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**APEX**

**THE ASSOCIATION BETWEEN ENVIRONMENTAL  
DESIGN, CRIME IN GENERAL AND DRUG-RELATED  
CRIME IN  
KOTA BHARU, KELANTAN**

**DISSERTATION SUBMITTED IN PARTIAL FULFILLMENT FOR THE  
DEGREE OF BACHELOR OF SCIENCE (HONS) IN FORENSIC  
SCIENCE**

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## Table of Contents

ACKNOWLEDGEMENTS .....	ii
LIST OF ABBREVIATIONS .....	vi
LIST OF FIGURES .....	vii
LIST OF TABLES .....	viii
ABSTRACT .....	1
ABSTRAK .....	2
<b>CHAPTER 1: INTRODUCTION .....</b>	<b>3</b>
1.0 Introduction .....	3
1.1 Background .....	3
1.1.1 Portrayal of Crime in Malaysia .....	3
1.1.2 Fear of Crime in Malaysia .....	5
1.1.3 Drug Related Crime .....	6
1.1.4 Crime Prevention through Environmental Design (CPTED) .....	6
1.2 Significance of this Study .....	7
1.3 Problem Statements .....	8
1.4 Objectives .....	9
1.4.1 General Objective .....	9
1.4.2 Specific Objectives .....	9
1.5 Hypotheses .....	10
1.6 Research Questions .....	10
1.7 Structure of the Final Year Project Dissertation .....	11
1.8 Interim Summary .....	12
<b>CHAPTER 2: LITERATURE REVIEW .....</b>	<b>13</b>
2.0 Introduction .....	13
2.1 Theories explaining crime and drug-related crime .....	13
2.1.1 Routine Activity Theory .....	14
2.1.2 Crime Prevention through Environmental Design (CPTED) .....	14
2.1.3 Crime Patterns Theory .....	15
2.2 Ecology surrounding drug related crime .....	15
2.2.1 Systemic crime .....	15
2.2.2 Economic compulsive motivation .....	16
2.2.3 Segregation levels in different social domains .....	17
2.3 The relationship between drug abuse and criminal activity .....	18
2.4 Types of drugs used in the drugs-crime connection .....	19
2.5 Gaps in Knowledge .....	22
2.6 Conceptual Framework .....	22
2.7 Summary .....	24
<b>CHAPTER 3: RESEARCH METHODOLOGY .....</b>	<b>25</b>
3.0 Introduction .....	25
3.1 Study Design .....	25
3.2 Sample Size Calculation, Study Population and Participants .....	25

3.3 Study Period .....	27
3.4 Study Location .....	27
3.5 Research Tools.....	27
3.5.1 Demographic details .....	28
3.5.3 Attitudes to drug usage.....	28
3.5.4 Perception of the community towards drug usage and crimes in general.....	29
3.5.5 Beliefs about consequences of drug usage .....	29
3.5.6 Prevention of drug usage .....	29
3.5.7 Environmental design .....	30
3.6 Pilot Study.....	30
3.6.1 Translation Process .....	30
3.6.2 Validity Process .....	31
3.6.2.1 Face Validity .....	31
3.6.2.2 Content Validity .....	31
3.6.3 Reliability Testing .....	32
3.6.3.1 Internal Reliability .....	32
3.6.3.2 Split-half Reliability .....	32
3.7 Data Collection .....	33
3.8 Statistical Analysis .....	34
3.8.1 Descriptive Statistics.....	34
3.8.2 One-way ANOVA with Post-hoc.....	34
3.8.3 Kruskal-Wallis test.....	35
3.8.4 Multiple Regressions.....	35
3.8.5 Spearman's rank-order Correlation for not normal data.....	36
3.9 Ethical Issues and Clearance .....	36
3.10 Summary .....	37
<b>CHAPTER 4: RESULTS.....</b>	<b>38</b>
4.0 Introduction .....	38
4.1 Respondent Demographics .....	38
4.1.1 Gender .....	38
4.1.2 Age.....	39
4.1.3 Area of residence.....	40
4.1.4 Length of stay.....	40
4.1.5 Educational level.....	40
4.2 Association between Demographic and Community Perception of Drug Usage and Crime .....	40
4.2.2 Kruskal-Wallis (for data that is not normal).....	42
4.3 Association between Knowledge of Drugs and Community Perception of Drug Usage .....	42
4.3.1 Multiple Regressions (for normal data) .....	43
4.4 Association between Experience of Drug Usage and Community Perception of Drug Usage and Crime .....	44
4.4.1 Multiple Regressions (for normal data) .....	44
4.5 Association between Environmental Design and Attitudes toward Drug Usage .....	45
4.5.1 Spearman's rank-order Correlation(for not normal data) .....	45

4.6 Association between Beliefs toward Drug Usage and Community Perception of Drug Usage and Crime .....	46
4.6.1 Multiple Regressions (for normal data) .....	47
4.7 Hypotheses Test Summary.....	47
4.8 Interim Conclusion .....	48
<b>CHAPTER 5: DISCUSSION .....</b>	<b>50</b>
5.0 Introduction .....	50
5.1 Respondent Demographics .....	50
5.1.1 Gender.....	50
5.1.2 Age.....	51
5.1.3 Area of residence.....	51
5.1.4 Length of stay.....	51
5.1.5 Educational Background.....	52
5.2 Association between Sociodemographic and Community Perception of Drug Usage and Crime.....	52
5.3 Association between Knowledge of Drugs and Community Perception of Drug Usage .....	54
5.4 Association between Experience of Drug Usage and Community Perception of Drug Usage and Crime .....	55
5.5 Association between Environmental Design and Attitudes toward Drug Usage .....	56
5.6 Association between Beliefs toward Drug Usage and Community Perception of Drug Usage and Crime .....	58
5.7 Summary .....	59
<b>CHAPTER 6: CONCLUSION AND RECOMMENDATION.....</b>	<b>60</b>
6.0 Introduction .....	60
6.1 Limitation Of Study .....	60
6.1.1 Questionnaire Design.....	60
6.1.2 Sampling Issue.....	61
6.2 Recommendation.....	61
6.2.1 Citizen Mobilization.....	61
6.2.2 Afterschool Recreation Programs .....	62
6.3 Conclusion .....	62
References .....	65
Appendix A: Gantt chart.....	69
Appendix B: Flowchart.....	70
Appendix C: Maklumat Kajian.....	71
Appendix D: Borang Keizinan Peserta.....	73
Appendix E: Borang Keizinan Penerbitan Bahan.....	74
Appendix F: Original Author's Permission.....	75
Appendix G: Test Battery (Malay Version).....	76
Appendix H: Test Battery (English Version).....	81
Appendix I: JePEM .....	86

## **LIST OF ABBREVIATIONS**

<b>ADHD</b>	<b>Attention Deficit Hyperactivity Disorder</b>
<b>NDA</b>	<b>National Drug Agency</b>
<b>CPTED</b>	<b>Crime Prevention through Environmental Design</b>
<b>EDADC</b>	<b>Environmental Design and Association with Drug and Crime</b>
<b>FYP</b>	<b>Final Year Project</b>
<b>NKRA</b>	<b>National Key Results Area</b>
<b>GTP 2.0</b>	<b>Government Transformation Programme 2.0</b>
<b>NGO</b>	<b>Non Government Organisation</b>
<b>RMP</b>	<b>Royal Malaysia Police</b>
<b>RAT</b>	<b>Routine Activity Theory</b>
<b>CPT</b>	<b>Crime Patterns Theory</b>
<b>JePEM USM</b>	<b>Jabatan Penyelidikan Etika USM</b>
<b>SPSS</b>	<b>Statistical Package for the Social Sciences</b>
<b>USM</b>	<b>Universiti Sains Malaysia</b>

### LIST OF FIGURES

Figure	Title	Page
Figure 1.1	Developments of Crime trends in Malaysia	4
Figure 2.1	Relevant theories critically reviewed	13
Figure 2.2	Mechanisms through which drug use and drug distribution influence crime	21
Figure 2.3	Conceptual framework of prevention of crime and drug use	23
Figure 3.1	Formula of Modality sample size using the Sample Size Raosoft calculator	26

## LIST OF TABLES

Table	Title	Page
Table 3.1	Inclusion and exclusion criteria of study participant	27
Table 3.2	Pilot study result	33
Table 4.1	Respondents' Sociodemographic Information	39
Table 4.2	One-way ANOVA between educational background and community perception of drug usage and crime	41
Table 4.3	One-way ANOVA between each item in community perception of drug usage and crime and educational background	41
Table 4.4	Kruskal-wallis between gender, age, place of residence and length of stay and community perception of drug usage and crime	42
Table 4.5	Multiple regressions between knowledge of drugs and community perception of drug usage	43
Table 4.6	Multiple regressions between community perception of drug usage and each item under domain of knowledge of drugs	43
Table 4.7	Multiple regressions between experience of drug usage and community perception of drug usage and crime	44
Table 4.8	Multiple regressions between community perception of drug usage and each item under domain of experience of drug usage	45
Table 4.9	Spearman's rank-order Correlation between environmental design and attitudes toward drug usage	45
Table 4.10	Spearman's rank-order Correlation between each item under domain of environmental design and attitudes toward drug usage	46
Table 4.11	Multiple regressions between beliefs toward drug usage and community perception of drug usage and crime	47
Table 4.12	Multiple regressions between community perception of drug usage and each item under domain of beliefs toward drug usage	47
Table 4.13	Hypotheses Test Summary	48

## **ABSTRACT**

This study was purposely to give information regarding the association between environmental design, crime and drug related crime in Kota Bharu, Kelantan. Crime and drug usage in our country was increasing year by year. This study is carried out to determine the perception of community towards drug usage and crime. This study was in form of test battery. Statistical analyses used in this study were descriptive statistic, One-way ANOVA, Kruskal-Wallis, Multiple Regression and Spearman-rank order Correlation. The objectives of this study were achieved. The relationships between environmental designs, crime in general and drug related crime in Kota Bharu, Kelantan were identified. Next, specific objectives of this study also have been determined. First null hypothesis was failed to reject while second null hypothesis was rejected. Third null hypothesis was also been rejected. For fourth null hypothesis, first part was rejected while part two was failed to reject. Lastly, the fifth null hypothesis also been rejected. There are several recommendation in this study such as citizen mobilization and after school recreation programs.

## ABSTRAK

Kajian ini bertujuan untuk memberi maklumat mengenai hubungan antara reka bentuk alam sekitar, jenayah dan jenayah berkaitan dadah di Kota Bharu, Kelantan. Jenayah dan penggunaan dadah di negara kita semakin meningkat dari tahun ke tahun. Kajian ini dijalankan untuk mengetahui persepsi masyarakat terhadap penggunaan dadah dan jenayah. Kajian ini adalah dalam bentuk soal selidik. Analisis statistik yang digunakan dalam kajian ini ialah *Descriptive Statistic*, *One-way ANOVA*, *Kruskal-Wallis*, *Multiple Regression* dan *Spearman-rank order Correlation*. Objektif kajian ini telah dicapai. Hubungan antara reka bentuk alam sekitar, jenayah secara amnya dan dadah jenayah berkaitan di Kota Bharu, Kelantan telah dikenal pasti. Seterusnya, objektif khusus kajian ini juga telah ditentukan. Hipotesis null pertama telah gagal untuk menolak hipotesis null manakala hipotesis null kedua ditolak. Hipotesis null ketiga juga telah ditolak. Untuk hipotesis null keempat, bahagian pertama ditolak manakala bahagian kedua telah gagal untuk ditolak. Akhir sekali, hipotesis null yang kelima juga telah ditolak. Terdapat beberapa cadangan dalam kajian ini seperti mobilisasi warganegara dan program rekreasi selepas sekolah.

## **CHAPTER 1: INTRODUCTION**

### **1.0 Introduction**

The focus of this Final Year Project (FYP) was on the Kelantanese community's perception about the association between environmental design, crime in general and drug-related crime in Kota Bharu, Kelantan. In this chapter explains four things as research justification. These four things are portrayal of crime in Malaysia, fear of crime in Malaysia, drug related crime and crime prevention through environmental design in Kota Bharu, Kelantan.

### **1.1 Background**

In order to understand the need for this research, this section discusses four background concerns. These are 1) portrayal of crime in Malaysia, 2) fear of crime in Malaysia, 3) drug related crime and 4) crime prevention through environmental design. Further details regarding these issues are discussed in chapter 2: literature review.

#### **1.1.1 Portrayal of Crime in Malaysia**

Crime in general and drug-related crime specifically, appears to be prevalent social ills in Malaysia. This is apparent in both official statistics and media accounts. The Royal Malaysia Police (RMP) (2014) and several prominent newspapers, namely the Star (September 22, 2012) and *Berita Harian* (April 9, 2014) had shown an alarming upward trend for both general crime and drug-related crime.

There has been a development of crime trends from the pre independence period to the present date (refer to Figure 1.1). Crime trends developed from traditional crimes such as theft, robbery and physical injuries that were caused by direct confrontation, have evolved to that of syndicated crimes, and now are categories of the more complex borderless crimes. White collar crime is an example of borderless crimes that has taken a new turn in that it has become trans-border

with its transactions taking place thousands of miles away and thus causing jurisdiction problems (Sidhu, 2005). In addition, crimes now have become more complex and sometimes impossible to detect or it takes a long time to solve it (Ibid).

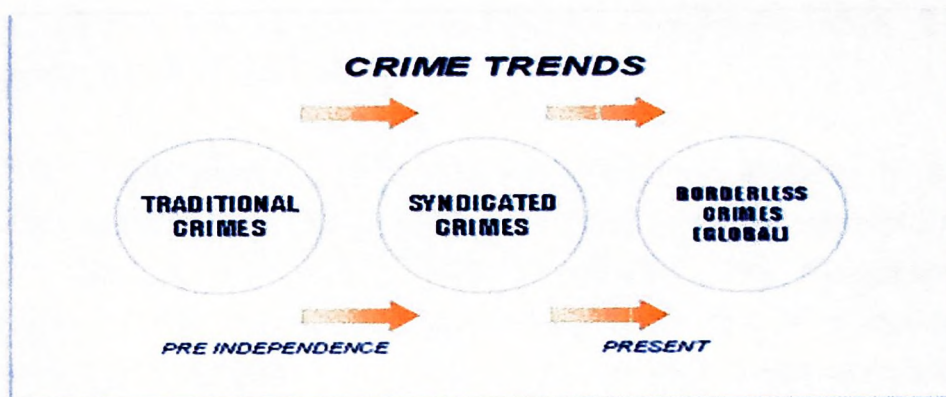


Figure 1.1: Developments of Crime trends in Malaysia (Adapted from: Sidhu, 2005)

Drugs are related to crime in various ways as it is a crime to use, possess, manufacture, or distribute - classified as having the potential for abuse (such as heroin, marijuana, cocaine and amphetamines). Drugs are also related to crime through the effects they have on the user's behavior and by causing violence and other illegal activities in connection with drug trafficking. There is strong evidence that cocaine (including crack) was, at least in the 1980s; associated with homicide and systemic (market-related) violent crime (Pacula, Lundberg, Caulkins, Kilmer, Greathouse, Fain and Steinberg, 2013). Usage of heroin appears to be most strongly causally related to property crimes while methamphetamines are commonly associated with aggressive behaviors (Ibid). Even though marijuana is commonly used by individuals arrested for crimes, there is little causal relationship between its use and either violent or property crime (Ibid).

The statistics and media portrayals depict that despite numerous efforts to curtail incidents of both general crime and drug-related crime, these crimes continue to harangue society. The efforts to combat the problems have been made by the Malaysian government via various agencies and by non-government organisations (NGO) with a vested interest in promoting community safety. Examples of these efforts include the Government Transformation Programme (GTP 2.0) and National Key Results Area (NKRA).

The GTP 2.0 (PEMANDU, 2011) has the largest responsibility in terms of addressing social ills, particularly crime rates. The GTP 2.0 focuses on a broader section of society, and solicits greater involvement from non-governmental organizations (NGO) and the corporate sector (Ibid). This is in line with the Government's commitment to supporting private initiatives, which goals are in line with its NKRA's. Despite the successes of the initial initiatives of the Reducing Crime NKRA, public perception on safety remains a concern (Amin, 2015).

#### 1.1.2 Fear of Crime in Malaysia

The crime index statistics and the depreciation of the Public Safety Index in the Malaysian Quality of Life Index (MQLI) 2004 had shown that crime was increasing in Malaysia. Despite improving crime statistic, there is still fear of crime. The Government considers crime as one of the top national priorities to address. The Deputy Prime Minister, Home Minister, IGP and the police are all working hard to implement initiatives to fight crime.

As a result of that, under the Government Transformation Plan GTP2.0; seven NKRA's were established in Malaysia. One of NKRA's is reducing crime. The goal of this section is to clear the backlog of cases of violent crime by 5% per year (Ibid).

The Reducing Crime NKRA will implement three initiatives in the GTP2.0 to help rehabilitate drug addicts and users who contribute to the overall crime rate when they are forced to turn to criminal activities to fund their drug habit (PEMANDU, 2011). The focus in this area is to ensure that recovering addicts have sufficient resources to reintegrate into society after their release from rehabilitation centre. The initiatives of GTP2.0 include open access of drug treatment and rehabilitation, offering job opportunities for recovering addicts, outsourcing drug rehabilitation to NGOs, strengthening controls over import and distribution of precursor chemicals (Ibid).

### 1.1.3 Drug Related Crime

Individuals' drug abuse has a correlation to the commission of crime. Drug abuse by individuals is closely related to property crime. Property crime was recognized to sustain their drug abuse affliction (Sidhu, 2005). In a study conducted on inmates at Rehabilitation Centers revealed that 74% of them went on to commit crimes to sustain their habits. Out of those who committed crimes, 70% committed property crimes to sustain their habit and the rest committed violent crimes (Ibid). This information is a justification to carry out this research as it has the potential to offer information of crime that related to drug usage.

According to *Maklumat Dadah* (2013), Kelantan reported 895 new drug addicts from a total of 20,887 nationwide representing 4.28%. Thus, show that Kelantan is not a state with high drug addicts. This information is a justification to carry out this research as it has the potential to offer an alternative approach in why people get involved in crime, especially drug-related crime.

### 1.1.4 Crime Prevention through Environmental Design (CPTED)

Due to the trends and complexity of crimes, it appears that traditional approaches and past efforts are not sufficient anymore. There needs to be other alternatives to address the problem of crime besetting Malaysia. One such alternative is using CPTED.

CPTED is based on the effective design of the physical environment that influence human behavior from committing a crime as well as reducing the fear of crime, incidence of crime and also improving the quality of the environment and the quality of life (CPTED, 2012). CPTED involves a cooperative effort between the police, local municipal councils and other government agencies to improve safety and security in cities. As such CPTED may offer a more comprehensive approach to combating crimes. It is with the success of its usage elsewhere (see Fleissner, and Fred Heinzelmann, 1996; Geason, and Wilson, 1989 and Kruger, 2005) that CPTED is the theoretical focus in this current research. Section 2.1.2 explains this in more detail.

### **1.2 Significance of this Study**

Currently, the number of drug addicts in our country is increasing despite various efforts to address the drug problem. Based on the background issues described earlier, as such, this study is should be carried out to tackle the problem of crime in general and drug-related crime from another angle; that being what the society thinks may reduce the drug problem and its associated social ills order to reduce crimes rate using Environmental Criminology theories.

The findings of this study are expected to provide benefits to various parties such as the community, various government agencies and non-government organisations (NGO). The significances of this study are as follows:-

- 1) To create awareness in the community regarding drug abuse and crime
- 2) To offer an alternative approach in combating general crime and drug related crime
- 3) To add knowledge about Environmental Criminology pertinent to Malaysia

### **1.3 Problem Statements**

This section presents problem statements of the study. These problem statements are related to the objectives of the study (section 1.4). There are four problem statements in this study.

- 1) A lack of knowledge of CPTED as an alternative in community crime prevention. Usage of traditional and outdated method in crime prevention. Lack of knowledge of CPTED by environmental designers, land managers, and individual community members. CPTED should be involved by all members of the community. Lack of knowledge of CPTED make people do not know how to use their environmental condition to prevent crime.
- 2) Not utilizing readily available environmental resources in community crime prevention. Despite having a base such as "Rukun Tetangga" in preventing crime and drug use in the area of residence, the community does not have initiatives to make use of it. Some of the community even does not know the existences of "Rukun Tetangga" in their community and some of the community does not have interest to join it.
- 3) Public apathy and shifting the responsibility of community crime prevention to others. They prefer not to take account of what is happening around them and leaving the responsibility of community safety to others. They do not have any interest to join such prevention program and they leave to other people that more interested.
- 4) In modular approach to community crime prevention, there are several ways of prevention drug abuse by community, authorities and government such as law enforcement, education and media. They need to have a joint venture to prevent more crime and drug abuse in our country. When all of them have a joint venture, they will share idea from each of them and combine to make it more effective.

## **1.4 Objectives**

This section summarizes the objectives contained in the study. There is one general objective. There are five specific objectives.

### **1.4.1 General Objective**

To determine the association between environmental design, crime in general and drug related crime in Kota Bharu, Kelantan.

### **1.4.2 Specific Objectives**

In order to achieve the general objective above, listed below are five specific objectives. These objectives in turn are linked to generated hypotheses in section 1.5. The specific objectives are to determine:

- 1) To determine how sociodemographic variables are associated with community perception of drug usage and crimes.
- 2) To determine the relationship between knowledge of drugs and community perception of drug usage.
- 3) To determine the association between experiences of drug usage and community perception of drug usage and crime.
- 4) To determine the relationship between environmental design and attitudes towards drug usage.
- 5) To determine the association between beliefs toward drug usage and community perception of drug usage and crime.

## **1.5 Hypotheses**

Based on the specific objectives above, several hypotheses have been formulated.

There are five null hypotheses ( $H_0$ ). The hypotheses are:

$H_{01}$ : There is no relationship between sociodemographic variables and community perception of drugs usage and crime.

$H_{02}$ : There is no relationship between knowledge of drugs and community perception of drug usage.

$H_{03}$ : There is no association between experiences of drug usage and community perception of drug related crime.

$H_{04}$ : There is no relationship between environmental design and attitudes towards drug usage

$H_{05}$ : There is no association between beliefs toward drug usage and community perception of drug usage and crime.

## **1.6 Research Questions**

1. How are sociodemographic variables associated with community's perception of drug usage and crimes?
2. Is there a relationship between knowledge of drugs and community perception of drug usage?
3. Is there an association between experiences of drug usage and community perception of drug related crime?
4. Is there a relationship between environmental design and attitudes towards drug usage?

5. Is there an association between beliefs toward drug usage and community perception of drug usage and crime?

### **1.7 Structure of the Final Year Project Dissertation**

In this FYP, the dissertation was divided into several chapters. Chapter one focused on the introduction of the study. It included background of study, significance of study, term definitions, problem statements, research objectives, research hypotheses, research questions and structure of this FYP dissertation.

Next, chapter two discusses about the related literatures. The literature review here in consists of four topics: a) Theories explaining crime and drug related crime, b) Ecology surrounding drug related crime, c) The relationship between drug abuse and criminal activity, and d) Types of drug used in the drugs-crime connection. Three theories were examined in this chapter: a) Routine Activity Theory, b) Crime Prevention through Environmental Design (CPTED) and c) Crime Patterns Theory.

In chapter three the research methodology used is explained. This chapter covers the a) study design, b) sample size calculation, c) study population and participant, d) study period, e) study location, f) research tools, g) pilot study, h) data collection, i) statistical analysis and j) ethical issue and clearance. Chapter four presents the result of the study. The results are presented according to the formulated hypotheses.

Chapter five contains discussions on the research findings. Discussions are related to hypotheses and objectives of this research. Finally, chapter six concludes the study with viable recommendations in prevention of crime and drug use. Some limitations of the research are also mentioned in this chapter. References and appendices are also attached at the end of the dissertation.

### **1.8 Interim Summary**

In this chapter, there are seven issues related to the introduction of the study were presented. These seven issues were: a) background of study, b) significance of study, c) term definitions, d) problem statements, e) research objectives, f) research hypotheses, g) research questions. These issues are further discussed in the next chapter.

## CHAPTER 2: LITERATURE REVIEW

### 2.0 Introduction

The literature review is one of the important aspects of a study. A researcher can better understand an area of study based on the experiences and findings of previous researchers. The literature review here in consists of four topics: a) Theories explaining crime and drug related crime, b) Ecology surrounding drug related crime, c) The relationship between drug abuse and criminal activity, and d) Types of drug used in the drugs-crime connection. At the end of the chapter, gaps in the literature are identified and a conceptual framework is described.

### 2.1 Theories explaining crime and drug-related crime

In this study, three types of theories are applied in studying the association between environmental design, crime in general and drug-related crime. The theories summarised in this section are a) Routine Activity Theory, b) Crime Prevention through Environmental Design (CPTED) and c) Crime Patterns Theory. Each seeks to explain aspects of the environment that are pro-crime activities, and as such improving the environment may reduce crime in general and drug-related crime specifically. How far these theories are applicable in Malaysia remains to be seen at this point in time.

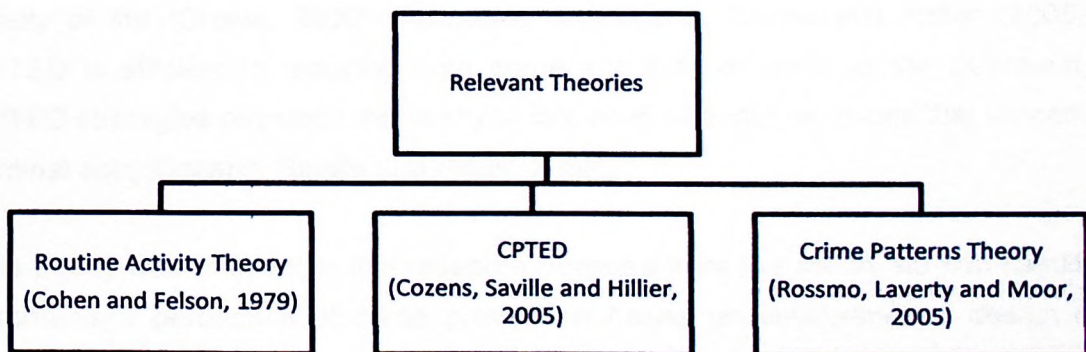


Figure 2.1: Relevant theories critically reviewed

### 2.1.1 Routine Activity Theory

This Routine Activity Theory (RAT) was introduced by Cohen and Felson (1979). According to Cohen and Felson (1979), crime is the result of a) the absence of capable guardians, b) access to suitable targets and c) the presence of motivated offenders. Motivated offenders are individuals who are not only capable of committing criminal activity, but are willing to do so (Walsh, 2012). Suitable targets can be a person or object that are seen by offenders as vulnerable or particularly attractive (Ibid). The factors that render a particular target attractive are situation and crime specific (Ibid).

This theory was relevant to this research because from this theory we can identify community's perception from their routine activity. Their routine activity such time leaving for work and time coming back home were factors to become a victim of crime and target of crime. This theory was used in knowledge and experience towards drug section and attitudes toward drug usage section from the test battery.

### 2.1.2 Crime Prevention through Environmental Design (CPTED)

Crime Prevention through Environmental Design (CPTED) was introduced by Jeffery (1971). CPTED is defined as the appropriate design and effective use of the built environment that can lead to crime reduction and improvement in the quality of life (Crowe, 2000). According to Cozens, Saville and Hillier (2005), CPTED is efficient in reducing both crime and fear of crime in the community CPTED strategies rely upon the ability to influence offender decisions that precede criminal acts (Cozens, Saville and Hillier, 2005).

This theory was relevant to this research because from this theory we can identify community's perception of crime prevention based on environmental design of their housing area. Environmental design such as landscaping and lighting were one of the factors of crime to be happen. This theory was used in environmental design section.

### **2.1.3 Crime Patterns Theory**

This Crime Patterns Theory (CPT) was introduced by Rossmo, Laverly and Moor (2005). This theory provides a framework for understanding both offender and victim behavior patterns. Individuals, including offenders, create cognitive maps of areas they are familiar with (Clifford and Edwards, 2011). Offenders use these maps to help them choose targets of crime (Ibid). Cognitive maps are created, targets are chosen and crime is committed through processes of recognition, prediction, action and evaluation(Ibid).

This theory was relevant to this research because from this theory we can determine community's perception regarding crime in our country. For example, what is relationship between crime and drug and what crime is caused by drug usage? This theory was used in perception of community towards drug usage and crime section from the test battery.

## **2.2 Ecology surrounding drug related crime**

This section focuses on the ecology surrounding drug related crime. This section explains how and why crime is related to drug use. Three issues discussed here pertaining to the ecology surrounding drug related crime are: systemic crime, economic compulsive motivation, and segregation levels in different social domains. Ecology surrounding drug related crime was relevant to this research because we can identify community's perception towards drug usage and crime. Ecology surrounding drug related crime was used in perception of community towards drug usage and crime section from the test battery.

### **2.2.1 Systemic crime**

Systemic crime refers mainly to violent acts such as assaults and homicides that are committed within the functioning of illicit drug markets, as part of the business of drug supply, distribution and use (Bennett, Holloway and Farrington, 2008). Violence is perpetrated as a strategy of control used in situations including territorial disputes, punishment for fraud, debt collection and conflict with the

police. In drug production and transit countries where the rule of law is challenged, systemic crimes may also happen, for example, businesses corruption and banking systems or crimes against humanity by drug traffickers (Ibid).

Systemic crime was relevant to this research because we can identify the types of crime regarding to drugs abused. Causes and effects of the crime also can be determined. Systemic crime was used in perception of community towards drug used and crime section and beliefs toward consequences of drug usage section in the test battery.

### 2.2.2 Economic compulsive motivation

Economic compulsive motivation has a role in the involvement of property offences among street drug addicts (Karofi, 2012). Dependence on drug can lead users to engage in criminal activity to obtain money in order to support their drug habit. They may resort to both consensual crimes such as drug selling or prostitution and acquisitive crimes such as robbery, burglary and shoplifting (Bennett, Holloway and Farrington, 2008). However, not all those who are dependent on drugs commit economic crime but they may regulate their use according to their financial resources and drug prices (Ibid).

Anybody can become a victim of economic compulsive violence, like those of psychopharmacological violence (Karofi, 2012). Most common victims of this type of drug related violence are people living in the same neighbourhoods as the offender, indicated in previous research by Goldstein and Johnson (1983) and Johnson et al. (1985). Mostly the victims are engaged in illicit activities themselves. The common targets of economic compulsive violence include other drug users, strangers coming into the neighbourhood to buy drugs and prostitutes (Karofi, 2012).

Economic compulsive motivation was relevant to this research because identify the types of crime regarding to drugs abused. Causes and effects of the crime also can be determined. Economic compulsive motivation was used in perception of community towards drug used and crime section to determine the factors to be involved in crime.

### 2.2.3 Segregation levels in different social domains

Catalano and Kosterman (1996) revealed that different levels in different social domains within the individual, family, school, peer group and community contribute to the criminal behavior and drug use problem. Robert (2002) provided some evidence that delinquency was higher among those who experience family, school and neighborhood strain. More recently, Karofi (2012) found that drug usage is the result of inter-personal, psychological, environmental and sociological factors. Socio-economic factors such as environment, poverty, urbanization, improper family socialization and broken homes are the causal factors to both drug abuse and criminal activity (Karofi, 2012).

A child's family structure is an important factor in the development of early onset and serious offending (Ibid). Community violence is mostly occurred in relatively poor neighbourhoods. Neighbourhoods that characterized by poverty and unemployment were related to personal victimization. Inner city and core metropolitan neighbourhoods are the high risk areas for violence of homicide and lethal violence such as assault (Ibid).

Peer group interaction and socialization comprised the probability that the most powerful factors related to drug usage among adolescents are influence of imitation and social. They play a role in initiating and maintaining drug use among teenagers. In the development process of adolescent to adult, children tend to learn behavior patterns whether prosaically (social behavior that is condoned) and or antisocially (behaviour which are accepted to be anti-social) from socializing agents such as family, school, religious, community institutions and friends (Ibid).

Social bond that develop between individual and socializing agents can inhibits deviant behaviors (Ibid).

Segregation levels in different social domains was relevant to this research because identify the factors to be involved in crime and drug usage. Causes and effects of the crime and drug usage also can be determined. Segregation levels in different social domains were used in perception of community towards drug used and crime section to determine the factors to be involved in crime. Segregation levels in different social domains were also used in attitudes toward drug usage section, beliefs toward consequences of drug usage section and prevention of drug abuse section.

### **2.3 The relationship between drug abuse and criminal activity**

This section was used to determine the association between drug abuse and criminal activity. As example, what crime were related to drugs and what were types of drug usage that caused by criminal activity. This section was used in perception of community towards drug usage and crime section in the test battery.

Bennett (2000) summarized three explanations that relate to drug abuse and criminal activities. The first explanation focuses on crimes as being caused by drug abuse. For example, psychopharmacological crimes included crimes such as sexual assault committed while the victim is under the influence of alcohol or other psychoactive substances, but robbery or mugging is made possible because of the victim's incapacitation and fights instigated under the influence of drugs (Goldstein, 1985). The second explanation expounds that drug usage is caused by crime involvement (Bennett, 2000). For example, a deviant individual may use drugs as a form of self-medication or to provide an excuse for their deviant acts (Gottfredson, Krearley and Bushway, 2008).

The third explanation of the drug-crime relationship is drug use and crime do not have a direct causal relation, but they are related by a number of common causes. These common causes include genetic or temperamental traits, antisocial personality disorder, parental alcoholism, and poor relations with parents. There are additional explanations include environmental causes such as poverty, densely populated neighbourhoods that lack social capital and situational causes such as bars and sporting events where there is an increased number of motivated offenders and suitable targets for drug and crime (Ibid).

When compared, male drug addicts more likely to be involved in violent crime, armed robbery and drug dealing in order to support their addiction habits (Chen, 2009). Female drug addicts mostly come from families that have a family member who is also addicted to drugs as well as involved in criminal activity (Ibid). In addition, drug use and criminal behavior among females are also influenced by their spouse's drug use.

Drug addicts exhibit a lack of personal coping resources that manifests in a low sense of coherence which is composed by comprehensibility, meaningfulness and manageability factors and a high level of negative emotions such as depression, hostility and anxiety (Ibid). There are three factors of psychological characteristics of drug addicted which are consists of family history, prison environment and drug addiction (Ibid). Individual level risk factors are related with antisocial behavior such as self-control level; impulsivity, antisocial personality disorder, Attention Deficit Hyperactivity Disorder (ADHD) and psychopathic personality traits are some of the most consistent predictors of aggression, violence and property offences (Beaver and Barnes, 2012).

#### **2.4 Types of drugs used in the drugs-crime connection**

Various types of illegal drugs have different connections to criminal violence. This is based on their chemical structure, cost, use or differential patterns of control (McBride and McCoy, 1993). Heroin, crack and cocaine are most commonly

associated with the drugs-crime connection. According to Bennett, Holloway and Farrington (2008), heroine is related to property crime, theft, prostitution and shoplifting while both crack and cocaine are related to property crime, prostitution, arrest and shoplifting.

Marijuana usage is related to assault and robbery (Markowitz, 2005). Marijuana caused adolescent to become sexually promiscuous and also violently criminal and prone to suicide (McBride and McCoy, 1993). Female drug users are more likely to be involved in prostitution and shoplifting to obtain money for drug use (Chen, 2009). Male drug users are more likely to be involved in violent crime, armed robbery and drug dealing to support their drug habits (Ibid).

There is strong evidence that cocaine (including crack) was, at least in the 1980s, associated with homicide and systemic violent crime (Pacula, Lundberg, Caulkins, Kilmer, Greathouse, Fain and Steinberg, 2013). Heroin used appears to be most strongly causally related to property crimes while methamphetamines are commonly associated with aggressive behaviors and criminality (Ibid). Even though marijuana is commonly used by individuals arrested for crimes, there is little support for a contemporaneous, causal relationship between its use and either violent or property crime. There is some evidence supporting a possible inter-temporal relationship, but it is not clear to what extent this is unique to marijuana (Ibid).

This section was used to determine the association between drug abuse and criminal activity. As example, what crime were related to drugs and what were types of drug usage that caused by criminal activity. This section was used in perception of community towards drug usage and crime section in the test battery.



Figure 2.2: Mechanisms through which drug use and drug distribution influence crime (Adapted from: Pacula, Lundberg, Caulkins, Kilmer, Greathouse, Fain and Steinberg, 2013)

## **2.5 Gaps in Knowledge**

Based on previous studies, a gap in knowledge was arise in this study. The gap in knowledge was perception of community toward crime. This gap in knowledge is further discussed below.

The environmental perspective depends upon the principle that all behavior results from a person-situation interaction but crime events result not only from criminogenic individuals (Ibid). Environmental criminology explains how behavior was affected by environment and why some environments are criminogenic (Ibid).Despite these efforts to understand crime perception in developed countries, a huge knowledge gap remains for developing countries including our country. Being exposed to the data has made people more aware of the possibility of being a victim; it has not made them more worried about being a victim of crime (Ardanaz, Corbacho, & Ruiz-Vega, 2014).

## **2.6 Conceptual Framework**

Based on previous studies on the association between environmental design, crime in general and drug-related crime. The structure of this study is to give more exposure and understanding of association between environmental design, crime in general and drug-related crime in Kota Bharu, Kelantan. The proposed model is built on the previous literature reading on association between environmental design, crime in general and drug-related crime.

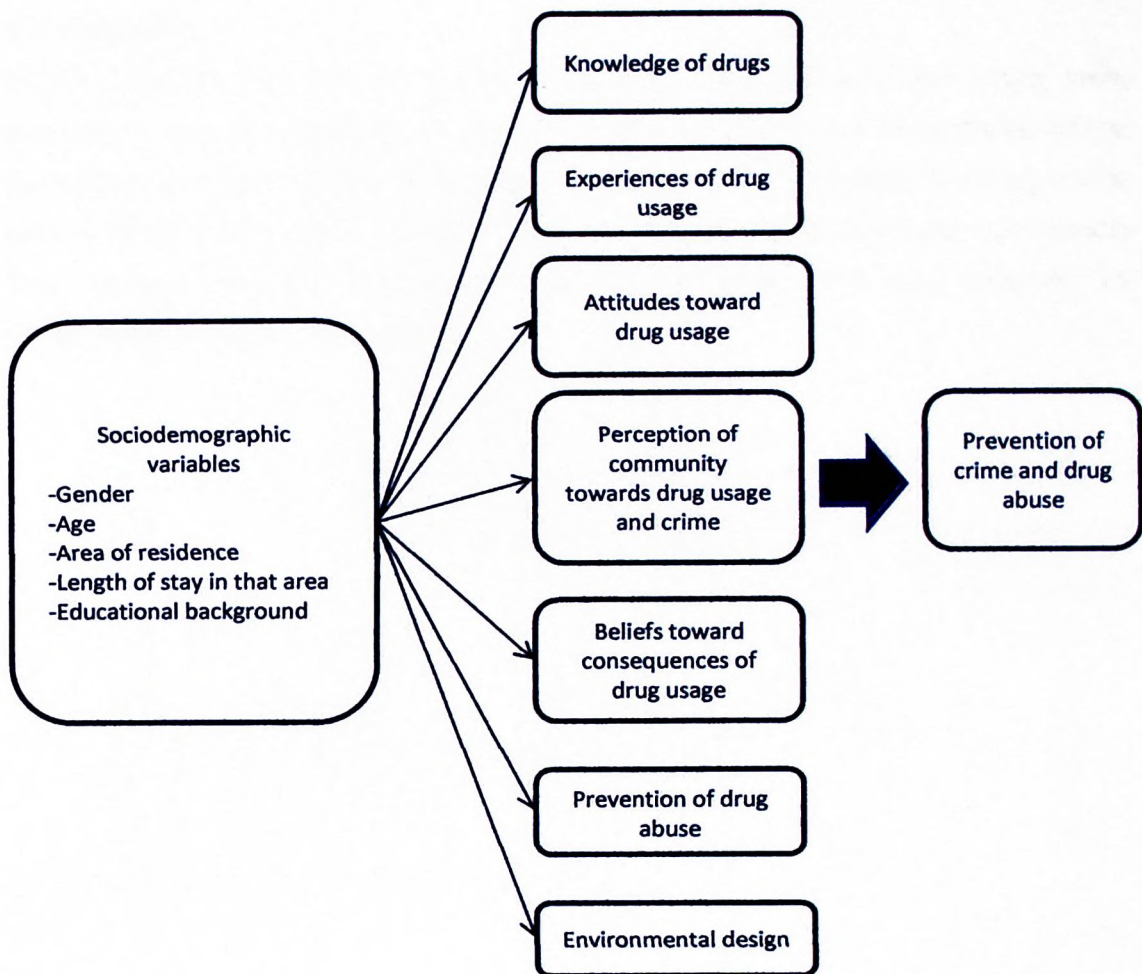


Figure 2.3: Conceptual framework of prevention of crime and drug use

Perception of community towards drug usage and crime were determined based on sociodemographic variables such as gender, age, area of residence, length of stay in that area and educational background. Different sociodemographic variables might have different perception towards drug usage and crime. Further determination of perception of community was categorized into seven issues: knowledge of drugs, experiences of drug usage, attitudes toward drug usage, perception of community towards drug usage and crime, beliefs toward consequences of drug usage, prevention of drug abuse and environmental design. All seven issues were used in prevention of crime and drug abuse.

## **2.7 Summary**

In this chapter, four issues related to the literature review of the study were presented. Four issues were: a) theories explaining crime and drug-related crime, b) ecology surrounding drug related crime, c) the relationship between drug abuse and criminal activity and d) types of drugs used in the drugs-crime connection. This chapter had also discussed gap in knowledge. This was followed by conceptual framework of the study.