

Applying design ideas to promote security of urban spaces

¹Abbas Yazdanfar · ²Sepideh Ghaemmaghami, ²Paniz Ahmadpour

¹Assistant Professor of Faculty of Architecture, Iran University of Science and Technology, Tehran, Iran.

²M.A. in Architecture, Iran University of Science and Technology, Tehran, Iran

Received 10.09.2012; Accepted 21.11.2012

ABSTRACT: Security is one of the most critical factors affecting the quality of urban spaces. Nowadays, most of these spaces have become merely pathways with neither social life nor sense of belonging to it. Insufficiency of public surveillance along with weak sense of control and surveillance results in spaces with high crime rate. In the late 60s and early 70s, high crime statistics in open urban spaces around America and Europe, forced many city planners to provide physical and cultural solutions for it. Sensitive environmental design can simultaneously prevent the occurrence of crime and increase the control and surveillance over the public spaces.

The main purpose of this paper is to achieve the most critical factors enhancing safe urban spaces. The research method is descriptive analysis and is done by comparative study on three outstanding theorists' point of view toward the subject. Research findings identify that crime prevention is largely achieved through applying territoriality, surveillance and social interaction factors in environmental design.

Keywords: Security, Urban Space, Territoriality, Surveillance, Environmental Design.

INTRODUCTION

One of the pivotal design objections is improving the human-made environment and addressing human and environment interactions. Mankind inherently needs to make social connections with other humans and these connections are made in the urban zones. Accordingly Maslow puts social connections and belonging in the third place of his notorious hierarchy of human needs, just after the need for safety. John Lang too believes that if the environment is formed properly, then it can meet human needs such as survival and safety, as motivational needs, and subsequently the need for social connection.

Urban spaces, beside their tangible social, cultural and economical usages, would be useless without the active presence of people. Best urban environments are those which allow social presence while feeling safe and secure, for the citizens. Regarding issues with the urban environments without ecological elements and social potentials in the 60s and 70s and the subsequent impacts such as increase in criminal cases, designers' concerns and attention were attracted to the problem of security and environmental design impacts creation of spaces capable of the aforesaid qualities. A brief glance at the proposed theories it is revealed that those which particularly emphasize on the effective element in the formation of safe urban zones, namely Jane Jacobs (*Eyes on Streets*), C. R. Jeffery (*Crime Prevention through Environmental Design*), Oscar Newman (*Defensible Space*), are of greater significant. A general review and comparison between the aforementioned theories can be helpful in development of social spaces with an obvious safety attribute.

MATERIALS AND METHODS

Safe Urban Space

Urban space is but the living space of citizens which is perceived either consciously or unconsciously en route-from the residence to the work place. A city street equipped to handle strangers can make a safety asset, in itself, out of the presence of strangers, as the streets of successful city neighborhoods always do (Jacobs, 1961, 30). The pleasure of a place depends on one hand to being protected against danger and physical injury and on the other hand it depends on psychological protection against insecurity, fear of crime and fear of vehicles transportation (Gehl, 2008, 162).

The idea of safe urban space is defined in contrast with the idea of unsafe urban space. Insecurity phenomenon has two aspects: one is objective and the other is subjective. It encompasses every single aspect of life. Insecurity from an objective perspective includes all insecurity factors such as burglary, murder, violence, etc; and insecurity from a subjective viewpoint leads to a general judgment in terms of regional safety and space. Insecurity is a phenomenon similar to poverty and it can be said that poverty is another introduction to other social disorders such as insecurity, urban violence and so on (Salehi, 2008, 107).

A safe and secure urban space literally includes both aspects of safety (against arson, environmental pollutions, car accidents and other unexpected natural elements) and security (crime against individuals and their properties), then the common surface between these fields can be defined as the safe urban place (Ibid, 112).

✉ *Corresponding Author Email: yazdanfar@iust.ac.ir

Theories

Eyes on streets

The first widely published studies of crime and the environment were done by a group of University of Chicago sociologists (Park, Burgess, Shaw, and McKay). The researchers viewed the social disorganization or lack of community control found in specific inner-city districts as generating high crime rates, which decreased in concentric circles away from the central business district. After the early works of Burgess, Park, Shaw, and McKay, urban planner Jane Jacobs (1961) developed the “eyes on the street” theory. Using personal observation and anecdote, Jacobs suggested that residential crime could be reduced by orienting buildings toward the street, clearly distinguishing public and private domains and placing outdoor spaces in proximity to intensively used areas. Jacobs’s book *The Death and Life of Great American Cities* gave police and planners the awareness of the value of “eyes on the street” as a crime prevention tool (Atlas, 2008, 53). “A city street equipped to handle strangers, and to make a safety asset, in itself, out of the presence of strangers, as the streets of successful city neighborhoods always do, must have three main qualities:

First, there must be a clear demarcation between what is public space and what is private space.

Second, there must be eyes upon the street, eyes belonging to those we might call the natural proprietors of the street. The buildings on a street equipped to handle strangers and to insure the safety of both residents and strangers, must be oriented to the street. They cannot turn their backs or blank sides on it and leave it blind.

And third, the sidewalk must have users on it fairly continuously, both to add to the number of effective eyes on the street and to induce the people in buildings along the street to watch the sidewalks in sufficient numbers” (Jacobs, 1961, 35) (Fig.1).

Every single land-use pattern leaves some impacts on cities, and consequently on the urban spaces. Function classifications ushers into the distribution patterns of activities and duly several urban districts and, subsequently, some urban spaces will, concerning their nature and the dominant activities occurring within them, be almost evacuated in certain days, specifically during nights (Salehi, 2008, 68).

Best urban environments are those within which the functions are compounded and a diverse range of activities and professions emerge. In other words, division and segregation of functions

and activities are fatal to the urban places. Integration of functions brings about safe and dynamic milieus – be it in the streets or individual buildings. This not only increases stimulation and dynamism in the environment, but also allows unofficial surveillance over the public places (Tibalds, 2003, 54).

Generally speaking one may find Jacobs coinage “Eye on Street” an interesting term. These eyes are installed in the structures with a view on streets and squares and the social behaviors and public security is monitored through them. From her viewpoint crime occurrences in residential areas can be diminished through three considerations: building streets toward streets, clear demarcation between public and private places, and the last, but not the least, providing open spaces just adjacent to the active functions.

Crime Prevention Through Environmental Design (CPTED)

C. R. Jeffery is one of the earliest theoreticians who addressed crime prevention issues by means of environmental design. He, inspired by Jacobs’ theories, published an article in 1971 under the title “Crime Prevention through Environmental Design” which is a turning point in the criminology studies. Jeffery’s major emphasize regards crime circumstances while the previous hypotheses were stressed on the perpetrator (that is the “criminal”).

Crime Prevention Through Environmental Design (CPTED) is a design methodology suggestion based on which architects and civil engineers may contribute to the reduction of delinquency and fear associated with crime via applying proper and purposeful design in the human-build environment and improve the quality of human life, consequently.

In fact this theory of crime prevention through environmental design aims at specification of the crucial circumstances and the social milieu within which there is capacity of crime occurrence or acceleration of delinquency. It also targets beneficial outcomes such as reduction of fear associated with crime (namely increasing the security feelings), improvement of environment aesthetic qualities, increasing law-abidingness among citizens and, particularly, reduction of milieu capabilities to harboring criminal actions (Salehi 2008, 134). CPTED introduced through principal discussions in the scholar studies of Jacobs and Jeffery in the 60s and 70s, further theoretically developed through the hypotheses proposed by scholars such as Elizabeth Wood, Schomo Angel, and Oscar Newman.

There are three overlapping strategies in CPTED: (Crowe, 2000, 36-37).

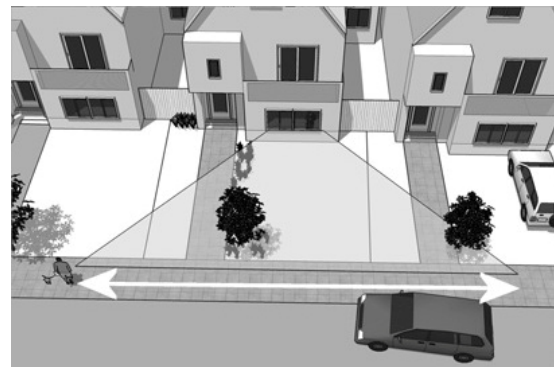


Fig. 1: Surveillance is when people in their homes can observe the coming and going in the street and the people in the street can observe the homes and front gardens. (Source: Biddulph, 2007, 157)

Natural surveillance
 Natural access control
 Territorial reinforcement

Natural Surveillance: Surveillance is a design concept directed primarily at keeping intruders under observation. The primary thrust of a surveillance strategy is to facilitate observation and to accomplish the effect of an increased perception of risk. Surveillance strategies are typically classified as organized (e.g., police, patrol) mechanical (e.g., lighting) and natural (e.g., windows). (Crowe, 2000, 36).

Jacobs' theory asserts that monitoring and surveillance of the streets requires eyes, eyes of peoples whom one can refer to as the natural possessors of the streets. In order to achieve this goal first the space must be left exposed. Individuals' presence is one of the strongest monitoring factors. Because this way not only the citizens monitor the milieu but they can, if necessary, also get involved in order to prevent criminal actions. Therefore it stands to reason that we are better off providing and facilitating local residents' presence in the neighborhood street spaces. One of the factors attracting citizens to the street spaces is concentration and establishment of activities pertaining to individuals' daily life in these spaces. Individuals' presence during nightlong is more crucial, then in order to provide nocturnal activities in the local streets some nightlong activities must be devised over there so that they would encourage a part of citizens to stay at the aforesaid spaces in the nights (Pakzad, 2004, 223).

Natural access control: Access control strategies are typically classified as organized (guards), mechanical (locks) and natural (spatial definition). The primary thrust of an access control strategy is to deny access to a crime target and to create a perception of risk in offenders (Crowe, 2000, 36-37). Accessibility is not only restricted by the economical factors, similar to the physical ones, but it could also be either restricted or eliminated through psychological motives. For instance, fear of peril in certain places or at certain times can restrict the freedom of movement or accessibility for most people or for specific social groups such as the youth, the elderly or the people with certain disabilities (Chapman 2006, 135).

Territorial Reinforcement: Territorial Reinforcement is the belief that physical design can contribute to a sense of ownership and responsibility for a space. Physical design can create or extend a sphere of territorial influence so potential offenders perceive that territorial influence. For example: low walls, landscape and paving patterns to clearly define the space around a unit entry as belonging to (and the responsibility of) the residents of that unit (Crowe, 2000, 36-37).

Ever since Jacobs outlined the basis for territorial control and eyes on the street (Jacobs, 1961) very little has changed with CPTED theory in the past 30 years (Atlas, 2008, 65).

Territoriality is the foundation for all First-Generation CPTED strategies. Access control modifies entranceways and exits so that legitimate users of a space can control access into buildings and neighborhoods. Natural surveillance suggests the same, except it employs sightlines, lighting, landscaping, and design to place eyes on that street. Symbolic signage, hierarchy of space, improving management and maintenance are also strategies to enhance territorial control in a particular area. They help legitimate users take ownership of areas and impinge on the ability of offenders to offend with impunity without notice or fear of capture. They are all opportunity

reduction strategies. The definition of CPTED is all about "reducing the opportunity and fear of crime." (Crowe, 2000, 37) In addition to the three basic classifications mentioned earlier, current CPTED practitioners and security planners also consider the following concepts. (Atlas, 2008, 65)

Management and Maintenance (The "Broken Window" theory): In order for spaces to look well cared for and crime free, they must be maintained to the standard of care that would be appropriate for that building type or use.

Legitimate Activity Support: This involves the appropriate use of building functional spaces, such as recreational facilities and common areas. Activity support fills the area with legitimate users so that any abusers will leave (Fig.2).

In 1998, Saville and Cleveland created Second-Generation CPTED. It expands the theory of First- Generation CPTED by moving beyond the design-affects-crime debate to include social factors. It is beyond the activity support strategy suggested by Newman and Crowe in First-Generation CPTED era. Second-Generation CPTED seizes on Jane Jacobs's (1961) original formulation that a sense of neighborliness and community are at the core of safe streets (Atlas, 2008, 80).

Second-Generation CPTED employs four new strategies-the four Cs:

Social Cohesion
 Connectivity
 Community Culture
 Threshold Capacity

Incorporating the concepts of Second-Generation CPTED to the basics of First-Generation CPTED which lead to Develop and sustain a sense of community and involvement by the legitimate users of the built environment is the best insurance against social detachment, crime inflation, and occupant apathy (Atlas, 2008, 88).

In the end it can be affirmed that the criminological theories were previously given to stress on application of crime reducing means such as increasing the jeopardy for the criminal, diminishing stimulating factors in the milieu and wiping out the criminal behavior causes (by an emphasize on the wrongdoer); while CPTED stresses on reduction of crime

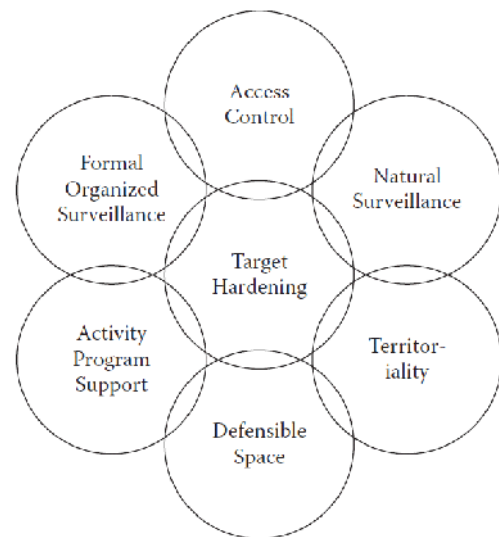


Fig. 2: CPTED interrelationships (Source:Atlas, 2008,59)

capacities through *environment design* and reduction of support for the *criminal behaviors*.

The second generation CPTED, as opposed to the first generation which aimed at improvement of territoriality and increasing surveillance; suggest that by taking into account the cultural, social, and emotional needs of people in the districts with high criminal rates, we can diminish the tendency toward committing delinquency and criminal actions.

Defensible Space

Oscar Newman published his study of CPTED in residential areas (1971, 1973) and how the architecture contributes to victimization by criminals in his work *Defensible Space, Crime Prevention through Urban Design*. In this work, Newman explored the concepts of human territoriality, natural surveillance, and the modification of existing structures to effectively reduce crime (Atlas, 2008, 56) (Fig.3).

Dividing a neighborhood into smaller vicinities encourages individuals to interact more with their neighbor fellows. While parents control their children at play in calm and tranquil street spaces, they can meet and get acquainted with other neighbor residents. People living in such an atmosphere would not feel confined to their homes at all (Newman 1996, 54). All Defensible Space programs have a common purpose: They restructure the physical layout of communities to allow residents to control the areas around their homes. This includes the streets and grounds outside their buildings and the lobbies and corridors within them (Newman, 1996, 15). The most fascinating finding to come out of the data analysis presented in *Defensible Space* (1972) was the influence of building height and number of units per entry in predicting crime rate. Regardless of the social characteristics of inhabitants, the physical form of housing was shown to play an important role in reducing crime and in assisting residents in controlling behavior in their housing environments (Newman, 1996, 31). Newman believed there is an extensive semipublic space between the public streets and private flat apartments which the residents of each apartment do not have any role in controlling it (Biddulph, 2007, 156). Increase in the populace density can leave either negative or positive impacts on the residents' safety. Concentration of residents on one hand can bring about potential inconveniences and on the other hand it may allow residents' monitoring and control over abnormal

social behaviors (Eynifar, 2001).

A family's claim to a territory diminishes proportionally as the number of families who share that claim increases. When the numbers increase, the opportunity for reaching such an implicit understanding diminishes to the point that no usage other than walking through the area is really possible, but any use is permissible. The larger the number of people who share a communal space, the more difficult it is for people to identify it as theirs or to feel they have a right to control or determine the activity taking place within it. It is easier for outsiders to gain access to and linger in the interior areas of a building shared by 24 to 100 families than it is in a building shared by 6 to 12 families (Newman, 1996, 17-18) (Fig.4).

The four components of Newman's study were: (Atlas, 2008, 57)

Defining perceived zones of territorial influence

Providing surveillance opportunities for residents and their guests

Placing residential structures (public areas and entries) close to safe areas

Designing sites and buildings so those occupants are not perceived and stigmatized as vulnerable

Generally, from Newman's viewpoint, physical design of environment can provide space safety through developing a sense of belonging and encouraging the residents to be responsible for their neighborhood and residence. He utilizes lighting, restriction of public accessibility via gates and simple design elements such as fences and other barriers in order to improve the current structure and distinguishing between public, semipublic, semiprivate and private zones.

Defensible space puts the environment under its residents' control through territoriality, providing surveillance possibilities over places capable of criminal actions and improving current structure.

RESULTS AND DISCUSSION

The basis for Newman theories may be found in Jacobs' asseverations, but their viewpoints differ to some extents. Jacobs believed in developing integrated and lively neighborhoods within cities, by certain demarcations drawn between public and private zones as well as by the constant presence and surveillance of people over these zones; while Newman stressed on dividing a neighborhood into smaller vicinities in

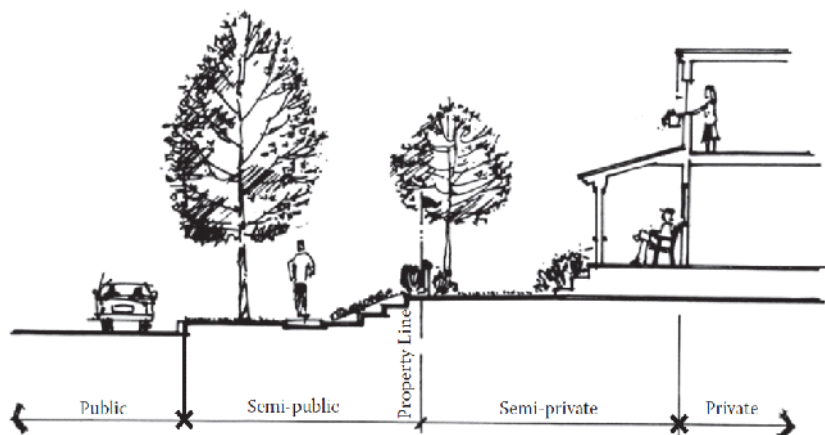


Fig. 3: Section showing the territorial layering from street to the residence, public to private space.

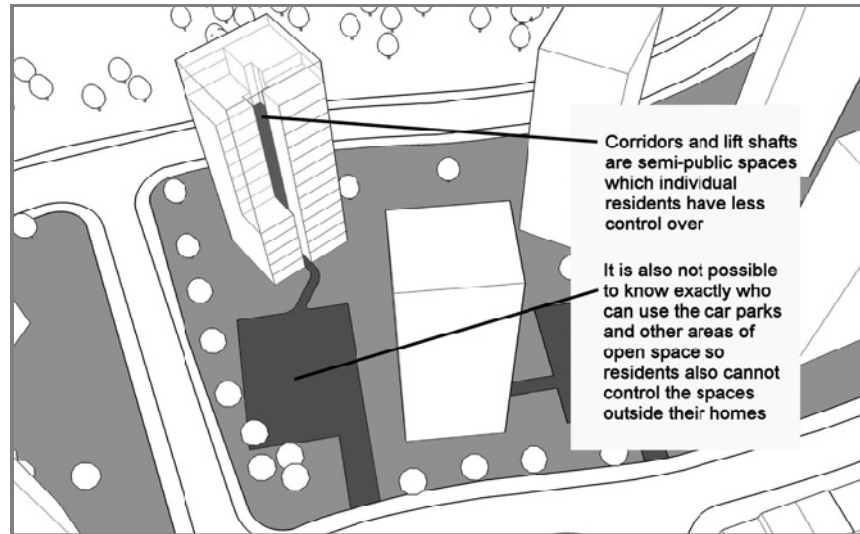


Fig. 4. The shaded areas highlight the lift areas and outdoor spaces that residents don't feel that they have much control over. (Source: Biddulph, 2007, 156)

order to obtain more control over these spaces. Jacobs, contrary to Newman's idea of designing a gate for each vicinity unit which could restrict natural population flow into the neighborhoods; believed that providing lively and safe sidewalks, while being watched by the way, is necessary. First generation CPTED, which is closer to Newman's approach, reduces crime and violence through environment design and diminishing support for the criminal behaviors. Both of these viewpoints bring about a safe milieu and reduce environment vulnerability via surveillance, access control and territoriality. The second generation, as opposed to the first one, refers to the values introduced by Jacobs and considers social cohesion and meeting people's cultural needs as the vital factor in urban spaces safety.

CONCLUSION

In the present era finding a space with a safe and secure context for children's play and a comfortable and cozy place for the elderly to spend time, may rarely happen. Public zones are deprived of their functional property and are degraded to the passages through which people hastily pass by in order to get to their destinations. Providing proper contexts for social interactions within which the people presence is associated with calmness, safety and belonging,

is fairly possible through environment design- which is a pivotal means for developing suchlike neighborly, perceivable and safe spaces.

Jane Jacobs, accordingly, in her theory of "Eyes on Streets" provides definitions of public and private zones and boundaries between them, for improving territoriality and building structures towards the streets in order to increase control and watch; CPTED theory aims at development of certain spaces through environment design and increase of cohesion and social interaction in order to reduce crime capacity while Oscar Newman in his theory of the defensible space stresses on providing of space safety by means of developing and strengthening possession, belonging and responsibility in the residents which is achievable, as he asserts, through improving the structure of living spaces, access control and population presence in the public zones.

In the end the criteria providing safety in urban spaces, according to the viewpoints discussed above, can be listed respectively as follows in the Table1:

The ability to design a quality environment in definition of public and private zones, encouraging residents to be present in the public spaces and develop social communications, utilizing natural watch and control without restricting the natural flow of populace and reducing the milieu tendency to

Table 1 : Criteria Providing Safety in Urban Spaces

Territoriality	Demarcation of public and private zones Reduction of escape routes for criminals and access control Increasing the responsibility and sense of belonging among residents
Surveillance	Building structures towards streets Providing open spaces adjacent to the active functions Integration of functions and creating a diverse range of activities
Social Interactions	Taking into account the cultural, social and emotional needs of the populace Residents' involvement in events and decisions Improving neighborly connections and developing friendly relationships

support for criminal acts, are helpful in addressing many issues in terms of prevention or reduction of criminal actions.

REFERENCES

- Atlas, R.I. (2008). *21st Century Security and CPTED: Designing for Critical Infrastructure Protection and Crime Prevention*. Florida: Auerbach Publication.
- Biddulph, M. (2007). *Introduction to Residential Layout*. Oxford: Elsevier Limited.
- Chapman, D. (2006). *Creating Neighbourhoods and Places in the Built Environment*. Translated by: Fariadi, Sh. Tabibian, M. Tehran: Tehran University.
- Crowe, T.D. (2000). *Crime Prevention Through Environmental Design*. (2nd Edition), Massachusetts: Butterworth-Heinemann.
- Eynifar, A. (2001). Human – Environmental Factors Influencing the Design of Residential Communities. *Journal of Fine Arts*, 8, 39-50
- Gehl, J. (2008). *Life between Buildings*. Translated by: Shasti, Sh. Tehran: Jahad Publications.
- Jacobs, J. (1961). *The Death and Life of Great American Cities*. New York: Random House.
- Newman, O. (1996). *Creating Defensible Space*. Washington D.C: U.S. Department of Housing and Urban Development Office of Policy Development and Research.
- Pakzad, J. (1996). What Is Urban Design. *Journal of Abadi*. 25, 30-36.
- Pakzad, J. (2004). *Designing Guidelines for Urban Spaces*. Ministry of Housing and Urban Development, Tehran: Payam Sima Publications.
- Salehi, E. (2008). *Environmental Features of Safe Urban Areas*. Tehran: Study and Research Center of Urbanism and Architecture.
- Tibalds, F. (2003). *Making People-Friendly Towns*. Translated by: Ahmadinejad, Mohammad, Isfahan: Khak.

Archive of SID