



## CPTED Principles and Preventing Crimes: The Cases from Shiraz City, Iran

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### **Abstract**

The current paper investigates the role of CPTED (crime prevention through environmental design) principles in preventing crimes in urban hot spots. The questionnaire survey gathers the opinions of 400 participants randomly. Moreover, the study employs an observational study to analyze the actual condition of the areas. Analysis shows territorial reinforcement and surveillance most significantly impact crime prevention, while maintenance imposes the lowest impact in urban contexts. The findings imply that enhancing the cultural bases of the residents outweighs improving the physical appearance of the environment in preventing crimes. Overall, the findings offer practical suggestions for future planning of urban hot spots that contribute to environmental quality.

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## **1.0 INTRODUCTION**

The need for security is one of the most critical necessities in urban districts. Cities include hot places where crime prevention is of prime attention and directly promotes the quality of life of the urbanites. The most significant physical approaches in crime prevention are “Eyes on Streets” (Jacobs, 1961), which stresses the presence of people in public spaces, “Defensible Space” (Newman, 1972), “Crime Prevention through Environmental Design” (Jeffery, 1971), and “Broken Windows” (Wilson & Kelling, 1982) theories. Among all, “Crime Prevention through Environmental Theory” is the center of focus in environmental studies on creating safer public spaces. It is a method used by architects, urban planners, and designers to reduce crime and fear associated with it through applying proper design, which results in promoting quality of life (Lee et al., 2023; Cozens & Stefani, 2023; Kubalova & Loveček, 2023). This approach has been widely used to solve crime-centric issues (Mihinjac & Saville, 2019).

Shiraz is a southern city in Iran and is considered a hub for drug dealing due to its strategic location and adjacency to smuggling thoroughfares in the southern part of Iran. The city includes numerous districts where people face crimes, specifically drug dealing. Unpleasant conditions of buildings, unplanned structures, improper maintenance, low socio-cultural levels, low income, migration from other towns and neighboring villages, and urban sprawl are some significant factors that cause an increase in crime rates in such areas in the city. Most studies focused on analyzing the main concepts of CPTED without deeply investigating how practically environmental design contributes to crime prevention in the hot spots of Shiraz. Only a few studies, such as Mohseni et al. (2013), Sasani Poor & Zolfagharloo (2014), and Reisi & Nasr (2015), attempted to evaluate the role of CPTED principles in preventing crime in similar sites.

To fill the gap, the current paper seeks to assess the role of CPTED principles in preventing crime in hot spots of Shiraz City. The main question is: What principle(s) of CPTED reduce(s) crimes in hot spots? The paper is divided into three main sections. The first section addresses the main aim of the research, its significance, and relevant issues and theories. The second section outlines the method employed, instruments used for data collection, and analysis. Last, it presents data analysis, results, discussions, implications, and conclusions.

## 2.0 CPTED PRINCIPLES

CPTED, a place-based crime prevention strategy, is one of the most effective methods for promoting safety in urban areas (Cisneros, 1995). Schneider & Kitchen (2002, p.158) declared, “it would be as difficult as untangling a spider’s web to evaluate the effectiveness of specific place-based crime prevention measures.” Its ideas are often oversimplified and poorly implemented (Ekblom, 2011; Cozens, 2016). It points to the effective design and use of places that lead to a decrease in the fear and occurrence of crime and quality of life (Rubenstein et al., 1980; Poyner, 1993; Crowe, 2000, p. 46; Sherman et al., 2002; Morgan et al., 2014). Similarly, Crowe & Zahm (1994) stated that CPTED targets good physical designs. Its main target is to constrict crimes using physical environmental modification. First used by Jeffery (1971), Jacobs’s work profoundly influenced the idea of CPTED in 1961, “The Death and Life of Great American Cities” (Lee et al., 2016). Jacobs’s work addressed safety and security as vital components of a workable city.

According to Jacobs (1961), the physical attributes of having safe public spaces are a distinct delineation between public and private spaces, the presence of people, and effective sidewalks. In the late 1960s and early 1970s, Newman studied crime rates and public housing design. He unveiled his findings in “Defensible Space: Crime Prevention through Urban Design” in 1972. Chronologically, his work underlay Jacobs’s theories and was praiseworthy in America and Britain (Mawby, 1977). Jeffery (1971) reviewed the causes of crime in a more multidisciplinary and holistic view and tapped into social, behavioral, political, psychological, and biological details. Jeffery (1971) acknowledged Newman’s work on Defensible Space (1972) and considered it the core of modern CPTED. The reason was that Jeffery’s work was complicated, while Newman’s ideas were tangible and ready to be applied promptly (Andresen, 2010). Wilson & Kelling’s (1982) “Broken Windows Theory” refined the gist of CPTED about Newman’s concept of “image and milieu”, which evolved into the CPTED concept of “image maintenance/management”.

The UK Home Office worked on “designing out crime” strategies (Clarke & Mayhew, 1980; Poyner, 1983). Crowe, a criminologist and previous American National Crime Prevention Institute (NCPI) manager held various CPTED training programs for police forces and other organizations. His work “Crime Prevention through Environmental Design: Applications of Architectural Design and Space Management Concepts” (2000) provoked interest in CPTED and propelled a further progression of CPTED (Carter & Carter, 1993). Since the 1990s, many studies in environmental psychology have been seeking and refining concepts of CPTED (Brown & Bentley, 1993; Fisher & Nasar, 1992; Nasar & Fisher, 1993; Perkins & Taylor, 1996). These studies discussed how criminals, people, police forces, and city planners perceive public spaces and their attributes, accentuating the vital dimensions of CPTED. This perceptual focus has been altered into a new stage (Hertzog & Kutzli, 2002; Cozens et al., 2002; Cozens et al., 2003a, 2003b; Blobaum & Hunecke, 2005; Cinar & Cubukcu, 2012).

Wekerle & Whitman (1995) also progressed CPTED from “defensible space” architecture and physical security based on the urban planning approach. To them, awareness of the environment, visibility by others,

and finding help enhance personal safety. These were achieved through proper lighting, promoting views, land-use mix, activity creators, helpful signage, a sense of ownership, and removing blind spots. Crime prevention research concerning the crime situation (e.g., Clarke, 2008; Cornish & Clarke, 2003) and opportunity theories (e.g., Cohen & Felson, 1979; Cornish & Clarke, 1986; Felson & Clarke, 1998) also contributed to CPTED formation. Visibility and surveillance (Minnery & Lim, 2005), defensible space or territoriality (Reynald & Elffers, 2009), and permeability or legibility (Crabtree, 2009) are practical physical factors on crime occurrence based on the CPTED approach.

Nowadays, CPTED is used by governments all over the world (Ekblom et al., 2013; Cozens, 2016), such as the USA, Canada, the United Kingdom, Australia, New Zealand, Austria, Hungary, Norway, Belgium, Iceland, Portugal, Czech Republic, Ireland, Slovakia, Denmark, Italy, Spain, Finland, Luxembourg, Sweden, France, Malta, Switzerland, Germany, Greece, the Netherlands, Chile, Honduras, Brazil, San Salvador, Japan, South Korea, Malaysia, Singapore, the United Arab Emirates, and Iran. In the twenty-first century, many policy management and standards operationalize CPTED (Atlas, 2013; Ekblom et al., 2013; Cozens, 2016). The traditional concept of CPTED is described through the principles of “territorial reinforcement, surveillance, access control, activities support, maintenance, and target hardening” (Moffatt, 1983). The idea of “eyes on the street”, invented by Jacobs, impacted the concept of natural surveillance (Jacobs, 1961). Her idea refers to the point that the safest public urban place is the one continuously sighted by human beings.

Later, Oscar Newman's “defensible space concept” fostered this idea (Newman, 1972). In his study on American housing projects, Newman asserted that crimes often occur in isolated areas. Surveillance points out that people can see what others are doing, which deters potential criminals from committing crimes (Clancey & Fisher, 2016). Crowe (2000) raised territorial reinforcement as a central component, saying that territoriality is the central concept, which includes natural surveillance and access control elements (Crowe, 2000). It was considered in the urban planning and design process by Jacobs and later by Newman. It implies that an urban public place with a socially tight labyrinth fosters communal supervision (Lee et al., 2016). Territorial reinforcement addresses proprietary concerns and a “sense of ownership” for users, decreasing criminal opportunities by discouraging criminals.

Applying natural surveillance is a primary strategy for crime prevention. It encompasses opportunities to observe the street through the design of public spaces, the location of entrances, and window placement. It is a sense of place that decreases crime for offenders to feel they are observed (even if they are not); therefore, they are discouraged from committing a crime (Cozens & Love, 2015). Activity support addresses the design of a public place in a way that secures “unsafe activities” (Cozens et al., 2005). Its notion is that continuous social activities hinder crimes in public places. Access control is how to keep potential criminals out of public places through physical or symbolic deterrents (Newman, 1972; Atlas, 2013; Lee et al., 2016). Symbolic strategies are deemed “softer” prevention approaches (Midtveit, 2005). Access control and surveillance improve territoriality via refining friendly social limits for law-abiding users.

These strategies use physical attributes to enhance surveillance opportunities, such as the placement of windows, separate public/private and private spaces, outline ownership, and specify appropriate usage patterns (Cozens & Love, 2015). Shopkeepers, patrols, and police forces offer formal surveillance. CCTVs and lighting are effective mechanical surveillance techniques (Cozens & Love, 2017). The three strategies of territorial reinforcement, natural surveillance, and access control are strengthened by activity support and target hardening. Although natural approaches are of prime preference, mechanical strategies impose the highest impact on the security of places (Cozens & Love, 2017). Environmental maintenance is reflected in Wilson &

Kelling's "Broken Window Theory" in 1982. To prevent crimes, public places should be maintained well so that potential criminals perceive an image of formal courtesy (Lee et al., 2016).

Space management is a strategy for creating a positive image, and maintenance of the built environment ensures the citizens' efficacious use of the physical environment. A large number of studies, such as Lynch (1960), Newman (1973), Wilson & Kelling (1982), Perlgut (1983), Eck (2002), Kraut (1999), Ross & Mirowsky (1999), and Ross & Jang (2000) advocate the role of the physical condition of the built environment in reducing crime and the fear of which. Poorly maintained urban areas absorb crimes. It relates to the concepts of "crime attractors" and "crime generators" (Brantingham & Brantingham 1993, 2008) and Newman's (1973) concept of "geographical juxtaposition". **Table 1** presents the theoretical framework of the study, showing the variables and their operational definitions.

**Table 1.** Theoretical framework of the study

Variables	Scholar	Operational Description (Cozens et al., 2005)
Territorial Reinforcement	Brown & Bentley (1993); Crowe (2000); Cozens et al. (2005)	"Territoriality is a design concept directed at reinforcing notions of proprietary concern and a 'sense of ownership' in legitimate users of space, thereby reducing opportunities for offending by discouraging illegitimate users."
Surveillance Natural Mechanical	Angel (1968); Newman (1972); Cozens et al. (2005); Cozens & Love (2017)	"Physical design can promote informal or natural surveillance opportunities for residents, and their agents and surveillance is part of capable guardianship."
Access Control	Newman (1972); Midtveit, 2005; Atlas, 2013; Lee et al., 2016	"Access control is a CPTED concept focused on reducing opportunities for crime by denying access to potential targets and creating a heightened perception of risk in offenders."
Activity Support	Jacobs (1961) ("Eyes on Streets" Theory); Wekerle & Whitman (1995); Crowe (2000); Cozens et al. (2005)	"Activity support involves the use of design and signage to encourage intended patterns of usage of public space."
Maintenance	Wilson & Kelling (1982) ("Broken Windows" Theory); Cozens et al. (2005)	"Promoting a positive image and routinely maintaining the built environment ensures that the physical environment continues to function effectively and transmits positive signals to all users."
Target Hardening	Moffatt (1983); Clarke (1997); Armitage (1999); Cornish & Clarke (2003); Cozens et al. (2005)	"Target hardening increases the efforts that offenders must expend in committing a crime and is the most long-established and traditional approach to crime prevention."

Source: gathered by authors (2019)

## 2.1 CPTED in Iran

In Iran, Marsousi et al. (2014) in their study emphasized that the principles of optimal design and the assistance of the municipality strikingly contribute to reducing crime occurrence in the central part of Isfahan City in Iran. Sasani Poor & Zolfagharloo (2014) discussed the reproduction of the old context of Shiraz City through environmental design to prevent urban crime. Reisi & Nasr (2015), in a study on "Historical Context of Shiraz City," argued that applying the principles of surveillance, access control, territorial reinforcement, maintenance, and activity support increases the sense of security among residents of urban environments. Ziyari et al. (2016) showed that environmental design principles for crime prevention in the neighborhood of

Dastgheib in Tehran City have not been fully implemented, and the area relatively stands at a low level of security. They added that activities and land use inclusion regarding time and place and removing or modifying unattended public spaces are the most critical solutions to increase security and reduce crimes in urban environments.

Poor Ahmad et al. (2017) concluded that considering the principles of optimal environment design and cooperation between people and municipalities contribute to reducing crimes and increasing the security of urban environments. Abdi (2017) stated that it is possible to create a sense of security by indirectly implementing and applying preventive policies of integrating architecture and socio-cultural relations. Moghani Rahimi & Soleimani Damaneh (2017) investigated the relationship between physical-environmental factors and the occurrence of drug dealing crime in ten municipality districts in Shiraz. However, most studies conducted in Iranian contexts have yet to critically assess the priority of CPTED principles in preventing crimes in urban spots in cities.

### **3.0 METHODS OF STUDY**

#### **3.1 Quantitative Approach**

This study employed a quantitative approach. A self-administered questionnaire survey was used to gather respondents' opinions on the role of environmental design in preventing crime in the study areas. A self-administered questionnaire survey offers questions that the respondents answer (Fink, 2003). It is relatively inexpensive and time-consuming to gather information. A total of 400 residents, storekeepers, and store owners of the study area formed respondents who participated in the survey. Respondents were randomly chosen from the age groups from 20 to 50 years old and above. Taking a similar method supported by Ja'afar & Usman (2009), Askari et al. (2014), Askari et al. (2015), and Askari & Soltani (2019), the study employed a random time interval sampling method. It surveyed the people's opinions in the study areas every 10 min. The respondents were from all social classes and different educational and occupational backgrounds. Men form 58% of the target sample, while women are 42%.

In December 2018, a pilot study was conducted to finalize the questionnaire for the actual study to increase the instrumental reliability. During the pilot study, 120 people from residents, storekeepers, and storeowners of the study area were surveyed. The results of the initial survey indicated that the questionnaire faced major structural and terminological flaws. After primitive analysis, it was shown that jargon should be eliminated in the final version of the survey, and there was a vital need for revising the structure of the questionnaire. The reliability test results illustrate that Cronbach's Alpha coefficients of the variables range from 0.785 to 0.862, which are reliable for further analyses. The final data collection happened in January, February, and March 2019 on different days of the week. Questions of the questionnaire include territorial reinforcement, surveillance, access control, activity support, maintenance, and target hardening (independent variables).

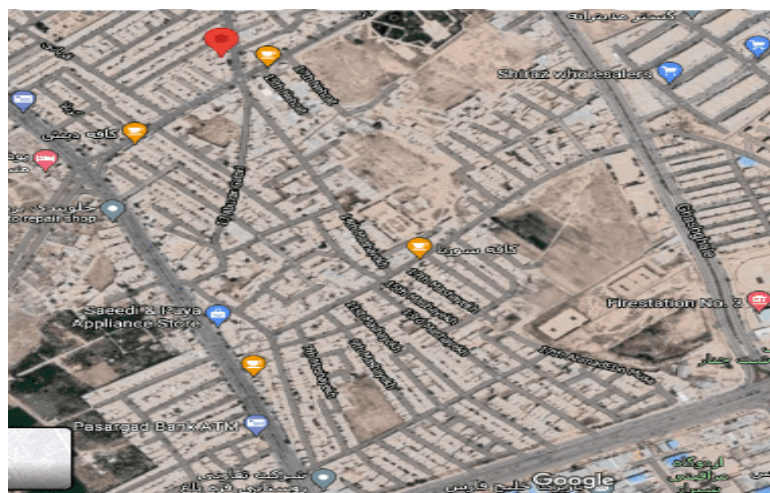
The questions were assessed via a five-point Likert scale of strongly disagree, disagree, no opinion, agree, and strongly agree. The role of environmental design in preventing crimes in the study area was assessed using the Pearson Correlation Analysis Test. To run the analysis, the statements "designing public spaces in the way that criminals cannot easily commit crimes," "designing public spaces in the way that people reside satisfactorily," and "designing public spaces in the way that either there is no suitable place for committing crimes or criminal motivation is diminished" were merged to represent the dependent variable of the study.

### 3.2 Qualitative Approach

A direct naturalistic observation method was used to implement the principles of CPTED into the study area. In this regard, photos were taken from all alleys and pathways to display the actual condition of the study area on sunny days in 2019. The contents of photos taken from spontaneous involvement with the study area were analyzed based on the themes (principles of CPTED). The condition of the study area, with the aid of the taken photos, was captured and then critically analyzed to elicit practical suggestions for future planning and development of the area to prevent crime commitment. Askari & Dola (2009) assessed the influence of building façade visual elements on its historical image, Askari et al. (2014) in their study on evaluating the elements and characteristics of historical building façades in the context of Malaysia, and Askari & Soltani (2018) in a study about the contribution of building façades to attractive streetscapes in two main streets in Kuala Lumpur City deployed the observation method.

### 4.0 THE STUDY AREAS

“Deh Piyaleh Neighborhood” and “Mahdi Abad Neighborhood” included 64% of drug dealing crimes in Shiraz city; therefore, these places are considered the most exemplary hot spots in the city and selected as the study areas. “Deh Piyaleh Neighborhood” (Figure 1) is one of the old and crime-prone neighborhoods of Shiraz City and is located in the 2nd district of the municipality. Numerous problems, such as drug dealing, alcohol, prostitution, scrap shops, and the presence of illegal foreigners, plague the region. The area suffers from small building plots, low quality of materials, and lack of standard road network, non-technical constructions, and infrastructure facilities (Moghani Rahimi & Soleimani Damaneh, 2017).



**Figure 1.** “Deh Piyaleh Neighborhood” in Shiraz

Source: Imagery@2021 CNES / Airbus, Maxar Technologies, Map data @2021

Mahdi Abad Neighborhood (Figure 2) is One of the largest suburban areas of Shiraz city. Most residents in this neighborhood are immigrants from villages and other cities in Fars province. Overall, the area tackles the problems such as insecurity, thugs and addicts, lack of proper hygiene, poor water supply and sewerage disposal, and high urban density. Economically, most residents have low income and deal drugs and alcohol.



**Figure 2.** “Mahdi Abad Neighborhood” in Shiraz

Source: Imagery@2021 CNES / Airbus, Maxar Technologies, Map data @2021

## 5.0 FINDINGS

### 5.1 Impact of CPTED on crime prevention

Pearson Correlation Test, shown in **Table 2**, indicates that there is a correlation between territorial reinforcement ( $r=0.595$ ,  $p<0.01$ ), surveillance ( $r=0.504$ ,  $p<0.01$ ), access control ( $r=0.539$ ,  $p<0.01$ ), activities support ( $r=0.481$ ,  $p<0.01$ ), maintenance ( $r=0.415$ ,  $p<0.01$ ), target hardening ( $r=0.546$ ,  $p<0.01$ ) and preventing crimes in Deh Piyaleh Neighborhood. In addition, the results demonstrate that there is a correlation between territorial reinforcement ( $r=0.257$ ,  $p<0.01$ ), surveillance ( $r=0.327$ ,  $p<0.01$ ), access control ( $r=0.285$ ,  $p<0.01$ ), activities support ( $r=0.250$ ,  $p<0.05$ ), maintenance ( $r=0.187$ ,  $p<0.05$ ), target hardening ( $r=0.198$ ,  $p<0.05$ ) and preventing crimes in Mahdi Abad Neighborhood. Comparing the results of the two areas, it is evident that territorial reinforcement and surveillance play the most significant role in preventing crimes in Deh Piyaleh and Mahdi Abad Neighborhoods, respectively. Of a lower significance, the results showed that target hardening and access control significantly prevent crimes in both areas.

**Table 2.** Correlation between CPTED principles and crime reduction in the study areas

Variable		Territorial Reinforcement	Surveillance	Access Control	Activities Support	Maintenance	Target Hardening
<b>Deh Piyaleh</b>							
Crime	Pearson	0.595**	0.504**	0.539**	0.481**	0.415**	0.546**
Reduction	2-tailed	0.000	0.000	0.000	0.000	0.000	0.000
	N	400	400	400	400	400	400
<b>Mahdi Abad</b>							
Crime	Pearson	0.257**	0.327**	0.285**	0.250*	0.187*	0.198*
Reduction	2-tailed	0.010	0.001	0.004	0.012	0.048	0.048
	N	400	400	400	400	400	400

Source: SPSS 19. \*\*. Correlation is significant at the 0.01 level (2-tailed).

Access control, surveillance, and target hardening contribute to the Deh Piyaleh Neighborhood security. On the other hand, all factors, even those statistically significant, play much less influential in preventing crimes in the Mahdi Abad Neighborhood than those in the Deh Piyaleh Neighborhood. Moreover, the results

demonstrate that maintenance is dispensable and the least significant in preventing crimes in Mahdi Abad and Deh Piyaleh neighborhoods.

## 5.2 Observation Results

The two case studies suffer detrimentally structural and physical problems that play up the necessity of CPTED principles consideration. Thus, an observational study demarcated the analysis of CPTED principles. **Table 3** presents a comprehensive overview of CPTED principles in the study areas.

**Table 3.** CPTED principles in the study areas

CPTED issues and impediments	Area	
	Deh Piyaleh	Mahdi Abad
Territorial Reinforcement	<ul style="list-style-type: none"> <li>• Low sense of place satisfaction due to improper urban context structure, inconsistent building facades and materials, and visual chaos</li> <li>• Improper neighborhood name, which means the “Village of Wine” in Persian Language (The respondents stressed this issue during surveys.)</li> <li>• Lack of cultural elements</li> <li>• Low environmental maintenance and hygiene</li> </ul>	<ul style="list-style-type: none"> <li>• Low sense of place satisfaction due to improper urban context structure, inconsistent building facades and materials, and visual chaos</li> <li>• Lack of cultural elements</li> <li>• Low environmental maintenance and hygiene</li> </ul>
Surveillance	<ul style="list-style-type: none"> <li>• Long walls without fenestrations</li> <li>• The organic structure of alleys and the existence of blind spots in meandering pathways</li> <li>• Lack of efficient public lighting</li> <li>• Lack of separation between motorized and pedestrian pathways</li> <li>• Lack of pedestrian walkways</li> </ul>	<ul style="list-style-type: none"> <li>• Long walls without fenestrations</li> <li>• The organic structure of alleys and the existence of blind spots in meandering pathways</li> <li>• Lack of efficient public lighting</li> <li>• Lack of separation between motorized and pedestrian pathways</li> <li>• Lack of pedestrian walkways</li> </ul>
Access Control	<ul style="list-style-type: none"> <li>• Meandering alleys and blind spots due to improper urban context and structure</li> <li>• Existence of escape routes</li> <li>• Lack of signage that hampers route selection for criminals</li> <li>• Lack of proper pedestrians</li> </ul>	<ul style="list-style-type: none"> <li>• Meandering alleys and blind spots due to improper urban context and structure</li> <li>• Existence of escape routes</li> <li>• Lack of signage that deters route selection for criminals</li> <li>• Lack of proper pedestrians</li> </ul>
Activities Support	<ul style="list-style-type: none"> <li>• Lack of enough local retail shops</li> <li>• Lack of flea markets that both support activities and increase natural surveillance</li> </ul>	<ul style="list-style-type: none"> <li>• Lack of enough local retail shops</li> <li>• Lack of flea markets that both support activities and increase natural surveillance</li> </ul>
Maintenance	<ul style="list-style-type: none"> <li>• Lack of green spaces in most pathways</li> <li>• Improper and flimsy materials of buildings and construction</li> <li>• Low environmental maintenance</li> <li>• Insipid building walls</li> </ul>	<ul style="list-style-type: none"> <li>• Lack of green spaces in most pathways</li> <li>• Improper and flimsy materials of buildings and construction</li> <li>• Low environmental maintenance</li> <li>• Insipid building walls</li> </ul>
Target Hardening	<ul style="list-style-type: none"> <li>• Lack of shop windows grill</li> <li>• Lack of CCTV for shops</li> <li>• Use of flimsy materials for urban furniture construction</li> </ul>	<ul style="list-style-type: none"> <li>• Lack of shop windows grill</li> <li>• Lack of CCTV for shops</li> <li>• Use of flimsy materials for urban furniture construction</li> </ul>

Source: Authors, 2019



The observation study demonstrated that both areas suffer severe urban structure problems arising from inconsideration of CPTED principles during planning, design, and construction processes. **Figure 3** and **Figure 4** pictorially present the current condition of Deh Piyaleh and Mahdi Abad neighborhoods, respectively.



**Figure 3.** “Deh Piyalah Neighborhood” in Shiraz (a) lack of access control (b) lack of surveillance (c) low maintenance (d) improper and flimsy materials of buildings and constructions



**Figure 4.** “Mahdi Abad Neighborhood” in Shiraz (a) lack of access control (b) low maintenance (c) meandering pathway (d) visual chaos

## 6.0 DISCUSSIONS

The findings of the paper corroborated Crowe’s (2000) and Cozens & Love’s (2015) stress on the role of territorial reinforcement and surveillance in preventing crimes. The observation study also demonstrated that a low sense of territoriality, which derives from flimsy materials in constructions and chaotic design, and surveillance in urban areas directly increase crime rates. Findings empirically supported “Eyes on Streets” (Jacobs, 1961), “Defensible Space” (Newman, 1972), “Crime Prevention through Environmental Design” (Jeffery, 1971), and “Broken Windows” (Wilson & Kelling, 1982) theories. In addition, the direct observation of the study areas proved many scholars’ support that the physical condition of an area influences crime commitment (e.g., Lynch (1960), Newman (1973), Wilson & Kelling (1982), Perlgut (1983), Eck (2002), Kraut (1999), Ross & Mirowsky (1999), Ross & Jang (2000), and Reisi & Nasr (2015)).

Comparing the qualitative and quantitative findings of the two hot spots insinuates the role of public awareness of the importance of CPTED principles in preventing crimes, declared by Askari et al. (2019). What enhance territorial enforcement among the residents of urban areas are municipality initiatives of creating vivid socio-cultural centers in urban hot spots and participatory decision-making processes of development and planning. In light of that, strengthening the "Genius Loci" for the residents ties them with their place and

encourages them to self-manage the public spaces. It assists the operating organizations, such as police forces and municipalities, in clearing the place from the criminals and maintaining it.

Implicitly, the findings pinpoint that crime prevention is plausible through physical modification of the environment that fortresses the sense of responsibility and people's self-controlling rather than enforcing excessive fortification and target hardening in the areas that not only do not reduce the crimes, but also transfers them to other prone places, what Cozens & Love (2015) declared as crime displacement. Observation showed that although limiting access to narrow alleys leading to surrounding areas frightens criminals, it decreases natural surveillance and weakens environmental vibrancy. It also supported that hot spots overflow with undefended spaces that flatten the way for illegal activities. A threat to CPTED interventions, as Cozens et al. (2005) declared, is "negative socio-economic and demographic dynamics [that] can also reduce the efficacy of CPTED strategies". In total, hot spots in Iran and especially the study areas suffer from hindering socio-cultural-economic conditions that negatively affect the efficacy of implementing CPTED interventions. This urban issue is conspicuous in scattered undefended spaces of the areas.

In total, the followings are the suggestions derived from the implications of the findings in accordance with CPTED interventions that contribute to the future development and planning of public spaces in Shiraz and other similar urban contexts:

- 1) Strengthening the cultural base of residents to reinforce their guardianship towards their environments, which decreases vandalism
- 2) Establishing more administrative, cultural, and commercial centers (for instance, the neighborhood cultural center) and land uses in hot spots to increase urban vibrancy and surveillance
- 3) Improving urban infrastructure in underprivileged areas such as hot spots
- 4) Enacting systematic management initiatives that involve residents in making decisive decisions about their environment through a participatory process.
- 5) Renovating building facades and reinforcing visual-physical elements in key pathways to enhance environmental quality and sense of belonging
- 6) Converting undefended urban spaces to defensible ones by allocating appropriate land uses, such as commercial and cultural, and public parking lots
- 7) Defining specific pedestrian paths along all alleys and axes, improving flooring and surface water disposal systems in most routes, and improving public lighting
- 8) Demolishing worn-out buildings with low maintenance capacity
- 9) Widening narrow and meandering alleys in the possible future developments and defining a tourist path in order to increase the environmental vibrancy

## 7.0 CONCLUSIONS

Although previous studies stressed the role of the principles of CPTED (crime prevention through environmental design) in preventing or reducing crimes, the current paper implies that preventing crimes in hot spots significantly hinges on enhancing the socio-cultural bases of the residents, leads to high environmental territoriality and surveillance, and improves physical appearance. More globally contributing, the findings of the Correlation Analysis and observation study imply that the socio-cultural and physical structure and condition of hot spots highly determine the degree of efficiency of implementing the principles of CPTED. It is not plausible to apply a one-size-fits-all remedy for implementing the principles of CPTED, even in similar areas. For example, in the study areas, the findings show that maintenance, despite its crucial

proven role in preventing crimes, contributes to crime prevention in the study areas the least due to economic obstacles and low awareness of the residents.

What the paper did not pursue and left to future studies is investigating the role of reinforcing the cultural foundations in preventing crimes in urban spaces. In addition, investigating the impact of spatial arrangement of physical attributes on reducing crime patterns is worth studying in future studies. The findings not only present practical clues for enhancing the physical appearance of the environment and preventing crimes, but they also underlie the foundation of future planning and design of the areas. Applying the pragmatic suggestions of the paper is an environmental remedy for the structural and social problems that hot spots tackle.

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