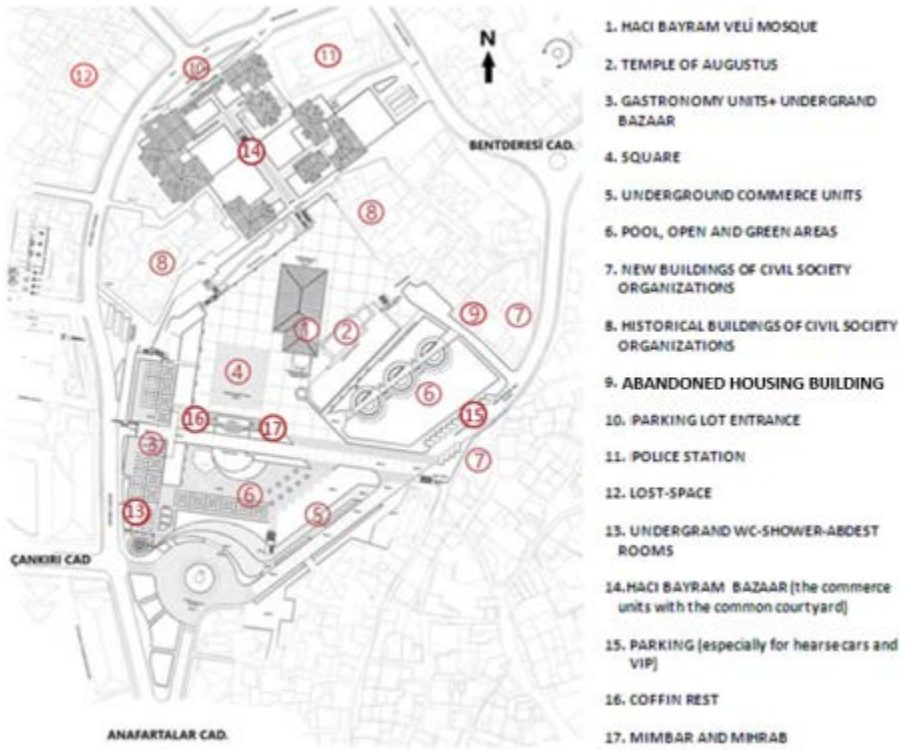

Figure 5. Renovation Urban Design Project of Hacı Bayram Mosque and Its Vicinity

Figure 6. Hacı Bayram Mosque and Its Vicinity

Surveillance

For the purpose of increasing the image value of the Mosque and the Temple, the square in the area is paved with firm ground and is transparent (Figure 5, 6, No. 4). As such, it facilitates the comfortable use and surveillance of Muslims' worship and religious rituals, and visitors of the Augustus Temple. There exists a pool and limited green space behind seating units (Figure 5, 6, No. 6). No planting that would obstruct surveillance or create hidden corners has been applied. Seating units in the area are at a level that would not be hampered by the height of the plants or the lower branches of the trees (Figure 7-a). However, the tight bushes and trees provide opportunities for hiding and block lighting, thereby contradicting with CPTED principles (Figure 7-b, c). It is

necessary that bushes and trees with wide crowns be regularly trimmed in such a way that they would not hinder surveillance.

Figure 7a. Seating Units

Figure 7b-c. Bushes and Trees

Natural Surveillance: The fact that windows, storefronts and doors of new (Figure 5, No. 7) and traditional (Figure 5, No. 8) buildings with retail commerce and gastronomy function or those utilized by non-governmental organizations open to the square or courtyards expedites surveillance (Figure 8-a). That seating units confining the square face the square (Figure 8-a, b) increases surveillance.

Figure 8a. Gastronomy Units

Figure 8b. Seating Units and the Square

The un-built, undefined area and/or lost space adjacent to the area creates a security risk. This 2-hectare-space, between Hükümet Avenue, surrounding the area in the northwest and Telgraf Street, running parallel to this Avenue, and Bostancılar Street in the north, is bordered by

DOI: 10.15320/ICONARP.2021.185

high walls (Figure 5, No. 12). Devoid of esthetics and forming mass effect, these walls obstruct surveillance, thereby triggering the fear of crime and providing criminals with an opportunity to hide as a crime generator. Due to the lack of supervision and surveillance at times when this space is used for parking, it provides the basis for crime as a crime attractor (Figure 9).

Figure 9. A View of the Un-Built Space from the East and the North

That there is only one building in use within the space (Figure 5, No. 9) and that all other buildings are well-kept and new increases the sense of security. Yet that this abandoned building is surrounded by high walls provides incentive for crime. Detailed conversations held with shopkeepers and visitors in the area have revealed that this desolate building provides grounds for drug use and sexual harassment. Vaulted entrances and underground commerce units (Figure 5, No. 3, 5) and wet volumes (Figure 5, No. 13), all distanced from security cameras and lighting elements, are also defined as spaces enabling crime (Figure 10).

Figure 10. Vaulted Entrances, Stores Opening to Vaulted Arcades, and Wet Volumes

Surveillance is provided by the underground parking lot exit (Figure 11) directly opening up to the Hacı Bayram Market (Commerce Units) courtyard and the glass walls around this space (Figure 5, No. 11; Figure 10). Architectural elements located in front of the gastronomy units opening to the square and seating units that refine the difference of public space, and their heights at eye-level ease natural surveillance (Figure 12).

Figure 11. Underground Parking Lot Exit

Figure 12. Gastronomy Unit Seating and Separating Elements

Formal/Organized Surveillance: The area is supervised by private security personnel during the day and by watchmen at night. Closed-circuit security cameras with angles overseeing the area are located on lighting elements (Figure 13). These camera systems are also utilized during the pandemic to identify those who break the rules. Moreover, the (New) Anafartalar Şehit Kamil Arslan Police Station northwest of the area that came into service in 2013 provides supervision and surveillance (Figure 5, No. 11).

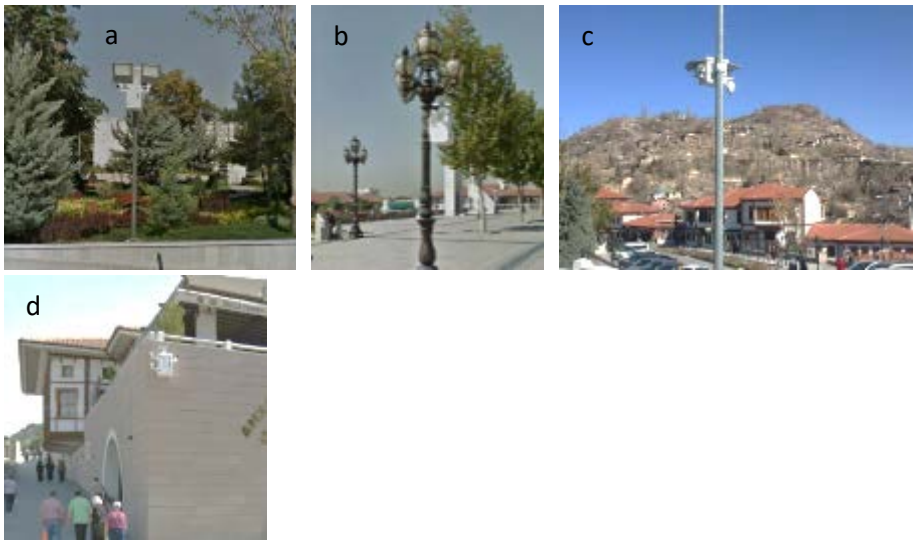

Figure 13. Closed-Circuit Security Camera System and Lighting Elements

Mechanical Surveillance (lighting): It is known that crime and the inclination to commit crime is prevented through lighting in urban space (Jeffery, 1977; Newman, 1973). The ease with which spaces open to public are used at night decreases the fear of being exposed to crime. Hence the level of lighting increases the sense of security. For this reason, the type of each lighting element (LE) in the area has been identified. The LEs in the area are, 1- lamp posts (Figure 13-a), 2- decorative LEs (Figure 13-b), 3- LEs on building facades (Figure 13-d), and 4- LEs within landscaping. When these LEs are evaluated according to their light quality and light level, the light level of lamp posts of 3 to 5 meters of height is 15 meters. Nonetheless their forms and positions do not provide maximum lighting (Figure 14-a). Decorative LEs have low lighting quality as they have yellow light color and cast light at 360 degrees for approximately 5 meters (Figure 14-b). The level of lighting for LEs on building facades is 7.5 meters, and they adequately illuminate the square and the pedestrian spaces (Figure 14-c, Figure 15). These LEs not only

DOI: 10.15320/ICONARP.2021.185

increase the recognition and night-time visibility of the area but also create a secure environment. Lighting elements within landscaping do not serve this purpose as they are situated on the ground and illuminate a space of approximately 1.5-2 m^2.

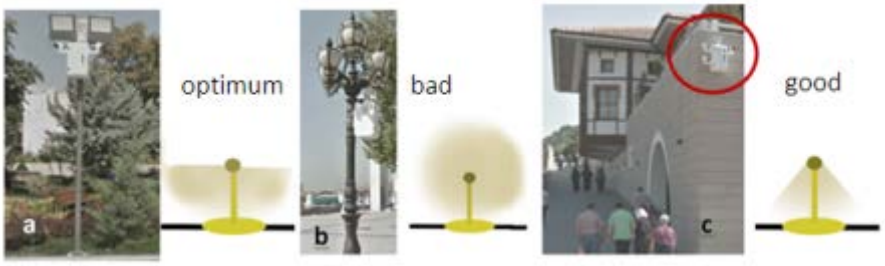

Figure 14. The Light Quality and Lighting Level of Lighting Elements in the Area

Furthermore, the telecommunication tower in the area functions at the same time as a lighting element, illuminating a wide section with white light (Figure 13-c, Figure 16). Yet the lighting quality of the tower is reduced as it is located next to the green area with trees and bushes. This leads to insecurity in the green area.

Figure 15. Facade Lighting-Hacı Bayram Mosque

Figure 16. Telecommunication Tower

The level of lighting in an area depends on the number of lamps and light quality. Hence every one of the lighting elements in the area has been marked on the map, and whether the lighting in the area is adequate has been identified through photographs taken at night. As can be seen in Figure 17, sections in which non-governmental organization and foundation buildings are located (Figure 5, 6, No. 7, 8) and vaulted arcades and outdoor parking lots (Figure 10) are not directly illuminated, and are therefore, relatively, dark. Shopkeepers and users also complain about this situation.

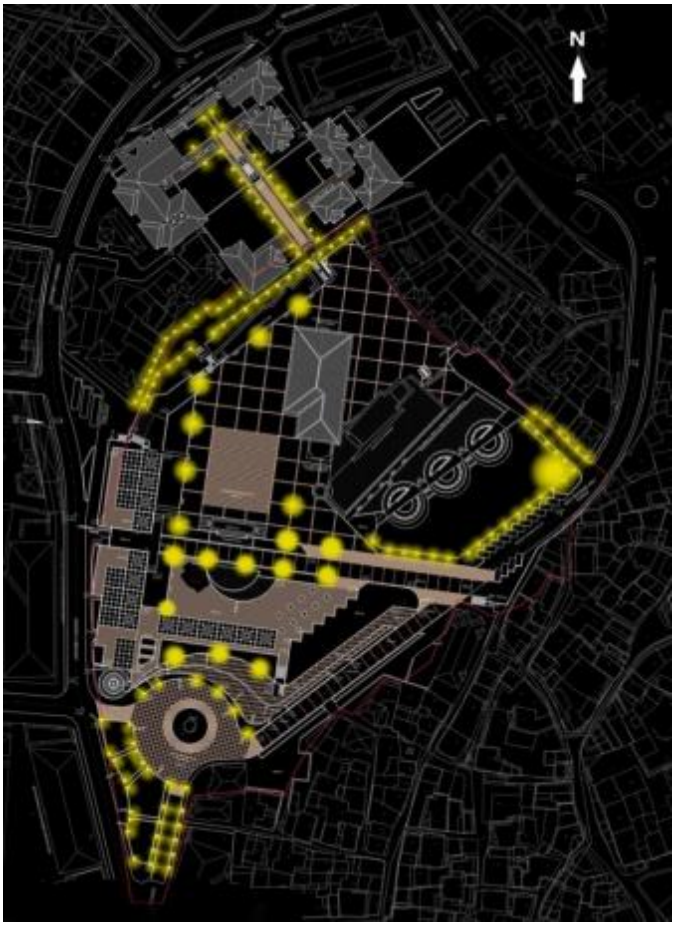

Figure 17. Analysis of Night-Time Lighting

Access Control

Complicating Goals: In the area under scrutiny, pedestrian entrance is provided through Bentderesi Avenue in the north, Anafartalar Avenue in the south, and Hürriyet Street in the west. Entrance of cars is through Hürriyet Street via Bentderesi Avenue and ends at the underground parking lot (Figure 5, 6). In addition, there are two outdoor parking lots in the area (Figure 5, 6). These multiple entrances and high accessibility have complicated providing security. Furthermore, as a precaution to complicating the target against crime, that only some windows at the ground level have iron bars (Figure 18-a) and that there are no security measures at doors (Figure 18-b, c) provide a medium for crime (Figure 18-a). In most of the buildings, no crime-preventing elements on windows or doors has been detected (Figure 18-b, c).

Figure 18. Building Entrances and Windows

DOI: 10.15320/ICONARP.2021.185

Addresses and Numbering: There exist adequate signs and markings indicating street names and building numbers in the area. While this provides spatial orientation, it also eases supervision.

Territoriality

As an urban design principle, the sense of belonging that influences human behavior enhances ownership of the environment and use of public spaces with ease, thereby bettering natural surveillance and supporting security (Wekerle & Whitzman, 1995). Sacred for Muslims, Hacı Bayram Mosque and Tomb are places that constitute the sense of belonging in the area under scrutiny. Despite the fact that worship and religious rituals emotionally prevent crime, the crowded environment provides opportunities for crime. The clustering of various urban functions (commerce, gastronomy, and the like) the floor covering, and the defining of urban spaces by lighting elements and plant materials form risks for potential criminals, thereby preventing crime. Signs of spatial possession, such as fences, leaning walls, and natural or artificial separators, are also elements that deter crime.

Maintenance and Operation

Non-governmental Organizations and Foundations in the area support the liveliness and cultural identity of the location, especially the maintenance of the green areas. Moreover, the fact that there are two municipal companies carrying out the maintenance, cleaning, and supervision of the area and preventing vandalistic actions increases security. Thus, this well-kept and administered location, comfortably utilized and filled with sounds of people, children, birds, and water, discourages crime.

Activity Support

Mixed-use in urban space is a significant factor in constituting security as it offers permeability and transparency, as well as activity variety. The most important and well-known historical, cultural, religious, and touristic destination of the city of Ankara, the Hacı Bayram Mosque vicinity is a pedestrian space through its various uses (Figure 5, 6) connected to its sacredness. Nevertheless, this location, where there are various urban activities carried out during the day, is deserted at night. Hence, while people feel secure during the day, the direct opposite occurs at night. It is observed that variety of utilization is deemed vital since planned activities throughout the day have a role in the possession of space.

EVALUATION AND RESULTS

The strongest emotion people would like to feel in a built environment is security. Preventing or reducing crime is an effective tool for creating a sense of security in the city. Based on the characteristics, functions, and

users of the urban space, the relation between crime and space is variable. Therefore, CPTED principles are widely followed in the disciplines of urban planning and urban design for their efficacy in providing security.

Historical sacred spaces are fundamental and indispensable locations in both cultural tourism and urban life. Human density, in relation to the urban activities offered, and mobility increase hiding opportunities and the potential for committing crime. It is for this reason that the area to be scrutinized was determined as Hacı Bayram Mosque, a historical, cultural, and religious center and identity space for the city of Ankara. The built environment formed during the renovation process, which was initiated by the transformation of the location into a crime center, has been evaluated according to CPTED principles, and the following conclusions have been drawn:

- Sustainability is a quality that people can attain at a more secure location. This quality changes according to the cultural, social, and economic dynamics of the geography of the area. However, when the strong relation between crime and space in providing security is taken into consideration, principles and strategies suggested by CPTED should be deemed significant and applied in the disciplines of urban planning and urban design.
- The fact that the area is deemed a World Cultural Heritage and a cultural and sacred space that should be preserved at the national level is not a barrier to the application of CPTED principles to prevent and reduce crime or to form secure urban spaces.
- As public spaces attract human mobility, thereby constituting high potential for crime, CPTED principles must be applied.
- Just like in the area under scrutiny, sacred spaces do provide prevention of crime by the intense religious feelings they stir, but the dense human mobility and use on holy and religious days offer opportunities for crime.
- For the purpose of forming secure spaces, it is obligatory to follow CPTED principles also in areas adjacent or within walking distance to these locations, as much as in these spaces where human density, which provides the grounds for crime, is relatively high.
- Considering CPTED principles only during the day would cause risks for the night-time security of the area. Although the area under scrutiny is a public space deserted at night, the inadequacy of lighting results in security risks and facilitates crime. The potential to commit crime is high in dark and enclosed spaces.
- During landscaping, the plants and trees should be considered based on their sizes, in relation to the opportunity to escape that they would offer when fully grown, thereby aiding crime opportunities.

DOI: 10.15320/ICONARP.2021.185

- CPTED principles applied in the built environment, in accordance with space and time relation, should be evaluated at regular intervals, and necessary interventions should be implemented.
- Surveillance cameras appropriate for CPTED principles have also played a vital role in the supervision of urban spaces during the pandemic.

ACKNOWLEDGEMENTS/NOTES

In this article, Erman Aksoy's The data in the doctoral thesis titled "Principles, Scope and Methods of Safe Urban Planning in Preventing Urban Crimes: The Case of Ankara City", prepared under the consultancy of Assoc. Prof. Nevin Gültekin, were used. Gazi University.

FINANCIAL DISCLOSURE

The author declared that this study has received no financial support.

CONFLICT OF INTEREST

No conflict of interest was declared by the author.

ETHICS COMMITTEE APPROVAL

Ethics committee approval was not required for this article.

LEGAL PUBLIC/PRIVATE PERMISSIONS

In this study, necessary permissions were obtained from the relevant participants (individuals, institutions and organizations) for the data used.

REFERENCES

Adams, J. (1973). Review of defensible space. *Man – Environment Systems*, 10, 267-68

Aksoy, E. (2011). Güvenli kent planlama ilkeleri, kentsel suçları önleme kapsam ve yöntemleri: Ankara kenti örneği, [Unpublished Doctoral Thesis] Ankara: Gazi University.

Angel, S. (1968). Discouraging crime through city planning. *Working Paper No. 75*, Berkeley: University of California.

Arabi, M., Naseri, T. S. & Jahdi, R. (2020). Use all generation of crime prevention through environmental design (CPTED) for design urban historical fabric (Case Study: The central area of Tehran Metropolis, Eastern Oudlajan), *Ain Shams Engineering Journal*, 11, 2.

Armitage, R. (2014). *Crime prevention through environmental design*. In G. Bruinsma & D. (Eds.), (2014). *Encyclopedia of criminology and criminal justice, Weisburd*. New York: Springer, 720–31.

Ataç, E. (2007). Suçun kentsel mekândaki algısı, güvensizlik hissi, *Dosya 06*, 55, 16-23.

Bayramoğlu, F. (1989). *Hacı Bayram-ı Veli: Yaşamı soyu vakfı: Cilt I-II*, Ankara: Türk Tarih Kurumu Yayınları.

Booth, A. (1981). The built environment as a crime deterrent a re-examination of defensible space, *Criminology*, 18(4), 557-570.

Bottoms, A. E. (1974). Book review of defensible space, *The British Journal of Criminology*, 14(2), 203-6.

Brantingham, P. L. & Brangtingham, P. J. (1981). *Environmental criminology*, California: Sage Publications.

Brantingham, P. L. & Brantingham, P. J. (1995). Criminality of place: Crime generators and crime attractors, *European Journal of Criminal Policy and Research*, 13(3), 5-26.

Coleman, A. (1985). *Utopia on trial: Vision and reality in planned housing*. London: Hilary Shipman Publishing.

Cozens, P. M. (2008). Crime prevention through environmental design in Western Australia: Planning for sustainable urban futures, *International Journal of Sustainable Development and Planning*, 3(3), 272-92. https://www.witpress.com/elibrary/sdp-volumes/3/3/353

Cozens, P. (2016). *Think crime! Using evidence, theory and crime prevention through environmental design (CPTED) for planning safer cities*, Western Australia: Curtin Research Publications.

Cozens, P. M., Hillier, D. & Prescott, G. (2001). Crime and the design of residential property exploring the theoretical background, *Property Management*, 19(2), 1-2.

Cozens, P. M. & Love, T. (2015). A review and current status of crime prevention through environmental design (CPTED), *Journal of Planning Literature*, 30(4). https://www.researchgate.net/publication/281604957_A_Review_and_Current_Status_of_Crime_Prevention_through_Environmental_Design_CPTED#fullTextFileContent

Cozens, P. M., Saville, G. & Hillier, D. (2005). Crime prevention through environmental design (CPTED): A review and modern bibliography, *Property Management*, 23(5), 328–356.

Crowe, T. (2000). *Crime prevention through environmental design: Applications of architectural design and space management Concepts*, (2nd ed.). Oxford: Butterworth-Heinemann Publishing.

Çöteli, M. G. (2016). Renewal and rehabilitation projects of historic town of Tavlusun, *Megaron*, 11(4): 551-64

Dursun, S., Aytaç, S. & Topbaş, F. (2011). The effects of unemployment and income on crime: A panel data analysis on Turkey, *Annales de la Faculté de Droit d'Istanbul*, 43(60), 125-38.

Dolu, O. (2015). *Suç teorileri: Teori, araştırma ve uygulamada kriminoloji*. Ankara: Global Politika ve Strateji Yayınları.

Eck, J. E., & Weisburd, D. (1995). *Crime places in crime theory*. In J. E. Eck & D. Weisburd (Eds.), (1995). *Crime and place*. Washington: Criminal Justice Press/Willow Tree Press, 1-33

DOI: 10.15320/ICONARP.2021.185

Fennelly, L., & Perry, M. (2018). *CPTED and traditional security countermeasures: 150 things you should know* (1st ed.). Florida: CRC Press. https://doi.org/10.4324/9781315144528

Gardiner, R. (1978). *Design for safe neighborhoods: The environmental security planning and design process*. Washington: US Department of Justice.

Geason, S. & Wilson, P. (1990). *Preventing car theft and crime in car parks Canberra*, Australia: Australian Institute of Criminology.

Gajos, J. M., Fagan, A. A. & Beaver, K. M. (2016). Use of genetically informed evidence-based prevention science to understand and prevent crime and related behavioral disorders, *Criminology and Public Policy.* 15(3), 683–701.

Gilderbloom, J. (2016). Ten commandments of urban regeneration: creating healthy, safe, affordable, sustainable, and just neighborhoods, *The International Journal of Justice and Sustainability,* 21(5), 653–60.

Göppinger, H. (1971). *Kriminologie: eine einführung*. München: C.H. Beck'sche Verlagsbuchhandlung.

Gültekin, N. T. & Canbolat, A. N. (2019). To maintain the historical sacred spaces: ankara-hacı bayram district, *Gazi University Journal of Science Part B: Art Humanities Design and Planning*, 7(2), 257-67. https://dergipark.org.tr/tr/pub/gujsb/issue/46504/554226

Gündüzöz, İ. (2016). Türkiye ve dünyada güvenli kent yaklaşımı: Kentsel güvenlik mi? Güvenli kent mi?, *Türk İdare Dergisi*, 483, 335-70. http://www.tid.gov.tr/Makaleler/T%C3%BCrkiye%20ve%20D%C3%BCnyada%20G%C3%BCvenli%20Kent%20Yakla%C5%9F%C4%B1m%C4%B1%20Kentsel%20G%C3%BCvenlik%20mi%20G%C3%BCvenli%20Kent%20mi.pdf

Hillier, B. (1973). In defence of space, *RIBA Journal*, 11, 539-44.

Jacobs, J. (1961). *The death and life of great American cities*. New York: Vintage Books.

Jeffery, C. R. (1971). *Crime prevention through environmental design*. California: Sage Publications.

Kara, M. (1990) *Tasavvuf ve tarikatlar tarihi*, İstanbul: Dergah Yayınları.

Kaplan, S. (1973). Book review of defensible space, *Architectural Forum*, 98, 8.

Kubilay, A. B. (2009). Crime prevention by means of urban design tools: The case of İstiklal neighborhood. [Unpublished Master's Thesis], METU.

Kültür Varlıkları ve Müzeler Genel Müdürlüğü Fotoğraf Arşivi, (2016). Ankara Hacı Bayram-ı Veli Cami. https://kvmgm.ktb.gov.tr/TR-163970/hacibayram-camii-ankara-2016.html.

Lab, S. P. (2000). *Crime prevention: approaches, practices and evaluations*. Ohio: Anderson Publishing.

Leclerc, B. & Wortley, R. (2014). *The reasoning criminal twenty-five years on*. [In Leclerc B. & Wortley R. (Eds.), Cognition and crime offender decision making and script analyses], 1-11.

Lynch, K. (1960). *The Image of the city*, Cambridge: MIT Press.

Mayhew, P. (1979). Defensible space: The current status of crime prevention theory, *The Howard Journal of Penology and Crime Prevention*, 18, 150-159.

Mawby, R. I. (1977). Defensible space: A theoretical and empirical appraisal, *Urban Studies*, 14(1), 169-79.

Mihinjac, M. & Saville, G. (2019). Third-generation crime prevention through environmental design (CPTED), *Social Science*, MDPI, 8(6), 182. https://doi.org/10.3390/socsci8060182

Newman, O. (1972). *Defensible space*, New York: Macmillan Publisher.

Newman, O. (1973). *Defensible space: Crime prevention through environmental design*, New York: Collier Books.

Papps, K. L. & Winkelmann, R. (2000). Unemployment and crime: new evidence for an old question. *New Zealand Economic Papers*, 34(1), 53-71.

Plaster Carter, S. (2002). Community CPTED. *The Journal of the International Crime Prevention through Environmental Design Association*, 1(1), 15-24.

Poyner, B. (1983). *Designing against crime: Beyond defensible space*. London: Butterworth-Heinemann Publishing.

Sarkissian Associates Planners, (2002). *Australian capital territory crime prevention and urban design resource manual, ACT planning and land management.* https://www.legislation.act.gov.au/View/ni/2002-253/20020404-2979/PDF/2002-253.PDF

Sarkissian, W. & Perglut, D. (1994). *The community participation handbook*, (2nd ed). Sydney: Impact Press.

Sarkissian, W. & Walsh, K. (1994). *The community participation in practice: Casebook*, Perth: Institute for Science and Technology Policy, Murdoch University.

Sarkissian, W., Cook, A. & Walsh, K. (1997). *The community participation in practice: A practical guide*, Perth: Institute for Science and Technology Policy, Murdoch University.

Saville, G. (1995). *Crime problems, community solutions: Environmental criminology as a developing prevention strategy*. Vancouver: AAG Publications.

Saville, G. (1996). *Assessing risk and crime potentials in neighbourhoods*. 1st Annual International CPTED Association Conference, Calgary.

Saville, G. & Cleveland, G. (1999). *2nd generation CPTED: An antidote to the social virus of urban design*. [Unpublished manuscript], http://www.edoca. eu/content/docs/ CPTED_2ndGeneration.pdf.

Spadaro I. & Pirlone F. (2021). Sustainable urban mobility plan and health security. *Sustainability*, 13(8):1-20.

Terande, T. J. & Clement, A. C. (2014). The relationship between unemployment, inflation and crime: An application of cointegration and causality analysis in Nigeria. *Journal of Economics and Sustainable Development*, 5(4), 131-37.
https://www.iiste.org/Journals/index.php/JEDS/article/view/11277

DOI: 10.15320/ICONARP.2021.185

Yıldız, R., Öcal, O. & Yıldırım, E. (2010). Suçun sosyoekonomik belirleyicileri: Kayseri üzerine bir uygulama, Erciyes Üniversitesi *İktisadi ve İdari Bilimler Fakültesi Dergisi*, 36, 15-31.

Wekerle, G. R. & Whitzman C. (1995). *Safe cities: Guidelines for planning, design and management*. New York: Van Nostrand Reinhold Publishing.

Wilson J. Q. & Kelling G. L. (1982). Broken Window: The police and neighborhood safety. *Atlantic Monthly*, 29-38.

Witte A. N. & Tauchen H. (1994). *Work and crime: An exploration using panel data*. New York: Sacha and Diamond Academic Publishers.

Resume

Erman Aksoy received his M.Sc. and Ph.D. from Gazi, University in the major of City and Regional Planning. He currently works as a research asistant at Gazi University.