

# Article Review: Theoretical Concepts of Crime and Practices in Urban Planning and Design Process for Safe Urban Life

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## Abstract

Crime is a serious concern from the very beginning of human civilization and several theoretical concepts are addressing the 'social crime' issue minimization crime without compromising harmonized economic activities and environmental safety. However, urbanization is very closely associated with social crime, for example, rapid urbanization which includes architectural planning accommodating housing and transportation, level of accessibility and other outdoor spaces can influence crime and fear of delinquency to the city dwellers. This review explored the relationship between crime and urbanization from the existing theoretical concepts of crime in urban planning, design and development viewpoints. We also discussed the applications of theoretical concepts in urban planning processes to minimize the crime and its possible prevention strategies. More precisely, place-based theoretical concepts of crime depict the urban socio-physical environment with socially disorganized locations of the city and the causes of social disorder and pave a way for the local government to take and implement strategic plans for ensuring good governance of the city. These concepts also demonstrate crime pattern, hotspots formation, causes-effects and how to prevent crime hotspots. Thus, taking these concepts into consideration, a significant portion of crime can be reduced in modern planned urbanization. Besides, continuous refinement of 1<sup>st</sup>, 2<sup>nd</sup>, and 3<sup>rd</sup> generation concepts of crime prevention through environmental design (CPTED) is worth considering in urban planning and design process preventing crime and safe urban environment initiative. Finally, further studies are needed to comprehend crime avoidance actions in urban planning and design process for safe urban life, particularly in developing countries.

**Keywords:** crime prevention, safe urban life, urban crime theory, urban design, urban planning

## 1. Introduction

Evidently from the dawn of industrialization and urbanized society, crime is a part and parcel of urban life and it has become a severe concern for the law enforcement agencies, local government as well as city dwellers from the pre-industrial society to till-to-date. Population growth and rapid urbanization are directly along with these poorer neighborhoods with higher population density and higher youth unemployment stimulate higher rates of crime (Marzbali, Abdullah, Razak & Tilaki, 2011, p. 160, Sanidad-Leones, 2006, pp. 133-150). The levels of crime and violence differ from region to region, country-to-country, and even regions within a country and/or areas within a city. However, it is still very difficult to rationalize 'crime', as it is multi-factorial, i.e. causes, drivers, risks, and protective factors are locality-specific and influenced by historical, political, cultural, socioeconomic conditions etc. which very tough to be accommodated into a single and/or a couple of concepts. In addition, magnitudes of crime in some developing countries pose very significant problems for municipal governments. The seriousness of the crime and crime rates impose particular demands on local and central governments in most developing countries, but almost absent in developed countries (Shaw & Carli, 2011).

In many cases, poor performance (inadequate knowledge on attractors, generators, and patterns of crime) of urban planners, designers, and architects might lead to increasing the possibility of crime occurrence (Kamalipour, Memarian & Faizi, 2014, pp. 441-450). The problem is still unresolved as crime rates around the globe continue to escalate might be related to the simple calculation of damage (death, physical assault, financial and asset loss) due to crime occurrence. Although the fear of crime affects the mental and physical well-being of victims, causing behavioral alterations with serious consequences for the whole community, and considerably decreasing the quality of life in urban areas (Santana, Santos, Costa, Roque & Loureiro, 2009). The distribution of fear of crime varies considerably over time and is often spatially coincident with concentrations of disorder (Doran & Lees, 2005, pp. 1-12). Fear of crime-the emotional response to possible violent crime and physical harm that fear reflects the possibility of victimization. Fear levels do not closely reflect local crime rates when social class is removed from the relationship (Covington & Taylor, 1991, pp. 231-249). The most significant effect of fear of crime is the reduced quality of life it imposes on those affected by it. Fear of crime can have significant

negative effects on individuals, communities, and societies (Brunton-Smith & Jackson, 2011).

Fortunately, recent studies have concentrated on the consideration of crime as a sustainability indicator and the quality of life could substantially be improved just by reducing crime and fear of crime in any society. More importantly, nowadays, violence against women (domestic and outdoor), gender biased criminal offenses etc. are main policy concern of many developing countries let alone donor agencies, NGOs and media coverage etc. (Khopolklang, Polnigongit & Chamnongsri, 2014, pp. 167-176). Along with these, sociologists, geographers, economists, architects, urban planners, psychologists, and other academicians have long been investigating the causes of crime growth, its effects in the society, and possible strategies for overcoming the crime problem and concluded with establishing several theories and concepts of urban crime. These theoretical concepts are many types based on their academic background and philosophical insight. These theoretical concepts also urge inevitably greater regulations and more participation of both individuals and communities (Marzbali, Abdullah, Razak & Tilaki, 2011, p. 160). Consequently, the anti-crime strategies are urgently needed to be implemented promoting safe communities and sustainable development (Santana, Santos, Costa, Roque & Loureiro, 2009). According to Crowe (2000), proper design and effective use of the built environment can lead to a reduction in fear of crime along with incidence, and to an improvement in the quality of life. Obviously, well-planned interventions can prevent crime and victimization, promote community safety, and make a significant contribution to the sustainable development of vibrant communities (Australian Institute of Criminology, 2012). Therefore, 'designing out crime' represents a vital tool for assisting the sustainability of urban development (Cozens, 2007, pp. 187-193).

Hence, crime prevention through the process of urban planning and design might contribute to improving quality of life with the ensured sustainability of the urbanized society. In this review, we focused on existing placed-based theoretical concepts of crime literature to explore the extent of the degree of influences on urban planning and design process to secure safe urban life.

## 2. Definition of crime and its causes

Crime is a socially constructed and often contested phenomenon considered as anti-social and punishable by

law by the State (Davies, 2004, pp. 187-193). It is also defined as a violation of societal rules of behavior as interpreted and expressed by the criminal law, which reflects public opinion, traditional values, and the viewpoint of people currently holding social and political power. Individuals who violate these rules are subject to sanctions by state authority, social stigma, and loss of status (Siegel, 2014). Similarly, Schiller, Black & Murphy (2010) defined crimes as acts or omissions forbidden by law that can be punished by imprisonment and/or fine.

Crime is primarily the outcome of multiple adverse social, economic, cultural and family conditions. The factors influence crime, including the physical and social characteristics of the place and the people, use the place (Burgess, 2011). The Scottish Centre for Crime and Justice Research (2016) opined that there is no one 'cause' of crime; rather, crime is a very complex phenomenon that further differs across cultures and across time. Activities that are legal in one country (e.g., alcohol consumption in the UK) are sometimes illegal in others (e.g., strict Muslim countries). Moreover, academicians and researchers also have different definition, opinions, and thoughts regarding the potential causes of crime. Despite having very diverse opinion from different perspectives, it is in consensus that the three major causes of crime are lack of education, living in poverty, and being raised in a single parent home (Holzman-Escareno, 2015). Besides, some empirical studies also found that inefficient and corrupt administration along with inmate instigate offender doing the crime (Warissara, 2015, pp. 109-118)

Therefore, a huge number of approaches have been made so far (from early 20th century to till to date) to explore the causes of crime from different contexts and to address the crime issues from a different perspective (theoretical concepts of crimes). In the next sections, we will discuss these concepts in details which may pave a way of avoiding and/or minimizing crime in the process of urban planning and design (planned civilization).

### 3. Methodology

We reviewed more than sixty individual publications (books, journal articles, reports, etc.) from available sources and data sources of previous studies and research. Besides, the 'Thirteen United Nations Congress on Crime Prevention and Criminal Justice' report (2015) provides a foundation for the crime rate and the opportunity to predict future crime trends. It examines publications related to the theoretical concepts of crime, place-based

crime prevention methods, urban planning and design, safe urban concepts, etc. Therefore, several theoretical approaches namely, 'Urban Ecology (Concentric Zone Model) by Park and Burgess (1925) (Brown, 1925), 'Social Disorganization Theory by Shaw & McKay (1942) (Kubrin, 2009), 'Routine Activity Theory' (Cohen & Felson, 1979, pp. 588-608), 'Crime Pattern Theory' (Brantingham & Brantingham, 1993, pp. 3-28), 'Rational Choice Theory' (Cornish & Clarke, 1985, pp. 588-608), 'Broken Windows Theory' (Wilson & Kelling, 1982, pp. 29-38), 'Environmental Criminology Theory' by Brantingham & Brantingham (1981) (Andresen, 2016), 'Crime Prevention through Environmental Design' (CPTED)' (Newman, 1972), etc. Along with the most relevant approaches for each theory was recognized and parallel points and challenges were identified as well.

The procedural elements adapted in this study assessing theoretical concepts of crime, which are facilitating urban planning and designing process to prevent urban crime are often more qualitative than quantitative in nature. It might be difficult to make comprehensive guidelines facilitating urban planning and design preventing or minimizing crime by using numerical data. As for other qualitative studies, this review article takes an advantage of existing sources of data and published results. The study employs a comprehensive method in the sense that the most relevant information is taken into consideration. Subsequently, a summary of the different studies related to the objectives and the results that have produced so far has been done. This is followed a conclusion on the contribution towards safe urban development reviewing theoretical concepts of crime and urban planning and design process.

### 4. Location-based theoretical concepts of crime

Location-based theoretical concepts of crime focus the distribution of crime incidents in a city based on how different areas of a city are developed. Therefore, a detailed understanding of the relationship between the distribution of crime and the urban structure will help intervening crime prevention strategies through urban planning and design (Erdogan, 2010, p. 271). Moreover, instead of taking the number of crimes in an area over a certain period in consideration, the methodological issues in spatial statistical analyses of crime data is worth considering (Anselin, Cohen, Cook, Gorr & Tita, 2000, pp. 213-262). Prior going into the details of the review of location-based crime prevention theories and concepts, it should be mentioned here that every theory and concept

have some limitations and criticism, to save the space and words and achieving the main objective of the paper, criticism section of each theory and concept almost has escaped. Hence, in the following sections, several place-based theoretical concepts of crime and crime prevention through environmental design (CPTED) concepts were discussed.

#### 4.1 Urban ecology (concentric zone model)

Park and Burgess's (1925) (Brown, 2005), theory of urban ecology model—known as 'Human Ecology' model predicted that fully grown cities would take the form of five concentric rings, with areas of social and physical deterioration concentrated near the city center (Trimek, 2014, pp. 69-80). It was the first attempt to analyze the internal morphology of town grounded in the assumption that competition was the fundamental form of social interaction that determined the territorial distribution of populations in a community. It provides a good conceptual framework for the most detailed study of the complex urban land use. The model was based on i) ecological approach explaining land use pattern; ii) residential and social segregation, and iii) spatial patterns of various land use zones. According to Park and Burgess's model, the Zone 2 was constantly changing with the flow of people. In this zone, relationships among the community were weak, causing low-performing social mechanisms and customs that control behavior in a community. They also pointed out the changes marked by greater social disorganization that contributed to deviant behavior and criminality.

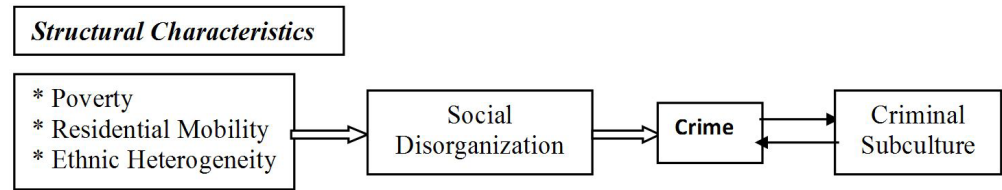
This theory explains the existence of social problems such as unemployment and crime in administrative districts, making extensive use of synchronic mapping to reveal the spatial distribution of social problems and to permit comparison between areas. They argued, "neighborhood conditions, be they of wealth or poverty, had a much greater determinant effect on criminal behavior than ethnicity, race, or religion". This theory plays a significant role in explaining where there is a relationship between crime and space or not. Due to the rapid urbanization and its associated social problems, the approach deals with the question of how criminal acts evolve in an urbanized area influenced by cultures and surroundings (Rindlisbacher, 2014). However, this theory helps to understand the residential pattern of land use better than the commercial and industrial land uses along with a concentric form of the city, but it is quite difficult to implement in most of the cities.

#### 4.2 Social disorganization theory

The Social Disorganization Theory by Shaw and McKay (1942) (Kubrin, 2009) was solely based on Park and Burgess's Theory. Shaw and McKay focused on juvenile delinquency and social structure variables within the transition zone and they used the term social disorganization and sought to study the processes responsible for creating higher rates of juvenile delinquency in this transition area (Jones & Bartlett, 2014). One of the main features of this theory was instead of focusing "kinds of people" they considered "kinds of places" for explaining crime that included different types of neighborhoods creating conditions favorable or unfavorable to crime and delinquency (Kubrin & Weitzer, 2003, pp. 374-402). A central element of this theory is the communities, socially organized communities at one end and socially disorganized communities at the other end. This is fundamental to the theory because the social organization is vital to combating crime; socially organized communities have solidarity (internal consensus on important norms and values such as a crime-free community) cohesion (strong bonds among neighbors), and integration (social interactions among residents), which collectively help to lower crime rates and socially disorganized communities which lack these characteristics and thus have higher crime rates (Figure 1) (Kubrin, 2009).

This theory also concentrates on four environmental conditions, namely, i) deteriorated neighborhoods, ii) inadequate social control, iii) law-violating gangs and groups and iv) conflicting social values (Siegal, 2006). Therefore, the main idea of social disorganization theory exposed that social disorganization links crime rates to neighborhood characteristics affecting a neighborhood's ability to institute social control for the prevention of criminal victimization. Therefore, crime cannot be understood without having detail knowledge from the demographic, economic, spatial, and social context in which it occurs. The most immediate spatial contexts are the neighborhoods in which people live and the places where their lifestyles frequently situate them (Cahill, 2004). This theory showed higher rates of delinquency in the transitional inner-city zones, where huge numbers of migrant people had recently settled. Zone I and II retained the high rates of crime occurrence, even though the ethnic composition of the zones changed over the years. The crime rates dropped significantly as one progressed from the center of the city outward (Glick, 2005).

**Figure 1.** Social disorganization model. (Source: PowerShow.com, May 8, 2017)



However, for a long time, it was on debate how to conclude crime (crime stability) despite constant changes in a place (neighborhood) along with the presence of crime in a neighborhood (as well continuous changes in the neighborhood). Furthermore, this theory attempts to understand the relationship between crime and place using a “macro” approach, looking at aggregates of places such as regions, states, cities, communities, and neighborhoods, rather than a “micro” approach that examines the places themselves (Eck & Weisburd, 2015, pp. 1-33).

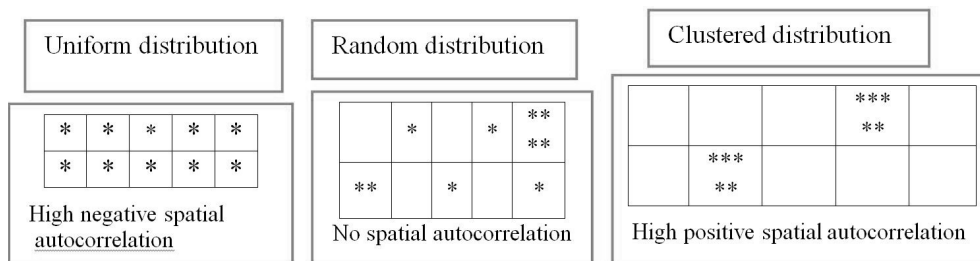
#### 4.3 Routine activity theory

The routine activity theory (Cohen & Felson, 1979, pp. 588-608) explains the occurrence of crime events as the confluence of several circumstances. It is one of the main theories of “environmental criminology” (Department of Attorney General and Justice, 2011). It states that a crime occurs when the following three elements come together at any given space and time: (i) an accessible target, (ii) the absence of capable guardians that could intervene, and (iii) the presence of a motivated offender. The “opportunity of crime” can, therefore, be expressed as the sum of “likely offender” and “suitable target” minus “capable guardian” (Chainey & Ratcliffe, 2005). This theory gave much emphasis on the characteristics of offenders and the circumstances in which lawbreakers carry out predatory criminal acts. Cohen and Felson (1979) also considered only one crime suppressor, the guardianship in the form of supervision protecting targets from offenders when the delinquent and target are in the same place (Sherman, 1995, pp. 35-52). In addition, the routine activity theory also predicts who is more likely to be victimized in advance as well as analyzing crime rate, trends, and cycles.

There is a strong correlation between crime victims and offenders. However, this theory is quite reluctant about the details on offenders and therefore, the patterns found by ‘Routine Activity Theorists’ could be misleading. Another deterrence that influences the routine activities that produce crime is the moral beliefs and socialization of the offender. If a person has been socialized to hold conventional beliefs, even in the presence of criminal opportunities, offenders would refrain from crime. Such is the strength of social bonds that serve as a buffer to counteract of criminal activities, but the routine activity theory did not accommodate these issues in crime prediction and/or estimation.

#### 4.4 Crime pattern theory

Felson and Clarke’s (1998) crime pattern theory (CPT) considers how people and things are involved in crime move in space and time. This theory is particularly important understanding crime and place as it combines rational choice and routine activity theory to explore crime distribution across spaces. The key concepts included in CPT are nodes, paths, and edges. Nodes refer to places (i.e. home, school, entertainment areas etc.) where people travel to and from; paths refer to the actual paths that people take to and from their personal activity; and edges refer to the boundaries of areas where people live, work, shop, or seek entertainment (Hiropoulos & Porter, 2014). This theory contributes to understanding the distribution of offenders, targets, handlers, guardians, and managers over time and place describe crime patterns based on the changes in societies (handlers, guardians, and managers).



**Figure 2.** Concept of clustered, random, and dispersed/uniform distribution of crime. (Source: Briggs, 2010)

This theory also helps to comprehend the clustered, random, dispersed/uniform concepts of spatial correlation of urban crime (Figure 2). Eck & Weisburd (2015) opined that the crime pattern theory is particularly useful for explaining an individual's crime. However, this theory did not tell much about crimes taking place in groups or gangs; statistically, a large amount of crime is committed by groups rather than at individual levels.

#### 4.5 Rational choice theory

The "Rational Choice Theory", also known as "classical criminology" in the 1980s (Cornish & Clarke, 1987) has been treated as a purely macro-level process linking social disorganization, social capital, and informal social control into a macrostructural theory of crime (Matsueda, 2013, pp. 3-6). It added a new dimension that emphasizes the expanding role of the economist in criminological thoughts. The emphasis is placed on the expected reward for committing a crime, and other associated costs and benefits surrounding criminal activity (Akers & Sellers, 2013). This theory is at the heart of microeconomics and asserts when confronted with choices, individuals strive to achieve their goals in the most cost-effective way (Bernasco, 2014).

It is an approach used by social scientists to understand human behavior from incentives and constraints viewpoints. This theory is based on several assumptions: first: the individualism; it focuses on individual behavior; second: goals: individuals have to maximize their goals; and the third: self-interest: individuals are self-interested (Gul, 2009, pp. 36-44).

However, the problem of social structure is a feature of methodological individualism, rather than rational choice theory, but it creates difficulties for the theories considered (Scott, 2000, p. 129). Moreover, the rational choice theory seems to be the assumptions of the theory are not literally and completely true and the assumption of rationality has by itself no observable implications whatsoever (Green, 2002).

#### 4.6 Broken windows theory

The Broken Windows Theory (Wilson & Kelling, 1982) states "Disorder and crime are usually inextricably linked, in a kind of developmental sequence." This theory is based on the assumption that an unfixed broken window leads to decay, disorder, and fear, which in turn leads to increased criminality. And accordingly, they proposed that the authority (from individual to state levels) should take care of the little and the big things which will take care of themselves. Therefore, 'Broken Windows' are not just literally broken windows, but all signs of disorder that cause fear and go against community values. Broken Windows asks about personal agency (free will), crimes of opportunity, situational crime prevention, the urban environment, and, most importantly: The role of police in crime prevention (Moskos, 2016).

This theory considered four important variables: (i) disorder, (ii) fear of delinquency, (iii) social control, and (iv) crime. A vital part of this theory is the perception of disorder (Meinen, 2014) and suggested that minor forms of public disorder (e.g. broken windows) could lead to severe crime and a downward spiral of urban decay. To be more specific, a simple small



disorder can beget an even broader range of problems and can, in short order, and inundate an area with severe victimizing crime (Skogan, 2008, pp. 195-201). The authors recommended for giving efforts to reduce disorder which might ultimately translate into reductions in criminal activity. This is because, if minor social disorder (littering, loitering, public drinking, panhandling, and prostitution), and physical disorder (graffiti, abandoned buildings, and littered sidewalks) are tolerated in a neighborhood, may produce an environment that is likely to attract crime. So for instance, the way to address disorder and to reduce crime is to increase the number of misdemeanor arrests (Harcourt & Ludwig, 2006, pp. 271-320). In this connection, Jefferson (2015) mentioned the successful application of this theory to advance neoliberal growth in the city securing public safety. For example, only the police action against disorder could initiate quality life in New York City (Jefferson, 2015). However, the central claim of the broken windows theory, disorder, causes of crime by signaling community breakdown, is flawed. Moreover, “disorder” and “the disorderly” lie at the heart of the problem but they do not have well-defined boundaries or settled meanings (Harcourt, 2002, pp. 17-18), restricting its application addressing disorders.

#### 4.7 Environmental criminology theory

‘Environmental Criminology Theory’ by Brantingham & Brantingham (1981) (Andresen, 2016) considers crime as an integrated event from the inter-relationship of crime, offenders, and victims. This theory discusses the particular places and the way by which individuals and organizations shape their activities within or around the places and depicts that a crime occurs only when a law, an offender, a victim, and a place come together where the place is the focus of environmental criminology. Therefore, the mapping is used to define and determine crime patterns in environmental criminology including the association of crime with land usage, traffic patterns, street/urban design, the daily activities, and movements of victims and offenders (Department of Attorney General and Justice, 2011). Literally, environmental criminology is a criminological perspective, which in many respects, consider the causes of crime to be highly related to the nature of the physical environment and nature of neighborhoods, structures, and objects can have an impact on crime (Randa, 2014).

The environmental criminologists look for crime patterns from environmental influence viewpoint and predict the emerging crime problems (if there is any) so that the authority may take the development of strategies minimizing crime events (Wortley & Mazerolle

(Eds.), 2013). The ‘Environmental Criminology Theory’ is not a fundamental theory; rather, it is a combination of three related crime opportunity theories (Crime Pattern Theory, Rational Choice Theory and Routine Activity Theory). The major critics of this theory are that this theory concentrates only the spatial location of the crime and its effects and how individuals’ behavior is influenced by place-based factors. Along these, the propositions in the model are not spatially specific. Criminals usually use previous knowledge to select targets which they did not mention at all (Heidt, 2011). However, if the spatial distribution of offenses and offenders are random, then environmental criminology would be of little interest to either scholars or commentators on either criminal or social policy (Cozens, Saville & Hillier, 2005, pp. 328-356). Indeed, crime is not randomly distributed and “hot spots” of crime have been acknowledged since the mid-nineteenth century.

#### 4.8 Crime Prevention Through Environmental Design (CPTED)

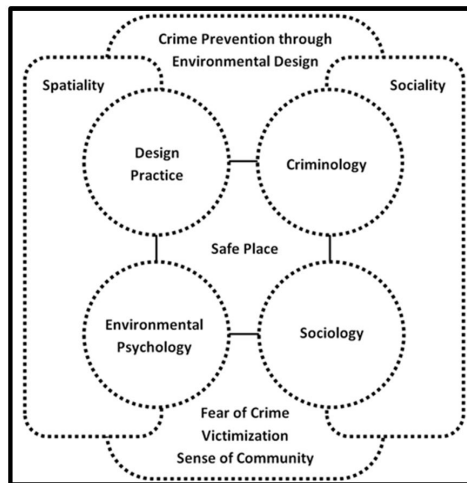
It is said that the US architect Oscar Newman (1972) first used the concept of ‘defensible space’ in the 1970s for reducing the opportunity for crime and promoting community responsibility through modifying the built environment. Newman’s ideas centered on public housing design helped to shape environmental criminology as a new area of focus in urban housing and accessibility (Gibson, 2016). Furthermore, the Situational Crime Prevention (SCP) and Crime Prevention through Environmental Design (CPTED) advocated changes in physical environments and physical objects within the spaces. The CPTED is a comprehensive approach to reducing crime through minimizing crime opportunities, unintended and undesirable behaviors of offenders (Figure 3; Kamalipour, Memarian, & Faizi, 2014, pp. 441-450). More specifically, the CPTED attempts to reduce or eliminate those opportunities by using elements of the environment, namely, (1) controlling access; (2) providing opportunities to see and be seen, and (3) defining ownership and encouraging the maintenance of territory (Zahm, 2007). Altogether, this approach helps to reduce the fear and incidence of crime and to improve the quality of life through proper design and effective use of the built environment (Parliament of Victoria, 2013).

It is clear that the CPTED attempts to remove or reduce the crime opportunities by changing various aspects of the building, sites, locations, and land uses and it is a multi-scalar and multi-dimensional crime prevention approach. Therefore, a careful environmental design (i.e. urban planning and design) in different scales and

dimensions can reduce both the fear and incidence of crime significantly (Kamalipour, Memarian & Faizi, 2014, pp. 441-450). It is worth mentioning that several nations and states (e.g. the UK: 2004 and some American and the Australian States: 2004) have already started to create/amend existing legislative and planning policy frameworks to incorporate CPTED practice and procedures into the planning process (Cozens, Saville & Hillier, 2005, pp. 328-356; Gibson, 2016). In contrary, the CPTED targets on the places (hardening crime opportunities), but do not consider the offenders and it cannot be applied successfully without sufficient community participation (Cozens, Saville & Hillier, 2005, pp. 328-356).

The theoretical concepts of crime and crime prevention through environmental design discussed in previous sections clearly suggested that a careful urban planning, design, and development can contribute significantly reducing crime and improving quality of urban life (Figure 4). The major points of this review are mentioned hereafter:

- Academicians are regularly concentrating on the modification of place-based crime prevention theories based on empirical evidence;
- Policy makers are continuously enabling acts incorporating place-based crime prevention planning principles in development codes, urban planning, and design laws;
- Enacting local government capacity building priority, such as Community Oriented Policing Service (COPS, USA), Community Partnership (Britain), Safe Cities (Canada), Environmental Planning and Assessment (Australia);
- Motivating to use modern technology such as crime mapping through GIS, GPS, 3D modeling as crime prevention tools; and
- Generating new molding and concepts of place-based crime prevention approaches into new theories including new Urbanist-type theory.

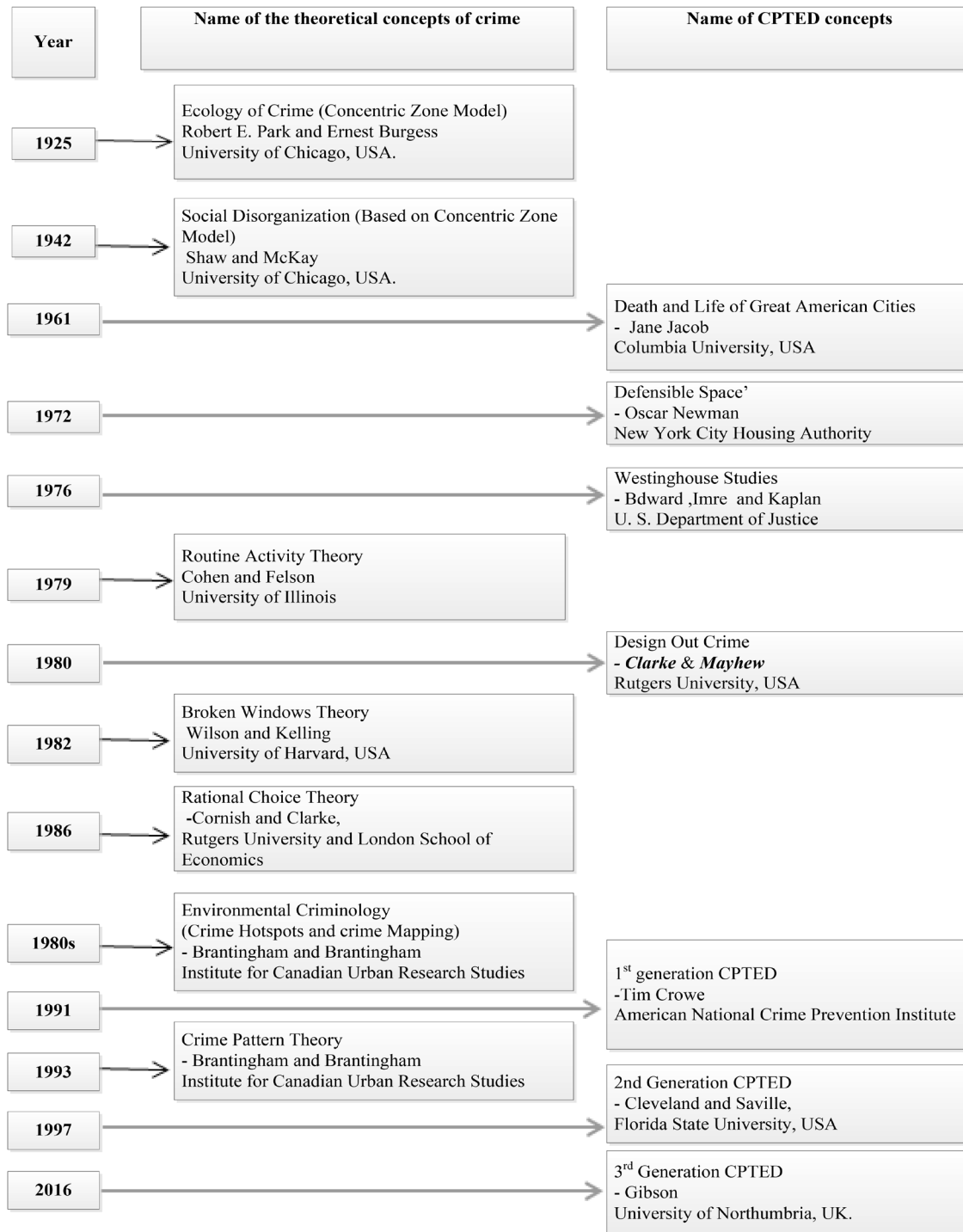


**Figure 3.** Safe place in relation to design practices.(Source: Kamalipour, Memarian & Faizi, 2014)

## 5. Location-based crime prevention methods

The crime the most vital social and state issue affecting the quality of human life in the process of civilization. There are several location-based crime prevention concepts from many academicians and researchers for preventing crime through urban planning and design. These concepts include 'Defensible Space' by Oscar Newman (1972); 'Westinghouse Studies' by Bdward, et al. (1976); 'Design Out Crime' by Clarke & Mayhew (1980); 'Situational Crime Prevention' by Clarke (1980); '1<sup>st</sup> Generation CPTED' by Tim Crowe (1991); '2<sup>nd</sup> Generation CPTED' by Cleveland & Saville (1997); '3<sup>rd</sup> Generation CPTED' by Gibson (2016), etc. Furthermore, Brantingham & Brantingham (1993) focused on the interactions between the offender and the structural/social environments committing a crime. They also concluded that crime is the result of interactions between people and movement in the urban perspective of time and place (Asl, Moghadam & Parhiz, 2014, pp. 1-9). Therefore, understanding the crime patterns and the processes resulting the crime events are worth considering exploring and addressing the elements of crime events (Irvin-Erickson, 2014).





**Figure 4.** Chronological development of theoretical concepts of crime and CPTED concepts.(Source: Drawn from Marzbali, et al. (2011); Soomeren (2013))

Fortunately, in recent years, place-based randomized trials, in which small geographic locations rather than individuals are randomly assigned to receive experimental treatments, have become influential in criminal justice (Weisburd & Gill 2014, pp. 97-112). This approach of using spatial data and analyses of crime provide promising information on the nature of the relationship between crime and place. Consequently, humans and culture are components of the environment, where the environment is inevitably linked with human health and environmental conditions (Marzbali, Abdullah, Razak & Tilaki, 2011, p. 160). For example, the 2015 UN Crime report indicated that high-income countries had decreasing trends for both violent and property crimes, whereas upper-middle-income countries had rising trends for most crimes except homicide, and low- and lower-middle-income countries had diverse trends over the years 2003-2013. Such differential trends of crimes could be originated from inequality, poverty, the weak rule of law etc. resulting in conflict and non-conflict violence (Anselin, Cohen, Cook, Gorr & Tita, 2000, pp. 213-262). It also showed that our society needs to be aware of crime and fear of crime providing human health and safe communities. Therefore, it is important to explore methods to prevent crime in diminishing the adverse effects of criminalities on human well-being. In this context, if spatial features serve as actuating factors for crime (the people and/or facilities located there), then interventions must be redesigned to alter those persons and activities reducing crime events (Anselin, Cohen, Cook, Gorr & Tita, 2000, pp. 213-262).

In addition, Koper, Egge and Lum (2015) found that crime is highly concentrated at a minor percentage of identifiable places in most jurisdictions and simple police interventions at those hotspots may be sufficient enough preventing crime without displacing the criminal elsewhere. Such hotspots of crimes do not mean large geographic units but are specific locations within the larger social environments of communities and neighborhoods, focus only the criminologists concerned with crime prevention, or the beats and precincts that have been key to the organization of policing (Weisburd, Telep & Braga, 2015). This notion was furthermore supported by Weisburd (2008); police should put places rather than people at the center of police practices for meaningful reductions in crime and disorder (Weisburd & Telep, 2015, pp. 15-26). Besides, the practices of place-making and design-level interventions need to be based on a comprehensive understanding of spatiality linking to sociality (everyday life, relationships among urban morphology, functional attributes, and social constructs

of place). Therefore, the 'safety issue' must be accommodated in urban planning and design in the context of place concerning social constructs and practices of everyday life in the city (Kamalipour, Memarian & Faizi, 2014, pp. 441-450). The later sections briefly depict the place-based theoretical concepts of crime, which will help to understand the urban crime ecology as well as the planning and design process of crime prevention.

## 6. Prevention of crime practicing theoretical concepts in urban planning & design

The threat of external enemy's attack and regular internal occurrence of crime fear have always been playing a role in urban forms, influencing urban planning, residential design, and the spatial distribution of citizens (Spinks, 2001). In fact, a combination of landscape design, elements, quality, and maintenance can influence crime (Troy, Nunery & Grove, 2016, pp. 78-87). Thus, understanding the factors of crime and crime fear are inevitable in urban planning and design to avoid crime ensuring the quality of life. Therefore, different models and theoretical concepts of crime have been proposed to address these issues from geographical, based data on the characteristics of the inhabitants (e.g. income, race, home ownership, family structure), from psychological (e.g., territoriality) and from physical environmental predictors (e.g., block size, landscape) perspectives (Christens & Speer, 2005, p. 113). It has long been found and reported that in most of the crime-prone cities, the heterogeneity of the urban environment makes it an attractive place for thieves, rapists, assassins, murderers, etc., where crimes occur as there is little fear of recognition due to weak governance of local administration, disorganized political institutions and lack of commitments of law enforcement personnel (Agbola, 1997). In addition, the UN-Habitat (2007a) pointed out that the lack of integration of crime prevention strategies within comprehensive city planning practices as a key factor in facilitating opportunities for crime. Hence, physical planning can make a difference preventing/reducing crime through effective policing and informal surveillance, which can protect persons and property. This notion is furthermore corroborated with the place-based crime prevention and reduction theories that physical design and management of the built environment play a role in facilitating or diminishing opportunities for crime and violence. To be specific, 10-15% of crime could be reduced through physical environmental design and/or management (UN-Habitat, 2007b).

In addition, it needs to mention some more successful application of CPTED examples that changes in design, including a slug rejecter device, substantially reduced the use of slugs in New York parking meters and, more recently, transparent screens to shield the bus driver significantly reduced assaults on one transit system; anti-bandit screens on post office counters in London have cut robberies by 40 percent; and the installation of fixed and “pop-up” screens is believed to have been an important element in reducing over-the-counter robberies in Australian banks (Clarke, 1993). Besides another fruitful use of CPTED in Malaysia cities show that in 2009 the Global Peace Index (GPI) recorded Malaysia as the 3rd safest country in Asia after Japan and Singapore and 26th amongst 144 countries globally. The Institute of Economic & Peace GPI 2010 reported that Malaysia was then ranked 22nd in the world, overtaking Singapore as the safest country in South East Asia and ranked second after Japan in comparison to other Asian countries (Shamsuddin & Hussin, 2013, pp. 223-245).

Accordingly, the first-generation CPTED studies of urban crime suggested for a deterministic conception of crime concerning the built environment and the second-generation CPTED studies through possibilistic approach focused on the relations between crime and built environment. The first and second generations of crime prevention through environmental design are distinguishable from each other regarding their underlying propositions towards the relations between human and built environment (Kamalipour, Memarian & Faizi, 2014, pp. 441-450). Altogether, research on ‘crime prevention through environmental design’ for last five decades indicated an implicit and gradual movement from deterministic to possibilistic propositions exploring the relationships between urban crime and environmental design both in theories and practices. In this connection, Soomeren (2013) quoted, “what policymakers need most is not a scientific explanation of crime, but a manageable method for tackling it: crime science”. Hence, the issue of safety by design needs to be addressed within the context of place regarding social constructs and practices of everyday life in the city (Kamalipour, Memarian & Faizi, 2014, pp. 441-450).

## 7. Urban planning and safe urban life

The history of modern thoughts about cities is unfortunately very different from modern thoughts of life sciences. Theorists of conventional modern city planning have consistently mistaken cities as problems

of simplicity and disorganized complexity (Jacob, 1961). It seems like other socio-physical problems, disorganized complexity leads to delinquencies which make cities a risk (Mega, 1996, pp. 133-154) and fear of crime has the potential to erode and reduce existing levels of sustainability within a community (Cozens, 2007). City’s capacity to generate places fit all to live in. However, crime and its fear impose challenges to the liveability of cities. Whether the risk of being a victim of crime is real or not, contemporary security concerns hamper mobility and social interactions that are vital for quality urban life. The risk of being a victim of crime is not equally or randomly distributed over space; some parts of the urban fabric are less safe than others. Fear of crime has been found to follow specific patterns in the city, which are not always easy to predict (Ceccato, 2012).

Currently, planning in future considers two important issues, ‘communication’ and ‘collaboration’ to prevent crime in the context of social dynamics in the scale of the national, regional and local level policy makers, administration and execution of urban planning and design. Therefore, urban researchers, security officers and city administration jointly admit that poor planning, design, and management of the urban environment puts citizens at risk of death, injury, and loss of property. Along with these, current awareness of crime and place has focused on micro-level relationships. Such studies began with efforts to identify the relationship between specific aspects of urban design or urban architecture and crime but broadened to take into account a much larger set of characteristics of physical space and criminal opportunity (Eck & Weisburd, 2015, pp. 1-33). Hence, place-based crime prevention and reduction concepts suggesting that physical design and management of the built environment play an important role in facilitating or diminishing opportunities for crime and violence.

It is also noticeable that the cost of crime may be larger than 7% of gross domestic product (GDP) in Latin America, in comparison with 4% in the USA and 2% or less in European countries and many Asian countries (Bourguignon, 2001). Nobel laureate Gary Becker (1968) mentioned that income inequality has a long-term positive relationship with crimes and if there is 1% increase in income, then the delinquency decreases by 2.5% (Jalil & Iqbal, 2010, pp. 741-755). Internationally, the two most commonly used indicators recorded are the crime and the cost of the delinquency per capita (Cozens, 2008, pp. 272-292). As a result, the urban fabric of any city can be the reason for the crime to happen and at the same time,

it can contribute to its prevention. But it has always been a question in the research works of many designers, planners, criminologists to get advanced regarding design, which will curb crime in different parts of the cities (Shukla, 2015, pp. 15-24). In this connection, Soomeren (2013) opined that urban safety and security strategies have three basic principles:

- (i) Early intervention and planning (invest in youth, invest in early stages design/planning process);
- (ii) Integrated partnership approach (include education, health, urban planning/housing, economic development, employment, police, justice, immigration, poverty, integration, etc.); and
- (iii) Quality management: plan-do-check-act.

In addition, UN-Habitat (2007a) provided some examples of how urban planning and design can contribute to reducing crime and ensuring safe urban life. This can be achieved through 'site design' that provides increased prospects for people to observe their surroundings reducing criminal opportunity; 'street widening programs' that can open up previously impenetrable urban areas to police and emergency service vehicles, and the creation of new housing or commercial developments can change traffic generation patterns and may provide increased economic and residential opportunities. Finally, the 'access and escape routes for offenders are facilitated by gridiron-based patterns, reducing the risk of being caught, as well as facilitating the efforts to commit robberies and burglaries.

Furthermore, the UN-Habitat (2007b, p. 25) also provided a conceptual framework towards urban crime vulnerability, risk, and resilience. This conceptual framework specifically focused the threat to the safety and security regarding urban crime and violence. Therefore, the response might include more effective criminal justice systems, improved surveillance, community policing, better design of public/open spaces and transport systems. Furthermore, improved employment for youth, the development of gated communities, and the provision of private security services can also significantly reduce safety and security threats. The key outcomes of the safety and security threats include loss of assets, injury, death, property damage, emotional/psychological suffering or stress, fear, and reduced urban investment, etc. From the very beginning of urbanization crime and the fear of delinquency, the key concerns for society, have been increasing. This is a vital safety issue affecting high-quality sustainable environment the most. Therefore, urban planning professionals must consider and understand this

new perspective for safe and sustainable cities, rather than relying on assumptions that are not supported by any systematic evidence (Cozens, 2011, pp. 481-508).

## 8. Conclusions and discussions

Currently, the central administration, local government and as well as academicians are very much concerned about the population growth and rapid urbanization along with addressing crime as a socio-economic and environmental problem. The urban researchers opined that urban design (i.e. building design), street arrangements and other outdoor spaces could influence crime and level of fear of crime. Accordingly, urban design and surveillance were taken up by academics and planners together, instead of focusing on the causes of crime, for intervening strategies for managing crime. As a result, safety and security become integrated parts of urban planning and design process, which integrates crime prevention with neighborhood design and urban development. Therefore, it makes sense into an essential comprehensive environmental design approach that combines traditional techniques of crime prevention with newly developed urban crime theories and concepts.

The fear of crime is an equally serious concern as the crime is and it is a major contributor to the urban decay process. The most significant effect of fear of crime is the reduced quality of life it imposes on those affected by it. Fear of crime can have significant negative effects on individuals, communities, and societies (Brunton-Smith & Jackson, 2011, pp. 55-82). Therefore, the urban governance should not just recognize the fear of violence and crime as a pathological problem in society, but should urgently address this problem because it changes the natural spaces creating a geography of fear (Alkimim, Clarke & Oliverira, 2013). Consequently, the basic premise of safety and security is that our urban environments can be designed or redesigned to reduce the opportunities for crime and fear of crime without resorting the building fortresses and deteriorating the quality of urban life (Gardiner, 1978). Necessarily, researchers and practitioners discourse strategies for improving security and safety in existing and newly planned environments as every intervention in the built environment has a physical and social impact on the immediate surroundings. Therefore, it is obligatory to undertake specific actions to soften the impact of changes. There are several types of spatial planning and design with their specific aims, strategic prospects and levels of generalization as it can be applied at national, regional, and local levels (Levald et al., 2015).

Hence, this review provides evidence in supporting the significant relationship between the theoretical concepts of crime and an urban planning and suggests preventive measures to secure safe urban life. The place-based theoretical concepts of crime, prevention approaches, and sustainable urban development programs have significant contribution understanding the characteristics of the urban environment, planning, and design in details. To be more specific, the place-based theoretical concepts of crime, first, depict the urban socio-physical environment – the socially disorganized locations of the city and causes of disorganization. These empiric-theoretical results enable the urban local government to take necessary actions for maintaining good governance of the city. Secondly, these theoretical concepts show the crime hotspots, its formation pattern, causes and consequences, followed by possible crime prevention strategies (i.e. broken windows theory and New York City's crime control approach). Thirdly, 10 to 15 percent of the urban crime could be reduced if the urbanization is done in a planned way and properly designed (UN Habitat, 2007a/b??). Fourthly, the continuous refinement of the 1<sup>st</sup>, 2<sup>nd</sup> and 3<sup>rd</sup> generation concepts of crime prevention through environmental design (CPTED) is another dimension in urban planning and design in preventing crime and safe urban environment initiative. Altogether, it may be concluded that safety and security should be considered as a prerequisite towards achieving sustainable urban development in the direction of a holistic strategy to design, implement and manage the societies.

Finally, crime and the fear of crime must be considered in urban development planning and design process as an effective indicator of achieving a sustainable environment for safe city life. Crime prevention strategies in urban planning and design, if considered at the initial stage of urban development project and implementation, can significantly contribute to the environmental, social and as well as economic benefits. However, it is still quite difficult to rationalize the extent of crime, crime types, crime patterns crime rates etc. as the crime events change so rapidly that is very little predictable using any single and/or a couple of theoretical concepts. Therefore, this review urges inclusion of time-based estimates (physical and mental as well) into the theoretical concepts addressing urban crime problem and its preventive measures in urban planning and design process to secure safe urban life.

## Bibliography

- Boessen, A., Hipp, J. R., Butts, C. T., Nagle, N. N., & Smith, E. J. (2016). Social fabric and fear of crime: Considering spatial location and time of day. *Social Networks*, 51, 60-72.
- Chowdhury, D. (2014). *Crime prevention through urban planning: A case study on Ramna Thana*. Savar, Dhaka: Jahangirnagar University.
- NSW Department of Urban Affairs and Planning. (2001). *Crime prevention and the assessment of development applications Guidelines under section 79C of the Environmental Planning and Assessment Act 1979*. Retrieved from [http://www.police.nsw.gov.au/data/assets/pdf\\_file/0003/9390/duapguide\\_s79c.pdf](http://www.police.nsw.gov.au/data/assets/pdf_file/0003/9390/duapguide_s79c.pdf).
- New Zealand Ministry of Justice. (2009). *Strategic policy brief: Theories of the causes of crime*. New Zealand: Author.
- Series, A., Rounds, I. G., & Commissions, A. (2012). Shaping cities for health: Complexity and the planning of urban environments in the 21<sup>st</sup> Century. *The Lancet*, 379(9831), 2079-2108.
- Sundukovskiy, S. (2014). *From prototype to MVP (case study)*. Retrieved from <https://www.slideshare.net/ssunduko/from-prototype-to-mvp-case-study>, Accessed on 8 May 2017.
- Suryavanshi, V. M. (2001). *Land use and opportunities for crime: Using GIS as an analysis tool*. (Doctoral dissertation). Virginia Polytechnic Institute, and State University.
- United Nations Office on Drugs and Crime. (2015). *World Drug Report 2015*. United Nations New York: Author.
- Weatherburn, D. (2001). *What causes crime? BOCSAR NSW Crime and Justice Bulletins*, 11. Sydney: NSW Bureau of Crime Statistics and Research.
- Western Australian Planning Commission. (2006). *Designing out crime planning guidelines*. Perth, Australia: Western Australian Planning Commission.

## References

- Agbola, T. (1997). *The architecture of fear: Urban design and construction response to urban violence in Lagos, Nigeria*. Retrieved May 20, 2018 from <http://books.openedition.org/ifra/485>.
- Akers, R. L., & Sellers, C. S. (2013). *Student study guide for criminological theories: Introduction, evaluation, application*. New York, Oxford: Oxford University Press.



- Alkimim, A., Clarke, K. C., & Oliveira, F. S. (2013). Fear, crime, and space: The case of Viçosa, Brazil. *Applied Geography*, 42, 124-132.
- Andresen, M. A. (2016). The place of environmental criminology within criminological thought. In *Classics in environmental criminology* (pp. 21-44). CRC Press.
- Anselin, L., Cohen, J., Cook, D., Gorr, W., & Tita, G. (2000). Spatial analyses of crime. *Criminal justice*, 4(2), 213-262.
- Asl, H. B., Moghadam, H. Z., & Parhiz, F. (2014). Analysis of spatial patterns for urban crimes in the informal settlement area of Islamabad in Zanjan. *International Journal of Academic Research in Business and Social Sciences*, 4(4), 1-9.
- Australian Institute of Criminology. (2012). *National crime prevention framework*. Retrieved from [http://www.aic.gov.au/crime\\_community/crimeprevention/ncpf.html](http://www.aic.gov.au/crime_community/crimeprevention/ncpf.html).
- Bdward, J., Pesce, I. R. K., & Howard, M. K. (1976). *Crime prevention through environmental design* (Final Report). Virginia, US: Department of Justice.
- Becker, G. S. (1968). Crime and punishment: An economic approach. *The economic dimensions of crime* (pp. 13-68). UK: Palgrave Macmillan.
- Bernasco, W. (2014). Crime journeys: Patterns of offender mobility. In M. Tonry (Ed.), *Oxford handbooks online in criminology and criminal justice*. Oxford, UK: Oxford University press. DOI: 10.1093/oxfordhb/9780199935383.013.49.
- Briggs, R. (2010). *Spatial autocorrelation: The single most important concept in geography and GIS! introduction to concepts*. Dallas, USA: Henan University.
- Brown, N. (2005). *Robert park and ernest burgess: Urban ecology studies, 1925*. CA: Center for Spatially Integrated Social Science (CSISS).
- Brantingham, P., & Brantingham, P. (1993). Nodes, paths, and edges: Considerations on the complexity of crime and the physical environment. *Journal of Environmental Psychology*, 13(1), 3-28. DOI: 10.1016/S0272-4944(05)80212-9.
- Brunton-Smith, I., & Jackson, J. (2011). Urban fear and its roots in place. In C. Vania (Ed.), *The urban fabric of crime and fear* (pp. 55-82). Germany: Springer Netherlands Press.
- Bourguignon, F. (2001). *Crime as a social cost of poverty and inequality: A review focusing on developing countries', manuscript*. Washington, DC: World Bank. Retrieved from <http://poverty.worldbank.org/library/view/13480>.
- Burgess, M. (2011). *Understanding crime hotspot maps*. Sydney, Australia: NSW Bureau of Crime Statistics and Research.
- Cahill, M. E. (2004). *Geographies of urban crime: An intra-urban study of crime in Nashville, Tennessee; Portland, Oregon; and Tucson, Arizona*. Arizona, USA: The University of Arizona.
- Ceccato, V. (Ed.). (2012). *The urban fabric of crime and fear*. New York: Springer.
- Chainey, S., & Ratcliffe, J. (2005). *Mastering GIS: Technology, applications, and management*. West Sussex, England: John Wiley & Sons.
- Clarke, R. V. G., & Mayhew, P. (1980). *Designing out crime*. UK: HMSO Books.
- Christens, B., & Speer, P. W. (2005). Predicting violent crime using urban and suburban densities. *Behavior and Social Issues*, 14(2), 113.
- Clarke, R. V. (Ed.). (1993). *Situational crime prevention: successful case studies*. Guilderland, New York: Harrow and Heston.
- Cohen, L. E., & Felson, M. (1979). Social change and crime rate trends: A routine activity approach. *American sociological review*, 44(4), 588-608.
- Cornish, D. B., & Clarke, R. V. (1987). Understanding crime displacement: An application of rational choice theory. *Criminology*, 25(4), 933-948. DOI: 10.1111/J.1745-9125.1987.Tb00826.X.
- Covington, J., & Taylor, R. B. (1991). Fear of crime in urban residential neighborhoods. *The Sociological Quarterly*, 32(2), 231-249.
- 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.
- Cozens, P. (2007). Planning, crime, and urban sustainability. *WIT Transactions on Ecology and the Environment*, 102, 187-193.
- Cozens, P. (2008). Crime prevention through environmental design in Western Australia: Planning for sustainable urban futures. *International Journal of Sustainable Development and Planning*, 3(3), 272-292.
- Cozens, P. M. (2011). Urban planning and environmental criminology: Towards a new perspective for safer cities. *Planning practice and research*, 26(4), 481-508.
- Crowe, T. (1991). *Crime prevention through environmental design: Application of architectural design and space management concepts*. Boston, Mass.: Butterworth-Heinemann.
- Crowe, T. D. (2000). *Crime prevention through environmental design: applications of architectural design and space management concepts* (2 nd. ed.). Oxford, United Kingdom: Butterworth-Heinemann.
- Davies, W. K. D. (2004). Affective dimensions of urban crime areas: Towards the psycho-geography of urban problem areas. *Geographica Helvetica*, 218-226.

- Department of Attorney General and Justice. (2011). *Environmental criminology and crime prevention*. Sydney, Australia: NSW Attorney General's Department.
- Doran, B. J., & Lees, B. G. (2005). Investigating the spatiotemporal links between disorder, crime, and the fear of crime. *The Professional Geographer*, 57(1), 1-12.
- Eck, J. E., & Weisburd, D. L. (2015). Crime places in crime theory. *Crime and place: Crime prevention studies*, 4, 1-33.
- Erdogan, A. (2010). What do place-based crime prevention strategies mean for the Turkish planning system and urban transformation. *Journal of Geography and Regional Planning*, 3(11), 271.
- Felson, M., & Clarke, R. V. (1998). *Opportunity make the thief: Practical theory for crime prevention* (Police Research Series Paper 98). London: Research, Development and Statistics.
- Gardiner, R. A. (1978). *Design for safe neighborhoods: The environmental security planning and design process*. Washington, U.S.A: National Institute of Law Enforcement and Criminal Justice.
- Gibson, V. L. (2016). *Third generation CPTED? rethinking the basis for crime prevention strategies*. (Doctoral dissertation). Department of Geography and Environment, Northumbria University.
- Glick, L. (2005). *Criminology*. Portland, ME, U.S.A.: Allyn & Bacon.
- Green, S. L. (2002). *Rational choice theory: An overview*. Texas, USA: Department of Economics, Baylor University.
- Gul, S. K. (2009). An evaluation of the rational choice theory in criminology. *Girne American University Journal of Social and Applied Science*, 4(8), 36-44.
- Harcourt, B. E., & Ludwig, J. (2006). Broken windows: New evidence from New York City and a five-city social experiment. *The University of Chicago Law Review*, 73, 271-320.
- Harcourt, B. (2002). Policing disorder: Can we reduce serious crime by punishing petty offenses. *Boston Review*, 27(2), 17-18.
- Heidt, J. M. (2011). *The evolution of criminological theories*. (Doctor dissertation). Faculty of Arts and Social Sciences, School of Criminology, Simon Fraser University.
- Hiroopoulos, A., & Porter, J. (2014). Visualising property crime in gauteng: Applying GIS to crime pattern theory. *SA Crime Quarterly*, 47(1), 17-28.
- Holzman-Escareno, A. (2015). *English 215 final project: The cause of crime*. Retrieved from <https://hilo.hawaii.edu/academics/hohonu/documents/Vol07x03TheCauseofCrime.pdf>.
- Irvin-Erickson, Y. (2014). *Identifying risky places for crime: An analysis of the criminogenic spatiotemporal influences of landscape features on street robberies*. (Doctoral dissertation). Graduate School-Newark Rutgers, The State University of New Jersey.
- Jacobs, J. (1961). *The death and life of great American cities*. New York: Vintage.
- Jalil, H. H., & Iqbal, M. M. (2010). Urbanization and crime: A case study of Pakistan. *The Pakistan Development Review*, 49(4), 741-755.
- Jefferson, B. J. (2015) Enforceable Environment: Spaces of Policing, Sustainability, and Environmental Rhetoric'. In D. Wilson (Ed.), *The politics of the urban sustainability concept*. Illinois, USA: Common Ground Publishing.
- Jones, I., & Bartlett Learning, L. L. C. (2014). Comparative criminal justice: Theoretical perspectives. In H. Kamalipour, M. Faizi & G. Memarian, Safe place by design: Urban crime in relation to spatiality and sociality, *Current Urban Studies*, 2(2), 152-162.
- Kamalipour, H., Memarian, G., & Faizi, M. (2014). Urban crime, and pattern conceptions: departing from spatiality. *Open Journal of Social Sciences*, 2(6), 441-450.
- Khopolklang, N., Polnigongit, W., & Chamnongsri, N. (2014). Influence of the Thai mass media on violence against women: Synthesis of research studies. *Kasetsart Journal: Social Sciences*, 35(1), 167-176.
- Koper, C. S., Egge, S. J., & Lum, C. (2015). Institutionalizing place-based approaches: Opening 'Cases' on gun crime hot spots. *Policing*, 9(3), 242-254.
- Kubrin, C. E. (2009). Social disorganization theory: Then, now, and in the future. In D. Marvin, Krohn, J. Alan, Lizotte, & P. Gina, Hall (Eds.), *Handbook on crime and deviance* (pp. 225-236). New York, USA: Springer.
- Kubrin, C. E., & Weitzer, R. (2003). New directions in social disorganization theory. *Journal of research in crime and delinquency*, 40(4), 374-402.
- Levald, A., Sibul, J. J., Proosa, M., Klein, M., Lehtovuori, P., van Soomeren, P., ... and Paaver, T. (2016). *CPTED manual for police officers*. USA: Police and Border Guard Board.
- Marzbali, M. H., Abdullah, A., Razak, N. A., & Tilaki, M. J. M. (2011). A review of the effectiveness of crime prevention by design approach towards sustainable development. *Journal of Sustainable Development*, 4(1), 160.
- Matsueda, R. L. (2013). The macro-micro problem in criminology revisited. *The Criminologist*, 38(1), 3-6.
- Mega, V. (1996). Our city, our future: towards sustainable development in European cities. *Environment and Urbanization*, 8(1), 133-154.

- Meinen, T. (2014). *Neighborhood disorder, crime, and the broken windows theory: An examination of the relationship between neighborhood disorder and crime in the city districts of Rotterdam*. Enschede, Netherlands: University of Twente.
- Mors, A., Isacson, A., & Meyer, M. (2011). *Tackling urban violence in latin America: Reversing exclusion through smart policing and social investment*. Washington, DC: Washington Office on Latin America.
- Moskos, P. C. (2016). *Broken windows: Is there a link between police, disorder, fear, and crime?*. New York: John Jay College of Criminal Justice.
- Newman, O. (1972). *Creating defensible space*. Pennsylvania, USA: Diane Publishing.
- Parliament of Victoria. (2013). *Inquiry into the application of safer design principles and crime prevention through environmental design*. Victoria, Australia: Drugs and Crime Prevention Committee.
- Randa, R. (2014). *Environmental criminology, The encyclopedia of criminology, and criminal justice*. New Jersey, USA: Blackwell Publishing.
- Rindlisbacher, R. (2014). *Juvenile crime and urban planning – How to measure crime factors and promote prevention by using geospatial technologies?* (Final Report – Marshall Plan Foundation). Graz, Australia: University of Graz.
- Sanidad-Leones, C. (2006) The current situation of crime associated with urbanization: problems experienced and countermeasures initiated in the Philippines. *Resource Material Series*, 68, pp.133-150.
- Santana, P., Santos, R., Costa, C., Roque, N., & Loureiro, A. (2009). Crime and urban environment: Impact on human health. *City futures in a globalising world: an international conference on globalism and urban change*. Madrid, Spain.
- Saville, G., & Cleveland, G. (1997). 2<sup>nd</sup> generation CPTED: an antidote to the social Y2K virus of urban design. In *2<sup>nd</sup> Annual International CPTED Conference*, Orlando, FL (pp. 3-5).
- Schiller, J., Black, W., & Murphy, P. V. (2010). *Crime and criminality*. Retrieved from <http://www.des.ucdavis.edu/faculty/Richerson/BooksOnline/He16-95.pdf>.
- Scott, J. (2000). Rational choice theory. In G. Browning, A. Halcli, & F. Webster (Eds.), *Understanding contemporary society: Theories of the present* (pp. 126-138). London: Sage Publications. DOI: 10.4135/9781446218310.n9.
- Shamsuddin, S. B., & Hussin, N. A. B. (2013). Safe city concept and crime prevention through environmental design (CPTED) for urban sustainability in Malaysian cities. *American Transactions on Engineering & Applied Sciences*, 2(3), 223-245.
- Shaw, M., & Carli, V. (2011) Practical Approach to Urban Crime Prevention. *Proceedings of the Workshop held at the 12<sup>th</sup> UN Congress on Crime Prevention and Criminal Justice*. Salvador, Brazil: International Centre for the Prevention of Crime.
- Sherman, L. W. (1995). Hot spots of crime and criminal careers of places. *Crime and place*, 4, 35-52.
- Shukla, A. B. (2015). Validating the theories of urban crime in the city of raipur. *IOSR Journal of Engineering (IOSRJEN)*, 5(1), 15-24.
- Siegel, L. J. (2014). *Criminology: The Core* (5<sup>th</sup> ed.). California, USA: Wadsworth Publishing.
- Skogan, W. G. (2008). Broken windows: Whyandhowwe should take them seriously. *Criminology and Public Policy*, 7(2), 195-201.
- Soomeren, P. V. (2013). *A set of European CPTED standards for secure cities-safe and secure cities through urban design, and planning: standardizing the process*. Amsterdam, The Netherlands: European Designing Out Crime Association.
- Spinks, C. (2001). *A new apartheid?: Urban spatiality, (fear of) crime, and segregation in cape town, South Africa*. London, UK: Development Studies Institute, London School of Economics and Political Science.
- Siegel, L. L. (2006). *Chapter 6: Social structure theory*. California, USA: Wadsworth Thomson Publishing. Retrieved from [http://www.loyno.edu/~Thornton/Spring06/PPT\\_Lectures/chapter6.ppt](http://www.loyno.edu/~Thornton/Spring06/PPT_Lectures/chapter6.ppt).
- The Scottish Centre for Crime and Justice Research. (2016). *Theories and causes of crime*. Retrieved from: [www.sccjr.ac.uk](http://www.sccjr.ac.uk).
- Trimek, J. (2014). Urban crime in western and eastern societies (Chicago, London, and Bangkok). *Rangsit Journal of Social Sciences and Humanities*, 1(1), 69-80.
- Troy, A., Nunery, A., & Grove, J. M. (2016). The relationship between residential yard management and neighborhood crime: An analysis of Baltimore city and county. *Landscape and Urban Planning*, 147, 78-87.
- UN-Habitat. (2007a). *Enhancing urban safety and security-global report on human settlements 2007*. London, UK: United Nations Human Settlements Program.
- UN-Habitat. (2007b). *Crime and violence at a Glance* (Global Report on Human Settlements 2007). London, UK: United Nations Human Settlements Program.
- United Nations. (2015). *Thirteenth United Nations congress on crime prevention and criminal justice, State of crime and criminal justice worldwide* (Report of the Secretary-General). Doha, Qatar: Author.
- Warissara, S. (2015). Subculture of inmates in Thai prisons. *Kasetsart Journal of Social Sciences*, 36, 109 – 118.

- Weisburd, D. (2008). Place-Based policing. In Ideas in American Policing. *Police foundation*, 9, 1-16.
- Weisburd, D. L., & Telep, C. W. (2015). The efficiency of place-based policing. *Hebrew University of Jerusalem Legal Research Paper*, 15-26. DOI: 10.2139/ssrn.2630369.
- Weisburd, D. L., Telep, C. W., & Braga, A. A. (2015). *The importance of place in policing: Empirical evidence and policy recommendations*. Stockholm, Sweden: Brå—a center of knowledge on crime and measures to combat crime.
- Weisburd, D., & Gill, C. (2014). Block randomized trials at places: rethinking the limitations of small N experiments. *Journal of Quantitative Criminology*, 30(1), 97-112.
- Wilson, J. Q., & Kelling, G. L. (1982). Broken windows. *Atlantic Monthly*, 249(3), 29-38.
- Wortley, R., & Mazerolle, L. (Eds.). (2013). *Environmental criminology, and crime analysis*. UK: Willan Publishing.
- Zahm, D. (2007). *Using crime prevention through environmental design in problem-solving (Problem-oriented guides for police, Problem-solving tools series 8)*. Washington, D.C., USA: U.S. Department of Justice.

