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Evaluation of Crime Prevention through Environmental Design Principles at the University of Fort Hare, Alice Campus

By

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ABSTRACT

The University of Fort Hare Alice campus experiences high crime rates. To address this problem, and add to the literature, this study applied the Crime Prevention through Environmental design (CPTED) model to measure the effectiveness of the crime prevention strategies at the University of Fort Hare (Alice campus). The aim of this study was to evaluate the sufficiency of surveillance and visibility, target hardening, maintenance and management at the University of Fort Hare, which contribute to the reduction of criminal activities around campus. The study further sought to evaluate the perceptions of students regarding their safety on campus by way of soliciting their experiences and observations.

This study used the quantitative method, and questionnaires were distributed to the students in the Alice campus to collect data. The study found that whilst a marginal majority of students felt safe, a large proportion of students felt unsafe on campus. The study also found that students were dissatisfied with the service and found the security officers to be incompetent and un-trained.

The study evaluated the sufficiency of crime prevention measures implemented within the university. One crucial aspect that emerged from the study is that CPTED principles were not sufficiently implemented to their fullest and the perception of the majority of students was that security personnel were not functioning in the way that they should, and measures such as adequate lighting were lacking. As a result, students felt unsafe on campus, especially during the night .The study concluded that there are clear increased feelings of vulnerability among students at the University of Fort Hare. The measures that are currently in place are not sufficient; therefore there is need for implementation of CPTED principles. It was recommended that the University increases number of CCTV surveillance cameras on campus, Social gathering places be surrounded by security guards for patrols, lighting recommendations that are modern and in proper design, keep up with repairs, make necessary replacements, paint, trim, current campus buildings e updated to meet recent CPTED practises etc.

DECLARATION

I, Sisanda Abongile Mditshwa, declare that ***The evaluation of Crime Prevention through Environmental Design principles at the University of Fort Hare, Alice Campus*** is my own work, and wherever contributions of others are included, every effort is made to indicate this clearly, with due reference to the literature, and acknowledgement of collaborative research and discussions.

Signature date

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Table of Contents

List of Tables

Figures

LIST OF ACRONYMS

CCTV	closed circuit television
CPTED	crime prevention through environmental design
SPSS	statistical package for social science
CSIR	The council for scientific and industrial research
CSEW	crime survey for England and Wales

CHAPTER ONE: INTRODUCTION

1.1 Overview of the study

The purpose of this study was to evaluate the efficiency of CPTED principles, determine its effectiveness and examine measures that could be taken in the application of these principles. There are five principles of CPTED, but this study focused on three. The researcher made use of the quantitative research design for data collection, which was done through distributing questionnaires to students of Fort Hare University. Data is analysed using the Statistical Package for Social Science (SPSS), and results are interpreted using tables, charts and graphs.

1.2 Background of the study

The University of Fort Hare has experienced sporadic episodes of criminal elements in the recent past. It continues to face high crime rates. There have been reported cases of theft of laptops at university residences and computer laboratories. In the year 2016 the persistent break-ins at the student residences led to a stay away that forced the university to respond to students' security concerns. The university had to replace 100 students' laptops and terminated the contract with the security company (SITA) that was in place. This also led to the deployment of security guards as well as security gates at residence entrances (Gilili, 2018). In 2018 there have been a number of cases of rape and gender-based violence reported by students at Alice campus, University of Fort Hare.

A student detailed being raped by another student while they were drinking on campus. Another announced being raped on August 12 on her approach to grounds, an understudy stated, she was beaten by her sweetheart inside the Jabavu residence (Chris Gilili Groundup reports, 21 August 2018). Another rape case was reported where two students (male and female) were tied down on their way back to campus and the female student was being assaulted (Naledi Shange Herald Live 13 August 2018).

University students deserve to feel safe within their own campuses. The everyday challenges of University life are numerous enough without adding the need to worry about the dangers of working late at the library or walking alone across campus. The daily efforts of campus law enforcement are vital to maintaining a peaceful learning environment for students. The idea that the physical environment of the university can either increase or lessen the open doors for crime is not new globally; it has been concentrated broadly over various decades (Minnery and Lim 2005).

According to Jeffrey (2005), crime prevention through environmental design (CPTED) [pronounced sep-ted] is the "proper design and effective use of the built environment that can lead to a reduction in the fear and incidence of crime, and an improvement in the quality of life". This definition reflects the expanded, current, more holistic perspective of CPTED, encompassing the criminal offender perspective regarding an environment, and the risk of getting caught when committing a crime and the social dynamics, sense of ownership of the environment, and their associated protective actions by persons who work, live, or traverse the environment route to another destination.

Krehnke (2015) stresses that this definition and the associated principles of environmental plan have been built up over many years of research by Wood, Jacobs, Angel, Jeffrey, Newman, Saville and Cleveland (2009). Crafted by these experts has brought about the recognizable proof and meanings of ideas that have demonstrated to decrease crime through discouragement, and where implemented crime deterrence improves the quality of life of individuals who inhabit those environments. Newman et al. (2009) argue that CPTED was initially created to diminish crime in broad daylight lodging ventures, however its applications are boundless. It is an idea that can work in lodging, as well as in organizations, businesses, open structures, parks and amusement zones, and schools. It is an idea that can be utilized adequately to anchor one building or a whole city.

Sallis, Bauman and Pratt (1998) supports the position that regardless of the numerous advantages of CPTED, it ought not be viewed as a panacea to crime, and its limitations ought to be recognized. Environmental structure interventions must be implemented to address specific sorts of crime in particular locations. It is vital to examine every circumstance cautiously before settling on conceivable interventions.

Sallis et al. (1998) further argue that in many instances, environmental design interventions are much more effective if linked to other crime prevention measures. It is also important to consider ways of reducing the possibility of merely displacing crime. CPTED is based on the hypothesis that; “the proper design and effective use of the built environment can lead to a reduction in the fear of crime and the incidence of crime, and to an improvement in the quality of life” (Crowe 2000: 1).

The aim of this study was to evaluate the efficiency of CPTED principles, determine the effectiveness of CPTED. Moreover, examined measures that are taken in the application of surveillance and visibility, target hardening as well as maintenance and management principles. The principles of CPTED are: surveillance and visibility; territoriality; access and escape routes; image and aesthetics; and target hardening, maintenance and management. However, this study focused only on surveillance and visibility, maintenance and management, and target hardening. This study was conducted at the University of Fort Hare’s Alice campus in the Eastern Cape Province.

1.3 Preliminary literature review

This section briefly reviews empirical studies conducted in South Africa and other parts of the world that are related to the study. The Council for Scientific and Industrial Research (CSIR) CPTED group puts together its work with respect to a South African understanding of universal methodologies, just as research led locally, and, subsequently, characterized CPTED as follows: Crime Prevention Through Environmental Design intends to diminish the reasons for, and open doors for criminal occasions, and address the fear of crime by applying sound arranging, plan and the management principles to the built environment (Cozens 2008). According to Appiahene-Gyamfi (2002), families in Ghanaian urban areas have reacted to crime by strengthening their homes, a training alluded to as crime avoidance through natural structure (CPTED). In spite of the fact that little research was led in Ghana and Africa when all is said and done, the article, in light of inside and out meetings with police, city organizers and community members as well as household review, uncover that CPTED through target solidifying is a far reaching practice crosswise over various financial private neighbourhoods of Accra and Kumasi. It was

discovered that rising crime rates and the dread of crime have prompted the selection of target solidifying measures, for example, high dividers, metal robber sealed windows an entryways, security entryways? Exceptional entryway bolts, etc, which will in general make “security islands” with constrained effect on community crime frequency.

Appiahene-Gyamfi (2002) stipulates that while CPTED has been broadly applied in Western urban communities to rebuild the physical design of communities to diminish crime through community endeavours, there are stamped contrasts in the Ghanaian setting. Specifically, family units’ reactions to crime through target hardening have the propensity, in the long haul, to debilitate social unions, with restricted effect on community crime levels. Strikingly, the household unit overview results demonstrated moderately low dimension of community solidarity in middle and upper-class society neighborhoods as measures for battling crime.

Alexander (2006) found that most post-matriculation students in South Africa were more vulnerable to sexual victimization than any other age group. They were typically at an age when sexual impulses were making insistent demands, are confronted with a variety of environmental stresses, and are away from direct parental or guardian supervision. Their identities are not yet firm, their competence not yet established, and they have mistaken beliefs about their vulnerability whilst experiencing new freedoms(Marie 2012). Young female and male students continuously experience these feelings or situations and are in need of education to combat this onslaught. Not only can their campus protective systems enlighten them about personal prevention against these confrontations, but implement the following security measures designed to reduce the likelihood of victimization (Bedenbaugh 2003): Increases security lighting in problem areas with regular monitoring and maintenance; install security telephones at potential trouble spots with direct connection to the campus protective radio control room; Scrutinize landscaping patterns to avoid hiding places near residence halls, parking lots and shrubs; Increase residence or corridor protection; provide evening protective escort services; Provide protective officers with special rape prevention and sensitivity training; Provide rape prevention information by means of all available campus publications, e.g. student newspapers, pamphlets and notice boards; Provide students with practical self-defence lessons.

Timm (2014) stresses that the issuing of Visitors' Passes or Cards by a campus protective system, with the backing of the Students Representative Council and the Department of Student Affairs, can reach the degree of success needed by a security programme to make campus grounds and buildings safer. The State University of New York, College at Old Westbury, has implemented this programme since October 1988 after facing the problem of "keeping out trouble which did not want to go away", in spite of maintaining manned and secured gateposts at all campus entrances (Holbrook 2016:5). Anyone could previously gain access at these entrances by merely stating that they were going to visit a student. All students were then alerted of the new security programme through a media blitz, through signs strategically placed about the campus, and with flyers placed under the windshield wipers of cars identified as belonging to resident students. They were informed that all persons seeking entrance to campus grounds after 22h00 hours would be required to have a valid Student Card or Visitor's Pass on file for a specific date with the campus protective system, that all legitimate emergency situations were to being investigated by the Shift Supervisor on duty, and that when applying for a Visitor's Pass at the offices of the system, an applicant had to produce his or her Student Card and fill out a Visitor's Pass form in triplicate.

1.4 Problem statement

The University of Fort Hare Alice campus experiences high crime rates due to evident failure of the University to implement sufficient crime prevention strategies. Therefore, this study is relevant because it sought to find ways to combat high crime rates through crime prevention using environmental design strategies, and was envisaged to assist in discovering more ways of improving the surveillance and visibility, target hardening, maintenance and management principles at the University. There have been cases of assault and robbery amongst students who stay in residences that are in the margins of the campus reported. This affects students' participation in university programmes as their movements are restricted by the fear of falling victim to crime.

1.5 Research questions

The following research questions guided the study:

- What are the surveillance and visibility measures taken by the university to ensure unauthorised people are kept out of the university?
- What measures are being implemented to improve target hardening and infrastructure at the University of Fort Hare?
- What are the various measures taken to ensure the principles of security maintenance and management at the University of Fort Hare

1.6 Research aims and objectives

1.6.1 Aims

The study aimed at evaluating the sufficiency of surveillance and visibility, target hardening, maintenance and management as crime prevention strategies at the University of Fort Hare. Moreover, the study aimed at determining the effectiveness of these principles in preventing crime at the university.

1.6.2 Objectives

The study set out to achieve the following research objectives:

- To assess the sufficiency of surveillance and visibility measures taken by the university to keep unauthorised people out of the university.
- To discover the measures taken by the university to improve target hardening.
- To investigate measures taken by the University to ensure security maintenance and management

1.7 Theoretical framework

Various theories have been used to explain CPTED principles. Gray, Jackson and Farrall (2010) states that the fear of being the victim of crime is probably predominant in the minds of American students. Consequently, the information regarding the campus environment during university enrolment is insufficient. However, traffic and parking services by a campus protective system can further assist them. Many American campuses have buses with trained drivers available to student groups to promote transportation safety and prevent accidents and drunken driving (Editor of Campus Law Enforcement Journal, July-August 1983: 32-33).

There is a great need for the University of Fort Hare to protect the lives of the personnel within the institution by creating a safe environment. Greenberg, Rohe and Williams (1982) states that the primary mission of a university campus protective system will always be to provide a safe and secure environment in which education may take place. He further stresses the need for collective efforts of all campus users, such as students and personnel, for strengthening the crime prevention posture of their campus.

Crime prevention through Environmental Design has been used successfully as a method of crime control (Lieberman et al. 2000). A further defining characteristic of CPTED prevention and situational prevention is their basis in current academic criminology. In particular, they derive theoretical support from two recent criminological perspectives – Opportunity Theory and Rational Choice Theory.

1.7.1 Opportunity Theory

Opportunity theory relates to changes in the nature and amount of crime to changes in the "opportunity structure" of crime. One well known study in this vein shows how the growth in ownership of light-weight electronic goods, such as VCRs, together with the increase of untended houses in the day due to increased female participation in the labour force, easily account for the rise of residential burglary in the United States during the 1960s and 1970s (Cohen & Felson 1979). The "opportunity theory" of crime prevention and control was expanded by Mayhew,

Clarke, Sturman and Hough (1976) and Clarke and Mayhew (1980) in their work for the UK Home Office Research Unit, and by Canadian researchers Brantingham (1981).

Opportunity theory is relevant because different measures, for example, outside lighting, alarm systems and key control can add to security too. Doors to apartments are the following line of protection, should the principle access to the loft structure not give the locking instrument that guarantees security of the residence. Doors to apartments ought to be developed with a decent bolting framework. Any encompassing structure must be at least as solid as the entryway. Doors to apartments should not be isolated from areas utilized by different occupants, yet gathered in entryways serving several apartments. Spy-holes on doors would probably contribute to opportunity for a potential burglar's perceived risk (Crowe 2000).

Smith (1996) states that parking facilities are more likely settings for crime because they are made of large areas with a relatively low activity level. Since a few people are at a parking facility at any time, an individual can be isolated in a parking facility and, therefore, become an easy target for an attack. This gives opportunity for people with criminal intent in the parking facilities. Several factors contribute to parking facilities becoming a crime setting, including limited lighting, design that provides hiding spaces for criminals, unmonitored public access, and inability to identify a criminal's vehicle when it tends to look just like any other car (Slobogin 2002).

1.7.2 Rational Choice Theory

Rational choice theory (Cornish & Clarke 2014) holds that most offending often results from a decision made by the guilty party who is looking for an economic, sexual or other benefit. These different benefits may incorporate mastery of others (as in spouse or child abuse), liberality in liquor or drug abuse, or such commonplace delights as having a touch of fun and energy or achieving status in the peer group. The essential driver of crime is consequently observed to be self-interest instead of psychological or social disadvantages as most other criminological theories hold (

Andrews & Bonta 2014). This self-interest is not conceived of as an enduring disposition, characterising a delinquent or criminal minority, but may be manifested by any normal law-abiding person faced with a combination of temptation and opportunity (Cornish & Clarke 2014).

As a vital supporting element of situational crime prevention, rational choice theory also incorporates fundamental defensible space and CPTED principles in as much as it assumes that environmental factors influence offenders' choices, and that they commit crimes within the context of a 'bounded' rationality (Cornish & Clarke 2014). This rationality is less perfect than that of 'economic man' and takes into account the notion that while individuals' perceptions of situations vary, they are all generally rational. Rational Choice Theory, therefore, views criminal acts as the result of a calculation that acknowledges the costs (which include effort expended), benefits (rewards) and risks associated with those acts. Together, situational crime prevention and rational choice, therefore, suggest that offenders make considered decisions to commit crimes in specific situations based upon the perceived expenditure of effort, balanced by risk factors and expected reward. Environmental (or situational) elements that increase risks and energy (for example a 'hardened target' such as a steel reinforced door), and diminished rewards (for example explicit announcements that cash kept on the premises is limited) reduce crime rewards, and, therefore, the opportunity in those circumstances. It is the specific circumstance – the situation - that is central to the theory, which has now been elaborated beyond a mere set techniques (Clarke 1997).

Situational crime prevention focuses on the immediate aspect of the criminal event as distinct from the "distal" or the psychological, cultural or sociological background or motivations of the offender. Indeed this is also a key factor that distinguishes place-based crime prevention theory from earlier crime prevention approaches. In line with this thinking, offenders are seen to be driven by the instrumental as distinct from value rationality; that is, the crime is conceived to be a function of the opportunity and rewards offered within the environment, the situation in which it occurs as distinct from defects in the offenders' values, beliefs or socialisation. The theory broadens the responsibility for crime while not absolving the criminal for his acts.

A convenience store robbery may, therefore, be seen as a coincidence of many environmental and situational factors, which might include, depending on the specific circumstances, the neglect by management to initiate good cash handling practices, the inadequacy of designers to provide sufficient surveillance and lighting opportunities, and the failure of code enforcement and planning staff to acquire CPTED compliant design. Despite these design and management shortcomings, the offender is not excused from guilt. Rather, the external elements contributing to the crime are painted in as well, providing a much more complete canvas (Richard 2013).

1.8 Research Methodology

This is a plan that clarifies the processes of data collection, choosing respondents and data analysis. Bryman (2012) argues that cautious consideration must be taken into account in choosing an approach that is relevant to the objectives and purpose of the research.

1.8.1 Research design

For the purpose of this study, the quantitative research approach was used. This maintained objectivity (Tracy 2013; Hatch 2006). A Likert scale was used to measure sufficiency of environmental design measures employed in University of Fort Hare Alice campus using questions that answered the research objectives.

1.8.2 The sampling and sampling frame

This section explicates the relevance of the chosen population to the current study. Sampling is the process of selecting a portion that represents the entire population (Babbie 2010). The students were enlisted because they are the ones previously reported to fall victim to crimes at their residences, study facilities and on campus during the night and during the day. They were aware of the crimes occurring on

campus. Students were presumed to have information on the occurrence of the theft of laptops that occurred recently and which led to a stay away by students after security concerns by students. Students were also presumed to be knowledgeable on whether principles of surveillance, such as installation of CCTVs, were there in the library, which is the heart of the university.

1.8.3 Sampling technique

The study used one sampling method to draw respondents from the population. For the mini survey, stratified random sampling was used.

1.8.4 Data collection

The study adopted one method of data collection. A mini-survey was used and it is explained below:

1.8.5 Mini Survey

The study used a semi structured questionnaire to collect data (Creswell, 2014). These were administered by the interviewer to part of the student population with the aim of establishing the efficacy of CPTED principles at the University of Fort Hare. This type of information was numeric and assisted in strengthening the findings of the study.

1.8.6 Data collection instruments

A structured questionnaire was utilized and it comprised open ended questions (De Vos, et al., 2011). Questionnaires were randomly handed to respondents within the selected strata.

1.8.7 Research Domain

Fox and Bayat (2007) define a research domain as a site where accessible individuals willing to give distinct information about a phenomenon being studied are found. The research was carried out at the University of Fort Hare's Alice campus in the Eastern Cape province of South Africa.

1.8.8 Population and sample size

The study population consisted of all registered students from the Alice Campus University of Fort Hare. A total of 100 questionnaires were distributed to the students by the researcher.

1.8.9 Primary data

Parfitt (1997) submits that in primary data collection, the data is collected using methods such as interviews and questionnaires. There are many methods of collecting primary data (observed or collected directly from first-hand experience). The main methods of primary data collection include Questionnaires, Interviews, Focus group discussions, Observation, Case studies, Diaries, Critical incidents, and Portfolios.

The primary data, which is generated by the above methods, may be qualitative or quantitative in nature. This study made use of the questionnaire as the primary data collection method.

1.8.10 Secondary data

Published data, data collected in the past or by other parties is called secondary data. The study referred to extant literature for secondary data.

1.8.11 Data analysis

In the current research, SPSS was ideal; data was broken down into objectives. Data was put in excel and analysed using SPSS and then interpreted into graphs and charts.

1.8.12 Research methods linked to research questions

Research questions	Data source and method	Justification
What are the surveillance and visibility measures taken by the university to ensure unauthorised people are kept out of the university?	Students, through survey method (questionnaires)	The students have knowledge on surveillance and visibility
What measures are being implemented to improve target hardening and infrastructure at the University of Fort Hare?	Students, through questionnaires	Students have information about target hardening at the selected institution.
What are the various measures taken by the university to ensure the maintenance and management principle at the University of Fort Hare	Students, through questionnaires	Students have information on maintenance and management at UFH.

1.9 Significance of the study

The study adds literature on crime prevention through environmental design (CPTED) principles in the South African context, particularly in tertiary institutions in

the Eastern Cape. It is popularly held that there is a strong relationship between the environmental design of an area and criminal acts. Optimistically, this study is significant as it aimed at unearth new ways in which crime can be prevented in these institutions. Further, the study, through examining Crime Prevention through Environmental Design, has potential to reduce the causes of, and opportunities for, criminal events and address the fear of crime by having the management improve applying sound planning, design and management principles to the built environment, as it offers recommendations on what should be done to curb this incidence of high crime rates at the University of Fort Hare.

1.10 Ethical issues

According to Pope and Vasquez (2016) ethical issues are widely regarded as principles that demarcate the best acceptable professional conduct to avoid ethical lapses. The ethical issues considered in this study are discussed below.

1.10.1 Informed consent

All parties that participated in the study were treated with respect, and the research environment was kept as they were before the study to maintain good rapport (Creswell 2009:90). It was equally imperative for the study to avoid deception. Thus, the study established well explained, written, verbal and non-verbal information with utmost honesty and transparency.

1.10.2 Confidentiality

Any personal information of the respondents was treated confidential and was not availed for public. This was achieved by keeping participant names anonymous. Also, report writing stated the objective truth obtained in the study and did not to try to please the readers at the expense of the truth discovered. The information discussed stayed between the researcher and participants and was not given to a third party.

1.10.3 Anonymity

Anonymity in research is often taken to mean the same thing as confidentiality. This is a mistake. Confidentiality is commonly viewed as equivalent to the principle of privacy. Anonymity refers to concealing the identity of the participants in all documents resulting from the research, thereby actively protecting the identity of research participants. Therefore, the anonymity of those who participated was guaranteed throughout the study (King & Horrocks 2010).

1.10.4 Avoidance of harm

The study avoided any unnecessary harm to the subjects, whether emotionally or socially. The study also avoided any identified possible research subjects that showed potential vulnerability to any form of harm. All the participants chose to participate after proper consideration so that they do not feel coerced to participate. Participants were informed about the possible outcomes of the study.

1.11 Chapters outline

The study follows the outline below.

1.11.1 Chapter one- Overview of the study

The chapter encompasses the introduction and background of the study, as well as the problem statement and research questions guiding the study.

1.11.2 Chapter two- Literature review

A review of relevant literature is done in this chapter.

1.11.3 Chapter three – Theoretical framework

Chapter three discusses the theoretical underpinnings of the study.

1.11.4 Chapter four –Research methodology

Methods of data collection and data analysis processes are explained in this chapter.

1.11.5 Chapter five –Data analysis and presentation of findings

The chapter focuses on data presentation and analysis of data.

1.11.6 Chapter six- Discussion of findings

Major findings are discussed in this chapter leading to the drawing of conclusions and making of recommendations to relevant stakeholders and for future research.

1.11.7 Chapter seven- Conclusions and Recommendations

Conclusions are made and recommendations proffered to relevant stakeholders, as well for future research.

CHAPTER 2: LITERATURE REVIEW

2.1 Introduction

Undeniably, there is a great increase of crime in Institutions of higher learning in South Africa. Therefore, the aim of the study was to evaluate the efficacy of surveillance and visibility, target hardening, and maintenance and management access at the university of Fort Hare. The study assessed the dynamics and existing literature explaining causes of crime in other institutions. This chapter provides a review of existing literature relating to the relationship between the built environment and the incidence of crime, as well as the fear of crime not only in institutions of higher learning but in urban areas and other communities.

The review entailed literature on the effectiveness of CPTED from other areas of the world. The review assisted in motivating the research questions and attaining the objectives of the study. It also assisted in locating the within the context of existing knowledge. Moreover, the review focused on a new area of research: the mechanisms by which the school environments determined the likelihood of school crime. A search for peer-reviewed articles was made from six databases and preventions' reports on university crime interventions. Twenty-five articles that attempted to understand the influence of the university environment in determining lecturer and student perceptions of safety and experiences of violence were included.

2.2 Overview and background

Literature prior 1990 predominately focuses on individual aspects of causes of crime, but lately the focus has shifted to the environmental factors. Other researchers, such as Fennelly and Perry (2018), focus on teachers' experiences of university crime, which supports this shift. In Qualitative interviews, lecturers stress the lack of cooperation and support from administrators, the lack of basic security, and the physical deterioration of the university as contributing factors for university crime.

Fagan (2010) stipulates that poverty was one of the first aspects ever thought to be causal factors to criminal activity. Many youth deal with this epidemic, as 17.4 % of American children lived in poverty in 2006 (Hoynes, Page & Stevens, 2006:47-68). Growing up in poverty is like being exiled from society; it is being alienated in your own country. One of the reasons that poverty has been associated with crime is that it is an opportunity for the poor to acquire materials that they could otherwise not afford. Poverty can also produce violent crimes because force is an easy way to get a large quantity of goods. According to Holzman-Escareno (2009: 15-22) many impoverished criminals feel the hope of treasures is worth the possibility of being caught. Thus, poverty causes desire, and in turn, increases the crime rate. Luwig, Duncan and Hirschfield (2012) also believe that there is a possibility that most crime can be linked to high poverty neighbourhoods. They believe that criminal behaviours can spread throughout a community, tempting others to commit crimes.

Although many propose that poverty is the root cause of crime, another view by Yngwe and Lundberg (2007) suggests that inequality is the main source of crime. Poverty is considered to be absolute deprivation while inequality is defined as relative deprivation. Yngwe and Lundberg (2007:135-156) asserts that in other words, “absolute deprivation” is the lack of the resources needed to maintain quality life, and “relative deprivation” is lacking resources when compared to those in the same community. Several studies have linked poverty and crime (Kotzé and Strydom 2007; Laub & Sampson 2003: 277).

Property crime is the most common crime correlated with inequality, as it allows individuals to balance the resources around them (Bharadwaj 2014:8). Other individuals can grow a “deep anger” associated with inequality that produces violent behavior (Bility 1999:285-303). This “deep anger” angle is becoming more prominent with many criminologists. A quote from Karl Marx sums up inequality. Marx says; “A house can be large or small; as long as the surrounding houses are equally small it satisfies social demands. But if a palace rises beside the little house, the little house shrinks into a hut” (Easterlin 1995:35-47).

Behre and Finlay (2009) stipulate that university crime can impact the social, psychological, and physical well-being of both students and lecturers and disrupt the learning process. As the studies used different measures of the university

environment, a classification system was created to facilitate the comparison of findings, and eight different constructs were identified: University norms about crime, success in the university environment, classroom culture, University culture, University safety actions and University disorder. Using this classification system, these studies showed that universities with less crime tend to have students who are aware of the university rules and believe they are fair, and they have positive relationships with their lecturers and feel that they have ownership of their university.

2.2.1 University norms about crime

In any event, the law-and-norms college has usually turned to legal code to support a number of its basic tenants: that social actors are ruled less by formal laws than by patterns of behavior that have increased normative, if optional, force; that norms usually govern in a manner exceedingly indifferent to legal rules, generally serving or hindering the social control of rules; that norms are immanent with social meaning that lawmakers would do best to heed; that they can usefully exploit; and that people are vulnerable to the conforming force of magnetic individuals or majoritarian patterns of behavior.

The norms school has been at its forceful, in both illustrative and automatic routes, in managing criminal law. This might be nothing unexpected since criminal law is the territory of social control where standards of conduct are most invested with good judgment and political conflict; where reference to “norms” most strongly proposes that the individuals who do not agree with norms are “deviant”. Indeed, over the most recent couple of years of American legislative, criminal law have been the most appealing and misused medium by which lawmakers have implied to offer solutions to cultural disorder or antisocial behavior. Be that as it may, the law and norms has look genuine analysis for its premises and usage. A ton of that analysis has tested the norms schools for neglecting to fulfill the standards of meticulousness for Social Science. Alternative analysis has tested the norms school for neglecting to convey on its guarantee of a replacement reasonably informative technique, an adaption of Social Science analysis (Whitney 1991).

2.2.2 Success in the university environment

There are a variety of fairly sensible measures that give architectural means of reducing the frequencies of undesirable behavior. These are progressively rife within the design of the built environment on campus communities, and embrace higher lighting, surveillance cameras, additional transparency through the utilization of additional windows and fewer hard-to-see places, creating structures tougher to climb, removing balconies that permit objects to be thrown and people to fall, and easily reducing building heights. The utilization of shrubs could keep people away from the buildings; however, they can also reduce transparency and supply hard-to-see locations where crimes could occur. Alternatively, a more costly technique, like a traffic post that must be staffed around the clock, may well be planned to regulate and restrict traffic access to campus (Kubba 2007)**.**

Unlike induced behaviour that can take place rather indiscriminately and impromptu at any time and place, criminal behaviours are characterised as time- and location-specific. This suggests they are consistent in nature, typically pre-meditated and, as such, they have an inclination to be more easily studied; thus, a lot easily prevented through environmental styles.

Crowe (2000) states that crime prevention through environmental design (CPTED) recently rejuvenated associate antique ideas of environmental psychology. Security measures have attempted to combine these design ideas introduced through CPTED and current technology. Issues of safety are typically the result of dangerous and risky behaviours of students and residents of dormitory buildings. In a study on fire-safe dormitories in 1999, the National fire protection Agency (NFPA) linked crime to known vital and worrying habits and behaviours of student residents, significantly those who lived in the dormitories. Students between the ages of 17 and 21 who lived in the dormitories mostly lived away from home for the very first time.

Crowe (2000) further posits that design considerations are organised into two main categories: Larger Planning Strategies and Specific Design Strategies. The first is useful in such decisions as building heights, street planning and landscaping. Specific Design Strategies are useful in specifying doors and windows, placement of lighting and fenestration throughout buildings, as well as the strategic sitting of

surveillance cameras in a parking lot/garage. CPTED aims to use the built environment to deter crime.

According to criminologists Cozens (2002) and Crowe (2000) broader planning strategies, such as privatising residential streets and limiting pedestrian access, have helped in reducing crime. These are more encompassing design and planning decisions that likely influence the identity and cohesiveness of a neighbourhood of residential community in order to deter criminals from operating in a certain neighbourhood.

Trevor Bennett, who conducted a study of burglars' attitudes, suggests two factors most likely discourage burglary: signs of occupation and surveillance of the dwelling. Natural surveillance can be achieved by designing dormitory or residential buildings, such that occupants can have a visual access of their own spaces, and semi-public and public areas. In dormitory buildings, it means being able to see the streets adjacent to the building to be able to see who enters and exits the buildings. Crimes, such as robbery, assault and rape occur mostly in interior public spaces such as the lobby, elevators, stairwell and corridors. The shared characteristics of these areas are their relatively low activity level and their isolated nature. A possible solution may be to design lobbies, corridors and circulation areas that operate as social gathering spaces or that are visually accessible from these social spaces (Gehl 2011). When designing a dwelling, windows can be placed so that entryways are visible from inside houses/dwellings. One of the figures of the study compared a dormitory entrance that allowed surveillance from an adjacent semi-public space through glazing in doors with another that provides very little natural surveillance by the public (Rashid *et al.* 2009).

Winter (2001) posits that campus safety also encompasses the outdoor environment. University campuses often provide security escort services for students who walk home late in the evening. Penn State's Security Escort Service was started in 1938 by the Office of Student Affairs and then was taken over in 1969 by the University Police (Tjoa & Devon 2015). These services are crucial for additional security measures. However, students using these escort services make up a very small percentage of the entire student population at Penn State. According to the statistics provided by the University Police, this number varies between 100-6,000 uses per

year, which is slightly more than 1% of the entire student population at the University Park campus. This may suggest that students still rely primarily on the comfort and the perceived safety of the outdoor environment when they decide to walk home by themselves.

Kennedy (2004) postulates that the landscape design can make a huge impact on the safety of the campus environment. One of the guidelines given for campus safety is to know your surroundings. The role of landscape design is to create an outdoor environment that can allow pedestrians to be more aware of the surroundings. Landscaping should be designed so that intruders cannot hide behind shrubbery. Height and as well as density of shrubbery, and their placements in relation to the surrounding surfaces may hinder or facilitate natural surveillance, the lack of which may cause one to be unaware of intruders or criminals, particularly at night time. Lighting is one of the most crucial design features to enhance this. According to the Landscape Design Guidelines for UCF, lighting fixtures throughout campus must be consistent. An organised lighting system, with uniform colours and fixtures, creates a feeling of improved safety.

Lundberg (1994) is of the view that CPTED reduces crime by reducing the fear of crime while increasing criminals' fear of being caught. This can be achieved through strategies noted by Geason and Wilson (1989) that suggest that doors, windows and halls should be designed to deter thieves. The quality of these obstacles must be high. Obstacles also include the door frames, hinges and locks, all of which must be as strong if not stronger than the door itself. Other measures, such as exterior lighting, alarm systems and key control can add to security as well. Doors to apartments are the next line of defence, should the main entrance to the apartment buildings not provide the locking mechanism that ensures safety of the residence. Doors to apartments should be constructed with a good locking system. Any surrounding structure must be at least as strong as the door. Doors to apartments should not be isolated from areas used by other residents, but grouped in lobbies serving several apartments. The measures pointed out would probably contribute to a potential burglar's perceived risk.

Crime and accident prevention through manipulating the engineered setting contributes to the built environment and also the society at totally different levels,

together with increasing the period of time of the things in the environment. So, responding to premature degeneration, wherever things are purloined or vandalised they have to get replaced more quickly than was anticipated. As mentioned earlier, Gordon and Brill (1996) submit that crime and accident prevention methods should not imply the requirement for extreme measures,;for instance, building tall fences and removing balconies from residential buildings. Rather, it advocates the combination of safety with various design considerations, such as aesthetics, structure and practicality to make a pleasant and safer living environment in these campuses (Gordon & Brill 1996).

2.2.3 University safety actions and University disorder

According to Gottfredson, Gottfredson and Hybl (1993), research results imply that misbehaviour in schools has determinants at three levels. Some individuals are more likely than others to misbehave, some teachers are more likely than others to produce higher levels of misconduct in their classrooms by their management and organisation practices, and some schools, more often than others, fail to control student behaviour (Munn, Johnstone, Sharp & Brown, 2004). Behaviour change programs that reduce risk for misbehaviour at all three of these levels are the most likely to be effective. Heller (1996) discusses the characteristics of well-disciplined schools. He believes that the administrators of disciplined schools realise that appropriate school discipline must be a part of every program, curriculum and practice. The entire school organisation must be designed to support and encourage student responsibility and address those issues and behaviours that are not conducive to instructional and academic success (Heller 1996).

Zins, Weissberg, Wang and Walberg (2004) suggest that schools are meant to provide a safe, caring environment in which children can learn. They challenge schools to take a leadership role in addressing the problem of violence with their communities. “Present efforts in dealing with youth interpersonal violence are not commensurate with the epidemic proportions of the problem, and demand more effort on the part of the schools and communities” (p13). Stephens (1994) believes that as young people are required by law to attend school, they must be provided with an environment that is safe, secure and peaceful.

A learning setting that fosters order and high expectations for student behaviour sets the foundation for a safe school (Prothrow-Stith 1995). A safe environment frees students to focus on academic achievement and performance. Prothrow-Stith (1995) suggests that the most logical violence prevention strategy for schools is one which promotes the improvement of the academic achievement of students. Students with superior language skills and analytic abilities are less likely to use force to achieve their goals. The principles of a safe school are valued staff, student and community partnerships, and opportunities to help fashion solutions to various school problems. This cooperative environment is readily discernible in the unusual amounts of time and energy that staff and community members expend in demonstrating their belief in what students can accomplish (Prothrow-Stith 1995).

Noguera (1995) believes that schools should be humanized to reduce the potential for violence. Improving the aesthetic character of schools by including art in the design of a school, or by availing space for students to create gardens or greenhouses, makes the school more pleasant and attractive. Overcoming the divide that separates urban schools from the communities in which they are located increases the number of adults who have authority and respect in the eyes of the children. Adults who live within the community can be encouraged to volunteer or, if possible, be paid to tutor, teach, mentor, coach, perform, or help with a variety of school activities. While such efforts may not eliminate the threat of random violence, they can help to make schools less impersonal, safer, and better able to provide students with a sense of security and stability in their lives.

Stephens (1994) asserts that the Increasing numbers of schools (particularly in America and Britain) are resorting to physical security measures in response to the threat of violence. However, students report similar levels of violent crime in schools with and without such measures, and the students associate security measures with greater fear of an attack (Bastian & Taylor 1991). Increased security measures in American schools may have been prompted by the threat of litigation resulting from violent incidents in schools.

The failure to provide staff training, crisis planning, and crime prevention through environmental design, effective communication systems, or enhanced student supervision can leave a school and its staff in a precarious situation. Stephens

(1994) also believes that schools will be required by law to develop safety plans. He describes a school safety plan as “a continuing, broad-based, comprehensive and systematic process to create and maintain a safe, secure, and welcoming school climate, free of drugs, violence, and fear”.

The university social and physical environment appears to offer intervention opportunities through which to reduce university crime. However, the lack of consistency in university environment variables, as well as the lack of longitudinal and experimental research designs, limits the applicability of these findings (Behre, Astor & Meyer 2001).

However, researcher such as Arrington (2006) argue that an environment with CPTED design principles does not guarantee an absence of crime and vandalism. To be effective and truly implement the CPTED principles, the design factors must be blended with the social factors of the environment. This blend requires the involvement of trained and dedicated individuals (a mix of government, neighborhood, and business representatives) from its design through its use, individuals from very diverse disciples coming together to design an environment for people to experience life without fear and improving the quality of life for all individuals - where they live, where they work, and where they relax, now and in the future.

Contract private guard service or agency, contract local police force, and hiring of private security officers and qualified directors of security services, have been found on some university campus in North America today (Alshuwaikhat & Abubakar, 2008). A number of these universities feel that it is more economical and administratively easier. Powell (1971: 1035-1036) established that one of these universities, administered and controlled by the State, used a job description written for guards in mental institutions and that the authorities could not see any difference in these duties.

Rademeyer (1995) postulates state universities were found with low-level security operations, which failed to prevent or alleviate campus disorder and violence through intelligent preparedness and handling. It was also established that many university administrators have no knowledge about security and are consequently easily

convinced at first but later disillusioned when the hired security guard is unmotivated, untrained, inexperienced, poorly supervised, and generally not competent to cope successfully with all campus security problems. Another university campus had contract guards alternately between guarding a large brewery and the campus. They were unable to differentiate between their responsibilities with regard to each establishment. This type of campus policing (security) operations proved to be unable to contribute towards the prevention of student disorder or handling situations involving students which actually call for good judgement, ability to converse, reason, and intelligent action because it is a secondary job and has no real reason or motivation

Rademeyer (1995) further states that crime on campus is subjecting institutions of higher learning, and those who run them, to a broad new field of civil liability for money damages. Campus decision-makers are at risk unless they act firmly to ensure that a bad situation is not made worse by the failure of the institution to take reasonable steps to protect its students and employees from the ravages of crime. It will mean more campus protective services and higher insurance rates for universities. Several American court cases held since 1984 (Peterson v. SanFrancisco Community College District and Miller v. State of New York) show that the plaintive could sue an institution of higher learning for injuries received, in an attempted rape at a university parking lot and a rape in a dormitory of a university (Fossey & Smith 1996:29-42). In the case of Duarte v. State, the defendant was sued for deceit and misrepresentation in the offering of safe dormitory facilities (Taylor 2015:425).

Henderson and Rowe (1998) highlighted that the Plaintiff was sexually assaulted and murdered in her dormitory at the university. The university authorities were aware of increased violence on the campus but failed to give necessary warning of it. Where no violent crime existed on campus, the plaintiffs lost, for example in the case Relyea v. State university students were abducted and murdered when they returned to their motor vehicle after attending an evening class (Henderson & Rowe,1998). There had been no forcible danger on campus. The foreseeable American doctrine has become firmly implanted at all universities and colleges. Crime may be a fact of

campus life, but the trained administrator, who is forewarned and forearmed, can assure that his or her institution will not have to cover before it (Wilkinson 2007).

Crawford (1998) posits that traditional approaches to crime control have primarily relied upon models of deterrence, punishment and rehabilitation. During the post-war period, these approaches, and their respective institutions, were increasingly criticised for their apparent inability to control crime and the increasing public expenditure associated with it. Jeffery (2005) argues that the persistence of crime was self-evident proof that the criminal justice system (policing, courts, prisons) did not work. He challenged the punitive nature of crime control, insisting that prevention should be the focus rather than revenge and retribution.

Shelley (1981) submits that the increasing demand on the criminal justice system, particularly in the United Kingdom, sharpened scrutiny of the system itself, which appeared to have no capacity for greater impact. The growing disenchantment with the traditional criminal justice system and realisation of its shortcomings led many researchers, practitioners and policy makers to investigate alternative ways to combat crime (Shelley 1981; Garland 2001). Crawford (1998) states that these events marked a number of changes in society's responses to crime, which are largely responsible for the rise in crime prevention (Clarke 1997). Since the 1980s, there has been considerable growth of crime prevention in policy and practice. The adoption and growth of crime prevention is considered by many 'analysts' to represent what Garland (1996) has called a 'major shift in paradigm' of crime control. As part of this 'shift', there has been growing recognition that crime is a multi-faceted phenomenon whereby various social and economic factors influence, and are influenced by, its occurrence. The bipartite cause-effect relationship between crime and these social and economic factors led to a realisation that prevention responsibilities should extend beyond the police to architects, local governments, communities, urban designers, housing and social services, schools, and planners (Crawford 1998; Schneider & Kitchen 2007). Contemporary practice of crime prevention promotes, and depends upon, partnerships and inter-agency cooperation between these groups to deliver effective results.

More recently, planners have been highlighted as having a significant role to play in crime prevention. Schneider & Kitchen (2002: 7) state that urban planning is essentially concerned with the linkage between knowledge and organised action, which is aimed at influencing future activities and events that measurably improve the quality of life. Urban planning is therefore a forward-thinking process that is highly compatible with crime prevention (Schneider & Kitchen 2002). Additionally, although crime prevention has not always represented a meaningful focus of the sustainability agenda, research over the last decade has clearly identified synergies between sustainability and crime prevention (Cozens et al. 2005). Arguably, the primary guiding concept of contemporary planning practice, sustainability dictates that planners must address issues and threats to the long-term health, vitality, personal safety and security of both the built environment and people (Cozens & Love 2009; Cozens 2008).

Planners, therefore, have a significant responsibility, if not an ethical obligation, to prevent crime and help safeguard the communities they serve from both crime and the fear of crime (Schneider & Kitchen 2002). Crime Prevention through Environmental Design represents a popular approach resulting from this 'shift' and its influence has spread around the world being adopted by planners, architects, urban designers and decision makers alike. CPTED is, therefore, one of the primary tools that planners utilise to help prevent crime. The next section of this review explores more about CPTED as a popular and widely adopted approach.

2.2.4 Campus crime and safety

To more clearly present the relevant literature, the taxonomy developed by Fisher and Sloan (2013) in their book "Campus Crime: Legal, Social, and Policy Perspectives" is used. This classification identifies three categories: (1) descriptive studies examining the extent and nature of campus crime; (2) explanatory research examining the predictors of campus crime, which can be categorized as student and institutional factors; and, (3) evaluation studies focusing on the effectiveness of policies and programs for campus safety. Descriptive studies focus on the type and prevalence of on-campus victimization.

The issues of sexual assault and stalking on college campuses continue to influence thematic development in the descriptive body of research, suggesting that a substantial portion of the population of female students repeatedly experience some form of sexual assault during college (Fisher & Sloan 2013). These findings have attracted public attention to the issue of sexual violence against college students and have led to institutional (Title IX of Higher Education Act Enforcement 2011) and legislative responses (Violence against Women Act Renewal 2013) (Fisher & Sloan 2013). Explanatory studies are informed by existing theories to examine the predictors of on-campus victimization. Students' lifestyle and routine activities have been extensively examined as the correlates of campus crime in previous literature.

These studies have revealed that students' characteristics and lifestyles, such as their relationship behaviours and alcohol drinking habits, are important determinants of their victimization (Shariati 2017). The second group of factors examined by explanatory studies are institutional characteristics. A major theme that is relevant to the focus of the dissertation attributed campus crime to the physical design of campus.

Fisher and Nasar (1992) and Nasar and Fisher (1993) are among the early empirical researchers that examined three correlates of crime and fear: prospect, refuge, and escape. Their findings demonstrated that higher levels of fear of crime on campus is associated with locations' poor visibility, victims' lower chance of escape, and areas offering more hiding places for offenders. A large-scale study by Siegel and Raymond (1992) conducted in four hundred US institutions revealed that ecological features of campus, together with students' characteristics, are correlated with campus violent crimes. In a single case study at Louisiana State University, Kowalczyk (2016) surveyed a random sample of students to explore their perceptions of safe and unsafe exterior sites on campus. The study's findings were consistent with CPTED theory, suggesting that visibility, clean and well-kept areas, and proper landscaping increased students' perception of safety.

The third body of scholarly research on campus safety comprises studies that evaluate the effectiveness of programs and policies addressing campus crime.

Despite nearly three decades of legislative and institutional efforts to support the implementation of crime prevention programs in post-secondary institutions, evaluation of literature on the effectiveness of prevention programs is scarce. Two relatively recent studies sought to address this gap, focusing on the implementation of bystander intervention programs (i.e., training bystanders to intervene when observing criminal acts in progress) on college campuses. Banyard, Moynihan and Plante (2004) and Coker et al. (2015) evaluated the impact of bystander trainings on the desired outcome of the program: increases in bystander behaviours to halt crimes in progress. Both studies suggested that bystander intervention programs hold promise in promoting a community-based approach to crime prevention.

2.3 CPTED worldwide

Crowe (2000) inferred that while the United States Government is employing CPTED principles in the field of airport aviation security, countries around the world, such as Canada, England, Japan, Netherlands and Australia, are actively pursuing CPTED related research and programs. The process is an evolution toward a simpler model of CPTED that, in most cases, becomes an integrated part of a comprehensive planning process for crime control (Crowe 2000). The formal definition of crime prevention, as adopted in these countries is “The anticipation, recognition and appraisal of a crime risk and the initiation of some action to remove or reduce it” (Crowe 2000).

Crowe (2000) further argues that Crime prevention strategies that compete with Jefferey’s CPTED model are not limited to efforts outside of the United States. There are CPTED practitioners that prefer an organized and mechanical approach as opposed to the natural approach of Jeffery’s model. Another group within the CPTED movement, according to Crowe (2000), casually blends the three strategy areas, the organized, mechanical and natural approaches.

These competing approaches may also be viewed as crime control strategies versus the natural planning model. In the early 1970s, architect Oscar Newman developed the concept of defensible space for use in public housing environment and other similar residential settings. Newman’s defensible model shares the basic

characteristics of Jeffery's CPTED model: natural surveillance, natural access control and territorial reinforcement. However, defensible space assumes that changes to physical environment will result in citizens becoming "defenders", Guarding places that matter to them.

Although there are similarities to CPTED, it is important to note that the defensible space is not the same as crime prevention through environmental design. Defensible space focuses more on encouraging a defensive or protective mind set by the public and less on directly affecting offender decision making. Defensible space is not the only crime prevention model that can compete with Jeffery's CPTED philosophy. Other programs include: security by design, natural crime prevention, environmental security, situational crime prevention, place-specific crime prevention and safer cities (La Vigne 1997). While alternative strategies may include common CPTED elements, they do not stress the natural approach to the prevention emphasized in Jeffery's Model.

In contrast, these programs highlight other processes, such as target hardening, activity support, physical security, law enforcement and procedural security measures. By incorporating traditional crime prevention techniques, as well as law enforcement strategies, these competing concepts attempt to create a crime prevention approach that builds on Jeffery's natural CPTED philosophies. Still, CPTED planners know that CPTED strategies and principles do not entirely replace other crime prevention approaches. However, Crowe (2000) points out that they do realize that a high priority should be placed on natural strategies that facilitate prevention within the built environment.

Zahm (2011) argues that CPTED is unusual when one compares it to other crime prevention or security measures, because it specifically focuses on aspects of the design, while the other measures tend to be directed only at target hardening through methods such as the application of fences and CCTV cameras. Zahm (2011) notes that CPTED is also unusual when comparing it to some police activities, because it encourages prevention and considers design and place, while policing has traditionally valued an efficient and effective response to incidents and the identification and arrest of offenders.

CPTED examines crime problems and the ways in which various features of the environment afford opportunities for undesirable and unwanted behaviors. This model attempts to remove or reduce these opportunities by changing various aspects of the building, the site, the location, and how the space is used (Zahm 2011).

2.4 Examples of Crime Prevention through Environmental Design Initiatives.

Kruger and Landman (2003) support the position that some of the previously mentioned problems can be eliminated in various ways. They are:

- Limiting the potential danger posed by reducing and managing open spaces and vacant land.
- Reducing the opportunities for crime through well-planned, pedestrian routes, appropriately designed informal trading areas.
- Providing adequate infrastructure and facilities such as roads and telecommunication to improve interaction between communities and the police.
- Managing the built environment efficiently, e.g. replacing light bulbs timeously, trimming trees and vegetation when and where required, collecting refuse regularly etc.
- Providing appropriate lighting in parks, along streets and pedestrian routes etc. In a study done in 2001 in Hatfield, Pretoria (Tshwane) the researcher studied Burnett Street, which is very busy during the evenings. There were no lights at specific places and the only lights that were there were those supplied by the property owners. During the rapid change of Hatfield from a residential area into a commercial area, the lighting was never upgraded (Geldenhuys 2001).
- Taxi ranks must be designed to increase safety.

2.5 Crime Prevention through Environmental Design (CPTED)

Perceptions of safety are influenced by many factors, including the built environment and the design of railway stations (Currie & Burke, 2013). Thus, it follows that a good environmental design may decrease crime and fear of crime. CPTED is now a relatively common approach used to reduce crime and the fear of crime in and around railway stations (Batley et al. 2012).

A recent review of the UKs Secured Station Scheme (SSS) reveals that reductions in crime (e.g., theft from the person, criminal damage, and vehicle crimes), higher levels of personal safety, and increases in patronage were associated with stations which were awarded SSS accreditation (Cozens & Van der Linde 2015). This scheme was launched in 1998, and more than 1,250 stations have received accreditation (Batley et al. 2012) based on three criteria: (1) stations must achieve a specific ratio of crimes per passengers, (2) stations must achieve a high CPTED audit score, and (3) stations must demonstrate adequate management processes and low levels of passenger perceptions of crime. Crucially, accreditation is for a two-year period, after which re-accreditation is necessary (Cozens & Van der Linde 2015).

Five security staff were interviewed by Cozens and Van der Linde (2015) to investigate their “expert” opinions on crime and safety at the two Australian railway train stations. When asked if they thought CPTED principles were applied to the Gosnells and Oats Street stations, all PTA interviewees confirmed that Gosnells station had been designed with CPTED principles and that Oats Street was not (n=5). Respondents believed that Gosnells station was well-designed (n=3) and that lighting and vegetation were particularly considered to be of a high standard at Gosnells station (Cozens and Van der Linde 2015).

However, it was noted that despite the use of CPTED principles at Gosnells station, surrounding land uses did not produce a lot of activity to provide surveillance of the station (n=2). The land uses are in private ownership, and, thus, the owners need to be convinced to work together to develop precinct as an activity node (n=2).

It was reported by one PTA officer, who had completed tertiary studies in CPTED that all new train stations in WA must use CPTED principles and architect designs

must be approved. Both Gosnells and Oats Street stations are fitted with emergency panic buttons and public address (PA) systems that have direct contact with the PTA's control monitoring room, which is manned 24 hours per day, 7 days per week (n=2). As soon as the emergency button is pressed, the closest CCTV camera zooms in on the location, and the person is able to voice their distress to the control room (Cozens & Van der Linde 2015:5).

The Armadale line has been referred to as the "crime line." However, PTA respondents indicated that the reputation is undeserved and is linked to "out-of-context media reporting" and the socio-demographics of the surrounding suburbs (n=3). There was some awareness that issues on the trains reflect those of the broader community.

Although one PTA officer believed the design of Gosnells station was effective in increasing perceptions of safety, he suggested that construction of a new station was required at Oats Street. In terms of the existing station at Oats Street, two officers felt that it was necessary to upgrade the shelters, cut down the vegetation, eliminate the level crossing, and provide more cameras, lighting, and monitored entry points to increase perceptions of safety. Clearly, the "expert group" of PTA security staff believed that Gosnells station was designed more effectively than Oats Street, since CPTED principles had been systematically considered and applied to its design and layout.

The exploratory findings from this relatively small study raise some interesting issues. In summary, the five security "experts" believed Gosnells was the safest station since it was designed using CPTED principles. The literature suggests this station should be perceived to be safer than Oats Street, which was not designed using CPTED principles. However, this was not the case. The station users perceived Oats Street to exhibit marginally higher levels of CPTED qualities and felt it was slightly safer than Gosnells. These findings could, of course, be explained partly by the relatively small sample size or the fact that Gosnells station is perceived to be located in a dangerous area compared to Oats Street station. Another possibility is that CPTED was not implemented as effectively as it could have been.

Cozens and Van der Linde (2015) further state that the station users also felt that the reputation of Oats Street was more positive than Gosnells, although both stations were perceived to be somewhat stigmatized. This might be linked to the idea that the Armadale line is the “crime line.” The land use survey provided some insights into the concept of “geographical juxtaposition,” highlighting that crime generators and crime attractors around the Gosnells station may affect perceptions of the personal safety and the effectiveness of CPTED at the station itself. These preliminary findings of study by Newman (2009) suggest that CPTED surveys need to include some kind of measurement of geographically-juxtaposed land uses around the station. This was, after all, Newman’s fourth Defensible Space principle (2009). More detailed research on land uses surrounding sites at which CPTED has been implemented may shed more light on this topic. It is suggested that some form of CPTED survey or personal safety mapping of station users could become a more systematic and regular component of customer satisfaction surveys. This could then be used to redirect and target CPTED funding at specific stations. This also might be used to alter the number and location of CCTV cameras and/or the number of security staff.

Since 2001, there have been many significant developments in research in the field of CPTED, which are not necessarily formally taught within any tertiary studies. Moreover, it has been argued that the built environment and security professionals need to know much more about crime patterns and environmental criminology as a foundation for underpinning the use of CPTED. Furthermore, although the station may have met the CPTED principles of the time, 14 years on, it appears that the station users in this exploratory study did not perceive there were high levels of CPTED qualities at Gosnells station. One conclusion from this preliminary study is that stations may need to be more regularly reviewed (Brantingham & Brantingham 1984; Cozens, 2014). Since CPTED is a process and not a design outcome, review should, arguably, take place on a more routine basis. Indeed, the UK’s Secured Station Scheme requires stations to be re-accredited every two years.

CPTED is considered to be “best practice” and represents a large investment of public/private funds. Crowe and Cozens (2014) exploratory study does not in any

way suggest that CPTED does not work or is not a worthwhile investment for transportation agencies. Rather, it suggests that CPTED could be applied better by considering Newman's fourth and often forgotten Defensible Space principle of geographical juxtaposition. Indeed, understanding the context and nature of the local environment may help explain the negative reputation of Gosnells station and its attempts to respond in terms of the redesign of the station using CPTED principles. It may well be the case that the CPTED design efforts simply were not enough to overcome the highly negative and stigmatized reputation of the area. (Crowe 2000; Cozens 2014).

2.6 Limitations of CPTED

Despite the many benefits of CPTED, its limitations should be acknowledged. The section below highlights some of these weaknesses.

2.6.1 Displacement of crime

Linden (2007) argues that CPTED displaces crime and merely addresses the symptoms of the problem, rather than addressing the problem itself. Weisburd, Morris and Groff (2009) have found that while displacement should be considered when implementing crime prevention initiatives, the diffusion of benefits is more likely to occur than the displacement of crime. However, displacement of crime cannot be the primary reason why the model should not be implemented. Crime displacement happens as a result of the offender moving into less secure environments, which make criminality possible. The solution to this would be to advocate the use of the model to modify the environment to reduce offences in various settings.

2.6.2 Limited Emphasis on social Responses to Crime Prevention

Hayward (2007) is critical of models such as CPTED as these models lack reflexivity and fail to consider other extenuating causal factors that contribute to crime.

Although CPTED intends to reduce crime and victimization, it can also serve as a form of social control by influencing a change in actions from deviant to non-deviant.

2.6.3 Over-emphasis on target hardening

Kruger (2005) notes that although research has been done on CPTED, the implementation has been limited in South Africa. Most projects rely heavily on the target hardening aspect (usually by installing CCTV systems and burglar guard fencing) and neglect CPTED's core principle of planning and design. This researcher holds that the over-reliance on target hardening is largely the result of the lack of knowledge and understanding of monitoring and evaluation of programs based on environmental design. Although the CPTED principles indicate that the model does have limitations, the positive outcomes outweigh the negative by far.

2.7 Crime prevention Through Environmental Design in South Africa.

Kalton (1983) asserts that CPTED has been built on and used extensively within the United States and Europe, where it has yielded positive results. In South Africa this is a relatively new concept. The first policy to outline the purpose of environmental design in crime prevention in South Africa was the 1996 National Crime Prevention Strategy (NCPS 1996), which acknowledged environmental approaches to preventing crime, by using and explaining CPTED. Thereafter, various other policies in South Africa have also placed emphasis on the use of environmental design and planning in urban safety and security. These include:

- The 2003 Safer Cities Strategy (SCS), which addresses the local implementation of CPTED guided by a specific crime prevention framework;
- the 2002 Urban Renewal Programme (URS), which addresses urban regeneration through environmental design while also addressing crime through Urban development; and
- the 2012/2013 Integrated Development Plan (IDP), which was developed for all nine provinces, and provides a holistic understanding of what CPTED is and how It can be utilized in the broader framework of social development and urban Planning and design.

Papadakis (2010) found that in South Africa, citizens have called on local government bodies to create safe and crime-free spaces and quality living environments. A number of municipalities have implemented various crime prevention strategies in response, including CPTED. In terms of local government, CPTED should be guided by a local CPTED strategy developed to respond to the specific context of crime issues and can be implemented on a small, medium, or a large scale, depending on the requirements of the target area.

Kruger (2005) cautions that CPTED will not be implementable if proper oversight and guidance do not exist, especially if the mechanisms for implementation are based on administrative or political requirements from superiors in the municipal structure. Municipalities can implement CPTED initiatives in partnership with various local government departments and communities, such as by establishing an inner city CCTV network system.

According to the CSIR (2000) the most important stakeholders in environmental design initiatives are the users of the spaces under consideration, which could be local residents, business people, pedestrians, etc. These people are generally the most aware of the types of problems encountered in the areas that they use. Urban renewal projects can include the provision of new infrastructure for traders, revamped streets and increased lighting which will not only improve quality of life for traders and commuters, but also contribute to crime reduction.

Minnaar (2005) points out that in the Nelson Mandela Bay Metropolitan Municipality, the local government sought to create an integrated crime reduction strategy that aimed at bringing together government departments and stakeholders to address various socioeconomic problems and to promote development. The aim was to develop a strategy that consisted of short and long-term responses to Crime. The strategy began by ascertaining the various socio-economic problems, the local crime situation and perceptions as well as community awareness of crime and fear. Eight key approaches were outlined and three of them included environmental design initiatives, namely:

- Preventing crime through the deployment of community-based volunteers at crime hotspots;

- Supplementing visible policing efforts with technological aids such as CCTV; and
- Coordinating, providing and enhancing targeted crime prevention through environmental design projects (Masuku and Maepa 2003).

Shaw and Louw (1998) state that the City of Cape Town also addressed crime through urban planning and design. The city initiated the Violence Prevention through Urban Upgrading (VPUU) Project in Khayelitsha in 2006 in an effort to decrease crime. The project's further aim was to improve urban environments and social standards and to introduce sustainable community projects to empower residents. This project highlighted the use of a maintenance and management (pride and ownership) principle to ensure the sustainability of the project (www.capetown.gov.za). Although the project was a renewal/regeneration initiative, it used all the principles of CPTED for achieving quality living environments and reducing crime.

Aboo (2013) suggests strategies for addressing urban violence, crime and fear are CPTED and urban renewal projects. In using these strategies, the focus is on the settings of crime instead of the offender, which include slum upgrades, urban renewal and local level intervention programs for uplifting environments. These strategies seem to work.

2.8 Gated Communities in South Africa

Hook and Vrdoljak (2002) assert that Gated communities have rapidly increased in popularity in South Africa over the last decade or two. Gated communities can broadly be categorized as security villages and enclosed neighbourhoods. Due to high crime rates, many people consider enclosed neighbourhoods or security villages as an option for safe living in cities.

Atkinson and Blandly (2013) are of the opinion that although gated communities may be experienced positively by their users because of decreased fear, increased community cohesion, privatized service delivery and environments that are managed in such a way that they improve the quality of life of residents, gated communities

accomplish this at the cost of the other CPTED principles. These developments negatively affect the structure of cities by undermining residential desegregation and integration.

Landman and Schonteich (2002) stipulate that these developments create fragmentation, a breakdown in social cohesion and increased perceptions of fear for those outside the communities or who are unable to access these places. Gated communities separate areas from the surrounding environment and restrict access to some zones in the urban fabric.

These developments may decrease crime, but the reality is that the crime is only displaced instead of being eradicated. Privatized spaces also create problems of urban governance, as gated communities are beyond government management. Although CPTED has many benefits, it should not be regarded as a solution to all of SA's crime problems. It is only appropriate to address particular crime types in particular locations. One must remember that what works in one situation might not necessarily work in another (Aboo, 2013).

2.9 A model recently piloted by the CSIR integrating safety strategies for residents and their neighbourhoods

Crime is inextricably linked to the places where it is committed. An analysis of where criminal acts occur shows that many incidents are not spontaneous or opportunistic, but that certain places are selected by offenders because they lend themselves to criminal activity. Healey (2001) Indicates that research conducted by CSIR Building and Construction Technology over the past few years in South Africa’s major cities shows how different types of environments contribute to the occurrence of different types of crime. For example murder, rape and serious assault although not confined to open and vacant spaces generally occur in these undeveloped areas. Robberies and hijackings often take place at isolated intersections and in hidden driveways, while many housebreakings occur as a result of the layout and land use of the affected residential areas. The importance of the link between crime and place means that professionals working with land management and development are central to any local crime prevention effort.

2.10 Linking urban planning and crime prevention

Kruger, Landman and Libermann (2001) are all of the view that Internationally, planning has seen a major shift over the past few years from a profession concerned with mediating the interests of different players over land and its use, to one that facilitates public participation in decisions about how to manage and develop land. This shift has also occurred in South Africa: one of the main tools for planners, the Integrated Development Plan (IDP), outlines the necessity and procedure for public participation.

The IDP and the municipality's budget are closely linked. The latter cannot be approved without the IDP being in place. The intention is that the plan reflects the expressed priorities of the local people. Concerns about crime rank among the top three priorities of every IDP in the country. But despite this, the ability to incorporate crime prevention plans into the local development agenda is limited. Crime Prevention through Environmental Design (CPTED) presents a clear opportunity for municipalities to respond to the needs of their constituencies.

Hirschfield, Neton and Rogerson (2010) argue that CPTED directly addresses the link between crime and place. It aims to reduce the causes of and opportunities for criminal events and to address the fear of crime by applying sound planning, design and management principles to the built environment. CPTED principles include ideas like natural surveillance and visibility, a sense of ownership among people living or working in an area, and other factors that make it more difficult or risky to commit crime in a particular place.

In other words, crime prevention through environmental design is about a lot more than 'target hardening', the term that describes using burglar bars or high walls, for example, to deter criminals from stealing property (Landman & Liebermann 2016). Internationally, CPTED currently includes approaches as diverse as those favouring mixed land use and an integrated approach to urban development, to those that separate and exclude through an over-emphasis on target hardening. In South Africa, the question is how we should plan to reduce crime at a neighbourhood level,

so that it responds to residents' needs without infringing on the future good functioning of the city. An obvious example is the debate over 'boomed-off suburbs' and their impact on crime, the rights of those using the areas in question, and the functionality of the city.

2.11 Using physical barriers against crime

Hirschfield, Newton and Rogerson (2010) posit that businesses in the municipalities of Johannesburg and Tshwane have reacted to crime by increasing security measures to protect their property. They make use of methods that range from changes to the interior of buildings, for example closed-circuit surveillance (CCTV) cameras and bullet-proof glass in banks and in 24-hour garage shops, to exterior changes such as burglar bars in front of windows, security gates on doors, shutters covering entire facades, high fences or walls around properties, and access-control entrances. Residents, likewise, have responded with increased security measures. These vary from the installation of electronic devices such as closed-circuit surveillance cameras, alarm systems, panic buttons, electronic gates and intercom systems, to physical modifications such as burglar bars, security gates, fences and walls around properties.

Perkins, Florin, Rich, Wandersman and Chavis (1990) support the position that the extent and nature of the changes depend, among other things, on the location of people's homes, their financial abilities, the measure of security perceived to be necessary, and perceptions about the risk of victimization. However, for many urban South Africans, the implementation of these measures is not enough. They want to live in a more secure neighbourhood. This has led to an increase in the number of security villages and enclosed neighbourhoods in both Johannesburg and Tshwane. Security villages include different types of developments with different uses, ranging from smaller townhouse complexes to larger office parks and luxury estates. These areas are purpose-built by private developers for whom security is the foremost requirement in spite of the importance of other lifestyle considerations.

Landman and Liebermann (2016) infer that another type of gated community is the enclosed neighbourhood. These neighbourhoods are characterized by road closures, with fences or walls around entire neighbourhoods in some cases. Applications to the municipality for the right to restrict access are essential, and residents can apply to enclose their neighbourhoods on security grounds alone. A national survey conducted by the CSIR in 2002 confirmed that Johannesburg and Tshwane had the most enclosed neighbourhoods in the country, with large numbers of security estates in addition to other types of gated communities, such as office parks, secure townhouse complexes and secure high-rise apartments. More specifically:

• The City of Johannesburg indicated that there were 49 legal neighbourhood closures, with a further 37 whose approval had expired. In addition, there were an estimated 188 illegal closures and 265 pending applications.

• The City of Tshwane had formal applications from 75 neighbourhoods to close off their areas. Thirty five further applications had been approved.

This clearly demonstrates a huge demand by the public. As stated above, the main reason for the proliferation is considered to be crime and the fear of it. In both municipalities, the enclosed neighbourhoods and security estates have developed in regions with comparatively high property crime rates.

2.12 Impact of gated communities

Recent studies have highlighted the impact of different types of gated communities in South Africa (Landman 2004). Some of the positive aspects include a reduction in crime within the gated area, either temporarily or on a more permanent basis, as well as a significant reduction in the fear of crime. This has often led to increased use of the urban spaces inside the gated communities by the residents. The greater use of communal space, together with the process of creating the gated neighborhood, has contributed to a better sense of community among those residents who support these initiatives.

In Gauteng, almost all the security companies interviewed reported a reduction in crime in the enclosed neighbourhoods, while a number of large security estates still experienced some isolated crime incidents. The SAPS, likewise generally agree that crime is reduced through physical target hardening on a neighbourhood scale. They do, however, recognize that crime is often displaced by these methods to surrounding neighbourhoods. One of the consequences is that residents in adjacent communities feel increasingly vulnerable and subsequently also apply for road closures or move to a security estate. The net result is an increase in the number of gated communities.

Kruger, Landman and Liebermann (2001) argue that in addition to crime displacement, gated communities have several other negative impacts, particularly those that close off large areas or entire neighbourhoods. These include spatial fragmentation, social exclusion and problems that relate to urban management and maintenance. The physical closure of neighbourhoods results in a coarse urban form that is made up of enclosed separated residential cells that are linked by rapid transport routes. This not only negates current planning policies that promote greater integration, but also leads to problems of accessibility and traffic congestion. Pedestrians and cyclists are forced to use busy thoroughfares, resulting in increased travelling time, discomfort and danger due to high traffic volumes on congested roads. Social exclusion also occurs when urban residents are prohibited from entering closed-off areas or using public facilities within these gated areas.

Gated communities can improve the sense of community among those who support these developments. But they similarly give rise to tension and conflict between those opposing them, as well as between residents living inside and adjacent to, the enclosed neighbourhood. The closure of existing neighbourhoods and strict access control in security estates where infrastructure maintenance remains the council's responsibility, also limits access to those whose job it is to maintain public facilities and infrastructure, and increases response times for emergency services (Kruger, Landman & Lieberman, 2001).

2.13 Alternative approaches different from CPTED

McCormick (2006) is submits that these negative consequences, several neighbourhoods in Johannesburg (such as Sandton and Parktown) and Tshwane (such as Groenkloof) have engaged in crime prevention initiatives that do not entail erecting barriers. These include using private security services (patrol vehicles, guards on bicycles, etc.), establishing local crime prevention committees to work closely with the police, and in some instances involving local employees (such as domestic workers) to act as the eyes on the street' and report suspicious behaviour.

The question that arises is, therefore, how to plan against crime at a neighbourhood level and still retain the positive impacts of gated communities (such as an increased feeling of safety, community involvement and cohesion), without exacerbating the negative concerns, such as spatial fragmentation, social exclusion and problems regarding accessibility. One way is to focus on local participation with the aim of integrating rather than segregating the community (McCormick 2006).

2.14 Involving residents in the planning process

For the past few years, CSIR has been researching the application of planning practices to the local crime prevention field. To this end a model was developed through action research in Mamelodi, north east of Tshwane. The model was piloted earlier in 2009 in six policing areas in the Northern Cape and is also being used in KwaZulu-Natal as part of a broader local crime prevention strategy. So far, the evidence suggests that the model has significant potential to enhance local safety.

The model consists of a workshop process that is based on the understanding that people know best the opportunities and problems of their area. The intention is to work with local residents to identify specific places that they consider dangerous. It is known that certain places are often predictably selected for the opportunities they represent for criminals. The workshops attempt to enable residents to understand what makes these places dangerous, and how they could be altered to become safer. Through the identification process it becomes clear that contrary to the

common belief that crime is ‘random and happens everywhere’, it in fact occurs in specific and identifiable places. During the process of analysing these different areas, it becomes apparent to participants that the responsibility for altering the nature of these localities does not lie with the police. In many cases it is the municipality or the community itself whose job it is to make the identified places safer.

2.15 The City Street and crime control

Zimring (2011) claims that vibrant and busy streets were safer. In an attempt to understand the connection between the nature of street activity and crime control, she identified three elements that rendered the street particularly effective in combating crime. In her view, the basic design objectives mentioned above ensured (i) a clear demarcation between public and private spaces on the street; (ii) the orientation of buildings and building fronts to the street; and (iii) eyes which continuously watch the street. In Jacobs’ original statement, the defensibility of the street amounted to the following “On the surface, we seem to have here some simple aims: To try to secure streets where the public space is unequivocally public, physically unmixed with private or with nothing-at-all space, so that the area needing surveillance has clear and practicable limits; and to see that these public street spaces have eyes on them as continuously as possible”.

Zimring (2011) thus recognises that clear boundary definitions, expressions of territorial stewardship, and the possibility and actuality of constant surveillance were the elements of the physical environment that contributed to crime prevention. However, it requires stressing that these elements were all understood by Jacobs within the context of dense and diverse street cultures. These crime prevention elements were therefore always closely tied to and informed by the other virtues of the street environment which she expounded (such as public contact and civic responsibility) (Huxel & Anderson, 2013).

At the beginning of the 1970s, however, Oscar Newman transformed the elements of territoriality, boundary definition and visibility into the basic elements of what he called ‘defensible space’. He did so in the context of faceless public housing

schemes. By shifting the plural complexity and richness of the street into the background, Newman opened the door for development of a set of potentially one-sided place-based crime prevention measures, or what later generally came to be known as crime prevention through environmental design (CPTED).

Marzbali, Abdullah, Tilaki (2016) asserts that as a place-based crime prevention strategy, CPTED comprises a further development of the elements of defensible space. Specific places can be designed in ways that can reduce the threat of crime by controlling surveillance and visibility, territoriality, access and escape routes, image and aesthetics, and target hardening. There is no need to discuss each of the principles here in any but the merest detail. Surveillance and visibility refer to the capacity of the physical environment to provide surveillance opportunities for its natural users (for example, placing parking lots in front of, rather than behind, and buildings).

Ekblom (2011) argues that in much of the CPTED literature, these elements have achieved an independent status and are no longer mediated by the ideal of exuberant diversity or street democracy, which historically provided its theoretical backdrop. Removed from this context, there is an ever-present danger that CPTED approaches will simply result in a fortification of the urban environment and a siege mentality among its inhabitants; both of which is far removed from the open street culture that Jacobs celebrated back in the 1960s.

A first concern in this regard is that the effort to physically shield a potential target from crime (target hardening) could easily violate other principles of CPTED. High walls around properties, for example, often obstruct lines of sight and thus decrease surveillance, visibility and a territorial connection with the street. A second, even more important, concern is that the effective fortification of the city can lead to the death of its streets. Under such circumstances, crime prevention is sub optimally brought about (if at all) at the cost of the other benefits which cities derive from its vibrant street cultures, most notably the development of democratic virtues. It is in this context that a return to the work of Jane Jacobs and a radicalization of the new urbanism can prove to be valuable. As Schneider and Kitchen rightly point out, the attraction of new urbanism is that it presents a way of reconnecting CPTED strategies, especially target hardening strategies like road closures, to the larger

urban fabric. It is precisely a sensitivity to this connection that is absent in much place-based crime prevention thinking in South Africa.

Conclusion

This chapter synthesized the relevant research on campus safety and CPTED, as well as relationship between the environmental design and crimes in communities and big cities. The chapter started by reviewing groups of campus safety studies. The review identified an important gap in the literature linking evaluation research and campus safety initiatives. Traditionally, campus safety research has focused on providing descriptions of the nature of campus crime or explanations of its predictors. Thus, this dissertation sought to narrow this gap by assessing the role of a crime prevention method (CPTED) in campus safety.

CHAPTER THREE: THEORETICAL FRAMEWORK

3.1 Introduction

Theoretical framework is a concept-mapping exercise used to illustrate how to theorize or make sense of the relationships between concepts or variables identified as important to the research problem (Babbie & Rubin 2014). Theoretical framework refers to a set of interrelated constructs, definitions, and propositions that present a systematic view of phenomena specifying relations among the variables. In order to explore the level of the study, certain theories need to be used. The current study employed the Opportunity Theory and the Rational Choice Theory. These theories are appropriate as they seem to capture important aspects central to the current study. Moreover, both theories have been identified as playing a significant role in the knowledge of crime prevention through environmental design in the university.

3.2 Crime and the built environment: history

Although the term CPTED was first coined by Jeffery in 1971, the recent link between crime and environmental design can be traced to a number of different disciplines (Cozens *et al*. 2001). The emergence of CPTED is commonly attributed to the evolving field of environmental criminology (Brantingham 1981; Glasson and Cozens 2011). Environmental criminology views crime as culmination of four interrelated elements that need to be present for any crime to take place, and these are: a law, an offender, a target, and a place (Wortley & Mazerolle 2008).

Since the seminal work of (Jacobs & Newman 2001) CPTED has evolved into its own sub-category within criminology, and, more recently, urban planning (Cozens 2002). Crowe (2000:35) states that the environmental design, in terms of CPTED, is rooted in the design of human/environment relationship, which embodies a number of concepts. In this case, the term environment includes people as well as their

physical and social surroundings. Crowe (2000) adds that the term design includes social, physical, managerial, and law enforcement directives that seek to affect human behavior as people interact with their surrounding environment.

Through environmental design CPTED aims to prevent certain crimes as well as the fear associated with these crimes within a defined environment. This perspective moves CPTED from the traditional “target hardening” approach to crime prevention because CPTED focuses on the needs of users, the intended and expected users of space, as well as the predictable behaviour of users and offenders. The emphasis on certain crimes is also important and it should be noted that CPTED cannot be seen as a panacea to crime (Shaftoe & Read, 2005). CPTED can influence a wide range of opportunistic crimes such as vandalism, burglary, theft and assault but it is not concerned with other criminal offences such as fraud, family violence and white collar crime (Shaftoe 2017).

Conceptually, CPTED maintains that through manipulation, the physical environment can produce behavioural effects that will reduce both the incidence and fear of crime, consequently improving the quality of life (Crowe 2000). To achieve this goal, CPTED has two principle aims. CPTED’s primary aim is to modify the built environment in order to manipulate the selection of targets by motivated criminal offenders (DelCarmen & Robinson 2000). In doing so, CPTED purports to reduce or eliminate the probability of criminal offences by reducing the opportunities to commit crime and increasing the risk behaviour. Beyond manipulating actual crime incidences, CPTED places equal importance on the perceptions of safety and the equality of life (Jeffery 1971).

Basic CPTED techniques are as old as civilization itself (Crowe & Zahm 1994). Therefore, it should be noted that the emergence of CPTED in the last few decades is representative of the discovery of new and different ideas to prevent crime and as well as more sophisticated understanding of the relationship between the built environmental and criminal activity, rather than the foundation of its rationale.

3.3 Theoretical Basis

To understand how the CPTED approach fits in the context of criminological theories, it can be regarded within the larger framework of Situational Crime Prevention (SCP). Situational crime prevention, “a more recent term that originated in the UK, subsumes CPTED and is much broader in scope. It refers to any opportunity reducing measure, whether of design, management or even policing, intended to increase the difficulties or risks of offending” (Clarke 1989: 13). SCP entails a process of problem-solving using a standard methodology. Through analysis of the crime problem, the situations that facilitate crime are identified. Appropriate interventions are then developed to discourage potential criminals from offending, based on the underlying factors. The next step is an evaluation of how the implemented strategies impacted the crime issue; lastly, results are disseminated (Clarke 1997). SCP and CPTED are both informed by three criminological theories, including Rational Choice theory, Routine Activity Approach (RAA), and Opportunity Theory. These theories help explain the rationales of SCP and CPTED approaches to crime prevention. This study focused on the Rational Choice and Opportunity theories described below.

3.3.1 Rational Choice Theory

The Rational Choice Perspective (RCP), by Clarke and Cornish (1985), suggests that motivated offenders assess the potential costs and benefits of a given crime opportunity before deciding to pursue it. If the hazards outweigh the perceived rewards, they will not place themselves at risk by committing the crime. Thus, manipulating the circumstances that give rise to criminal opportunities can reduce the willingness of would-be-offenders to engage in criminal activities (Smith & Clarke 2012). After identifying potential risk factors of crime among victims, offenders, and/or places, the RCP approach enables the development of appropriate interventions to alter the suitability of crime. For instance, improving the visibility of secluded areas in a college campus is a CPTED technique that is informed by RCP. This technique aims to dissuade motivated offenders by increasing the risk of arrest and punishment.

Any increase in the difficulty or the risks of crime is, therefore, likely to reduce the probability of a criminal choice and, despite their short histories, CPTED and situational prevention can show records of substantial success in implementing this principle. Crime and vandalism in blocks of flats have been demonstrably reduced by employing porters or installing entry phones, and a number of criminogenic features of housing estates have been identified, including very high or large blocks, easy access for strangers to the interior of the estate, the provision of walkways linking separate blocks, and the concentration of too many families with children on a single estate. But the successes go much wider than the housing sphere.

Armed robberies of buses in the United States have been eliminated by exact fare systems. Hijacking of airliners has been greatly reduced by passenger and baggage screening procedures (Wilkinson 2007). Muggings on the London Underground have been reduced by the introduction of TV (Webb & Laycock 1992). A virtually crime-free subway system has been built in Washington DC on CPTED principles (Clarke 1989:13-20) Further, a dramatic fall in the number of motorcycle thefts in West Germany in 1980 followed the introduction of penalties for failing to wear a crash helmet. The need to have a helmet greatly reduces the scope for opportunistic thefts (Clarke & Mayhew 1980).

3.3.2 Opportunity Theory

Opportunity theory is a theory that suggests that offenders settle on sane decisions and, subsequently , pick targets that offer a high reward with little effort and risk. This theory is likewise superbly appropriate to this study because the event of crime relies upon two things: the presence of at least one inspired offender who is prepared or willing to take part in crime, and the state of the environment in which that offender is arranged, to wit, opportunities for crime. All crimes require opportunity but not every opportunity is followed by crime. Similarly, a motivated offender is important for the commission of a crime but not sufficient. A huge part of this theory centers around how variations in life-style or routine activities influence the opportunities for crime (Hindelang, Gottfredson & Garofalo 1978; Cohen & Felson 1979; Cohen, Felson, & Land 1980).

Opportunity, consequently, turns into the restricting component that decides the result in environments inclined to crime in light of the fact that the offender generally has little or no control over the states of environment, and the conditions that allow specific crimes are frequently uncommon, unlikely or preventable. The theory is built on the old saying that “opportunity makes the thief”, which argues that opportunity is a “root cause” of crime, while opportunity for crime is caused by a poorly built environment and inadequate implementation of the CPTED principles. Recent “opportunity” theories of crime have emphasized principles that are close to the real world, easy to explain and teach, and ready to put into practice. They include the routine activity approach, the rational choice perspective, and crime pattern theory.

Prior to the 1970s, many criminologists believed that opportunity plays a passive role in crime, simply providing the means for criminal dispositions to be expressed. Consequently, they had little interest in opportunity theorists such as Lawrence Cohen and Marcus Felson who began, in the 1970s, to give a more prominent role to opportunity in crime causation, through their routine activity approach, that more supportive evidence began to accumulate. Routine activity is a theory that states that crime, like any other behaviour, is the outcome of the interaction between the person and the environment. Thus, routine activity postulates that crime cannot take place without the convergence in time and space of three essential elements: a likely offender, a suitable target and the absence of a capable guardian against crime. The latter two elements represent the opportunity for crime. Routine Theory takes little interest in likely offenders, not only because they have been the focus of most other theories, but also because people willing to commit crime or to seek perceived rewards in violation of the law, can always be counted upon to exist.

3.3.3 Crime opportunity theory principles

Clarke and Felson (1993) postulate that opportunities play a role in causing all crimes, and not just common property crime. For example, studies of bars and pubs show how their design and management plays an important role in generating violence or preventing it. Studies of credit card and other frauds identify security loopholes that can be blocked. Even sexual offenses and drug dealing are subject to

opportunity reduction. Crime opportunities are highly specific. The robbery of post offices depends upon a different constellation of opportunities than for bank robberies or muggings on the street. Theft of cars for joyriding has an entirely different pattern of opportunity than theft of cars for their parts, and different again from car theft for sale abroad. Crime opportunity theory helps sort out these differences, which need to be understood if prevention is to be properly tailored to the crimes in question.

Clarke and Felson (1993) argue that crime opportunities are concentrated in time and space. Dramatic differences are found from one address to another, even within a high crime area. Crime shifts greatly by hour of day and day of the week, reflecting the opportunities to carry it out. The Routine Activity Theory and the Crime Pattern Theory are helpful in understanding the concentration of crime opportunities at particular places and times. Crime opportunities depend on everyday movements of offenders, and their targets shift according to the trips to work, school, and leisure settings. For example, pickpockets seek crowds in the city centre and burglars visit suburbs in the afternoon when residents are at work or school.

Felson and Clarke (1998) state that social and technological changes produce new crime opportunities. Any new product goes through four stages: innovation, growth, mass marketing and saturation. The middle two stages tend to produce the most theft. Thus, when laptop computers first came on the market, they were rather exotic machines appealing to only a few consumers. As their price declined and more people began to understand their uses, the market for them began to grow and they began to be at risk of theft. These risks remain high at present while they are being heavily promoted and are much in demand. As their price reduces further, and most people can afford them, their risks of theft will decline to levels more like those of calculators and other everyday business aids.

Poyner (1983) postulates that crime can be prevented by reducing opportunities. The opportunity-reducing methods of situational crime prevention fit systematic patterns and rules, which cut across every walk of life, even though prevention methods must be tailored to each situation. These methods derive from rational choice theory and aim, (i) to increase the perceived effort of crime, (ii) to increase the perceived risks,

(iii) to reduce the anticipated rewards, and (iv) to remove excuses for crime. Thus, situational crime prevention is not just a collection of ad hoc methods, but is firmly grounded in opportunity theory. There are approaching one hundred evaluated examples of the successful implementation of situational crime prevention. Reducing opportunities does not usually displace crime. Evaluations have usually found little displacement following the implementation of situational prevention. No studies have found displacement to be complete. This means that each person or organization reducing crime can accomplish some real gain. Even crime which is displaced can be directed away from the worst targets, times or places.

3.3.4 CPTED principles and situational crime

Both CPTED and 'Situational prevention refer to environmental manipulations intended to design out crime or, perhaps more realistically, to reduce opportunities for crime. CPTED is the earlier term and the one more usually found in the North American literature. It is generally associated with design solutions in the fields of architecture and planning. Situational prevention, a more recent term that originated in the UK, subsumes CPTED and is much broader in scope. It refers to any opportunity reducing measure, whether of design, management or even policing, intended to increase the difficulties or risks of offending. Situational prevention can be applied to any kind of crime and not just to crimes related to the built environment (Clarke 1989).

3.4 Environmental Design Theory

Defensible Space Theory (Newman, 1972) was the first comprehensive theory of its kind to explain the ways in which residential environments could be designed and utilized to maximize their security and protection against crime. Newman's theory explains how defensible spaces can be created by manipulating the design and layout of the physical environment of proprietary and proximal places so as to facilitate the supervision, maintenance, and overall control of residential spaces by residents themselves. As an architect, Newman's (1972) defensible space theory originated from research conducted in housing projects in New York and St. Louis.

Newman (1972) overall, found that high-rise project buildings had higher crime than low-rise buildings. He also found that low-rise buildings had better defensible space design features than high-rise buildings. As evidence to support these points, he compared two neighbouring housing projects, one high rise and one low rise, with the high-rise project recording 50% more crime. As both projects had the same proportion of minorities, single families, and families on welfare, and were equal on other related socio-demographic indicators, he attributed these differences in crime rates to building design. He argued that because the high-rise projects had so many more floors and housing units, residents often did not know their neighbours and were unable to distinguish other residents from strangers or intruders.

Moreover, halls and stairwells were almost impossible to monitor because of a lack of windows and because they were not visible from the street or from apartments inside the buildings. Using these housing projects for illustration, defensible space theory describes how physical design and layout features can be used to obstruct opportunities for crime, disorder, and other related outcomes by creating opportunities for residents to defend their residential space. Territoriality, natural surveillance, and image/milieu represent the basic required components for creating defensible space. These components of defensible space were intended to be activated through the implementation of specific design/layout techniques. As such, they are explicitly intended to minimize the risk of crime by manipulating people's perception of environmental cues and influencing their behavioural response to those cues.

Furthermore, empirical studies investigating offender target selection and perceptions of target suitability show that burglars target properties that offer more opportunities for concealment, which may be provided by territorial markers such as walls, trees, and plants (for example, Bennett & Wright 1984; Coupe & Blake 2006). Similarly, other studies have shown that aspects of territoriality, such as landscaping and decorations on property, increase the likelihood that properties would be targeted by burglars because these could be interpreted as indicators of more profitable targets (MacDonald & Gifford 1989).

3.4.1 Natural Surveillance

Newman (2002) stipulates that alongside the clear demarcation of private territories or proprietary places, the Defensible Space Theory explains how environmental design can also be used to create opportunities for natural surveillance by residents, thereby further controlling crime. Like territoriality, natural surveillance is a critical component of defensible space, and is, thus, designed to enhance the control that residents have over their environment. This mechanism is based on the logic that crime can be discouraged when physical environment features, activities, and the flow of people are configured and managed so as to maximize opportunities for surveillance. Within defensible space theory, natural surveillance focuses on maximizing residents' potential to supervise residential space during the course of regular daily activities within the home. This can be achieved in two fundamental ways.

First, Newman (1972) argues that properties should be designed to face each other and overlook public space with windows and doors oriented toward the street. This simple design technique creates opportunities for residents to monitor the activities occurring in the space immediately surrounding their homes without a great deal of effort. Second Newman (1972) is of the view that the creation of natural surveillance opportunities requires that the lines of sight between private residences and public streets are clear and unobstructed by trees, plants, or walls. This ensures that residents are able to supervise their residential space with ease. The natural surveillance opportunities at a place can be maximized by ensuring that places are well lit and residents have a clear view unto their own property, surrounding properties, as well as the wider street when they look out of their windows or open their doors. This increased visibility of private residences and the semi-public and public space around them contributes to the creation of defensible space by (a) increasing the likelihood of detecting potential offenders or potentially deviant behaviour within a residential space, and (b) reducing the fear of crime and increasing the sense of security among users because they are under the constant supervision of other residents (Reynald 2010).

In this way, natural surveillance also enhances residents' capability to exercise territorial control and the desire to act in defence of residential space. Natural surveillance can also be augmented through the control of access to residential streets, as restricting accessibility of places allows for the regulation of the flow of users, making it easier to identify illegitimate activity. Empirical evidence has demonstrated that clear opportunities for surveillance from private residential properties are negatively associated with property crime (Hollis- Peel & Welsh 2014; Reynald 2009, 2011a). MacDonald and Gifford (1989) also found empirical support for the importance of surveillance opportunities as a crime control mechanism. They reported that unobstructed opportunities for household occupants to survey their territories, and clear visibility from individual households to the Public Street and neighbouring properties, rendered these households the least vulnerable targets in the eyes of burglars.

These conclusions are supported by findings from Bennett and Wright's (1984) interviews with burglars about factors affecting their target selection. In their explanation of whether, and why, they would or would not choose certain targets, burglars made reference to three factors that were related to opportunities for surveillance and the risk of being seen or detected during the offense. They explained that they would not select targets (a) that were overlooked by neighbouring properties, (b) that were open and exposed, and/or (c) that had no bushes or anything else that could give them some cover. They also expressed concern over proximity to neighbouring houses and the ease with which neighbours could look out of their windows and see into the property being targeted.

Results about the effectiveness of improved street lighting also suggest that improved visibility through lighting has a negative effect on crime. Based on 13 evaluations from the United States and the United Kingdom, improved street lighting had a significant desirable effect on crime. Results were mixed in the US studies, with 50% showing improved street lighting resulted in crime reduction, and the other 50% showing it was ineffective. In the British studies, however, results consistently showed lighting improvements led to reductions in crime (Painter 1996:193-201). Taken together, this evidence supports the concept of natural surveillance as it points to the value in maximizing visibility using physical design to create clear lines

of sight between properties and public space, and through proper lighting (Bennett & Wright 1984).

3.4.2 Target Hardening

Related to access control is the design technique of target hardening. While access control is typically applied at facilities (e.g., apartment buildings, hotels, transportation hubs) or at proximal places like street blocks, or larger residential communities, target hardening functions only at the property level. Target hardening is the mechanism through which entry to individual property targets can be restricted to all but legitimate owners and users. This is achieved, for example, through the installation of door and window locks, anti-robbery screens, designing doors and windows to withstand forced entry, and the installation of burglar bars (Cozens, Saville & Hillier, 2005). From the design perspective, target hardening is typically used at entry/exit points of properties to make them resistant to forced entry. These target hardening techniques are designed to deter potential offenders by increasing the effort required to gain access to the target. Several studies examining crime prevention strategies that employ target hardening techniques report that these appear to function as effective crime control strategies (Welsh & Farrington, 2009).

Tilley and Webb (1994) reported that target hardening (e.g., fitting locks and bolts to existing doors/windows or replacing existing doors/windows) at public housing estates in England revealed significant reductions in burglary compared to a control group. Moreover, an international comparison of burglary in the United States, the United Kingdom, and the Netherlands revealed that home security measures, including target hardening measures, were associated with lower levels of burglary across all three countries (Tseloni, Wittebrood, Farrell & Pease 2004).

3.4.3 Surveillance

Welsh and Farrington (2009) stresses that while CPTED retains Newman's original ideas of natural surveillance, it has expanded the concept to refer to surveillance more generally. For example, CPTED explains how surveillance opportunities can be

extended through the use of mechanical surveillance in the form of closed-circuit television (CCTV) cameras. At places or times in which natural surveillance is not feasible, cameras can be used to monitor surroundings in a range of contexts, including residential, commercial, recreational, and transport. When it comes to the effectiveness of mechanical surveillance, scientific evidence from 41 evaluations of CCTV interventions in public places revealed that CCTV had a significant desirable effect on crime in public spaces, with particular effectiveness in car parks and in reducing vehicle crimes, and with greater success in the United Kingdom compared with other countries (Clarke 1997: 225-256).

3.5 Conclusion

The review of CPTED research reinforced the present study's theoretical argument for a relationship between the environment and crime. CPTED project reports and program evaluations supported the effectiveness of this approach in reducing crime and fear in residential and commercial settings. Nonetheless, a clear gap was found in the previous research literature focusing on the influence of CPTED in addressing crime in educational settings. Although a connection may exist between proper environmental design and lower crime in college campuses.

CHAPTER FOUR: RESEARCH METHODOLOGY

4.1 Introduction

This chapter outlines the research methodology used by the study. Research methodology clarifies the rationale behind the strategies and procedures utilized in a research study. Bryant (2016) explains that research methodology concentrates on the examination procedure and a set of apparatuses and systems to be utilized by a study. Therefore, the current chapter focuses on explaining how the data was collected and how the information gathered was analysed by the researcher. It also details the sampling technique that was used and how the sample was selected.

4.2 Research approach

Research approach is the scientific method used to tackle a certain research; perhaps, research approach determines the whole research, including its methodological procedure (Kothari 2004). There are two types of approaches; qualitative and quantitative approach. This study utilized the quantitative approach.

4.2.1 Quantitative approach

A quantitative approach was used in this study. Quantitative research is concerned with the collection and analysis of data in its numeric form. It seeks explanations of phenomena by collecting numerical data that are analysed using mathematically based methods (Creswell 1994). Muijs (2010:56) further supports the view by submitting that; “quantitative research is explaining phenomena by collecting numerical data that are analyzed using mathematically based methods, and it attempts to control sources of variance by statistical techniques and by the selection of the sample with the aim of showing the distribution of beliefs, abilities, traits, and observe portrayed behavior in a population and the degree to which they interrelate”. In this study, the University of Fort Hare students served as the units of analysis.

4.3 Research paradigm

A research paradigm can be defined as the wide structure, which comprises recognition, beliefs and understanding of several theories and practices that are utilized to lead a research (Rubin & Babbie 2012). It can be portrayed as an exact technique that includes different steps through which a researcher forms a relationship between the research goals and questions. According to the definition given by Morehouse and Maykut (2002), a research paradigm is a state of mind about, and directing, a research. The study applied the quantitative approach, and its characteristics are discussed below.

4.3.1 Research Methodology

This is a plan that clarifies the processes of data collection, choosing respondents and data analysis. Bryman and Cramer (2012) argue that cautious consideration must be taken into account in choosing an approach that is relevant to the objectives and purpose of the research.

4.3.2 Research design

Hendrick, Bickman and Rog (1993) clarifies that research design is the arrangement or methodology that the researcher uses to actualize his or her study. The idea "research design" alludes to an arrangement or a plan of how one expects to lead exploration (Engel & Schutt 2010). For the purpose of this study, the study used the quantitative research approach. This maintained objectivity. A likert scale was used to measure the sufficiency of Crime Prevention Through Environmental Design principles being employed in Campus.

A Likert scale is a psychometric scale commonly involved in research that employs questionnaires. It is the most widely used approach to scaling responses in

survey research, such that the term (or more accurately the Likert-type scale) is often used interchangeably with rating scale.

4.4 Methods of Data collection

A data collection method is the procedure of gathering and measuring data on focused variables in a built up deliberate design, which then empowers one to answer applicable relevant questions and evaluate outcomes (Mertens, 2014). The present study adopted one method of data collection; a mini-survey was used as explained below.

4.4.1 Mini survey

A Mini survey requires direct collection of information from individuals. The basic element is a structured questionnaire. For mini surveys, the use of probability sampling is preferred (Breidt & Opsomer 2000:1026). Each unit in the population has an equal chance of being selected, and the sample is representative. In addition, mini surveys largely (though not exclusively) use closed questions. Such questions list major response categories, and respondents identify one category or more that they consider appropriate. The essential idea is to quantify responses so statistical analysis can be done rapidly. In this respect, mini surveys differ from key informant interviews or informal surveys that use open-ended questions (Simon 2006). Questionnaires were randomly handed to respondents within the selected strata.

4.5 Instrument of data collection

This alludes to the devices or tools utilized by the researcher to gather data from witnesses. The researcher used organized questions to gather data from various respondents. The researcher also utilized a structured questionnaire comprising of closed ended questions. The questionnaire comprised 29 close ended questions. It was divided into 2 sections; section A being demographic data and section B being the efficacy of principles of crime prevention through environmental design (CPTED).

The researcher moved around campus to each residence to collect data and a total of 100 respondents were selected.

The questions used a three point Likert scale, asking students to tick satisfactory, unsatisfactory and not sure depending on what the respondent feels is appropriate to him/her. The study also used five point Likert scale, asking students to indicate if they agree, strongly agree, neither agree nor disagree, disagree and strongly disagree. The structured questionnaire selected involves questions that are set out and followed thoroughly. This allows each candidate to be presented with the same questions, and this ensures that each respondent has the opportunity to respond or tick the answer that is appropriate to him/her. This allows large amounts of data to be collected at a point in time (Conway & Peneno 1999).

4.6 Data collection process

The information accumulation procedure was cross-sectional. The researcher gathered information inside a brief timeframe as the process was a once-off data collection process. Mann (2003) states that cross-sectional studies offer several advantages to a study; they are cheaper and can be carried out faster, and also allow the researcher to examine multiple factors and multiple outcomes in a single study. The strength of cross-sectional studies is that when they are based on a representative sample of the population, their results can be generalized to the overall population from which the sample came.

4.7 Sampling methodologies and techniques

There are two types of sampling methodologies; these are probability and non-probability. In this study, the researcher utilized probability sampling methodology. The study utilized simple random sampling. An important benefit of simple random sampling is that it allows researchers to use statistical methods to analyse sample results. For example, given a simple random sample, researchers can use statistical methods to define a confidence interval around a sample mean. Statistical analysis is not appropriate when non-random sampling methods are used. Random sampling

is a probability method. In light of the previously stated portrayals of inspecting strategies, the specialist reached the conclusion that probability was appropriate for this study.

4.8. Research domain and justification of choice

Research domain is the particular geographical territory where sampling, population and participants are chosen (Emmel, 2013). Perhaps, it is the area where the researcher observed the problem that is being studied. Therefore, this study was done at the Alice campus of the University of Fort Hare. Administratively, the University of Fort Hare is located in the Eastern Cape Province in Alice in the Ciskei region. It has about 8000 students, the majority of whom are more of rural origin than urban. The University also has staff members that reside both outside campus and inside campus.

4.9. Research population

Myers (2002) characterizes a population as the totality of all subjects that comply with a set of details, involving the whole gathering of persons that is important to the specialist and to whom the research results can be generalized. A research population constitutes the electorates from which the researcher chooses participants for the study (Bryman 2015). The current research's sample was drawn from University of Fort Hare in Alice, in the Eastern Cape Province. The categories of the population that was investigated involved all registered University of fort Hare students.

The study included students at all levels of study, which is from undergraduate studies to post graduate studies. It also included all age groups from below 20 years of age to above 40. The population consists of both South African international students from Zimbabwe, Nigeria, Lesotho and Kenya. The study included both males and females. The university had about 8000 registered students at the time of the study, the majority of whom were female. Most of the students are more of rural origin than urban.

The University of Fort Hare was chosen based on the observably high number of reported cases of crime and has experienced sporadic episodes of criminal elements in the recent past that are as a result of failure of the University to implement sufficient and effective crime prevention through environmental design (CPTED) strategies.

4.10 Sample size

Firstly, according to MacMillan and Schumacher (2001), the researcher must determine the size of the sample that will provide sufficient data to answer the research questions. They further argue that the largest samples are always encouraged. A sample is defined by Bless and Higson-Smith and Kagee (2006) as the subset of the population that is actually investigated and whose characteristics can be generalized to the entire population. A sample should have the same characteristics as the population. The study investigated 100 respondents. The table below gives the number of samples and the method utilized.

Research method	**Research instrument**	**Sample size**
Quantitative	Mini survey	100 students

4.11 The sampling methods

The sampling methods explicate the relevance of the chosen population to the current study. The students were enlisted because they were the ones previously reported to have fallen victim to crimes at their residences, study facilities and on campus during the night. They were also aware of the crimes occurring in the university, and had information on campus safety and security. In line with this, the students were better placed to have information on the nature of crimes occurring at the university.

4.12 Data analysis

Data analysis includes arrangement, gathering, improvement and requesting of information through coding; discovering what is important and what is to be learned, and deciding what needs to be divulged to others (Babbie 2014). It is at this stage of the research that answers to the research questions are found (McMillan & Schumacher 2001). According to Yu (1977), a data analysis procedure is a descriptive analysis of data that provides ways of looking or determining relationships and trends as well as influential observations to describe or summarize data sets.

4.12.1 SPSS (statistical package for social science

The data was electronically captured and analysed using Microsoft Excel software. Data was then analysed using the SPSS. The results were presented in various graphs (figures), pie charts and tables. Data analysis entails the process of bringing order, structure and meaning to the data collected. The information was collected and recorded numerically.

4.13 Research methods linked to research questions

Research questions	Data source and method	Justification
How are the surveillance and visibility measures taken by the university to ensure unauthorised people are kept out of the university?	Quantitative**,** mini survey	The respondents shared their views on how efficient visibility and surveillance were at the University of Fort Hare. This was done through mini surveys

What measures are being implemented to improve target hardening and infrastructure at the University of Fort Hare?	Quantitative mini survey	Students shared their views through completing the questionnaire
How sufficient are the various measures taken by the university to prevent or to hinder access and escape routes at the University of Fort Hare?	Quantitative, Mini-survey	Students had information and formed opinions on access and escape routes at UFH. This was done through a mini-survey.

4.14 Significance of the study

It is popularly held that there is a strong relationship between the environmental design of an area and criminal acts. Optimistically, this study is significant as it aimed at unearthing new ways in which crime can be prevented in these institutions.. Potentially, the findings of this study provide insight on strategies to overcome the hindrances that affect the students not only at the University of Fort Hare but in other tertiary institutions in the Eastern Cape.

4.15 Ethical considerations

Bell and Bryman (2007) states that ethical practice in research is designed to prevent the researcher from hurting the respondents in any way. In order to ensure ethical practice in this study, the researcher considered the following:

4.15.1 Voluntary participation

According to Rubin and Babbie (2010), a major tenet of the research ethics is that participation must be voluntary. Before conducting the interviews, the researcher made respondents aware that participation in the study was voluntary, and that they were free to withdraw from the study at any time if they wished to do so. However, the respondents were informed that their participation was important for the study and that it was likely to contribute to understanding why University of Fort Hare had high rates of crime.

4.15.2 Informed consent

Rubin and Babbie (2010) state that participants must not be forced to participate, and must be informed of all the consequences of the study. In order for the participants to make an informed decision on whether or not to participate, the researcher ensured that all the participants were adequately informed about the goal of the research, what their participation would involve, their rights and what would happen with the information shared. After being adequately informed and upon agreeing to participate, the participants were requested to give their consent in writing.

4.15.3 Privacy/Anonymity/Confidentiality

Creswell, Klassen, Plano Clark and Smith (2011) stipulate that the right to privacy refers to freedom pertaining to the participants' information to be treated confidentially and anonymously. To ensure and guarantee these virtues, this researcher assured the participants that the information they were to give was only for research and it was not accessible to any other individual than the the researcher and he supervisor. The researcher additionally ensured that participants' personal information is withheld. Besides, the researcher ensured that the meeting venue was private. Code names were given and just the researcher knew who was connected to which code name. No information about any particular participant could be traced

backed to them. Even the researcher did not know who filled which questionnaire because they had no names on them.

4.15.4 Debriefing of participants

Debriefing involves explaining the true purpose of the research study (Grinnell & Unrau 2011). Yin (2013) further expands that if there is mental trouble as a consequence of having been beguiled by the study, members must be offered satisfactory method for tending to this pain. The researcher ensured that the participants experienced questioning session straightforwardly after the meeting session. This was more centred on experiencing the encounters and feelings they experienced amid the procedure (Grinnell & Unrau 2011).

4.15.5 Feminist ethic

Feminist ethic is a way of dealing with morals that expand on the conviction that, generally, moral speculating has underestimated or potentially undervalued women's ethical experiences, and this way it allows rethinking of morals through an all-encompassing women's activist way to deal with change (Creswell, Klassen, Plano Clark & Smith, 2011).

4.16 Summary of the chapter

The researcher gave insight and motivated the use of the quantitative research paradigm. In addition, the research approach, research design, method of data collection, sampling techniques, and method of data analysis were discussed fully. Details on ethical issues and ethical measures were addressed in depth. In the chapter that follows, data analysis, interpretation and presentation of the research results are done.

CHAPTER FIVE: ANALYSIS AND PRESENTATION OF RESULTS

5.1 Introduction

The data is presented and analysed in 2 parts. First, the chapter discusses the demographic characteristics of the respondents. Second, it presents an analysis of the data in terms of the study's objectives. Quantitative data is presented in line with the three objectives of the study, which assist in answering the research questions. Implications of the study are therefore derived from and presented in this chapter. The objectives of the study were:

- To assess the sufficiency of surveillance and visibility measures taken by the university to keep unauthorised people out of the university.
- To discover the measures taken by the university to improve target hardening.
- To investigate security measures taken by the University to ensure sufficient security maintenance and management

The objectives are divided into various outcomes with various indicators to answer the outcomes of the research. The objectives answer the research questions. The data collection was one month long. The data was collected from the University of Fort Hare's Alice campus.

5.2Demographic characteristics of respondents

5.2.1 Table A.1 Gender

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	55	54.5	54.5	54.5
	Female	45	44.6	44.6	99.0
	Total	100	100.0	100.0	

Table A.1 above illustrates that the majority (55%) of the respondents for the current research were male while 45% were female. This, however, does not represent a biased sample, rather the dominance of males in this study. However, there was

almost an equal distribution of gender among students both in the respondents and sample (55 and 45% of respondents were males and females respectively).

5.2.2 Table A.2 Age

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	18-23	47	46.5	46.5	46.5
	24-29	45	44.6	44.6	91.1
	30-35	7	6.9	6.9	98.0
	36-41	1	1.0	1.0	99.0
	Total	100	100.0	100.0	

Table A2 above illustrates the age of respondents in the study, where 47% of the respondents were aged between 18 and 23 years, followed by 45% of the respondents who were aged between 24 and 29, while 7% of respondents were aged between 30 and 35 and 1% of respondents were aged between 36 and 41 years. Perhaps the percentage of respondents aged 18-23 was high because the majority of that age group stay in University residences; while the lowest percentage was that of respondents aged 36-41, which could imply that they chose to stay outside campus and not on campus. This could be because of family commitments as people in this age group were more likely to be married or have family commitments than those aged 18-23.

5.2.3 Table A3. Faculty

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Science & agriculture	43	42.6	42.6	42.6
	Social Science and Humanities	25	24.8	24.8	67.3
	Education	15	14.9	14.9	82.2
	Management & commerce	17	16.8	16.8	99.0
	Total	100	100.0	100.0	

The study indicated that the majority (43%) of respondents who responded to the questionnaire were from the Faculty of Science and Agriculture, followed by respondents in the Faculty of Social Science and Humanities at 25%. A total of 15% of the same respondents were from the Faculty of Education and 17% were from the

Faculty of Management and Commerce. The majority of the respondents were from the Faculty of Science and Agriculture could be because there are more students from the Faculty of Science and Agriculture than any other in the whole campus.

5.2.4 TableA4: Residence

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Iona	11	10.9	10.9	10.9
	Elitheni	8	7.9	7.9	18.8
	G-Ntlabathi	8	7.9	7.9	26.7
	Emfundweni	2	2.0	2.0	28.7
	Student village	6	5.9	5.9	34.7
	East campus	12	11.9	11.9	46.5
	Beda	10	9.9	9.9	56.4
	Jolobe	4	4.0	4.0	60.4
	Zk	9	8.9	8.9	69.3
	Zkdecating	12	11.9	11.9	81.2
	Jabavu	1	1.0	1.0	82.2
	Wesley	4	4.0	4.0	86.1
	Eluke	2	2.0	2.0	88.1
	Ezola	11	10.9	10.9	99.0
	Total	100	100.0	100.0	

The results show that the highest percentage of respondents were staying in East campus residences and Zkdecating, with 12% each. A total of 11% of the respondents indicated that they were residing in Iona and Ezola, 10% in Beda, 9% in ZK, 8% in G-Ntlabathi and Elitheni, 6% in the Student Village and 4% of the respondents indicated that they resided in Wesley and Jolobe, while 2% resided in Emfundweni and Luke. Only 1% resided in Jabavu.

5.3 Analysis of objectives

This section sets out to analyse data against the objectives identified in Chapters one and four. The questions analysed in this section allowed more than one option.

5.3.1 Objective 1: To assess the sufficiency of surveillance and visibility measures taken by the university to keep unauthorised people out of the university.

5.3.1.1 Table B.1:Natural surveillance of gathering areas (security patrol)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Satisfactory	22	21.8	21.8	21.8
	Unsatisfactory	65	64.4	64.4	86.1
	Not sure	13	12.9	12.9	99.0
	Total	100	100.0	100.0	

Table B1 above indicates that whilst the majority (65%) of respondents responded negatively on security patrol of gathering areas in Alice campus, it is important to note that 22% of students answered positively to whether they were satisfied with security patrol at gathering areas as they indicated that they were satisfied. A further 13% of the same respondents indicated that they were uncertain. Previous research such as Johnson (2009) has indicated that natural surveillance techniques increase the threat of apprehension by implementing features that increase the perception that people can be seen at all times and in all locations.

Purposely designing physical features and locating activities and people in such a way maximizes visibility. In this study the above figure shows that security guards minimized patrol, which could be the cause of numerous criminal scenes on campus during the night. The implication of this finding is that tight security patrols enhance visibility and surveillance upon students in gathering areas and social areas; it brings a sense of safety and decreases fear of crime and where there is insufficient measure of security patrols in gathering areas, there is an increase in crime risks for students. Therefore, there is need for the university to employ effective security measures by tightening security patrols in gathering areas.

Additionally, potential offenders are subject to increased scrutiny and limitations on their possible escape routes (Schneider & Kitchen 2004, 2007; Nocheck 2013). The least number (13%) of participants were not sure, which could be caused by them

never paying attention to whether or not security guards watched over gathering areas.

5.3.1.2 Table B.2: Visibility through windows/window placement (no obstructions

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Satisfactory	56	55.4	55.4	55.4
	Unsatisfactory	32	31.7	31.7	87.1
	Not sure	12	11.9	11.9	99.0
	Total	100	100.0	100.0	

As shown in Table B2 above, 56% of the respondents indicated that they were satisfied with how windows were placed in their residences, while 32% of the respondents were unsatisfied and 12% were uncrtain. This is a positive outcome as previous research postulates that windows should be installed in solid walls to increase visual exposure and decrease chances of potential offenders from committing crime because they know they are under observation.

The implication of this measure is that windows in residences support visibility and with no obstructions, which enables students and staff to observe individuals coming into their buildings. Previous research supports the notion that windows installed in solid walls and without obstructions (e.g. trees) increase visual exposure that leads to guardianship intensity, which causes opportunities for surveillance.

Reynald (2011) states that surveillance opportunities were measured by observing the extent to which the view of a property's windows was obstructed by physical features such as trees and walls. The results revealed a positive statistically significant correlation between surveillance opportunities and guardianship intensity (0.45), suggesting that guardianship intensity increases as opportunities for surveillance increase.

5.3.2.3 Table B3. Residence layout

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Satisfactory	36	35.6	35.6	35.6
	Unsatisfactory	59	58.4	58.4	94.1
	Not sure	5	5.0	5.0	99.0
	Total	100	100.0	100.0	

Table B3 shows that 59% of the respondents were not satisfied with their residences' layout, while 36% of the students indicated that they were satisfied with their residences' layout and 5% were not sure about their perception of the residence layout. This study shows insufficiency of this residence layout or planning rather. This study concludes that the crime rates are escalated where there is inadequate residence layout to enhance surveillance.

There are many studies that support that offenders prefer areas with high levels of through movement due to the ease of entry, through movement and escape. These include Murray et al. (1980), Brower, Taylor and Gottfredson (1987), and Poyner and Webb (1991). Several studies have also shown that physical changes to the internal layout of residential areas, through the closure of streets, results in reduced levels of crime (Matthews & Young 1992; Atlas & LeBlanc 1994; Newman 1995, 1996; Donnelly & Kimble 1997; Wagner 1997; Lasley 1998; Zavoski et al. 1999; Eck 2002; Piquero, Farrington & Welsh, Tremblay & Jennings, 2009). Therefore, the University of Fort Hare needs internal physical changes, as it could be difficult to change buildings altogether.

Table B4. Playgrounds placed in the front of buildings

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Satisfactory	31	30.7	30.7	30.7
	Unsatisfactory	42	41.6	41.6	72.3
	Not sure	27	26.7	26.7	99.0
	Total	100	100.0	100.0	

The majority (42%) of the respondents indicated that they were unsatisfied with placement of playgrounds; they felt these were placed far away from the campus buildings. A total of 31% of the respondents indicated that they were satisfied with distance of playgrounds from buildings while 27% of the respondents were uncertain. The implication of this finding is that the placement of playgrounds away from buildings causes hindrances of surveillance because people are unable to observe playgrounds and offenders may commit crimes in the comfort that they were not being watched. Physical and social disorder negatively affects fear of crime, because an increase in the levels of these problems similarly heightens levels of fear (Taylor & Hale, 1986).

LaGrange, Ferraro and Supancic (1992) explain this by stating that beyond fear, perceptions of crime also affect the lives of residents just as much as actual crime. For example, both victimisation and the transmission of others' perceptions (one person's crime fears communicated to another) of crime influenced fear. Though it is certainly normal for victims' experiences to increase feelings of fear, Schafer et al. (2006) suggest that actual crime and victimisation are only part of the individual and neighbourhood variables influencing fear. In total, the placement of playgrounds far from buildings brings about fear of victimization of students.

The last can be clarified by Brantingham (1984) and later Beavon et al's (1994) recommendation that properties inside the awareness space of potential offenders are bound to be chosen as targets. Where a property is located within viewing distance of an offenders' day by day travel way, that property is bound to be seen as a major aspect of their everyday activities. Armitage's research found that being ignored at the front by neighbouring properties created a Burgess chance score of -0.6(suggesting a less than average crime risk) .not being overlooked at the front produced a Burgess risk score of +5.7 (an above average crime risk).This is obviously related to the advantage of informal surveillance from neighbours who are capable, and likely, to go about as capable guardians.

In contrast, a property being noticeable from an adjacent pathway encountered an expanded danger of crime, with a Burgess score of +6.3. As Brantingham and Brantingham (1984) recommend, this structure feature is probably going to enhance crime risk because of the position of the property inside viewing distance of a

pathway, and therefore, setting the property within the awareness space of potential offenders. Similarly, a property arranged within viewing distance of traffic lights, as per Armitage (2006a), has a Burgess risk score of +46.6, the second highest score (second to property having a gate leading into the garden from a rear footpath, which scored +51.9).

Table B.5 All barriers along pathways are permeable (See-through)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Satisfactory	31	40.6	40.6	40.6
	Unsatisfactory	41	30.7	30.7	71.3
	Not sure	28	27.7	27.7	99.0
	Total	100	100.0	100.0	

The study revealed that 31% of respondents were satisfied with the measure of employing see-through barriers along pathways. On the other hand, 41% of the respondents found it unsatisfactory and 28% of the same respondents was uncertain. The implication of this finding is that surveillance is hindered and lack of transparency of barriers along pathways causes poor surveillance, which makes It easier for criminals to take advantage but where there are see-through barriers along pathways (low level walls) there is an opportunity for surveillance.

This study shows that there is a relationship between the environment and crime, and it can be concluded that when barriers along pathways are see-through, it enhances visibility and surveillance and decreases crime because when assessing the design characteristics of victimised properties, several studies identified a lack of see-through barriers along pathways or poor levels of visibility as key features of 19 crime-prone institutions. Armitage (2006a) found that there was a complex relationship between surveillance and crime risk. Surveillance from neighbouring properties appeared to reduce crime risk, yet surveillance from a nearby road or footpath enhanced a property's risk of crime.

Table B.6: Adequate lighting in working areas

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Satisfactory	52	51.5	51.5	51.5
	Unsatisfactory	42	41.6	41.6	93.1
	Not sure	6	5.9	5.9	99.0
	Total	100	100.0	100.0	

With regard to adequate lighting in working areas, this study found that the majority of respondents responded positively towards adequate lighting while an almost equal distribution of the population responded negatively. Therefore, this study found that there is sufficient employment of the above mentioned measure and this could be the reason the crime rates in working areas of the University were not high. The study concludes that there are measures employed to ensure safety and security in the campus. However, the 42% needs to be considered as it does not mean there is total sufficiency of lighting. The table above illustrates that 51% of the respondents indicated that they were satisfied with lighting in working areas, while 42% indicated that they were not satisfied and 5% were not sure.

TableB7: Public utilities-Telephones,ATMs,toilets (Cameras,ights and locks)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Satisfactory	40	39.6	39.6	39.6
	Unsatisfactory	47	46.5	46.5	86.1
	Not sure	13	12.9	12.9	99.0
	Total	100	100.0	100.0	

The above figure and table reveal that about 40% of the respondents were satisfied with safety in public utilities and the majority (47%) of respondents were not satisfied while 13% of the respondents was uncertain with regard to safety of public utilities. This implies that there are no lights and there are not adequate locks. This makes the students (more especially females) to be vulnerable to rape and other criminal offences when they use toilets while they study away from their residences and during lecture times.

The implication of this finding is that the students feel unsafe when using ATMs on campus therefore security patrols are needed.

Table B8: After hours surveillance (visibility of security patrol)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Satisfactory	22	21.8	21.8	21.8
	Unsatisfactory	68	67.3	67.3	89.1
	Not sure	10	9.9	9.9	99.0
	Total	100	100.0	100.0	

This study shows that the majority of respondents (67%) were unsatisfied with After-hours surveillance, which is not good for students who work late out of their residences. For this, reason security guards have long been used to reduce crime and have been shown to prevent bank robberies (Hannan 1982). This can be implemented along the use of protective screens (Grandjean 1990).

In Victoria, Australia, a range of security devices (screens, guards and cameras) reduced bank robberies (Clarke et al. 1991) although patrols by the mobile security guards known as the Guardian Angels at railway stations did not reduce crime in America (Cozens, Saville & Hillier, 2005) or on the London Underground. The table above also shows that some respondents were satisfied (21%) but the number of unsatisfied respondents outweighs the one for satisfied. The implication of this finding is that there is less security patrol for after-hours surveillance in the Alice campus, which is why students experience rape and robbery during night-time.

Table B9: Parking areas are located in locations that can be observed from work areas

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Satisfactory	58	57.4	57.4	57.4
	Unsatisfactory	34	33.7	33.7	91.1
	Not sure	8	7.9	7.9	99.0
	Total	100	100.0	100.0	

Table B9 illustrates that the majority (57%) of respondents were satisfied with parking areas located in places that were well observed and 33% of respondents felt that parking areas were not located in locations that could be observed from work

areas. This impacts the university negatively because staff members face car thefts and robberies.

In 1998, one institution decided to create a completely new, professional security operation, capable of providing the 24-hour, 7-day cover, which the growing university community was coming to demand (Fischer, Edward Halibozek & Walters, 2012).

Table B10: Fencing

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Satisfactory	72	71.3	71.3	71.3
	Unsatisfactory	25	24.8	24.8	96.0
	Not sure	3	3.0	3.0	99.0
	Total	100	100.0	100.0	

Fencing certain areas like parks or sports grounds and the campus as a whole can be beneficial in curbing the use of such environments during certain times, like at night. However, target hardening must be done in a manner that is inclusive and positive without hindering crime prevention. Table B11 illustrates that 72% of the respondents were satisfied with fencing, while 25% indicated that they were dissatisfied and 3% uncertain.

The suggestion implied by this finding is that the measure of fencing is sufficiently implemented on campus, which decreases the opportunity for crime, which could be as a result of people who access the University premises through illegal exits/entrance and basically people who are not part of University stakeholders.

Table B11: CCTVs(Closed-circuit television)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Satisfactory	15	14.9	14.9	14.9
	Unsatisfactory	59	58.4	58.4	73.3
	Not sure	26	25.7	25.7	99.0
	Total	100	100.0	100.0	

There are measures employed to ensure safety in the main campus residences. However, CCTV measure seem to be insufficiently employed because there are many reported cases within the campus such as burglary, theft of laptops both in students' residences and computer laboratories by untraceable criminal elements. In actual fact, the participants indicated that Closed Circuit Televisions are installed but they are dysfunctional. The table above illustrates that the majority (59%) of the respondents answered negatively regarding the installation of CCTVs, where they indicated that they were unsatisfied. Only 15% of the respondents responded positively by indicating that they were satisfied while 26% of the same respondents indicated that they were not sure whether CCTVs were functional or not. In the current study there is very little research evidence that CCTV works.

This finding suggests that CCTVs are not installed in many residences and other relevant buildings on campus such as the library. Data indicates that where CCTVs are installed they could be dysfunctional. Both these situations could be the reason the University experiences theft of laptops and in turn impacts the students residing on campus negatively when they lose their property without a trace. In all, it is important to note that there is inadequate or insufficient installation of CCTVs on campus.

Some studies report positive findings on CCTV. Poyner (1988) reviewed the effectiveness of installation of CCTV on buses and found reductions in vandalism on the targeted buses. In contrast, Poyners' study differs from this study, as it focuses on crime in buses unlike the current study focuses on campus buildings/infrastructure, which could bring about different results and cannot be concluded that CCTV works the same way because of the different settings and locations that are being researched on.

Sarno (1996) reported on three evaluations of CCTV in Britain, which resulted in reductions in burglaries, car thefts and theft from rooms. Some studies also revealed that CCTV can significantly reduce levels of fear of crime within the community (Chatterton & Frenz 1994; Mahalingham 1996). Furthermore, Eck (1997) reviewed one empirical CCTV study of 15 housing complexes for the elderly in England and reported significant reductions in burglary.

Table B12: Height of fencing

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Satisfactory	71	70.3	70.3	70.3
	Unsatisfactory	22	21.8	21.8	92.1
	Not sure	7	6.9	6.9	99.0
	Total	100	100.0	100.0	

Further findings show that the height of the University fence is good for surveillance, as the table above reveals that 71% of the respondents were pleased with the height. Only 22% of the respondents indicated they were not pleased while 7% were uncertain about the height of the fence of the campus. The findings above show that there is adequate height in the university fence, which is a good outcome as this enables criminals to be delayed if they were to climb in a case of offence. The fence should not be tall if it is not transparent, as this would hinder surveillance (Taylor & Littler 1982: 135-146).

Table B13: Entrances are designed to allow users to see inside before entering

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Satisfactory	70	69.3	69.3	69.3
	Unsatisfactory	23	22.8	22.8	92.1
	Not sure	7	6.9	6.9	99.0
	Total	101	100.0	100.0	

There is the notion that the presence of transparent fence is vital as it allows more of natural surveillance. The above table shows that 70% of respondents indicated that they were satisfied with the entrances while 22% of the respondents were not satisfied and 7% indicated that they are not sure in this regard.

The findings show that there is sufficient measure to ensure entrances are designed to allow users to see inside before entering and this enhances surveillance especially for security guards by the main gate, and this finding implies that offenders are unlikely to target the university buildings (residences, work areas and lecture halls) when there are transparent entrances. Offenders do not like being

identified so they avoid places with surveillance and visibility, making surveillance very important.

Research proposes that surveillance and visibility play a major part in offenders' decision-making processes when selecting properties to offend against. Offenders prefer to avoid confrontation and, where possible, select targets which are unoccupied. Reppetto (1974) interviewed 97 convicted burglars and found that the most common reason for avoiding a target was that there were too many people around. Offenders stated that the possibility of neighbours watching them deterred them from selecting a property and that they would select targets where they felt less conspicuous and where there was less visual access to neighbouring properties.

In interviews with a sample of 30 active burglars, Cromwell and Olson (1991) found that properties considered to be the most attractive targets were those which were located within close proximity to a stop sign, traffic lights, commercial business establishment, park, church or four-lane street – these properties being within the activity and awareness space of offenders. Their research also revealed that over ninety per cent of the sample stated that they would never enter a residence which they suspected to be occupied.

Table B14: Exterior lighting supports visibility at night

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Satisfactory	28	27.7	27.7	27.7
	Unsatisfactory	62	61.4	61.4	89.1
	Not sure	10	9.9	9.9	99.0
	Total	100	100.0	100.0	

In America in the 1960s many cities began major street lighting programmes to reduce crime and initial results found that such improvements produced substantial reductions in recorded crime (Berla 1995). This shows that lack of or less proper exterior lighting, just as indicated by the data on Table B14 above to be the case at the University of Fort Hare, enhances both fear and incidences of crime, more especially rape and robbery amongst female University students.

Table B14 shows that 28% of the respondents indicated that they were satisfied with exterior lighting and its support for visibility at night-time, while the majority (62%) of the respondents responded negatively about exterior lighting; they indicated that they were unsatisfied. A further 10% of the respondents were uncertain about this measure. Exterior lighting is clearly shown to be insufficiently implemented and inadequate for visibility on campus. Without adequate lighting, an individual is unable to identify the potential perpetrator during the commission of the crime, hence female students experience rape at some point. Poor exterior lighting could be a major cause of rape of student on campus.

In the UK, lighting studies in Hammersmith and Fulham (Cozens, Saville & Hillier 2005) reported reductions in crime and disorder. A Home Office funded study (Ramsay & Newton, 1991) conducted in Wands worth found no effect on crime, as did a review by Ramsay (1991) although it did suggest improved street lighting could reduce the fear of crime.

5.3.2 Objective 2: To discover the measures taken by the university to improve target hardening. Target hardening refers to the strengthening of the security of a building or installation in order to protect it in the event of attack or to reduce the risk of crime.

Blakely and Snyder (1997) posit that fencing and walls can physically protect spaces. In addition, they also create a sense of ownership over space. For instance, fenced off areas can protect spaces such as parks or blocks of housing units. This encourages people to take care of that space, which they view as 'their space'. It would also deter criminal behaviour.

Table B2.15. Burglar bars on doors and windows

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Satisfactory	43	42.6	42.6	42.6
	Unsatisfactory	51	50.5	50.5	93.1
	Not sure	6	5.9	5.9	99.0
	Total	100	100.0	100.0	

Table B2.15 illustrates that the strategy of installing burglar bars on windows and doors is not being implemented enough and satisfactorily, which grants offenders opportunities to steal or enter through the windows. A total of 43% of the respondents were satisfied with the installation of burglar bars while 51% of respondents indicated that they were unsatisfied. The findings above show that there is insufficient installation of burglar bars on windows and doors and this lack enhances high rates of burglaries in the university, which is the cause of many incidences of crime on campus.

In the recent past, there have been reported criminal episodes which further resulted in University of Fort Hare Alice students going on a strike concerning their safety and security. This negatively impacted students' academic progress as time went on with no sign of an end to the strike. Other studies, such as by Allatt (1984) found that target-hardening strategies resulted in reductions in burglaries. Tilley and Webb (1994) also compared two target-hardened English public housing estates with a control group, finding significant reductions in burglaries in both complexes. Therefore, it is prudent to conclude that the more burglar bars on campus, the less crime would manifest. Previous research leads to a conclusion that burglar bars are effective in reducing crime opportunities.

Extra research discoveries which bolster the commence that offenders select properties s thy partake in everyday activities include Letkemann (1973) who found that robbers met in British Columbia expressed that they generally kept their eyes open for targets constantly. Rengert and Wasilchick (2000) found that sentenced Philadelphia region thieves more often picked their targets within a constrained distance of their typical travel ways, essentially along the pivot of their usual-to work travel way. Brantingham and Brantingham (1993) found that individual decision of robbery areas was situated or directed towards personally well-known areas.

Table B2.16. Fencing around residence

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Satisfactory	62	61.4	61.4	61.4
	Unsatisfactory	28	27.7	27.7	89.1
	Not sure	10	9.9	9.9	99.0
	Total	100	100.0	100.0	

Respondents were asked to indicate if their residences were fenced and if they were satisfied or unsatisfied with their fencing. The study found that 62% of respondents felt that their fencing is satisfying. These were followed at 28% by those who were dissatisfied while those who were “not sure” were 10% of the respondents. This could be caused by the fact that the residences were fenced but there was still easy access at their gates due to lack of locks to keep unauthorised individuals outside residences.

Table B2.17. Concealment opportunities (Hiding places)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Satisfactory	11	10.9	10.9	10.9
	Unsatisfactory	43	42.6	42.6	53.5
	Not sure	46	45.5	45.5	99.0
	Total	100	100.0	100.0	

Table B2.17 above illustrates that 43% of the respondents were satisfied with concealment opportunities, while 46% of the respondents indicated that they were uncertain about concealment opportunities. Only 11% of the respondents answered positively with regard to concealment opportunities where they indicated that they were satisfied. The findings above show that the majority of respondents were uncertain (46) while there was almost equal (43%) distribution of the respondents that was dissatisfied, which suggests that the University does not put in place hiding places in cases of individuals who encounter crime in university residences and other buildings.

Table B2.18. External lighting (street lights)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Satisfactory	30	29.7	29.7	29.7
	Unsatisfactory	64	63.4	63.4	93.1
	Not sure	6	5.9	5.9	99.0
	Total	101	100.0	100.0	

Since the 1997 empirical research of effectiveness of lights in crime prevention, improved lighting in public open spaces has been categorised as being an effective evidence-based intervention that "works" (Eck 2002). The data on the table above show that the majority (64%) of the respondents were unsatisfied with external lighting while 30% of respondents indicated that they were satisfied, and 6% that they are uncertain with regard to external lighting. The importance of this finding has been expanded in greater detail in Table B15 above. However, the study suggests that there is insufficient external lighting despite research indicating that it works in crime prevention.

Table B2.19. Fencing systems

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Satisfactory	62	61.4	61.4	61.4
	Unsatisfactory	29	28.7	28.7	90.1
	Not sure	9	8.9	8.9	99.0
	Total	100	100.0	100.0	

As shown on Table B2.19, 62% of the respondents answered positively to indicate that they were satisfied with fencing systems. However, it is important to note that 29% of the respondents residing on campus indicated that they were unsatisfied with the fencing system while 9% of the respondents were uncertain.

Table B2.20. Door locks

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Satisfactory	43	42.6	42.6	42.6
	Unsatisfactory	49	48.5	48.5	91.1
	Not sure	8	7.9	7.9	99.0
	Total	100	100.0	100.0	

Target hardening is directed at denying or limiting access to a crime target through the use of physical barriers such as fences, gates, locks, electronic alarms and security patrols. The above table shows that the study found that the majority (49%) of the respondents were not satisfied with door locks, while 43% of the respondents were satisfied with the door locks, and those who did not know sitting at 8%. Crucially, the study suggests that excessive use of target hardening tactics can create a "fortress mentality" and imagery whereby residents withdraw behind physical barriers and the self-policing capacity of the built environment is damaged, effectively working against CPTED strategies that rely on surveillance and territoriality. However, lack of good door locks may lead to burglaries, such as has been reported University of Fort Hare students in relation to the theft of their laptops inside their rooms.

Target hardening includes the initial design of doors, fences and windows to increase difficulty for offenders in entering the building. Research on security measures as a means of preventing burglary suggests that, all other factors being equal, burglars prefer to offend against properties with lower levels of physical security (Cromwell & Olson 1991). Cook (2017) analysis of the British Crime Survey found that security devices are extremely effective in reducing the risk of burglary victimization. Cook found that in England and Wales in 1997, 15% of households without security measures were burgled, compared to just 4% of households with basic measures in place and 3% on those with higher levels of security.

Table B2.21. Car park/Crossing lighting

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Satisfactory	35	34.7	34.7	34.7
	Unsatisfactory	45	44.6	44.6	79.2
	Not sure	20	19.8	19.8	99.0
	Total	100	100.0	100.0	

Webb and Laycock (1992) found the installation of CCTV at London underground stations reduced robberies when it was compared to a control group. Similarly, CCTV at parking lots has been found to reduce car related crime (Philips 1999). This reveals that CCTV is one of the strategies that are vital in car parks. Lighting is equally important. This means car parks are supposed to be the safest places when CPTED measures are being employed. However, my study indicates that the majority (45%) of the respondents were not satisfied with car park/crossing lighting, while 35% of the respondents felt they were satisfied with it, and 20% of the respondents were not sure. This implies that the measure of employing good CCTV and cameras in car parks is not sufficiently implemented at the University of Fort Hare.

The head of security at one institution is responsible for approximately 2,000 car parking spaces and traffic management at the institution. The tasks of security officers and car parking attendants have been merged to create a ‘campus patrol’. The campus patrol officers have become multi-skilled: in addition to protecting cars and managing traffic and car parking, they patrol the campus and assist in the locking and security of buildings.

At one institution a computerised database was installed in March 1998 to record the time and date when security officers check various locations within their patrols. The security officers carry a clocking device that they pass over a clocking station fixed to the building. The officers may decide in which order they patrol, as long as each area is visited. If points are missed, usually as a result of being involved with a crime-related incident or fire alarm, the reason is given in the officer’s written report. The data are downloaded from the clocks and can be saved on disk for future

reference. The information can also be perused to reveal any areas that may have been missed (Staples, 2013).

Staples (2013) further states that the benefit of this system is that, if there is an incident, the exact time and date that the security officer was present in the area can be established. This helps to pinpoint the time of the crime and demonstrates to the staff and students that the building is being patrolled.

Table B.2.22. Lighting type/design

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Satisfactory	36	35.6	35.6	35.6
	Unsatisfactory	47	46.5	46.5	82.2
	Not sure	17	16.8	16.8	99.0
	Total	100	100.0	100.0	

The analysis shows that 47% of the respondents indicated that they were unsatisfied with exterior lighting type/design, which is caused by the fact that many students cannot see a person who is 25 meters away during the night. The study found that 36% of the respondents thought the lighting design was in good condition. The implication of this finding is that the brighter the light, the more people (especially females) feel watched over and less fearful of crime. Another implication of the finding above is that the residences need to have good lighting design that is bright to enhance surveillance inside residences and in and around lecture halls. When the lighting design is inadequate, students tend to be instilled with fear of crime. Furthermore, a Good Lighting design for the street is one of the vital CPTED measures that need to be employed to enhance brightness.

One of the most successful CPTED intervention recorded so far was in the Terremoto neighbourhood, which is part of San Luis de Potosí, where consultants worked with the community via participative design workshops to redesign public space (Merkel *et al* 2004:1-10). This included enhancing territoriality and defensible space, improving natural surveillance through landscaping and lighting and physical changes to pavements and pedestrian routes to reducing through movement and permeability. The Mexican government started to deliver the new pedestrian designs

of the streets in September 2011 in the project area (Farr 2011). A survey of 178 residents was undertaken in 2012 to measure the impact. Ninety-one per cent of the residents sampled saw the CPTED project as a positive improvement leading to a 30% reduction in their fear of crime (Rau 2012).

Table B3.23. Alarm systems

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Satisfactory	8	7.9	7.9	7.9
	Unsatisfactory	72	71.3	71.3	79.2
	Not sure	20	19.8	19.8	99.0
	Total	100	100.0	100.0	

With regard to alarm systems, table B.3.23 above shows that the majority (72%) of the respondents indicated that they were unsatisfied with the installation of Alarm systems, while 8% of the respondents indicated that they were satisfied. A further 20% indicated they did not know, which could be because they have never seen any alarm system in the entire campus.

The implication of this finding is that the students face challenges of not being able to get urgent assistance from campus control stuff due to lack of alarm systems as shown on the table above. The study further implies that alarm systems make it easier to get urgent help while lack of alarm systems makes it difficult to communicate with campus control staff. The campus control staff ideally need to always be on standby to deploy security details to a reported location (Fennelly & Perry, 2016).

5.3.3 Objective 3: To investigate measures taken by the University to ensure sufficient maintenance and management.

Table B3.24. Maintenance of fencing (e.g no illegal exits)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Satisfactory	44	43.6	43.6	43.6
	Unsatisfactory	48	47.5	47.5	91.1
	Not sure	8	7.9	7.9	99.0
	Total	100	100.0	100.0	

According to the information provided by respondents, in the recent past the university fence has been damaged by individuals who reside in the Alice community with the aim to penetrate and offend. As a result there have been more reports on crime committed by non-university stakeholders. Table B3.24 above illustrates that 44% of the respondents were satisfied with the maintenance of University surrounding fencing. They supported this by indicating that a new fence had recently been installed. However, it is important to note the 48% of respondents that were unsatisfied with the maintenance of the fence. The implication of the study is that the University needs to have a well maintained fence to hinder any unauthorised individuals from entering the university.

Table B3.25. Maintenance of residence and other school premises (e.g no broken windows, renovation)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Satisfactory	26	25.7	25.7	25.7
	Unsatisfactory	70	69.3	69.3	95.0
	Not sure	4	4.0	4.0	99.0
	Total	100	100.0	100.0	

There is nothing that attracts criminals as much as campus image. Litter, broken windows and deteriorating building exteriors enhance opportunities for offenders to commit crime. The study shows that the University is not well maintained as only 26% of the respondents were satisfied with the level of maintenance of University buildings but the majority (70%) of respondents were unsatisfied with the maintenance while 4% of the respondents were uncertain.

The implication of this finding is that crime occurs when there are attractive targets, poor environmental conditions and lack of maintenance. Consistent maintenance of residences brings about a sense of safety and it does not attract criminals.

Tseloni et al. (2014) conducted an in-depth analysis of the relationship between physical security measures and burglary risk in England and Wales. Using data from four sweeps of the Crime Survey for England and Wales (CSEW), formerly the

British Crime Survey, they presented the crime reduction benefits of individual and combined security features reported to be present by those taking part in the survey. The research found that certain combinations of security features (maintaining doors) confer a crime reduction advantage, but that the protection conferred against burglary does not consistently increase with the number of devices installed. The analysis suggested that if only one security device was to be installed, the most effective device would be maintenance of external lights on a sensor.

If one further device was to be added, the most effective pair of security devices would be window locks and external lights. The ultimate choice for balancing out the number of devices and protection against burglary was maintenance of window and door locks together with either external lights or a security chain. The study concluded that individual security devices confer up to three times greater protection against burglary than no security and those combinations of security devices in general afford up to fifty times more protection than no security (Tseloni, Thompson, Grove, Tilley & Farell 2017:646-664).

Table B3.26. Overgrown land (e.g cutting down of trees and grass)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Satisfactory	66	65.3	65.3	65.3
	Unsatisfactory	21	20.8	20.8	86.1
	Not sure	13	12.9	12.9	99.0
	Total	100	100.0	100.0	

The results of the study, as demonstrated on table B3.26 above, show that more is being done by the university to ensure the university land is not overgrown; in other words, grass and trees are cut to hinder potential criminals from committing offences and hiding in the trees and grass. The implication of this finding is that, ultimately, the cutting down of trees would hinder the potential criminal from committing the crime and it would prevent the criminal from getting away with the offence by hiding.

As 66% of the respondents were satisfied with the measure of cutting down trees, this is positive result. However, this does not mean enough CPTED principles are being implemented, considering the 20% of respondents that were not satisfied with

this particular measure, meaning there is need for more security measures to ensure cleanliness to enhance feelings of safety for students when in University premises.

Table B3.27. Cleanliness

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Satisfactory	47	46.5	46.5	46.5
	Unsatisfactory	44	43.6	43.6	90.1
	Not sure	9	8.9	8.9	99.0
	Total	100	100.0	100.0	

Nothing attracts criminals to a building more than a filthy building. For this reason the respondents were asked to indicate if they thought the campus was generally clean. The majority of the respondents (46%) responded positively with regard to cleanliness of the campus as they indicated that they were satisfied, while 43% of the respondents indicated that they were not satisfied with cleanliness and 9% of the respondents were unsure with this regard. The implication of this finding is that a clean place is a haven for safety, as it does not attract criminals easily while a filthy place/building attracts criminals because it implies no sense of ownership. Therefore, this problem needs to be sorted by way of review of cleanliness measures.

A few studies have proposed that if low-level disorder, for example, vandalism and litter(which cause uncleanliness), are not addressed, they can go about as a catalyst for more serious crimes. Armitage (2002) alludes to this as the contagion theory, suggesting that the “presence of vandalism stimulates more vandalism” (p.39). Wilson and Kelling (1982) refer to this contagious effect as the “broken windows theory” (p.16). This suggests that an area with existing deterioration, such as graffiti and vandalism conveys the impression that (a) nobody cares so apprehension is less likely and (b) the area is already untidy so one more act will go unnoticed. This is supported by Gottfredson and Taylor (1987) who found that physical incivilities indirectly influence offenders’ perceptions of risk in that they portray a resident’s level of care or concern for the area in which they live, thus acting as an indicator for the likelihood that they will intervene if they detect an offence taking place.

Table B3.28. Detection of intruders at the gates(production of student cards)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Satisfactory	26	25.7	25.7	25.7
	Unsatisfactory	65	64.4	64.4	90.1
	Not sure	9	8.9	8.9	99.0
	Total	100	100.0	100.0	

This study also shows that 65% of the respondents reported that there were insufficient student card checks carried out by security, whilst 26% of the respondents felt that they were satisfied with student card checks and 9% were uncertain. Responding to the incident of non-students entering the campus without issuing of student cards, the Executive Director of Corporate Relations announced that “the University of Kwazulu Natal has viewed both these issues in a serious light and has undertaken to put stricter access control measures in place” (Mbadi 2012). The study showed that the students felt that detection of intruders at the gate was insufficient, which allowed more outsiders into their residences.

The residence is a place that students view as their home away from home, and outsiders who enter the residences are seen as violating the home and their privacy. This problem must be dealt with by way of a review of security measures at the residences in terms of access and egress policy. Tighter controls need to be implemented to limit visitors to student rooms.

Table B3.29. Removal of trash

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Satisfactory	45	44.6	44.6	44.6
	Unsatisfactory	47	46.5	46.5	91.1
	Not sure	8	7.9	7.9	99.0
	Total	100	100.0	100.0	

For the same reason mentioned in the previous section, the study revealed that removal of trash inside residences is being exercised since 45% of the respondents were satisfied with removal of trash from their residences. However, it is vital to note that the majority (47%)felt that removal of trash is not being exercised, and it can be

concluded, therefore, that there is insufficient implementation of removal of trash. This could be presenting opportunities for more criminal offences to take place.

Table B3.30. Thorny plants planted as a defence against burglary

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Satisfactory	21	20.8	20.8	20.8
	Unsatisfactory	45	44.6	44.6	65.3
	Not sure	34	33.7	33.7	99.0
	Total	100	100.0	100.0	

The table above indicates that 45% of the study respondents felt there were not enough thorny plants planted in the University to restrain offenders from committing burglary, not only in their residences but in other buildings as well. A total of 22% of the respondents felt they were satisfied with the amount of thorny plants planted and 34% of the respondents were uncertain with this regard. The implication of this finding is that thorny plants make escape more difficult, suggesting that the university could plant thorny plants as a defence against burglary.

5.4 Feelings of safety

Table C1. I feel safe on campus

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Agree	28	27.7	27.7	27.7
	Strongly agree	2	2.0	2.0	29.7
	Neither agree nor disagree	21	20.8	20.8	50.5
	Disagree	27	26.7	26.7	77.2
	Strongly disagree	22	21.8	21.8	99.0
	Total	100	100.0	100.0	

The measures employed all around the campus seemed to attract a lot of opinions, ranging from strongly agreeing to strongly disagreeing. Respondents were asked to indicate if they felt safe on campus by responding to the statement *"I feel safe on campus"*. Table C1 above illustrates that the majority (28%) of the respondents agreed to feeling safe on campus while 2% of the respondents indicated that they

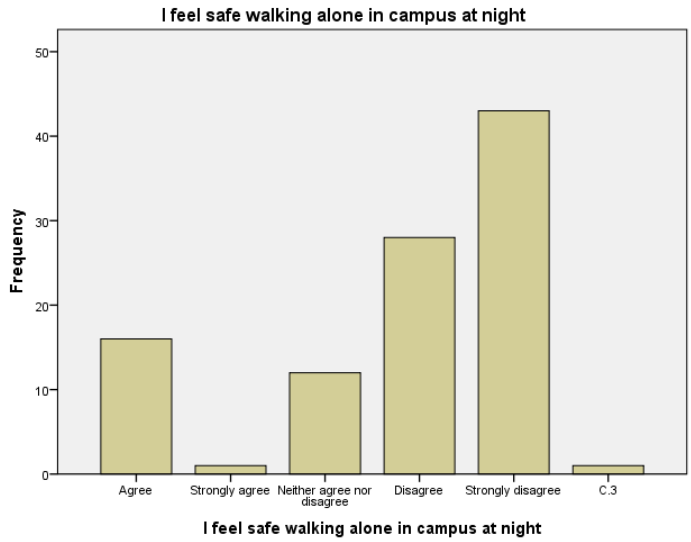
strongly agreed, 21% neither agreed nor disagreed, 27% disagree and 22% strongly disagree. Although majority of respondents agree, the total percentage of the people who felt unsafe, cumulatively including disagree (27%) and strongly disagree (22%) and making a total of 49% is larger than those who generally agree, cumulatively including agree (28%) and strongly agree and making a total of 30%. This implies that campus is not safe.

Therefore, the large percentage of the respondents who felt unsafe is of concern. To use the analogy, in Matthew 18:12, Jesus stated: “What do you think? If a man owns a hundred sheep, and one of them wanders away, will he not leave the ninety-nine on the hills and go to look for the one that wandered off? And if he finds it, truly I tell you, he is happier about that one sheep than about the ninety-nine that did not wander off” (Holy Bible NIV 2012). This analogy describes the seriousness with which security practitioners must view the 49% of the students who felt unsafe. For universities, as reflections of society, the challenge is to reduce the perceptions of danger on its campuses and to consistently review its role in law enforcement.

Table C2. I feel safe walking alone on campus at night

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Agree	16	15.8	15.8	15.8
	Strongly agree	1	1.0	1.0	16.8
	Neither agree nor disagree	12	11.9	11.9	28.7
	Disagree	28	27.7	27.7	56.4
	Strongly disagree	43	42.6	42.6	99.0
	Total	100	100.0	100.0	

Figure C2



The table and figure above show that the majority (43%) of the respondents did not feel safe on campus during the night and 28% also disagree with the statement. This gives a total of 71% of the respondents who did not feel safe walking alone at night on campus. A total of 12% neither agree nor disagree and 1% strongly agree while 16% just agree that they felt safe walking alone on campus at night. It is clear from the data above that the University of Fort Hare is an unsafe place, which enhances the vulnerability to victimization of students. Students are, therefore, not able to do their daily activities, which impacts them negatively regarding their academic life.

One of the implications of this finding is that employment of necessary prevention strategies or infrastructure can instil sense of confidence and safety. Furthermore, the findings of the study are consistent with international studies showing that residents experienced escalated feelings of fear at night (Lemanski 2004; George 2003). Also, it is normal for women and other vulnerable groups to be more fearful, as they run the risk of being victimised more than men (Box, Hale & 1988).

The implication of the finding for this study is that the demographic composition of the campus may also influence feelings of safety. Lemanski (2004), states that coloureds and blacks experience a greater sense of vulnerability at night as opposed to whites. This study clearly revealed increased feelings of vulnerability among the students at the University of Fort Hare. Another implication of this finding is that the feeling of vulnerability is caused by the fact that at night activity decreases, making

one feel that fewer people are watching over or protecting them. This is unlike offenders, who are deliberately more active at night because of lack of guardianship and detection.

Table C3. I feel safe on campus during the day

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Agree	57	56.4	56.4	56.4
	Strongly agree	26	25.7	25.7	82.2
	Neither agree nor disagree	8	7.9	7.9	90.1
	Disagree	5	5.0	5.0	95.0
	Strongly disagree	4	4.0	4.0	99.0
	Total	100	100.0	100.0	

Aggregate results for feelings of safety during particular times reveal that majority of respondents felt equally unsafe (43%) at night but safer during the daytime (57%). Students should feel safe both during the day and during night time, which can be done achieved by training staff to provide corporate security services rather than employing incompetent staff (security guards).

Table C4

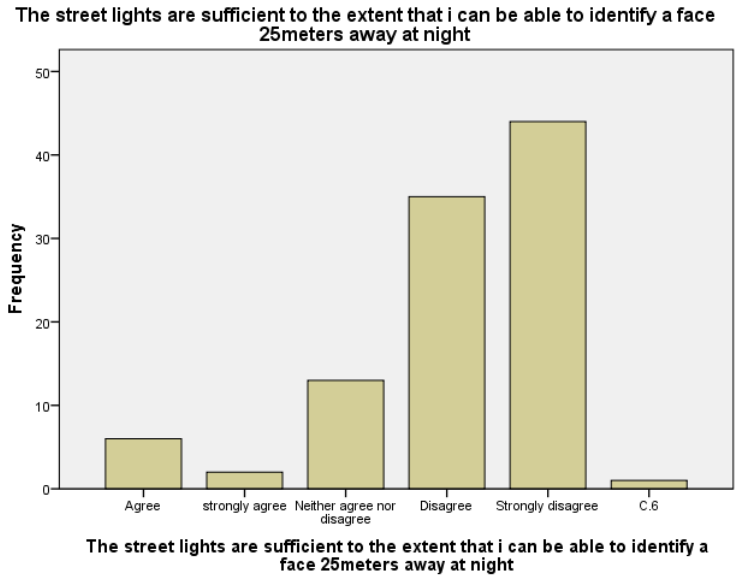
I have been a victim of crime on campus during the past three years

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Agree	19	18.8	18.8	29.7
	Disagree	81	80.2	80.2	99.0
	Total	100	100.0	100.0	

Respondents were asked to respond to the statement; “I have been a victim of crime on campus within the past three years”. A total of 19% of the respondents agreed while 81% of the respondents disagreed.

The findings clearly shows that majority of students have not been victims of campus crime. However, this does not mean there are less levels of crime at the Alice campus, and it does not mean the CPTED principles are sufficiently implemented, especially considering 19% (19 out of 100) who had been victims of crime before.

Graph C5



The most recent review of lighting and crime research re-examined a number of studies conducted in the UK and the USA (Farrington & Welsh, 2002). This systematic review (which excluded several poorly designed lighting evaluations) found that improved street lighting reduced recorded crime overall by 7 per cent in the eight American studies and by 30 per cent in the five UK studies, and reductions in recorded crime were also demonstrated during the day (Farrington & Welsh 2002). The implication of this finding is that street lighting is likely to have an effect by increasing community pride and informal social control rather than by simply improving surveillance opportunities, while lack of good street lighting enhances fear of crime and increases crime episodes. Therefore the University needs to install sufficient and adequate street light to improve students' pride and increase social order.

This study found that majority (43%) of respondents felt unsatisfied by the street lights and lack of good lighting at night, which on its own enhances feelings of fear. Mechanical surveillance strategies, such as street lighting and CCTV, have proved effective in reducing both crime and the fear of crime. The University of Fort Hare could experience escalated criminal episodes because of lack of good quality lighting.

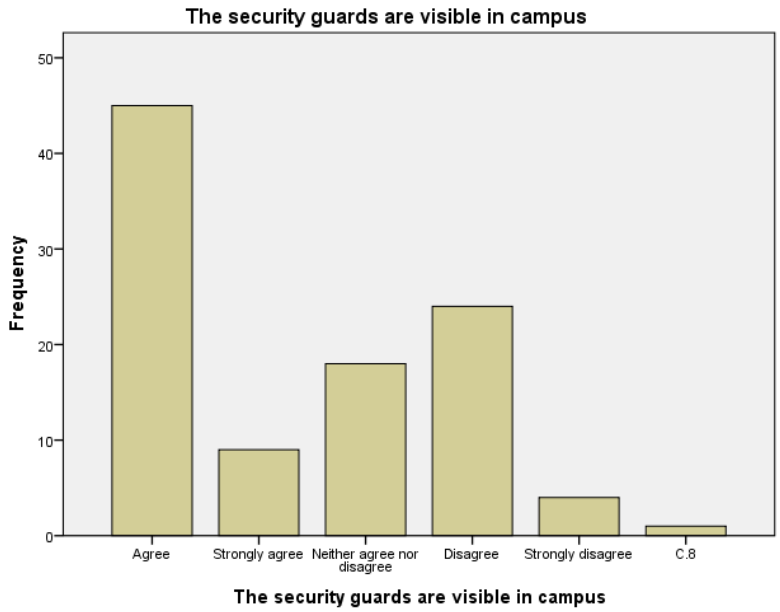
Table C6. I know who to report maintenance to when, e.g., there are broken lights

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Agree	53	52.55	52.55	52.5
	Disagree	47	46.55	46.55	46.5
	Total	100	100.0	100.0	99.0

The majority (53%) of respondents indicated they knew where to report when their residences were not in good condition; for instance when their doors, lights or windows were broken. However, 53% did not know where to report. The implication of this finding is that the large percentage of the population knows where to report but the 47% of the students that does not know where to report to in cases of reporting maintenance is of concern. This shows the need for the University to make programmes that teach the students about safety and security, in order to reduce perceptions of dangers, for Universities are reflections of society.

Table C7. The security guards are visible on campus

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Agree	45	44.6	44.6	44.5
	Strongly agree	27	26.7	26.7	54.5
	Disagree	28	27.8	27.8	99.0
	Total	101	100.0	100.0	



The offenders are unlikely to commit crime because they feel like they are being observed. The above bar graph illustrates that the security guards were visible on campus, which positively impacts students, especially those who work outside their rooms at night. The security guards are regarded as the most required species on campus as they instil in students a sense of being watched over and protected. They are the first people to ensure they prevent criminal acts.

In a study done at the UKZN, a large percentage (47%) of the respondents felt unsafe whilst on campus because security staff were seen but did nothing. After a stabbing of an international student on the Howard College campus, one student was reported as having said “We see security walking around, but what are they doing?” (Bowmann & Mchunu 2012).

Bitzer (2005) notes that security officers, unlike their counterparts such as police officers and fire-fighters, tend to have a low level of professionalism. Furthermore, he identified boredom and lack of performance appraisal of security staff as characteristics potentially contribute to low professionalism. Research has shown that boredom is a problem for security officers because there are only a limited number of incidents to which guards can respond (Charlton & Hertz 1989). Some respondents (4%) also felt that security officers unfairly discriminate against them and 10% of the respondents attributed other reasons for feeling unsafe.

Table C8. The university is effective in dealing with crime on campus

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Agree	12	11.9	11.9	11.9
	Strongly agree	4	4.0	4.0	15.8
	Neither agree nor disagree	26	25.7	25.7	41.6
	Disagree	25	24.8	24.8	66.3
	Strongly disagree	33	32.7	32.7	99.0
	Total	100	100.0	100.0	

The respondents were asked to indicate if they thought the University of Fort Hare Alice Campus was executing sufficient effort in dealing with crime on campus. The findings show that 32%, which is the majority strongly disagreed. A further 24% disagreed while 25% neither agreed nor disagreed. However, very few respondents (11%) thought the university management was effective enough in dealing with campus crime.

The implication of this finding is that the large percentage of students of University of Forte Hare that feel the university is not effective in dealing with campus crime is of concern. This suggests that the students experiences high crime rates due to the inability of the university to employ sufficient and adequate CPTED measures. The students deserve to feel safe in their own campuses.

Conclusion

In conclusion, the chapter has shown that Alice campus authorities employ insufficient CPTED methods as crime prevention strategies. Some of these are poor patrols by security guards, poor residence layout, lack of adequate CCTV installations, and exterior lighting that does not support visibility. Further, there are poor door locks, lack of alarm systems, and all barriers along pathways are not permeable. Lack of lights, lack of proper locks in public toilets, and lack of maintenance of residences and other University premises were some of the weaknesses raised in the data analysed. However, there is existence of some

CPTED measures put in place within the built environment, and these include adequate lighting in working areas, proper exterior fencing and proper fencing around residences. Considering that the majority of the findings show that there is lack in more CPTED principles than the existing measures, criminal scenes may take very frequently, indicating that the University of Fort Hare Alice campus is unsafe and more needs to be done to improve security and safety of students.

CHAPTER SIX: DISCUSSION OF RESULTS

6.1 Introduction

This chapter provides a synopsis of the key findings of this study. The theoretical and contextual literature pertaining to the use of Crime Prevention through Environmental Design at the University of Fort Hare Alice campus is still relatively new and developing, not only in the campus but other institutions of higher learning in South Africa as a whole. In keeping with the objectives of this study, most key issues emerged from the analysis of the data. Core arguments in this study were that, Crime Prevention through Environmental Design principles (CPTED) in the Eastern Cape universities are not well implemented.

CPTED comprises of 4 principles but the major focus of this study were three of these principles, namely; “target hardening”, “surveillance and visibility” and “maintenance and management”. The study sought to determine whether these principles were implemented and, if so, the effectiveness of their implementation. Lastly, the study also set out to determine what made students and staff members vulnerable to campus crime, and what their perceptions were regarding safety on campus.

The study used the Opportunity Theory and the Rational Choice Theory for a theoretical framework to support the primary focus of the study. Opportunity Theory suggests that offenders make rational choices and thus choose targets that offer a high reward with little effort and risk. The occurrence of a crime depends on two things: the presence of at least one motivated offender who is ready or willing to engage in crime, and the conditions of the environment in which that offender is situated. Robinson (2013) postulates that Opportunity Theory, thus becomes the limiting factor that determines the outcome in environments prone to crime because the offender generally has little or no control over the conditions of the environment and the conditions that permit particular crimes are often rare, unlikely or preventable.

6.2 Objective 1: To assess the sufficiency of surveillance and visibility measures taken by the university to keep unauthorised people out of the university.

The research findings show that the majority of the measure of surveillance of gathering places is not sufficiently implemented; as the previous chapter showed that the majority of respondents were unsatisfied in this regard. (e.g. security patrols at social events in campus) while the minority was satisfied. People who reside in places that lack surveillance of gathering areas tend to be more vulnerable to crime and fear, while having surveillance measures such as security patrol enhances university safety. Literature that supports includes a study that was conducted by Cozens and Van der Linde (2015), which states that the failure to have security guards perform their duties, in addition to dysfunctional CCTVs, minimises visibility because surveillance is about how design can enhance visibility, since most offenders do not want to be noticed. It can be promoted or hindered by environmental design and can influence crime and the perceptions of safety of those using such spaces (Newman 1974). The use of closed circuit television (CCTV) and security guards is another means of promoting the opportunities for surveillance, which can also help reduce crime and the fear of crime (Cozens & Van der Linde 2015).

Regarding the broken windows and the replacement of such at the residences, the majority of the respondents indicated that they were satisfied. This was a positive outcome for students' residences as the residences are a home away from home. It cannot be overemphasized that residences need to have enough CPTED measures employed.

Concerning security, the majority of the respondents indicated that they were unsatisfied with security patrol. Lack of security patrols enhance fear of crime and its incidence, while effective security patrols by security guards reduce crime. According to Hannan (1982), security guards have long been used to reduce crime, and have been shown to prevent robberies along with the use of protective screens (Grandjean 1990). In Victoria, Australia, a range of security devices (screens, guards and cameras) reduced robberies (Clarke & Cornish 1985) although patrols by the

mobile security guards known as the Guardian Angels at railway stations did not reduce crime In America (Kenney 1986).

The study found that playgrounds were placed away from buildings. Literature indicates that an increase in the level of lack of security patrol and placement of playgrounds far from buildings heightened levels of victimization and fear of crime. The study by Cohen and Felson (1979) on evaluation of CPTED principles showed a high degree of surveillance when parking and playgrounds were placed in front of working areas/buildings rather than at the back.

The majority of the respondents were unsatisfied with the functionality of CCTV (closed circuit television) where they were installed. The study suggests enormous negative results, and the need for CCTV in residences for more surveillance as Welsh and Farrington (2009) stress that while CPTED retains Newman's original ideas of natural surveillance, it has expanded the concept to refer to surveillance more generally. For example, CPTED explains how surveillance opportunities can be extended through the use of mechanical surveillance in the form of closed-circuit television (CCTV) cameras.

The implication of this finding is that the University has inadequate (CCTV) cameras, a problem that needs to be dealt with. CCTV needs to be installed while the functionality of the cameras should be regularly checked. A study by Welsh & Farrington (2009) states that at places or times in which natural surveillance is not feasible, cameras can be used to monitor surroundings in a range of contexts, including residential, commercial, recreational, and transport. When it comes to the effectiveness of mechanical surveillance, scientific evidence from 41 evaluations of CCTV interventions in public places revealed that CCTV had a significant desirable effect on crime in public spaces, with particular effectiveness in car parks and in reducing vehicle crimes, theft and with greater success in the United Kingdom.

However, evaluating the effectiveness is problematic and despite the rapid growth in the deployment of CCTV, particularly in British Cities. In this study there is very little substantive evidence that CCTV works because some (26%) of the respondents were uncertain whether CCTVs existed on their halls of residence. However, some research report positive findings. Examples include Poyner (1988), who reviewed the effectiveness of the installation of CCTV on university residences and found

reductions in vandalism on the targeted residences and the diffusion of benefits to the entire fleet.

Prior to the 1980s, security guards in institutions had radio systems that could not speak to each other, and their attitude to responding to alarms was based on the belief that most were false, and the wiring was probably at fault. The University of South Africa was also clear that much better access control systems were needed to reduce the incidence of its libraries being used as refuges for the bewildered. Today, the institution has a continuous shift-based, security operation of 64 staff, which provides very visible campus patrols. This operation includes receptionists located in some buildings, porters in others; and a CCTV networked system of approximately 60 cameras controlled from a suite where the wiring does actually work. There is also a visible enthusiasm from all, a helpful attitude, and much higher satisfaction from the community. Even the neighbours can ring a hotline to complain of noisy students. Liaison with the police involves joint walkabout patrols of the streets, and in most months security staffs assist in a handful of detentions or arrests (Kole 2015).

Eck (2003) revealed one empirical CCTV study of 15 complexes for the elderly in England and reported significant reductions in burglary. Armitage (2002) discovered CCTV significantly decreased all recorded property crime (burglary, car crime, criminal damage, handling stolen goods and fraud) in Burnely(UK). The study showed sufficient existence of adequate fencing. Concerning the location of parking areas being observed from work areas, the majority of respondents were satisfied. The implication of these findings is that the University is sufficiently employing some CPTED measures because parking needs to be placed close to working areas for staff to observe, and it enhances surveillance and visibility.

When the respondents were asked to indicate how satisfied they were about Entrances of buildings designed in a way that users see the inside before entering, a vast majority of the population felt that entrances of buildings were designed in a manner that you could observe people when they approach. Furthermore, regarding the height of the fence, the vast majority of the same population indicated that they were satisfied with the deployment of good height of the surrounding fence. These show that other CPTED measures were sufficiently implemented. However, this

does not suggest a total reduction of crime as a whole but it heightens the reduction of other types of crime at the University of Fort hare, Alice campus.

Regarding the exterior lighting in the University, the study shows insufficient implementation of exterior lighting as the majority of the participants indicated that they were not satisfied. ,Fear of crime on campus grew with the night. The most recent review of lighting and crime research re-examined a number of studies conducted in the UK and the USA (Farrington & Welsh 2002). This systematic review (which excluded several poorly designed lighting evaluations) found that improved street lighting reduced recorded crime overall by 7 per cent in the eight American studies and by 30 per cent in the five UK studies, and reductions in recorded crime were also demonstrated during the day-suggesting that street lighting is likely to have an effect by not only increasing community pride but also increasing campus pride and informal social control rather than by simply improving surveillance opportunities (Farrington & Welsh 2002).

Studies have also revealed that the financial benefits (based upon government estimates of the financial costs of various crimes) of improved street lighting schemes far outweighed their initial costs (Painter & Farrington 2001). In the context of recent research, Pease (1998, p. 2) argues the case is proven and states “our aim should now be to use context-appropriate lighting schemes as part of a full repertoire of crime reduction tactics”.

Results about the effectiveness of improved street lighting also suggest that improved visibility through lighting has a negative effect on crime. Based on 13 evaluations from the United States and the United Kingdom, improved street lighting had a significant desirable effect on crime. Results were mixed in the U.S. studies, with 50% showing improved street lighting resulted in crime reduction, and the other 50% showing it was ineffective. In the British studies, however, results consistently showed lighting improvements led to reductions in crime. Taken together, this evidence supports the concept of natural surveillance as it points to the value in maximizing visibility using physical design to create clear lines of sight between properties and public space, and through proper lighting (Bennett & Wright 1984).

In summary, natural surveillance (e.g. residents' self-surveillance opportunities as facilitated by windows), formal surveillance (e.g. security guards patrols) and mechanical surveillance strategies (e.g. street lighting and CCTV) have all proven effective in reducing both crime and the fear of crime. The study found that the exterior lighting around campus was not satisfactory. This encouraged crime on campus and instilled fear of crime among students.

6.3 objective 2: To discover the measures taken by the university to improve target hardening.

The principle of target hardening is directed at denying or limiting access to a crime target through the use of physical barriers such as fences, gates, locks, electronic alarms etc. However, excessive use of target hardening strategies can create a "fortress mentality" and imagery whereby residents withdraw behind physical barriers and the self-policing capacity of the built environment is damaged, effectively working against CPTED strategies that rely on surveillance, territoriality and image.

The majority of the respondents were unsatisfied with deployment of burglar bars on doors and windows, which the study found to be insufficiently installed in residences. Lack of burglar bars enhances high burglary rate, which is contrary to when there are enough burglar bars where students feel safer. According to Allatt (1984), target hardening strategies resulted in reduction in burglaries and Tilley and Webb (1994) compared two target-hardened English public housing estates with a control group, finding significant reductions in burglaries in both complexes. The occurrence of burglaries in students' residences could be as a result of lack of burglar bars. An international comparison of burglary in the United States, the United Kingdom, and the Netherlands revealed that home security measures, including target hardening measures, are associated with lower levels of burglary across all three countries (Tseloni, Wittebrood, Farrell & Pease 2004).

As much as Target hardening strategies are effective, crime prevention through environmental design is about a lot more than 'target hardening', a term that describes using burglar bars or high walls, for example, to deter criminals from stealing property. Internationally, CPTED currently includes approaches as diverse

as those favouring mixed land use and an integrated approach to urban development, to those that separate and exclude through an over-emphasis on target hardening

Brown (2001) notes that although research has been done on CPTED, the implementation has been limited in South Africa. Most projects rely heavily on the target hardening aspect (usually by installing CCTV systems and burglar guard fencing) and neglect CPTED's core principle of planning and design. Brown explains that the over-reliance on target hardening is largely the result of lack of knowledge and understanding of monitoring and evaluation of programs based on environmental design. Although the CPTED principles indicate that the model does have limitations, the positive outcomes outweigh the negative by far.

Concerning fencing around residences, the University has sufficient deployment of fences around residences as the majority of the population indicated that they were satisfied with the fences around residences. The main implication of this finding is that the residences are well fenced, which decreases opportunities for offenders to have access to residences. This is a positive outcome because fencing around residences seems to be effective in crime reduction. Hirschfield, Newton and Rogerson (2010) posit that businesses in the municipalities of Johannesburg and Tshwane have reacted to crime by increasing security measures to protect their property.

They make use of methods that range from changes to the interior of buildings to exterior changes such as burglar bars in front of windows and security gates on doors, high fences or walls around properties, and access-control entrances. Residents, likewise, have responded with increased security measures. These vary from the installation of electronic devices such as closed-circuit surveillance cameras, alarm systems, panic buttons, electronic gates and intercom systems, to physical modifications such as burglar bars, security gates, fences and walls around properties. These were proven to be effective in crime prevention.

In the recent past, there have been reported criminal episodes (theft of laptops and vandalism) at the University of Fort Hare in Alice, which resulted in students going on

strike citing students' safety and security. This negatively impacted students' academic progress as time went on with no sign of an end to the strike. Had the University management installed burglar bars, students would not have been on strike. Taylor (2013) submits that some years ago, one institution integrated its CCTV system with a card access control system on the main campus to enable the movement of personnel to be monitored. A slave monitor was located in the control room. This enables security staff to check on the movements of patrols, and it shows if any of the doors to buildings have been forced, which in turn enables a security response to be made. Therefore, the main campus needs CCTVs, as well as an access control system for safety.

Furthermore, the study established that the majority of the respondents were satisfied with fencing systems utilized. This is a positive outcome. Hirschfield, Newton and Rogerson (2010) posit that residents have reacted to crime by increasing security measures to protect their property and they make use of methods such as security gates and high fences around properties.

Regarding external lighting, the study found that there was lack of adequate street lighting in Alice campus. This is a negative outcome as improved street lighting has been found to reduce fear and the incidence of crime. For instance, a study by Painter and Farrington (1997), which used experimental and control areas, showed reduction in crime and an increase in pedestrian street use. They concluded "in the experimental area, there was a substantial significant decrease in the incidence of all categories of crime after the improved street lighting" (Painter & Farrington 1997). Across all the study, the crime reduction effect was 20 per cent.

Regarding door locks at students' residences, the majority of the respondents were unsatisfied with the deployment of adequate door locks. Lack of good door locks at the University may lead to burglaries and as a result the University students have reported theft of laptops inside students' rooms. The study can conclude on the fact that there is lack of adequate door locks, which has also caused theft of laptops in computer laboratories.

With regard to car park/crossing lighting, the majority of the population indicated that they were not satisfied with the safety of the car park/ crossing lighting, which implies lack of safety in car parks around campus. There is a notion that says the brighter the light, the more people (especially females) feel watched over and less fearful of crime. Looking on the lighting design, the university has inadequate lighting design. The university of Fort Hare lacks installation of alarm systems as the majority of the population indicated that they were not satisfied with the installation of alarm systems.

Jurgens and Gnad (2002) state that in Gauteng, almost all the security companies interviewed reported a reduction in crime in the enclosed neighbourhoods, while a number of large security estates still experienced some isolated crime incidents. The SAPS, likewise, generally agree that crime is reduced through physical target hardening on a neighbourhood scale. They do, however, recognize that crime is often displaced by these methods to surrounding neighborhoods. One of the consequences is that residents in adjacent communities feel increasingly vulnerable and subsequently also apply for road closures or move to a secure estate. The net result is an increase in the number of gated communities.

Target hardening must be done in conjunction with the maintenance of space. Maintaining these spaces will also reflect a sense of ownership and care for the space, as well as reduce residents' abuse of it. Curbing antisocial behaviour, which is imperative to addressing crime, is a pleasant result of preserving the image and aesthetics of a community/campus.

According to Wilson and Kelling's (1982) broken windows theory, incivilities and antisocial behaviour, if left unchecked, will transgress into serious crime. Thus, this behaviour, although not categorised as crime, can lead to crime. For instance, recreational areas are generally vandalised and destroyed by deviant youth or individuals. The destruction of property will decrease the campus's use of such spaces, resulting in the space becoming a haven for deviant and criminal elements. These become neglected and unused areas that pose safety hazards.

6.4 objective 3: To investigate measures taken by the University to ensure maintenance and management

According to Skogan and Maxfield (1980), care and maintenance allows for the continued use of a space for its intended purpose. Deterioration and blight indicate less concern and control by the intended users of a site and indicate a greater tolerance of disorder. The more dilapidated an area, the more likely it is to attract unwanted activities. Proper maintenance protects the public health, safety and welfare in all existing structures and premises, either residential or non-residential, by establishing minimum requirements and acceptable standards. Maintenance and management need to be considered at the design stage, as the selection of materials and finishes will impact the types of maintenance treatment that can be sustained over time. This study found that there was lack of maintenance of fencing at the University of Fort Hare's Alice campus. This is a negative outcome as the poor conditions have created criminogenic environments around the buildings on campus. These buildings tend to exhibit a multitude of planning and design problems and are associated with crime and grime.

Further, findings indicate that there is lack of maintenance of residence and other University premises, which threatens the safety of students. This is a serious issue that needs to be resolved as many studies on the evaluation of campuses found that it is expensive and difficult to modify older buildings. Safety officers believe that most of the campus buildings are old and, in the era they were built, safety was not prioritized. Thus, modifying these buildings using CPTED interventions is challenging. Additionally, many of these old buildings are on the national historic registry, which adds another set of obstacles that may hinder modification, as one safety official described: "There's not a lot of things that we can change about the older ones to implement safety, but we need to find ways to do it aesthetically, not messing up the building or anything like that."

The findings show that more is being done by University management to ensure the university land is not overgrown with grass and trees. The majority of the participants were satisfied with the implementation of the method of cutting down grass and

trees. This is a positive result, implying that University property cannot be easily targeted due to the effective implementation of maintenance. In their explanation of whether and why they would or would not choose certain targets, burglars made reference to three factors that were related to opportunities for surveillance and the risk of being seen or detected during the offence. They explained that they would not select targets (a) that were overlooked by neighbouring properties (b) that were open and exposed and/or (c) that had no bushes or anything else that could give them some cover. They expressed concern over proximity to neighbouring houses and the ease with which neighbours could look out of their windows and see into the property being targeted. Furthermore, this clearly shows that maintenance of overgrown land assists in crime prevention because it hinders offenders from escaping easily (Reynald 2015). The findings show that there is cleanliness on campus. The majority of the participants indicated that they were satisfied with the cleanliness of the University. Uncleanliness attracts potential offenders.

The method of detecting intruders at the gates by asking everyone to produce student cards is lacking. The majority of the participants indicated that they were unsatisfied. Thus, the university was failing to limit access. Concerning the removal of trash from the University, the vast majority of the participants were unsatisfied. This works against the appearance of the University which attracts potential offenders. Elsewhere, clean-up campaigns have helped restore the image of communities (Samara, 2011). These initiatives also touch on crime and grime awareness campaigns by educating residents about the effects of dumping on health and crime. Beyond the appearance of the immediate environment, abandoned buildings also pose a risk to residents.

There is need for plantation of thorny plants on campus. The majority of the participants were unsatisfied with the little thorns on campus. Thorny plants are believed to assist protect homes from burglaries worldwide. Research indicates that most burglars are lazy. They look for easy ways of getting into a house or garden and planting thorny plants around the walls can reduce the risk of being burgled and make your property more secure.

Feelings of safety

This study also focused on respondents' safety perceptions as another dimension of campus security. This phase sought to investigate the effect of the application of CPTED on students' perception of safety. The aim was to obtain a more tangible understanding of the impact of CPTED, beyond what could be obtained from an examination of official campus crime rates. The literature review indicated that previous research has not empirically examined the extent to which the principles of CPTED have been applied in University campuses. Although CPTED has shown promise in reducing crime opportunities, research has only begun to empirically assess whether environmental design is associated with residents' perception of safety. Moreover, researchers in this area have not yet determined if the campus housing facilities' compatibility with CPTED standards affects residents' perception of safety (Robinson 2013).

This phase of the research aimed at narrowing the gap in the literature by investigating respondents' perception of safety in campus residential facilities and at campus environmental premises. Respondents were asked to indicate their feelings of safety around campus. This was a way of finding out how prevalent the feelings of vulnerability were, and whether there were enough CPTED measures implemented for both day and night in order to ensure the safety of students in the Alice campus. The majority of the participants indicated that they did not feel safe on campus.

The respondents were asked to indicate if they felt safe walking around campus at night and the majority indicated that they did not feel safe. This is a negative outcome as the university has experienced many cases of rape amongst female students in the recent past. The results show that the high crime rates can be traced to insufficient CPTED strategies employed in the university. These findings are similar to the socio-economic survey of the community that revealed increased feelings of vulnerability in the Merewent, which included Wentwent (Scott, OELEFSE & Guy 2002). The findings are consistent with international studies, showing that residents experienced escalated feelings of fear at night (Lemanski 2004). Also, it is

normal for women and other vulnerable groups to be more fearful, as they run the risk of being victimised more than men (Pantazis 2000).

Furthermore, the study found that feelings of safety differed according to time. Aggregate results for feelings of safety during particular times reveal that respondents felt equally unsafe at night but safer during daytime. However, it is anticipated that both sexes felt safe during the day. The findings of the study are consistent with international studies, showing that students experienced escalated feelings of fear at night (Lemanski 2004). The demographic composition of the community where the campus is based may also influence feelings of safety.

Respondents were asked their perception on the statement; “I have been a victim of campus crime in the past three years”. While those who indicated they had been victimised were the minority, at more than 15% the percentage was too high not to raise concern. It means that the CPTED principles are not sufficiently implemented.

This study found that the respondents felt that street lights were not good enough, which enhanced feelings of fear and increased incidence of crime. Furthermore, studies have proven that mechanical surveillance strategies (e.g street lighting and CCTV) are effective in reducing both crime and the fear of crime. The University of Fort Hare experienced escalated criminal episodes because of lack of good quality lighting.

The respondents was asked to indicate if they agreed or disagreed with this statement; “I know who to report maintenance issues to when property is broken or not functioning. The majority indicated that they knew where maintenance issues were reported. However, the percentage of those who did not know was still too high, which raises concern about orientation of new learners on security issues.

The respondents were also asked to comment on the visibility of security guards on campus. The findings indicate that security guards were visible on campus. This has a positive impact on students’s perceptions of safety and security, especially those who worked outside their rooms at night.

A further question related to whether or not the university was effective in dealing with crime on campus. Generally, the majority believed the university was not effective in dealing with crime on campus. The students did not have faith in the efficiency of the administration in dealing with crime.

Conclusion

There is need for police support initiatives, where a police officer is stationed on campus. There is also need for the provision of free crime prevention and personal safety advice at the start of each academic year. Support from students' union comes in the form of campaigns and publicity throughout the academic year. Student representatives attend the police talks and contribute to the content.

CHAPTER SEVEN: CONCLUSIONS AND RECOMMENDATIONS

7.1 INTRODUCTION

Crime prevention through environmental design (CPTED) is not a new concept. The phrase was coined by C. Ray Jeffery in 1971, but a significant contributor to the concept of CPTED was renowned criminologist Timothy D. Crowe, a legend in the security industry. CPTED works by manipulating the physical environment, which in turn affects peoples' behaviour and can lead to a reduction in criminal or unwanted activity.

According to Reynald (2015), schools are operating today by "surviving one major disruption after another" and CPTED is an approach that may help to harden these "soft targets" and keep our children safe. We want our schools to be open, caring places that are conducive to learning and achieving success for our children and not "educational prisons" that stifle growth and instil fear. CPTED concepts are part of a holistic approach to security and are easily incorporated into physical security measures in an effort to lessen the likelihood that crime will occur as well as helping to alleviate the fear of crime.

The CPTED concepts of natural surveillance, target hardening and maintenance and management work well in the school environment and encourage a well-cared space that is used for its intended purpose: education. CPTED is not the only answer to preventing crime and other illegal activity; instead it is one of the approaches that can be combined with other components of a total security process. CPTED objectives specifically designed for the school environment can be applied to address the issues facing our schools today (Reynald 2015).

CPTED consists of four principles. However this study focused on the three principles discussed in the following sections. These also guided the data collection process.

7.2 Surveillance and visibility

Criminals do not like to be seen or recognized, so they will choose situations where they can hide and easily escape. Therefore, optimising visibility and maximising opportunities for observance of public and private areas by users or residents during the course of their normal activities (passive surveillance) and/or police or other security personnel (active surveillance) are central. Factors that could play a role include uninterrupted lines of sight, levels and types of lighting, the positioning and nature of windows, doors and other openings, building layout and the distances between buildings, the sizes of the public spaces and the extent, degree and type of use of the space, Use of closed circuit television (CCTV) to view areas so that visitors know that they are being watched. The last thing that a criminal wants to see when they enter a building is their own face on a security monitor.

The result: A potential offender should feel like they are being watched, and that the surroundings offer no easy escape routes.

7.3 Target hardening

Main objective is reducing the attractiveness or vulnerability of potential targets by physically strengthening them and/or by installing mechanisms that will increase the effort required to commit an offence. Target hardening measures are often the first to be considered in response to real criminal events or perceived threats. Perimeter walls or fences, security gates, burglar bars and alarm systems are all mechanisms used to implement this principle.

7.4 Maintenance and management

Maintenance is related to territorial reinforcement. A well-maintained area sends the message that people notice and care about what happens in an area. This, in turn, discourages vandalism and other crimes. Security practitioners refer to the "Broken Windows Theory"; the idea that one broken window will entice vandals to break

another. A vandalized area then becomes more inviting to higher levels of crime. A property should be well-maintained as a matter of safety as well as pride.

The study that was conducted did look at the efficacy of these principles. The aim was to establish whether they were sufficiently implemented on campus as part of the mandate of the University to prevent crime. Conclusions from findings on these are discussed below.

7.5 Conclusions of the study

Crime prevention through environmental design (CPTED) has 4 principles that must be implemented, and once these principles are successfully implemented the university can expect not total hindrances of crime but lessening of crime. The campus has shown a lack of numerous building design requirements, which lead to crime every now and then. The university of Fort Hare's Alice campus has some CPTED strategies implemented, but lacks in others. Students' residences are in a sub-standard condition, which shows inconvenience as it is difficult to change university existing buildings; for instance, placing the playgrounds in front of buildings to promote more surveillance and restrict unwanted activities.

Other improvements that can be implemented include; changing locks and lights at students' public toilets, and improving after hours-surveillance by educating the security guards about their roles and duties of making sure that they patrol during day and night. CPTED strategies such as CCTV, alarm systems, burglar bars, proper door locks and external lighting are not sufficiently or effectively installed. The findings shows that the majority of participants are not satisfied with the above strategies, which impacts students negatively. The study has also shown insufficiency in the installation of lighting exterior design, lack of maintenance of the fencing and lack of maintenance of residences and other school premises. As a result, broken windows are found and no renovations are being done.

The findings have indicated that the campus is unclean. It can be concluded that the unclean environment at Alice Campus easily attracts offenders. The detection of the intruders at the main gates is insufficient as there is no production of student cards at the entrances. Students feel unsafe on campus at night and the University

management was not making enough efforts to make sure the campus was crime free and students and staff felt secure and safe all the time they are on campus. The university was not effective in dealing with campus crime.

It is also concluded from the findings that while insufficient, effort is being made by the university management to improve security on campus. For instance most parking areas are located in areas that can be observed from working areas. Further, both the quality and height of fencing are of good standard. The residences are well fenced, and trees and grass are regularly cut. Students generally feel safe on campus during the day and they know where to report issues to do with maintenance. Maintenance of facilities has been linked with reduced crime. Security guards at the University of Fort Hare are visible all around campus, which boosts feelings of security among staff and students.

7.6 Recommendations

The crime prevention through environmental design (CPTED) principles at the university of Fort Hare Alice campus is facing no improvement and the campus continues to face relatively high crime rates. The study sought to evaluate the sufficiency of surveillance and visibility, target hardening, maintenance and management as crime prevention strategies at the University of Fort Hare. The findings of the study relating to this aim were discussed in the previous chapter, and the conclusions drawn from these findings are presented in the section above. Based on the conclusions above, the study offers the recommendations below.

There is need for sufficient implementation of all the CPTED principles. The measures that are currently in place at the University of Fort Hare are not sufficient, and, therefore, it is recommended that more environmental design measures be put in place to lessen opportunities for criminal events and to reduce fear of crime on campus. By incorporating the design elements of CPTED into a dormitory, student activity areas, buildings, or parking lots; one, would be able to reduce crime significantly, as well as maintain the aesthetic look that college campuses strive for (Riegel 2002).

It is also recommended that the institution increases the number of CCTV surveillance cameras on campus. In collaboration with the local authority, the institution can extend the scheme to cover the local area, to help reduce crime. This will result in a great partnership with neighbouring businesses, the local colleges and the police to share information about immediate security problem individuals such as car thieves and vandals. The system can use a 'hotline' telephone to disseminate information, so that potential criminals are tracked on CCTV to keep them under observation.

It is recommended that social gathering places be surrounded by security guards for patrols, and these gathering areas can be refurbished and proper lighting be installed to improve security. Natural strategies that aim at installing proper windows and low landscaping need to be implemented. Adopt-a-park programs can be used to involve students in cleaning up trash and litter and providing information to security guards about illegal activities being carried out on campus. One further recommendation is that campus security staff be trained so as to know what their duties are and when to perform them.

Further, it is recommended that the University maintain the cleanliness and functionality of revenue and nonrevenue areas and spaces, keep up with repairs, make necessary replacements, paint, trim, landscape, remove trash and debris all around campus, enforce zero tolerance policy to graffiti and vandalism, and maintain aesthetic appearance of assets, equipment and study facilities. The study also recommends the incorporation of natural surveillance into buildings to substantially aid in crime prevention. This can be achieved by designing new facilities according to relevant standards, following lighting recommendations that are modern and in proper design.

The researcher recommends that current campus buildings be updated to meet more recent "industry" CPTED practices; door handles be designed into a building in such a way that they are placed near a glass window where an individual can reach around and open the door. Simply changing the style door knob can accomplish this.

7.7 Suggestions for future research

Although this dissertation offers a step forward in assessing the CPTED approach for campus safety, it considered data collection methods to obtain time-series data that was accomplished by sending surveys to the sampled university of Fort Hare students to request detailed information, it does have several limitations. These offer opportunities for future research. Future studies can consider new data collection methods, such as qualitative methods, in-depth interviews and focus group discussions with members of the university community, which would be accompanied by systematic observations of CPTED use evaluated in two different Universities. The use of both these methods and data collection strategies will assist to control bias and increase the reliability and validity of the study.

The second area for future research entails the use of Qualitative methods to examine several of the sampled schools to assess the differences between the actual and the reported characteristics. The third area of opportunity for expanding future research is the development of case studies that investigate the use of CPTED on campuses. The Quantitative survey did not allow the researcher to evaluate more programs of this kind in different settings and compare them accordingly.

The quantitative method captured the perspectives of campus students; future research can entail the shift in focus to the perspectives and experiences of campus safety officials, university administrators, staff of the facilities office, and SRC representative to better understand applicability, strengths and challenges of the CPTED program as a crime prevention strategy in Universities.

References

Aboo, R.K., 2013. 'Environmental Design Crime and vulnerability: A case study of wentworth. University of Kwazulu Natal.

Alexander, N., 2006. Robben Island prison dossier: 1964-1974, University of Cape Town, Cape Town.

Allatt, P., 1984. Residential security: containment and displacement of burglary. *The Howard Journal of Criminal Justice*, *23*(2), pp.99-116.

Allatt, P.,1984. Fear of crime: the effect of improved residential security on a difficult to let estate. *The Howard Journal of Criminal Justice*, *23*(3), 170-182.

Alshuwaikhat, H.M. and Abubakar, I., 2008. An integrated approach to achieving campus sustainability: assessment of the current campus environmental management practices. *Journal of cleaner production*, *16*(16), pp.1777-1785.and Crime. *Acta Criminologica,* 20(2), 102-118.

Andrews, D.A. and Bonta, J., 2014. *The psychology of criminal conduct*. Routledge.

Antman, E.M., Anbe, D.T., Armstrong, P.W., Bates, E.R., Green, L.A., Hand, M., Hochman, J.S., Krumholz, H.M., Kushner, F.G., Lamas, G.A. and Mullany, C.J., 2004. ACC/AHA guidelines for the management of patients with ST-elevation myocardial infarction: a report of the American College of Cardiology/American Heart Association Task Force on Practice Guidelines (Committee to Revise the 1999 Guidelines for the Management of Patients with Acute Myocardial Infarction). *Journal of the American college of cardiology*, *44*(3), pp.E1-E211.

Appiahene-Gyamfi, J., 2002. An analysis of the broad crime trends and patterns in Ghana, *Journal of Criminal Justice*, 30(3), 229-243.

Arington, R., 2008. *Crime Prevention: The Law Enforcement officers Practical Guide,* Jones and Bartlett Publishers, Canada.

Armitage, R., 2002. "To CCTV or not to CCTV? A Review of current research into the effectiveness of CCTV systems in reducing crime, NACRO crime and social policy Newsletter, May.

Armitage, R., 2006a. Predicting and Preventing: Developing a Risk Assessment Mechanism for Residential Housing. *Crime Prevention and Community Safety: An International Journal*, 8(3), 137-149.

Armitage, R., 2013. *Crime Prevention through Housing Design: Policy and Practice*, Palgrave Macmillan: Crime Prevention and Security Management Book Series.

Armitage, R.,2002. Tackling anti-social behaviour. What Really Works.NACRO, Community and Safety Practice Briefing.

Astor, R. A., Meyer, H.A., Benbenishty, R., Marachi, R. and Rosemond, M., 2005. School safety interventions: Best practices and programs, *Children & schools*, 27(1), 17-32.

Atkinson, R. and Blandy, S., 2013. *Gated communities: International perspectives*. Routledge. New York.

Atlas, R., and LeBlanc, W. G., 1994. The impact on crime of street closures and barricades: A Florida case study. *Security Journal*, *5*(3), 140-145.

Babbie, E., 2010. The Practice of Social Research-12. *Belmont: Wadsworth*.

Babbie, E.R and Rubin, A., 2014. Research methods for Social Work. Brooks/Cole Cengage Learning.

Babbie, E.R, 2014. The basics of social research, Belmont, Calif.: Wadsworth, cengage learning.

Banyard, V. L., Plante, E. and Moynihan, M. M., 2004. Bystander education: Bringing a broader community perspective to sexual violence prevention. Journal of Community Psychology, 32, 61-79.

Bastian, L. and Taylor, L., 1991. School Crime: A National Crime Victimization Survey Report, Washington DC: U.S. Department of Justice.

Batley, R., M. Rogerson, J. Nellthorp, M. Wardman, A. Hirschfield, A. Newton, J. Shires, L. Monchuk, R. Armitage, K. Sharratt, D. Johnson, and P. Chintakayala, P., 2012, “Evaluating Measures to Improve Personal Security and the Value of Their

Benefits." Project report, Rail Safety and Standards Board, http://eprints.hud.ac.uk/14650/. Accessed June 9, 2015.

Beavon, D.J.K., Brantingham, P.L. and Brantingham, P.J., 1994. The Influence of Street Networks on the Patterning of Property Offences, In: R.V.Clarke (ed.) *Crime Prevention Studies*, 2, Criminal Justice Press, Monsey: NY,. 115-148.

Bedenbaugh, C. P., 2003. Measuring fear of crime on campus: a study of an urban university. B.S., University of Louisiana at Lafayette.

Behre, R. and Finlay, S., 2009. *Using Concepts Mapping to Structure Students Views of the School Environment's Contribution to School Violence Providing Suggestions for School Environment Intervention,* New York. The Johns Hopkins University.

Behre, W.J., Astor, R.A. and Meyer, H.A., 2001. Elementary-and middle-school teachers' reasoning about intervening in school violence: An examination of violence-prone school subcontexts. *Journal of Moral Education*, *30*(2), pp.131-153.

Bell, E. and Bryman, A., 2007, The ethics of management research: an exploratory content analysis. *British journal of management*, *18*(1), 63-77.

Bennett, T., Wright, R. and Wright, R., 1984. *Burglars on burglary: Prevention and the offender,* Gower, Aldershot.

Berla, N., 1995. The Impact of Street Lighting on Crime and Traffic Accidents. Education and Public Welfare Division, Library of Congress Legislative Reference Service, October 4th.

Bernard E. H., 2005. Broken windows: New evidence from New York City and a five-city social experiment, The Law School, the University of Chicago.

Bharadwaj, A., 2014. Is Poverty the Mother of Crime? Empirical Evidence of the impact of Socioeconomic Factors on Crime in India, International Max Planck Research School for Competition and Innovation; Munich Centre for Innovation and Entrepreneurship Research.

Bility, K.M., 1999. School violence and adolescent mental health in South Africa: Implications for school health programs. *Sociological practice*, *1*(4), pp.285-303.

Bitzer, E. G. 2005. Psychology in the study of Physical Security, Department of Psychology, University of Florida.

Blakely, E. J. and Snyder, M. G.,1997. *Fortress America: gated communities in the United States*. Brookings Institution Press.

Bless, C., Higson-Smith, C. and Kagee, A., 2006. 4th. ed. Fundamentals of social research methods. An African perspective. Cape Town: Juta.

Bowman C. and Mchunu N., 2012. Student stabbed 24 times in campus attack. Sunday Times, November, 4 2012.

Box, S., Hale, C. and Andrews, G., 1988. Explaining fear of crime. *The British Journal of Criminology*, *28*(3), 340-356.

Brantingham, P. and Brantingham, P., 1981. Environmental Criminology (Beverly Hills: Sage).

Brantingham, P. L. and Brantingham, P.J., 1984. Burglar Mobility and Preventive Planning, In: R.V. Clarke and T. Hope (eds.), *Coping with Burglary: Research Perspectives on Policy,* Kluwer-Nijhoff, Boston, 77-96.

Brantingham, P.L. and Brantingham, P.J., 1993. Environment, routine and situation: Toward a pattern theory of crime. Advances in criminological theory , 5(2), pp.259-94.

Breidt, F.J. and Opsomer, J.D., 2000. Local polynomial regression estimators in survey sampling. *Annals of Statistics*, pp.1026-1053.

Brower, S., Taylor, R. B. and Gottfredson, S. D., 1987. Responding to threat: Informal social control of space in residential areas. *Man-environment qualitative aspects. International Association for the Study of People and Their Physical Surroundings-7. Barcelona: Publications y Ediciones de la Universität*, 205-25.

Brown, B. (2001) New Homes / Old Homes: Physical Environment and Residential Psychology Predicting Crime. Proceedings of the International CPTED Conference, pp167-177. 24-27th September, Brisbane, Australia.

Brown, B., 1995. CCTV in Town Centres: Three Case Studies, Police Research Group Crime Detection and Prevention series Paper 68, HMSO, London.

Bryant, L., 2016. Critical and creative research methodologies in social work.Routledge.

Bryman, A., 2012. Social Research Methods. 4th ed, Oxford University Press. New York.

Bryman, A., 2015. Social research methods.5th ed. Oxford University Press.

Bryman, A., and Cramer, D., 2012. Quantitative data analysis with IBM SPSS 17, 18 & 19: A guide for social scientists. Routledge.

Charlton J. and Hertz R., 1989. Guarding against boredom: Security specialists in the US Air Force.Journal of Contemporary Ethnography.

Chatterton, M.R and Frenz, S.J., 1994. “Closed Circuit Television: Its Role in Reducing Burglaries and Fear of Crime in Shelterd Accommodation for the Elderly”, *Security Journal*, 5(3), 133-139.

Cheryl Papa Bedenbaugh., 2003. Measuring fear of crime on campus: a study of an urban university. B.S., University of Louisiana at Lafayette.

Clarke, R. V. G. (Ed.)., 1997. *Situational crime prevention* (pp. 225-256). Monsey, NY: Criminal Justice Press.

Clarke, R. V. G., and Mayhew, P., 1980. Designing out crime. HMSO Books.

Clarke, R. V., and Cornish, D. B., 1985. Modeling offenders' decisions: A framework for research and policy. *Crime and justice*, *6*, 147-185.

Clarke, R. V., and Felson, M., (Eds.)., 1993. *Routine Activity and Rational Choice: Advances in Criminological Theory*, 5, Transaction Books, New Brunswick, NJ.

Clarke, R.V., 1989. November, Theoretical background to crime prevention through environmental design (CPTED) and situational prevention, In *Designing Out Crime: The Conference Papers* (pp. 13-20).

Clarke, R.V., Mayhew, P.M, 1980. Designing out crime. London: H. M. Stationery office.

Clarke, R.V.G. ed., 1997. *Situational crime prevention* (pp. 225-256). Monsey, NY: Criminal Justice Press.

Cohen, L. E. and Felson, M., 1979. Social Change and Crime Rate Trends: A Routine Activity Approach*, American Sociological Review,* 44.

Cohen, L. E., Felson, M., and Land, K. C., 1980. Property crime rates in the United States: A macrodynamic analysis, 1947-1977; with ex ante forecasts for the mid-1980s. *American journal of Sociology*, *86*(1), 90-118.

Cohen, L.E. and Felson, M., 1979. Social change and crime rate trends: A routine activity approach, *American Sociological Review*, (18), 588-608.

Coker, A. L., Fisher, B. S., Bush, H. M., Swan, S. C., Williams, C. M., Clear, E. R., and DeGue, S., 2015. Evaluation of the Green Dot bystander intervention to reduce interpersonal violence among college students across three campuses. *Violence against women*, *21*(12), 1507-1527.

Conway, J. M., and Peneno, G. M., 1999. Comparing structured interview question types: Construct validity and applicant reactions. Journal of Business and Psychology, 13(4), 485-506.

Cook, P.J., 2017. The demand and supply of criminal opportunities. In *Crime Opportunity Theories* (pp. 127-153). Routledge.

Cornish, D.B. and Clarke, R.V. eds., 2014. *The reasoning criminal: Rational choice perspectives on offending*. Transaction Publishers.

Cornish, D.B. and Clarke, R.V., 1987, Understanding crime displacement: An application of rational choice theory, *Criminology*, 25(4), 933-948.

Coupe, T., and Blake, L., 2006. Daylight and darkness targeting strategies and the risks of being seen at residential burglaries. *Criminology*, *44*(2), 431-464.

Cozens, P. 2014. Think Crime! Using Evidence, Theory and Crime Prevention Through Environmental Design (CPTED) for Planning Safer Cities. Praxis Education, Quinn's Rock, Western Australia.

Cozens, P. and Van der Linde, T., 2015, Perceptions of Crime Prevention through Environmental Design (CPTED) at Australian railway stations, *Journal of Public Transportation*, 18(4), 5.

Cozens, P. and van der Linde, T., 2015. Perceptions of crime prevention through environmental design (CPTED) at Australian railway stations. *Journal of Public Transportation*, *18*(4), p.5.

Cozens, P. M, Saville, G, Hillier D., 2005, "Crime prevention through environmental design (CPTED): a review and modern bibliography", Property Management, Vol. 23 Issue: 5, pp.328-356, https://doi.org/10.1108/02637470510631483.

Cozens, P. M., 2002, Sustainable urban development and crime prevention through environmental design for the British city, Towards an effective urban environmentalism for the 21st century, *Cities*, 19(2), 129-137.

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

Cozens, P. M., Saville, G, and Hillier, D., 2005. Crime prevention through environmental design (CPTED): a review and modern bibliography. Property management, 23(5), 328-356.

Cozens, P., 2008. Crime prevention through environmental design, *Environmental criminology and crime analysis*, 153.

Cozens, P., Love, T, 2009. “Manipulating permeability as a process for controlling crime: Balancing security and sustainability in local contexts.” Built environment: special issue on security versus safety: How to deliver less crime and more sustainable design 35(3): 346-65.

Cozens, P.2002.”Sustainable urban Development and Crime Prevention Through Environmental Design for the British city: Towards Effective Urban environmentalism for the 21 century.” Cities: The International Journal of Urban Policy and Planning 19(2): 129-37.

Crawford, R.J., 1998, *Plastics engineering,* Heinemann, Butterworth.

Creswell, J. W., 1994. Research design: Qualitative and quantitative approaches. Thousand Oaks, CA: SAGE Publications.

Creswell, J. W., Klassen, A. C., Plano Clark, V. L., & Smith, K. C., 2011. Best practices for mixed methods research in the health sciences. *Bethesda (Maryland): National Institutes of Health*, *2013*, 541-545.

Creswell, J., 2009. *Research Design: Qualitative and Quantitative, Mixed Methods Approaches,* Sage publications, Los Angeles.

Creswell, J., 2009. *Research Design: Qualitative and Quantitative, Mixed Methods Approaches*, Sage, Los Angeles.

Cromwell, P.F. and Olson, J.N., 1991. *Breaking and Entering: An Ethnographic Analysis of Burglary*, Sage, Newbury Park, California.

Crowe, T. D. and Zahm, D.L., 1994. Crime prevention through environmental design: NAHB Land Development Magazine, National Association of Home Builders.

Crowe, T. D., 2013. *Crime prevention through environmental design* (3rd.ed)., USA.

Crowe, T., 2013. *Crime Prevention through Environmental Design*, Heinemann, Butterworth.

Crowe, T.D., 2000. *Crime prevention through environmental design: Applications of architectural design and space management concepts,* Heinemann, Butterworth.

CSIR., 2000. Guidelines for human settlement, planning and design, Vol1, Compiled under the patronage of the Department of Housing by the CSIR Building and Construction Technology.

Currie. G and Burke, M.,2013.' Light rail in Australia- Performance and prospects, paper presented at the Thirty-sixth Australian transport research forum, Brisbane,2-4 October.

De vos, A.S and Strydom, H., 2011. Intervention research. In: De Vos, A.S, Strydom, H., Fouche, C.B & Delport, C.S.L(eds). Research at grass roots: http:// social work. Journals.ac.za.

Del Carmen, A. and Robinson, M.B., 2000. Crime prevention through environmental design and consumption control in the United States. *The Howard Journal of Criminal Justice*, *39*(3), pp.267-289.

Delinquent boys to age 70, Harvard University Press, MA: Cambridge.
Donnelly, P.G, & Kimble, C.E., 1997. Community organizing, environmental change, and neighbourhood crime. Crime & Delinquency, 43(4), 493-511.

Easterlin, R.A., 1995. Will raising the incomes of all increase the happiness of all?. *Journal of Economic Behavior & Organization*, *27*(1), pp.35-47.

Eck, J.E., 2002. Preventing crime at places. In (Lawrence W. Sherman, David Farrington, Brandon Welsh, and Doris Layton MacKenzie, eds.). *Evidence-Based Crime Prevention*.

Eck, J.E., 2003. Preventing crime at places. In *Evidence-based crime prevention* (pp. 255-308). Routledge.

Ekblom, P., 2011, *Crime prevention, security and community safety using 5Is framework,* Palgrave Macmillan, Basingstoke.

Emmel, N., 2013. Sampling and choosing cases in qualitative research: A realist approach. Sage.

Engel, R.J and Schutt, R.K., 2010. Fundamentals of Social Work research.Thousand Oaks CA: Sage.ISBN: 978-1-4129-5416-7, 416 pp., $93.00.

Fagan, P. F., 2010. The Real Root Causes of Violent Crime: The Breakdown of Marriage,Family,andcommunity.Ohttp//www.heritage.org/Research/Crime/BG1026.cfm.

Farr, D., 2011. *Sustainable urbanism: Urban design with nature*. John Wiley & Sons.

Farrington, D.P. and Welsh, C., 2002. Effects of Improved Street Lighting on Crime: A Systematic Review, Home Office Research Study 251, Developments and Statistics Directorate, Crown Copyright, London.

Fay, J. J. (Ed.)., 1993. *Encyclopedia of security management,* Crime prevention through environmental design: defensible and offensible[sic] space, 200-202,, Heinemann, Boston Butterworth.

Feeney, F., 1986. Robbers as Decision Makers, In: D. Cornish and R. Clarke (eds.)., *The Reasoning Criminal,* New York: Springer-Verlag, 53-71.

Felson, M. and Clarke, R.V., 1998. Opportunity makes the thief. *Police research series, paper*, *98*, pp.1-36.

Fennelly, L.J. and Perry, M., 2016. Physical security: 150 things you should know. Butterworth-Heinemann.

Fennelly, L.J. and Perry, M.A., 2018. CPTED versus Traditional Security: 15 Shopping Safety Tips. In *CPTED and Traditional Security Countermeasures* (pp. 164-166). CRC Press.

Fischer, R., Edward Halibozek, M. B. A., and Walters, D., 2012. Introduction to security. Butterworth-Heinemann.

Fisher, B.S. and Nasar, J.L., 1992. Fear of crime in relation to three exterior site features: Prospect, refuge, and escape. *Environment and Behavior*, *24*(1), pp.35-65.

Fisher, B.S. and Sloan, J.J., 2013. *CAMPUS CRIME: Legal, Social, and Policy Perspectives*. Charles C Thomas Publisher.

Fossey, R. and Smith, M.C., 1996. Responding to campus rape: A practical guide for college administrators. *New Directions for Higher Education*, *1996*(95), pp.29-42.

Fox, W. and Bayat, M.S., 2007. A Guide to Managing Research, Juta & Co. Ltd, Cape Town.

Gabor, T., 1987. *Armed Robbery: Cops, Robbers, and Victims,* Charles C. Thomas, Springfield, IL.

Garland, D., 1996. THE LIMITS OF THE SOVEREIGN STATEStrategies of Crime Control in Contemporary Society. *The British journal of criminology*, *36*(4), pp.445-471.

Garland, D., 2001. Of crimes and criminals: The development of criminology in Britain, In M. Maguire, R. Morgan & R. Reiner (Eds.)., *The Oxford handbook of criminology* (pp. 11–56), Clarendon Press, Oxford.

Geason, S. and Wilson, P. R., 1989. Designing Out Crime, *Canberra: Australian Institute of Criminology*, 2, 3, 5, 6, 23, 35, 40, 44.

Gehl, J., 2011. *Life between buildings: using public space*. Island Press.

Geldenhuys, W. G., 2001. *U.S. Patent No. 6,273,277*. Washington, DC: U.S. Patent and Trademark Office.

George, R., 2003. Tourist's perceptions of safety and security while visiting Cape Town. *Tourism Management*, *24*(5), pp.575-585.

Gilili, C. 2018-08-21, Groundup report: Another rape reported at University of Fort Hare.News24.

Gill, M., 2016. *The handbook of security.* Kluwer Academic Publishers, New York.

Glasson, J., and Cozens, P., 2011. Making communities safer from crime: An undervalued element in impact assessment. *Environmental Impact Assessment Review*, *31*(1), 25-35.

Gordon, C.L. and Brill, W., 1996. The Expanding Role of Crime Prevention through Environmental Design in Premises Liability, National Institute of Justice, 3.

Gottfredson, D., Gottfredson, G. and Hybl, L., 1993. “Managing adolescent behaviour: a multiyear, multischool study”, *American Educational Research Journal*, 30(1), 179-215.

Gottfredson, S.D. and Taylor, R.B., 1987. Attitudes of correctional policymakers and the public. *America’s correctional crisis: Prison populations and public policy*, pp.55-75.

Grandjean, C., 1990. Bank robberies and physical security in Switzerland: A case study of the escalation and displacement phenomena, *Security Journal*, 1(1), 155-159.

Gray, E., Jackson, J. and Farrall, S., 2010. Feelings and functions in the fear of crime: Applying a new approach to victimisation insecurity. *The British Journal of Criminology*, *51*(1), pp.75-94.

Greenberg, S. W., Rohe, W. M. and Williams, J. R., 1982. Safety in urban neighbourhoods: A comparison of physical characteristics and informal territorial control in high and low crime neighbourhoods, Population & Environment, 5(3), 141-165.

Grinnell Jr, R. and Unrau, Y., 2011. Qualitative data analysis. Social Work Research and Evaluation: Foundations of Evidence-Based Practice, 9th ed., Oxford University Press, London, 447-464.

Hannan, T. H., 1982. Bank robberies and bank security precautions, *Journal of Legal Studies*, 1, 83-92.

Hatch, A., 2006. Qualitative Studies in the era of Scientifically-based Research: Musings of a Former QSE Editor.International Journal of Qualitaive Studies in Education,19, 403-409.

Hayward, K., 2007. Situational crime prevention and its discontents: rational choice theory versus the 'culture of now', Social Policy and Administration, 413: 232-250.

Healey, P., 2001. Towards a more Place-focused Planning system in Britain, in A Madanipour, P Healey and A Hull (eds), The Governance of Place: Space and planning processes, Aldershot, Ashgate, p 278.

Heller, G., 1996. 'Changing the School to Reduce Student Violence: what works?' , *Preventing Violence in Schools*, April, 1-10.

Henderson, A. and Rowe, D. E., 1998. A healthy school environment, In: Marx E, Wooley F & Northop D (eds.)., *Health is academic: A guide to coordinated school health programs*, Teachers College Press, New York.

Hendrick, T.E, Bickman, L and Rog, D.J., 1993. Applied research design: A practical guide, Vol 32,Sage Publications. London.

Hindelang, M. J., Gottfredson, M. R. and Garofalo, J., 1978. *Victims of personal crime: An empirical foundation for a theory of personal victimization*. Cambridge, MA: Ballinger.

Hirschfield, A., Newton, A. and Rogerson, M., 2010. Linking burglary and target hardening at the property level: New insights into victimization and burglary protection. *Criminal Justice Policy Review*, *21*(3), pp.319-337.

Holbrook, S.H., 2016. *Murder Out Yonder: True Crime Stories from America's Frontier*. Courier Dover Publications.

Hollis-Peel, M. E. and Welsh, B. C., 2014. What makes a guardian capable? A test of guardianship in action. *Security Journal*, *27*(3), 320-337.

Holzman-Escareno, A., 2009. The Cause of Crime. *A Journal of Academic Writing*, *7*(3), pp.15-22.

Hook, D. and Vrdoljak, M., 2002. Gated Communities, Heterotopia and a “rights” of Privilege: A Heterotopology of the South African Security-Park, *Geoforum*, *33*(2), 195-219.

Hoynes, H.W., Page, M.E. and Stevens, A.H., 2006. Poverty in America: Trends and explanations. *Journal of Economic Perspectives*, *20*(1), pp.47-68.

Huxel Bliven, K. C. and Anderson, B. E., 2013. Core stability training for injury prevention. *Sports health*, *5*(6), 514-522.

Huxel,B.K.C and Anderson, B.E., 2013. Core stability training for injury prevention.Sports health. 5(6). 514-522.

Jeffery, C.R., 1971. *Crime prevention through environmental design* (Vol. 91). Beverly Hills, CA: Sage Publications.

Jeffery, C.R., 2005. *Crime Prevention through Environmental Design* (p. 215), Sage Publications, Beverly Hills, CA.

Johnson, S.L., 2009. Improving the school environment to reduce school violence: A review of the literature. *Journal of school health*, *79*(10), pp.451-465.

Jurgens, U. and Gnad, M., 2002. Gated Communities in South Africa: Experiences from Johannesburg, *Environment and Planning: Planning and Design*, 29(3), 337-353.

Kalton, G., 1983, *Introduction to survey sampling: Quantitative applications in the social sciences,* Sage Publications, London.

Kelly-Adviser, E.D., 2009, Securing the Built Environment: An Analysis of Crime Prevention through Environmental Design, Doctoral dissertation, Ball State University.

Kennedy, M 2004. Providing safe schools. American School & University, 76.

Kenney, D., 1986, Crime on the subways: Measuring the effectiveness of the guardian angels, *Justice quarterly*, 3(4), 481-96.

King, N., Horrocks, C., 2010, *Interviews in qualitative research*, Sage Publications, London.

Kitchen, T. and Schneider, R.H., 2007, *Crime prevention and the built environment*. Routledge.

Kole, O. J., 2015. Partnership Policing Between the South African Police Service and the Private Security Industry in Reducing Crime in South Africa, Unisa.

Kothari, C. R., 2004. *Research methodology: Methods and techniques*. New Age International.

Kotzé, N. and Strydom, H., 2007. Farm Workers' Perception Concerning Poverty.

Kowalczyk, A., 2016. Geospatial analysis according to CPTED concept for the safe space designing and management. In *Conference proceedings Geographic Information Systems Conference and Exhibition GIS Odyssey* (pp. 143-156).

Krehnke, M., 2009. Crime Prevention Through Environmental Design Information Systems Security. Retrieved from www.infosectoday.com/Articles/CPTED.

Kruger, T. and Landman, K., 2003. Living in an enclaved society: Practical implications of environmental design. *Governance*, *30*, p.31.

Kruger, T. Landman, K. and Lieberman, S., 2001. *Safer by Design: A Manual for Crime Prevention through Planning and Design,* CSIR Publication, Pretoria.

Kruger, T., 2005a. Building safer communities – reducing crime through environmental planning and design, CSIR Built Environment Unit - Sustainable Human Settlements Pretoria, South Africa.

Kruger, T., Landman., K., and Liebermann, S., 2001. *Designing safer places: A manual for crime prevention through planning and design*, Pretoria: The South African Police Service and the CSIR.

Kubba, S. A. A., 2007. Property Condition Assessments, McGraw-Hill, New York, 2007.

La Vigne, N.G., 1997. *Visibility and vigilance: Metro's situational approach to preventing subway crime* (p. 20). Washington, DC: US Department of Justice, Office of Justice Programs, National Institute of Justice.

LaGrange, R.L., Ferraro, K.F. and Supancic, M., 1992. Perceived risk and fear of crime: Role of social and physical incivilities. *Journal of research in crime and delinquency*, *29*(3), pp.311-334.

Landman, K. and Liebermann, S., 2016. Planning against crime: Preventing crime with people, not barriers, *South African Crime Quarterly*, (11, 23-25).

Landman, K. and Schonteich M., 2002. Urban Fortresses: gated communities as a reaction to crime, African Security Review, 114: 71-85.

Landman, K., 2004. Gated communities in South Africa: the challenge for spatial planning and land use management. *Town Planning Review*, *75*(2), pp.151-172.

Lasley, J., 1998. “Designing out” gang homicides and street assaults. Washington, DC: National Institute of Justice, U.S. Department of Justice.

Laub, J. H. and Sampson, R. J., 2003. Shared beginnings, divergent lives:Le Roux, W., 2006, Planning law, crime control and the spatial dynamics of post-apartheid street democracy: seminar proceedings: gated communities, *SA Publiekreg= SA Public Law*, *21*(1), 25-50.

Lemanski, C., 2004. A new apartheid? The spatial implications of fear of crime in Cape Town, South Africa. *Environment and Urbanization*, *16*(2), pp.101-112.

Letkemann, P., 1973. *Crime as Work*, Prentice-Hall, Englewood Cliffs, NJ.

Lieberman,S. K., Landman,A. L and Robertshaw, R.,2000. Making South Africa Safe: A manual for Community-based Crime Prevention, CSIR, Pretoria.

Linden, R., 2007. Situational crime prevention: its role in comprehensive prevention initiatives, IPC Review, 1: 139-159, Department of Sociology, University of Manitoba.

Lundberg, L., 1994. Safe schools planning, Thrust for Education al Leadership, 24.

Luwig, J, Duncan, G and Hirschfield, P.,2012. “Urban Poverty and Juvenile Crime: Evidence From a Randomized Housing-Mobility Experiment.” The Quarterly Journal of Economics. 2001: 655-679.

MacDonald, J. E. and Gifford, R., 1989. Territorial cues and defensible space theory: The burglar's point of view. *Journal of Environmental Psychology*, *9*(3), 193-205.

Mahalingham, V., 1996. Sutton town centre public perception survey. *Towards a safer Sutton*.

Mann, C. J., 2003. Observational research methods. Research design II: cohort, cross sectional, and case-control studies. *Emergency medicine journal*, *20*(1), 54-60.

Marie,T., 2012. Identity, personhood and power: a critical analysis of the principle of respect for autonomy and the idea of informed consent, and their implementation in an androgynous and multicultural society. Stellenbosch University.

Marzbali, M.H.; Abdullah, A.; Tilaki, M.J.M. The effectiveness of interventions in the built environment for improving health by addressing fear of crime. Int. J. Law Crim. Justice 2016, 45, 120–140.

Masuku, S. and Maepa, T., 2003. City Safety: Nelson Mandela Metro Municipality's crime reduction strategy, Institute for Security Studies, Monograph series, 103.

Matthews, R, and Young, J (Eds)., 1992. Issues in realist criminology. sage pub.

Mayhew, P., Clarke, R. V., Sturman, A., and Hough, J. M., 1976, *Crime as Opportunity*, Her Majesty's Stationery Office, London.

McCormick, J., 2006, Designing against crime, *Parks and Recreation-West Virginia,* 41(5),34.

McMillan, J. H. and Schumacher, S., 2001. Research in Education. A Conceptual Introduction (5th ed.). New York: Longman.

Merkel, C.B., Xiao, L., Farooq, U., Ganoe, C.H., Lee, R., Carroll, J.M. and Rosson, M.B., 2004, July. Participatory design in community computing contexts: Tales from the field. In *Proceedings of the eighth conference on Participatory design: Artful integration: interweaving media, materials and practices-Volume 1* (pp. 1-10). ACM.

Mertens, D. M., 2014. Research and evaluation in education and psychology: Integrating diversity with quantitative, qualitative, and mixed methods. Sage publications.

Minnaar, A., 2005, Private-public partnerships: Private security, crime prevention and policing in South Africa, *Actacriminologica*, *18*(1), pp.85-114.

Minnery, J.R. and Lim, B., 2005, Measuring crime prevention through environmental design, *Journal of Architectural and Planning Research*, 330-341.

Miya, J. M., 2015, Evaluating the MBA Students Perceptions about UKZN Learning Support Systems which are Moodle and Student Central Systems, Doctoral dissertation, UKZN.

Morehouse, R. E. and Maykut, P., 2002. Beginning qualitative research: A philosophical and practical guide. Routledge.

Muijs, D., 2010. Doing quantitative research in education with SPSS. Sage.

Munn, P; Johnstone, M; Sharp, S; and Brown, J., 2004. Violence in schools: Perceptions of secondary teachers and head teachers over time International Journal on Violence and Schools No. 3 April 2007 pp52-80

Murray, C., Motoyama, T., Rouse, W.V., and Rubenstein, H., 1980. *The Link Between Crime and the Built Environment: The Current State of Knowledge*, National Institute of Justice, Washington, DC.

Myers, M. D., and Avison, D. (Eds.)., 2002. Qualitative research in information systems: a reader. Sage.

Nadelmann, E.A., 2010. *Cops across borders: The internationalization of US criminal law enforcement*. Penn State Press.

Nasar, J.L. and Fisher, B., 1993. 'Hot spots' of fear and crime: A multi-method investigation. *Journal of environmental psychology*, *13*(3), pp.187-206.

Newman, O., 1974. *A design guide for improving residential security* (Vol. 2). US Dept. of Housing and Urban Development: for sale by the Supt. of Docs., US Govt. Print. Off..

Newman, O., 2009, *Defensible space* (p. 264), Macmillan, New York.

Ngwenya, M.O. 2012. Closed Circuit Television as a Surveillance Technique: A Case study of filling stations in Middelburg, Mpumalanga, South Africa. Unpublished dissertation MTech Forensic Investigation. Pretoria: University of South Africa.

Nocheck, E. A., 2013. Connecting Site Safety, Design, and Management: Exploring and Applying CPTED Principles in Planning Policies and Practices for Green Township, Ohio(Doctoral dissertation, University of Florida).

Noguera, P., 1995. "Preventing and producing violence: a critical analysis of responses to school violence", *Harvard Educational Review*, 65(2), 189-212.

O'Sullivan, D. A., 2003. Protection officer training manual (7th ed.)., in Davies, S. J. & R. R. Minion (Eds.)., *Physical Security Applications* (pp. 76-86), –Heinemann, Boston: Butterworth.

Painter, K. A. and Farrington, D.P.,1997. The Crime Reducing Effect of Improved Street Lighting: The Dudley Project. In Situational Crime Prevention: Successful Case Studies, pp209-226. Ed Clarke, R.V. 2nd Edition. Harrow and Heston, Guilderland, New York, U.S.A.

Painter, K., 1996. The influence of street lighting improvements on crime, fear and pedestrian street use, after dark. *Landscape and urban planning*, *35*(2-3), pp.193-201.

Painter, K.A. and Farrington, D.P., 2001. The financial benefits of improved street lighting, based on crime reduction. *Transactions of the Illuminating Engineering Society*, *33*(1), pp.3-10.

Pantazis, C., 2000. 'Fear of crime', vulnerability and poverty. *British journal of criminology*, *40*(3), pp.414-436.

Papadakis, Z., 2010. Residents query grass cutting schedule, The Rising Sun. 3.

Parfitt, J., 1997. Questionnaire design and sampling, methods in human geography: A guide for students doing a research project, pp.76-109.

Pease, K., 1998. Lighting and Crime: Summary, Available at www.ile.co.uk/Documents/ Lighting and Crime Summary .

Perkins, D.D. Florin, P. Rich, R.C. Wandersman, A. and Chavis, D.M., 1990. Participation and the social and physical environment of residential blocks: Crime and community context, *American journal of community psychology*, *18*(1), 83-115.

Phillips, C., 1999. A review of CCTV evaluations: Crime reduction effects and attitudes towards its use. *Crime prevention studies*, *10*(1), pp.123-155.

Piquero, A. R., Farrington, D. P., Welsh, B. C., Tremblay, R. and Jennings, W. G., 2009. Effects of early family/parent training programs on antisocial behavior and delinquency. *Journal of Experimental Criminology*, *5*(2), 83-120.

Pope, K.S. and Vasquez, M.J., 2016. Ethics in psychotherapy and counseling: A practical guide. John Wiley & Sons.

Powell, J.R., 1971. Genetic polymorphisms in varied environments science. 174 (4013). Pp.1035-1036

Poyner, B., 1983. *Design Against Crime: Beyond Defensible Space*, Butterworth, London.

Poyner, B., 1988. “Video cameras and bus vandalism”, *Journal of Security Administration*, 11(2), 44-52.

Poyner, B., and Webb, B., 1991. *Crime free housing*. Oxford: Butterworth-Architecture.

Prothrow-Stith, D., 1995. “Setting sights on violence”, *America’s Agenda*, Winter, 42-44.

Rademeyer, G.C., 1995. A criminological investigation into University campus protection in Southern Africa: a comparative study, Doctoral dissertation.

Ramsay, M., and Newton, R., 1991. The effect of better street lighting on crime and fear: A review.

Rashid, M., Wineman, J. and Zimring, C., 2009. Space, behavior, and environmental perception in open plan offices: a prospective study.

Rau, M., 2012. PBK Consulting, assessment, design, implementation and evaluation of CPTED methodology in San Luis de Potosi and Tapachula Report Publika Consulting Santiago.

Rengert, G.F., Wasilchick, J, 2000. Suburban Burglary: A Tale of Two Suburbs. Charles C. Thomas.

Reppetto, T.A., 1974. *Residential Crime*, Ballinger, Cambridge: MA.

Reynald, D. M., 2009. Guardianship in action: Developing a new tool for measurement. *Crime Prevention and Community Safety*, *11*(1), 1-20.

Reynald, D. M., 2011. Translating CPTED into crime preventive action: A critical examination of CPTED as a tool for active guardianship. *European Journal on Criminal Policy and Research*, *17*(1), 69-81.

Reynald, D. M., 2015, Environmental Design and crime events, *Journal of Contemporary Criminal Justice,* 31(1), 71-89.

Reynald, D.M., 2010. Guardians on guardianship: Factors affecting the willingness to supervise, the ability to detect potential offenders, and the willingness to intervene, *Journal of Research in Crime and Delinquency*, 47(3), 358-390.

Richard, T., 2013. Qualitative versus quantitative methods: Understanding why qualitative methods are superior for criminology and criminal justice.

Riegel, L. I., 2002. Crime prevention through environmental design in parking, *Campus Law Enforcement Journal*, 32(1), 28- 29.

Robinson, M. B., 2013. The theoretical development of “CPTED”: Five years of responses to C Ray Jeffery, *The Criminology of Criminal Law,* 427-462.

Rubin, A. and Babbie, E. R., 2012. *Essential research methods*. Cengage Learning.

Rubin, A., and Babbie, E., 2010. Research methods for social work Belmont. *CA: Thomson Brooks/Cole*.

Sallis, J., Bauman, A. and Pratt, M., 1998. Environmental and policy interventions to promote physical activity, *American Journal of Preventive Medicine*, 15(4), 379-397.

Samara, T.R., 2011. Cape Town after apartheid: crime and governance in the divided city. U of Minnesota Press.

Sarno, C., 1996. The Impact of Closed Circuit Television on Crime in Sutton Town Centre. In Bulos, M. and Grant, D (eds.) Towards a Safer Sutton? CCTV One Year On. London Borough of Sutton, Sutton

Schafer, J. A., Huebner, B. M. and Bynum, T. S., 2006. Fear of crime and criminal victimization: Gender-based contrasts. *Journal of Criminal Justice*, *34*(3), 285-301.

Schneider, R. H and Kitchen, T., 2004. *Planning for crime prevention: A transatlantic perspective,* London. Routledge.

Schneider, R. H. and Kitchen, T., 2007. *Crime Prevention and the Built Environment,* Routledge, London..

Schweitzer, J.H. Kim, J.W. and Mackin, J.R., 1999. The impact of the built environment on crime and fear of crime in urban neighborhoods, *Journal of Urban Technology*, *6*(3), 59-73.

Scott, D., OELEFSE, C. and Guy, C., 2002. Double trouble: environmental injustice in South Durban. *Agenda*, *17*(52), pp.50-57.

Shaftoe, H., 2017. *Crime prevention: Facts, fallacies and the future*. Macmillan International Higher Education.

Shaftoe, H., and Read, T., 2005. Planning out crime: the appliance of science or an act of faith. *Handbook of crime prevention and community safety*, 245-265.

Shange, N. 2018-08-13, Herald Live.

Shariati, A., 2017. An assessment of the role of crime prevention through environmental design (CPTED) in campus safety.

Shaw, M. and Louw, A., 1998. Environmental design for safer communities: Preventing crime in South Africa's cities and towns, Institute for Security Studies.

Shelley, L, 1981. Crime and modernization. Carbondale, IL: Southern Illinois University Press.

Siegel, D.G. and Raymond, C.H., 1992. An ecological approach to violent crime on campus. *Journal of Security Administration*, *15*(2), pp.19-29.

Simon, D., 2006. Your questions answered? Conducting questionnaire surveys. *Doing development research*, 163-171

Skogan, M. and Maxfield, M., 1980. Reactions to Crime Project Evanston, Il: Center for Urban Affairs, Northwest University.

Skogan, W. G., 1992. Disorder and decline: Crime and the spiral of decay in American neighborhoods, University of California Press, California.

Skogan, W.G., 1990. *Disorder and Decline: Crime and the Spiral of Decay in American Neighbourhoods,*University of California Press, California.

Slobogin, C., 2002. Public privacy: camera surveillance of public places and the right to anonymity. New York.

Smith, M. J., and Clarke, R. V., 2012. Situational crime prevention: Classifying techniques using “good enough” theory. *The Oxford handbook of crime prevention*, 291-315.

Smith, M.S., 1996. *Crime prevention through environmental design in parking facilities*. US Department of Justice, Office of Justice Programs, National Institute of Justice.

Staples, WG., 2013. Everyday Surveillance: Vigilance and visibility in Postmodern Life, Rowman & Littlefield. California.

Stephens, R., 1994. “Planning for safer and better schools: school violence prevention and intervention strategies”, *School Psychology Review*,23(2),204-215.

Strydom, H., 2005a. Ethical aspects of research in the social sciences and human service professions. Chapter 4. In A.S. de Vos, H.Strydom, C.B. Fouche, & C.S.L.Delport (Eds.). 3rd.ed. *Research at grass roots*. Pretoria: Van Schaik.

Taylor, A.N., 2015. Ending the Higher Education Sucker Sale: Toward an Expanded Theory of Tort Liability for Recruitment Deception. *Utah L. Rev.*, p.425.

Taylor, E.J., 2013. Surveillance Schools: security, discipline and control in contemporary education, Springer.

Taylor, P.R. and Littler, M.M., 1982. The roles of compensatory mortality, physical disturbance, and substrate retention in the development and organization of a sand-influenced, rocky-intertidal community. *Ecology*, *63*(1), pp.135-146.

Taylor, R.B. and Hale. M., 1986. Testing alternative models of fear of crime. J. Crim. L. & Criminology. 77. 151

Tilley, N. and Webb, J., 1994. Burglary reduction: Findings from safer cities schemes (Vol. 51), Home Office Police Research Group.

Timm, P., 2014. School Security: How to Build and Strengthen a School Safety Program, Heinemann, Butterworth.

Tjoa, P.F. and Devon, R., 2015. Safety by design: a review on planning and design strategies for a safer living environment in higher education communities.

Tracy, S.J., 2013. Qualitative Research Methods: Collecting Evidence, Crafting Analysis, Communicating Impact, Wiley-Blakewell Publishers, Malden.

Tseloni, A., Thompson, R., Grove, L., Tilley, N. and Farrell, G., 2017. The effectiveness of burglary security devices. *Security Journal*, *30*(2), pp.646-664.

Tseloni, A., Thompson, R., Grove, L.E., Tilley, N and Farrell, G., 2014. The Effectiveness of Burglary Security Devices, *Security Journal* (advance online publication 30 June 2014; doi: 0.1057/sj.2014.30).

Tseloni, A., Wittebrood, K., Farrell, G. and Pease, K., 2004. Burglary victimization in England and Wales, the United States and the Netherlands: A cross-national comparative test of routine activities and lifestyle theories, *British Journal of Criminology*, 44(1), 66-91.

Vacca, J.R., 2007. Practical internet security (vol.3), Springer, New York, NY.

Webb, B and Laycock, G., 1992. Reducing crime on the London underground: An Evaluation Three Pilot Project, Crime Prevention Unit Paper 30, HMSO. London.

Weisburd, D., Morris, N.A. and Groff, E.R., 2009. Hot spots of juvenile crime: a longitudinal study of arrest incidents at street segments in Seattle, Washington, Journal of Quantitative Criminology, 254: 443-467.

Welsh, B.C. and Farrington, D.P., 2009. Public area CCTV and crime prevention: an updated systematic review and meta-analysis, *Justice Quarterly*, 26(4), 716-745.

Whitney, I and Smith, P.K, 1991. “A survey of the nature and extent of bullying in junior/middle and secondary schools.” Final report to the Gulbenkan foundation. Sheffield: University of Sheffield, Department of psychology.

Wilkinson, P. (ed.), 2007. Homeland Security in the UK: Future preparedness for terrorist attack since 9/11. Routledge, New York.

Wilson, J. Q., and Kelling, G. L., 1982. Broken windows. *Atlantic monthly*, *249*(3), 29-38.

Winter, M., 2001. Safe schools. Human Ecology, 29.

Wortley, R. and Mazerolle, L., 2008. Environmental criminology and crime analysis: Situating the theory, analytic approach and application. *Environmental criminology and crime analysis*, pp.1-18.

Yin, R. K., 2013. Validity and generalization in future case study evaluations. *Evaluation*, *19*(3), 321-332.

Yngwe, M.A. and Lundberg, O., 2007. Assessing the contribution of relative deprivation to income differences in health. *Health inequalities and welfare resource*, pp.135-156.

Yu, C. H., 1977. Exploratory data analysis. *Methods*, *2*, 131-160.

Zahm, D., 2011. Using crime prevention through environmental design in problem-solving. DIANE Publishing.

Zavoski, R. W., Lapidus, G. D., Lerer, T. J., Burke, G., and Banco, L. I., 1999. Evaluating the impact of a street barrier on urban crime. *Injury Prevention*, *5*(1), 65-68.

Zimring, F. E.2011. The City That Became Safe: New York and the Future of Crime Control.

Zins, J.E., Weissberg, R.P., Wang, M.C., and Walberg, H.J. (eds), 2004. Building academic success on social and emotional learning learning: What does the research say? New York: Teachers college press.

APPENDIX 1

Ethics Research Confidentiality and Consent Form

I, Mditshwa Sisanda a Master of Social Science student in the Department of Criminology, at the University of Fort Hare, I am undertaking an academic research project on the evaluation of the principles of crime prevention through environmental design(CPTED) at the university of Fort Hare Alice campus. I am looking forward to learn from you and I am kindly asking for your co-operation with regards to this matter. I would, thus like to kindly ask you to spare your time with me and respond to my questions as honestly as you can. Please remember that this questionnaire is confidential and no names will be used and your identity will not be disclosed. The results from the study will be used by university authorities to develop strategies that can help to combat and prevent crime through environmental design, not only in the selected university of Fort Hare but in other universities in the Eastern Cape.

RESPONDENT CONSENT

I agree to participate in this study on my free will. I have been fully informed about the objectives and the use of this data. I also understand that this is a research project whose purpose is not necessarily to benefit me personally. I have understood that my answers will be treated with confidentiality.

……..

Participant's signature or mark with an X Date

SECTION A: BIOGRAPHICAL INFORMATION

A.1 what is your gender

1.1 Male	
1.2 Female	

A.2 what is your age?

2.1 18-23	
2.2 24-29	
2.3 30-35	
2.4 36-41	
2.5 42-47	
2.6 48-53	
2.7 54-59	
2.8 60+	

A.3 Level of study

3.1 Undergraduate	
3.2 Honours	
3.3 Masters	
3.4 PhD	

A.4 Which is your faculty?

Science & agriculture	
Social sciences & Humanities	
Education	
Management & commerce	

A.5 Which is your residence?

Iona	
Beda	
Jolobe	
Zk	
Zk decating	
Jabavu	
Wesley	
Eluke	
Ezola	
Elitheni	
Ethembeni	
G-Ntlabathi	
Emfundweni	
Student village	
Molefe	
East camp	

SECTION B: The sufficiency of Crime prevention through environmental design(CPTED) principles.

Objective 1: To assess the sufficiency of surveillance and visibility measures taken by the university to keep unauthorised people out of the university.

1. **How are the surveillance and visibility measures taken by the university to ensure unauthorised people are out of the university?**

(S<u>urveillance</u> means close observation, especially of a suspected criminal)

	Satisfactor	Unsatisfactory	Not sure

	y		
B1 Natural surveillance of gathering areas(Security patrol)			
B2 Visibility through windows/ window placement(no obstructions			
B3 Residence layout(Locks, access control gates)			
B4 Playgrounds are placed in the front of buildings.			
B5 All barriers along pathways are permeable (see-through)			
B6 Adequate lighting is provided			
B7 Public utilities-Telephones, ATMs(Cameras, security guards)			
B8 Public toilets(Lights and Locks			
B9 After hours surveillance(visibility of security patrol)			
B10 parking areas are allocated in locations that can be observed from work areas.			
B11 Proper Fencing			
B12 CCTVs(Closed-circuit television)			
B13 Height of fencing			
B14 Entrances are designed to allow users to see inside before entering			
B15 Exterior lighting supports			

visibility at night			

Objective 2: To discover the measures taken by the university to improve target hardening.

2. What measures are being implemented to improve target hardening and infrastructure at the University of Fort Hare?

(**Target hardening** refers to the strengthening of the security of a building or installation in order to protect it in the event of attack or reduce the risk of crime.

	Satisfactory	Unsatisfactory	Not sure
B16 Burglar bars on doors and windows			
B17 Fencing around residences			
B18 Concealment opportunities(hiding places)			
B19 External lighting(street lights)			
B20 Fencing systems			
B21 Window or door locks			
B22 Car park/overpass/crossing lighting			
B23 Lighting type/design			
B24 Alarm systems			

Objective 3: To investigate measures taken by the University to ensure maintenance and management

3. **What are the various measures taken by the university to ensure the principle of maintenance and management at the University of Fort Hare?**

	Satisfactory	Unsatisfactory	Not sure
B25 Maintainance of Fencing (e.g no illegal exits)			
B26 Maintainance of residences and other campus premises(e.g broken windows			
B27 Overgrown land(e.g cutting down of trees and grass			
B28 Cleanliness			
B29 Detection of intruders in all gates(Production of student cards)			
B30 Removal of trash			
B31 Thorny plants planted as a defence against burglary			

Feelings of safety

	Please indicate whether you agree or disagree with the following statements
C.1	I feel safe in campus
C.2	I feel safe walking alone in campus during the day.
C.3	I feel safe walking alone in campus at night.

C.4	I feel safe entering and exiting lecture halls during the day.
C.5	I have been a victim of crime in campus in the past three years
C.6	The street lights are sufficient to the extent that I can be able to identify a face 25 metres away at night
C.7	I know who to report maintainenance to when e.g. there are broken lights
C.8	The security guards are visible in campus
C.9	The university is effective in dealing with crime in campus
	1=Agree; 2=strongly agree; 3=Neither agree nor disagree; 4=Disagree; 5= Strongly disagree

University of Fort Hare
Together in Excellence

ETHICAL CLEARANCE CERTIFICATE
REC-270710-028-RA Level 01

Certificate Reference Number:	FIT041SMDI01
Project title:	**An evaluation of Crime Prevention through Environmental Design principles at the University of Fort Hare, Alice Campus.**
Nature of Project	Masters in Criminology
Principal Researcher:	Sisanda Abongile Mditshwa
Supervisor:	Dr L.G Fitz
Co-supervisor:	N/A

On behalf of the University of Fort Hare's Research Ethics Committee (UREC) I hereby give ethical approval in respect of the undertakings contained in the above-mentioned project and research instrument(s). Should any other instruments be used, these require separate authorization. The Researcher may therefore commence with the research as from the date of this certificate, using the reference number indicated above.

Please note that the UREC must be informed immediately of

- Any material change in the conditions or undertakings mentioned in the document;
- Any material breaches of ethical undertakings or events that impact upon the ethical conduct of the research.

The Principal Researcher must report to the UREC in the prescribed format, where applicable, annually, and at the end of the project, in respect of ethical compliance.

***Special conditions**:* *Research that includes children as per the official regulations of the act must take the following into account:*
Note: The UREC is aware of the provisions of s71 of the National Health Act 61 of 2003 and that matters pertaining to obtaining the Minister's consent are under discussion and remain unresolved. Nonetheless, as was decided at a meeting between the National Health Research Ethics Committee and stakeholders on 6 June 2013, university ethics committees may continue to grant ethical clearance for research involving children without the Minister's consent, provided that the prescripts of the previous rules have been met. This certificate is granted in terms of this agreement.

The UREC retains the right to

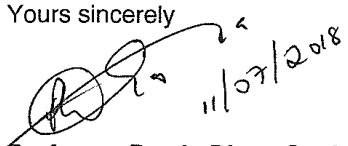
- Withdraw or amend this Ethical Clearance Certificate if
  - Any unethical principal or practices are revealed or suspected;
  - Relevant information has been withheld or misrepresented;
  - Regulatory changes of whatsoever nature so require;
  - The conditions contained in the Certificate have not been adhered to.

- Request access to any information or data at any time during the course or after completion of the project.

- In addition to the need to comply with the highest level of ethical conduct principle investigators must report back annually as an evaluation and monitoring mechanism on the progress being made by the research. Such a report must be sent to the Dean of Research's office.

The Ethics Committee wished you well in your research.

Yours sincerely



Professor Pumla Dineo Gqola
Dean of Research

27 June 2018

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CERTIFICATE OF EDITING

This document certifies that a copy of the thesis whose title appears below was edited for proper English language usage, grammar, punctuation, spelling, and overall style by Dr Nhlanhla Landa whose academic qualifications appear in the footer of this document. The research content and the author's intentions were not altered during the editing process.

TITLE: **THE EVALUATION OF CRIME PREVENTION THROUGH ENVIRONMENTAL DESIGN PRINCIPLES AT THE UNIVERSITY OF FORT HARE, ALICE CAMPUS**

AUTHORS: MDITSHWA ABONGILE SISANDA (201213937)

Note: The edited work described here may not be identical to that submitted. The author, at their sole discretion, has the prerogative to accept, delete, or change amendments made by the editor before submission.

DATE: 29 JANUARY 2019

EDITOR'S COMMENT

The author was advised to effect suggested corrections in regards to clarity of terms, consistency in structure and logic, and expression.

Signature

PhD Applied Linguistics (UFH), MA Applied Linguistics (MSU), BA (Honours) English and Communication (MSU)
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