CONSEQUENCES OF CRIME REDUCTION FROM IMPROVING PHYSICAL ENVIRONMENT

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CONSEQUENCES OF CRIME REDUCTION FROM IMPROVING PHYSICAL ENVIRONMENT

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ABSTRACT

This study aims to revisit an ecological approach to crime prevention. This approach examines the improvement of the deteriorated physical environment in a dense urban community by means of community participation as an environmental program. This is in order to reduce elements of crime, where both offenders and victims of crime play a role in its occurrence. Through quantitative and qualitative research methods, the study examines and evaluates community members' perceptions of the environmental program and their changes in behavior towards crime, so as to reduce crime in the community.

Through environmental and social networking, the environmental rehabilitation program was gradually adopted by the community by reorganizing physical settings. The research method used was Structural Equation Modeling (S.E.M), computed using the Analysis of Moment Structure (AMOS) software, Version 6. Modeling was conducted on three groups in community: 1) Neutral Group (no program entry), 2) Selected Group (complete program entry) and 3) Test Group (moderate program entry). Each group was divided in two subgroups (separated by two time periods), giving a total of six model comparisons and 416 informants. The most perfect model was then selected for analysis through its moment structure in between five latent variables and sixteen observed variables.

The results indicated that people in the selected group perceived the program to be constructive, as indicated by a change in the model structure with a standardized regression weight of 0.681 ± 0.01(total effect 0.681). Furthermore, it was found that an increase in positive behavioral traits of offenders and victims can increase crime reduction elements in two dimensions: conscientious (enhancing attentiveness) at 0.915 ± 0.01(total effect 0.734); community cohesion (building relationships) at 1.093 ± 0.01 (total effect 1.083), which led to a self-defense mechanism (reducing victims of crime) with a correlation coefficient of 0.978 ± 0.01(total effect 0.545). This implies that crime reduction elements in a dense urban community can increase if a community incorporates environmental programs into its structure.

The outcome of this study (from scenario findings in the Selected Group) is a model which proposes a new tactical approach to crime reduction. The approach starts with people's basic instincts and motivations when confronted with a stalemate situation. In this case, for community members in the Selected Group, the likelihood of being evicted provided pressure and the stimulus for character alteration, from being inward thinking to being outward thinking and seeking effective solutions to solve problems. Positive outward thinking, represented by collective behaviours and actions, can also generate continuous positive consequences, such as the birth of natural leaders, more effective communication, the creation of learning organizations, transparency, and democracy. In addition, positive outward thinking can increase crime reduction elements.

KEY WORDS: CRIME REDUCTION ELEMENTS / ENVIRONMENTAL REHABILITATION PROGRAM / IMPROVING DETERIORATED PHYSICAL ENVIRONMENT / BEHAVIORAL CHANGES

307 pages

ผลของการลดอาชญากรรมจากการปรับปรุงสภาพแวดล้อมทางกายภาพ

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บทคัดย่อ

การศึกษาชิ้นนี้มีวัตถุประสงค์เพื่อทบทวนแนวคิดการป้องกันอาชญากรรมจากสภาพแวดล้อม ด้วยการปรับปรุงสภาพแวดล้อมที่เสื่อมโทรมในชุมชนแออัดในเมือง ที่การดำเนินการโดยคนในชุมชน เนื่องจากชุมชนแออัด เป็นเป้าหมายในการลดอาชญากรรมทั้งด้านอาชญากร และ ผู้เสียหาย โดยใช้ระเบียบวิธีวิจัยทั้งเชิงปริมาณ และเชิงคุณภาพ มุ่งประเมินผลคนในชุมชนเป็นผู้ให้ข้อมูลด้านการรับรู้ ทัศนคติ ที่มีต่อโครงการไปสู่การปรับเปลี่ยนพฤติกรรมในการสร้างเสริมความปลอดภัยในชุมชน

จากการดำเนินโครงการที่เริ่มจากเครือข่ายทางสิ่งแวดล้อมและทางสังคมของคนในชุมชนนำไปสู่การจัดทำโครงการปรับปรุงภูมิทัศน์ชุมชน ได้ใช้ระเบียบวิธีวิจัย ทางสังคมศาสตร์ เป็นพื้นฐาน ในรูปแบบ “แบบจำลอง เชิงโครงสร้าง” (Structural Equation Modeling, S.E.M) ประมวลผลด้วยโปรแกรมคอมพิวเตอร์ AMOS การทดสอบสมมติฐานในการวิจัย ได้มีการทดสอบเพื่อยืนยันความถูกต้องของสมมติฐาน เป็น กลุ่มทดสอบ 3 กลุ่มด้วยกัน ได้แก่ กลุ่มควบคุม กลุ่มเลือก และกลุ่มทดสอบ ซึ่งในแต่ละกลุ่มดังกล่าวแยกย่อยเป็นอีก 2 กลุ่มช่วงเวลา เท่ากับมี “แบบจำลอง เชิงโครงสร้าง” ทั้งหมด 6 แบบ ด้วยจำนวนผู้ให้ข้อมูลทั้งหมด 416 คน ซึ่งได้เลือกแบบจำลองที่มีการดำเนินโครงการที่สมบูรณ์ที่สุดมาวิเคราะห์ ระหว่าง 5 ตัวแปรแฝง และ 16 ตัวแปรสังเกต

ผลการศึกษาพบว่าผู้ให้ข้อมูลในกลุ่มเลือกหลังจากที่มีการดำเนินโครงการไปแล้ว โครงสร้างของแบบจำลองมีการแปรเปลี่ยน เริ่มจากทัศนคติเชิงบวกต่อโครงการค่าสัมประสิทธิ์การถดถอย 0.681± 0.01 และ Total Effect 0.681 ซึ่งนำไปสู่การแปรเปลี่ยนในเชิงพฤติกรรมที่เพิ่มองค์ประกอบในการลดอาชญากรรมใน 2 มิติ คือ ทางจิตสำนึกตามค่าสัมประสิทธิ์สหสัมพันธ์ 0.915 ± 0.01และ Total Effect 0.734 และในมิติของการลดโอกาสในการตกเป็นเหยื่ออีก 2 องค์ประกอบ คือ 1) ผู้คนในชุมชนมีความสัมพันธ์กันมากขึ้นตามค่าสัมประสิทธิ์สหสัมพันธ์ 1.093 ± 0.01 และ Total Effect 1.083 และ 2) กลไกในการป้องกันตนเองตามค่าสัมประสิทธิ์สหสัมพันธ์ 0.978± 0.01 และ Total Effect 0.545 แสดงให้เห็นว่าองค์ประกอบในการลดอาชญากรรมจะเพิ่มขึ้นเมื่อมีการนำโครงการดังกล่าวเข้ามาใช้ในชุมชน

ผลของการศึกษาชิ้นนี้ คือ แบบจำลองตามปรากฏการณ์จริงของกลุ่มตัวอย่างที่เป็นกลุ่มเลือกที่นำเสนอเป็นกลยุทธ์ใหม่สำหรับใช้ในการลดอาชญากรรม ซึ่งเริ่มต้นโดยแรงกระตุ้นจากภายนอก ด้วยข้อกล่าวหาที่ว่าชุมชนได้ทำลายสภาพแวดล้อมในเมือง แรงกระตุ้นดังกล่าวทำให้คนในชุมชนจำเป็นต้องมีการปรับเปลี่ยนพฤติกรรมจากต่างคนต่างอยู่ มาเป็นหาแนวทางแก้ปัญหาร่วมกัน ก่อให้เกิดผลเชิงบวกต่อมา คือ ได้มีผู้นำที่แท้จริงเกิดขึ้น มีการติดต่อสื่อสารระหว่างกันอย่างมีประสิทธิภาพ มีกระบวนการเรียนรู้ร่วมกัน มีการจัดการบริหารงบประมาณส่วนกลางอย่างมีระบบ และ โปร่งใส การเรียนรู้ระบอบประชาธิปไตยนอกห้องเรียน และสุดท้ายที่เกี่ยวข้องกับการศึกษาชิ้นนี้ คือ ยังสร้างเสริมองค์ประกอบในการลดอาชญากรรมได้อีกประการหนึ่ง

คำสำคัญ : องค์ประกอบในการลดอาชญากรรม / โครงการปรับปรุงสภาพแวดล้อม, ปรับปรุงสภาพแวดล้อมที่เสื่อมโทรม / การเปลี่ยนแปลงพฤติกรรม

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LIST OF ABBREVIATIONS

AGFI	Adjusted Goodness-of-Fit Index
AIC	Akaike's Information Criterium
AMOS	Analysis of Moment Structure
BEI	Block Environmental Inventory
BMA	Bangkok Metropolitan Administration
BOD	Biochemical Oxygen Demand
CCF	Community's conflict
CDC	Cleaning day campaign
CFA	Confirmatory Factor Analysis
CFI	Confirmatory Fit Index
CIF	Community Information flow
CLA	Cleaning in action
CMIN/DF	Chi-square statistic comparing the tested model and the independent model with the saturated model
CODI	Community Organization Development Institute
COR	Community order
CP	Crime prevention
CPS	Community physical setting
CPTED	Crime prevention through environmental design
CR	Community Relation
C.R.	Critical Ratio
CRE	Crime Reduction Elements
CSD	Civilian self-defense
DE	Direct Effect
Df	Degree of freedom
ECVI	Expected cross-validation index
EEDP	Environmental Education Program

LIST OF ABBREVIATIONS (cont.)

EM	Effective Micro-organism
EREP	Environmental Rehabilitation program
F	F-test
FGD	Focus group discussion
GFI	Goodness of fit index
HSR	Housing reconstruction
IDE	Improving deteriorated physical environment by community-based approach
IE	Indirect Effect
IENN	Improving Environmental Networking
IENS	Improving Environmental Settings
IFI	Incremental Fit Index
MIG	Migration
ML	Maximum Likelihood
N	Sample Size
NCP	Noncentrality parameter
NEP	Neighborhood Enhancement program
NESDB	Office of the National Economic and Social Development Board
NFI	Norm Fit Index
NGO	Non-governmental organization
ODC	Outsider detection capability
OLG	Obedience level in leader guidance
PA	Physical activity
P-value	Probability value
PGFI	Parsimony-adjusted goodness-of-fit index
PNFI	Parsimonious normed fit index
R,r	Pearson ' s Correlation Coefficient

LIST OF ABBREVIATIONS (cont.)

R^2	Square Multiple Correlation
RMR	Root Mean Square Residual
RMSEA	Root Mean Square Error of Approximation
S.D.	Standard Deviation
SDM	Self-defense mechanism
SDSO	Self discipline to comply with Social order
SEID	The Study on Environmental and Individual Determinants of Physical Activity
S.E.	Standard Error
SES	Socio-economic status
SONP	Social Network program
SPSS	Statistical Package for the social sciences
T	T-test
TE	Total Effect
TRA	Theory of reasoned action
UN	United Nations
USA	United States of America
$\overline{X}$	Arithmetic Mean
χ^2	Chi-square test

CHAPTER I
INTRODUCTION

1.1 Background

This study aims to investigate an alternative approach to crime reduction by using an ecological mindset. The result of this study will be a new strategy developed from qualitative and quantitative research methods for utilizing crime reduction in practice. This study is grounded on the core concepts of human ecology and the main theories of sociology and criminology, and then uses the study's findings with horizontal integration by acquisition, from both quantitative and qualitative research methods, which results in a unique scenario and proposition for a new crime reduction strategy. This study's results advocate adaptation and utilization by any community or locale with a desire to implement a beneficial crime reduction strategy.

Even though initial studies about the environment and crime were begun decades ago by well-known scholars from The Chicago School of Criminology, they mainly conducted studies regarding environment and crime prevention with an emphasis on the victimization perspective. Crime prevention through "Environmental Design" or CPTED (Newman, 1969) and Broken Windows Theory (Wilson and Keling, 1982), with all followers (more details in Chapter 2) are examples, but again these concentrate only on innocent people. Undoubtedly, this study will aim to revisit, deduce, confirm and promote their concepts. Beyond that, this study is eager and endeavors to fill in the gaps of knowledge in an ecological approach from the offender perspective, by focusing on a particular type of community, the "condensed community", playing both roles of a criminal occurrence – offender and victim. Then, the study's results will demonstrate the flow of information, from people's perception to behavioral traits of both the offender and victimization perspective in formation of a

causal relationship model illustrated by Structural Equation Modeling using the computer software Analysis of Moment Structure or AMOS Version 6.

1.2 Justification

Crime is a prime concern and of the highest priority in terms of the intimate difficulties of society. Even though modernization and especially urbanization seems to create a convenient way of life for people, we are still confronted with crime problems repeatedly. Many countries are focusing on crime prevention as an essential means as one part of sustainable development in human security policy as emphasized in the Guidelines for the Prevention on Crime in Economic and Social Council Resolution (2002) /13th annex: “There is clear evidence that well-planned crime prevention strategies do not only prevent crime and victimization, but also promote community safety and contribute to the sustainable development of countries”. There are many ways of approaching crime prevention and this research attempts to promote an alternative approach.

As mentioned above, an ecological mindset is presented as intuitive thinking and can be used as a main construction in this study from start to finish. Underneath the complex systems of ecology and criminology, this study proposes focusing on urban street crime which is related to people’s daily life. Crime prevention has been raised as a flagship means and approach to fighting crime by proposing new tactics of approaching urban-crime prevention apart from traditional knowledge in crime prevention from the law enforcement approach. Another necessary concept of crime prevention addressed in this study is the basic concept from ecology comparing criminal occurrences in two compositions: predator and prey; criminal and victim. Subsequently, if society is able to control or mitigate the birth rate of new criminals and new victims, overall crime could be controlled as well. The simplest way to reduce crime is by downsizing the criminal’s habitat in conjunction with eliminating the potentiality of victims.

One of the most prominent theories raised in this study and elaborated on in this research is the “Broken Window Theory” of criminology by Wilson and Kelling, in the year 1982, which mentioned physical deterioration and crime. Almost two decades later, in 1998, “Broken Windows” was elaborated into “Fixing Broken Windows: Restoring Order and Reducing Crime in our Communities”. Several years ago, in 2005, this theory was revised again and an experiment conducted by both Harvard and Suffolk University whereby they launched the Fixing Broken Windows program in a crime “hotspot” of Lowell, Massachusetts. The results found a 20% reduction in minor cases of police reports on call for service. Assuredly, this theory more or less provides benefits for crime reduction from the victimization perspective. From the offender standpoint, this study notices some gaps which should be investigated, particularly from the offender’s point of view. An intangible link exists between physical and human behavioral adaptation and it still needs to be explained. Hence, this study proposes two points that convey a research outcome; 1) an environmental rehabilitation program, especially in condensed communities and in urban areas, and 2) an analysis of moment structure of those changes needs to be demonstrated.

As mentioned above, Wilson and Kelling proposed “fixing broken windows” but this has further ignited researcher’s enthusiasm to examine the theory in more detail. So the question emerged, “How to fix broken windows?” and more importantly for this study, “Who should be the repair man?” This informational gap still needs to be answered. The gap guides this study to key research questions like “Can the improvement of physical deterioration, increased organization, physical setting (method of fixing broken windows) by a community-based approach (DIY-Do it yourself) provide benefits for crime reduction? How does it work?” Finally and most importantly, “How can we make it happen?”

Generally, improving an environment’s physical setting has the purpose of reconstruction, re-organization or re-habilitation from the environmental aspect only. But no one has explored improving an environment’s physical setting from a criminal reduction standpoint.

An important phrase with its meaning in use is the IDE program, which states “Improving Deteriorated Physical Environment Program (IDE) program refers to any activity concerning environmental settings improvement which is necessarily generated from people’s participation and based on people’s cooperation.” (Ref: This study) IDE will be written from now on as an entry program at the community level. The findings will be proposed as positive side effects according to the IDE program as a viable aspect of crime reduction that can be observed and measured.

To measure crime, this research instigated comparative measurements to represent crime on an interval scale with expectations for crime reduction purposes. So, the consequences of the IDE program from the crime reduction aspect are evaluated through crime reduction elements. Crime Reduction Elements (CRE) is generated by this study. These elements are postulated from human-ecology concepts, social science and criminology main theories which affirm the causes of crime reduction.

Crime Reduction Elements, or CRE, is run inside the human brain, mind or even soul dynamically, and the study is not concerned in measuring “crime” in scale or crime cases but rather measuring Crime Reduction Elements as the main key point in two targets; one group of elements of crime from the offender perspective and two groups of elements belonging to the victimization perspective. These hidden matters will be evaluated by the total amount of a population in one sample using people’s perception, attitude, feelings and practice. This means “people” are the sources of data for this social science study. The results of these reflections should be further evaluated in scale then scored and analyzed with a statistical method. Finally, they should be demonstrated in a figure of SEM of IDE and CRE model as mentioned initially.

It should be emphasized; this study illustrates crime reduction from a macro view using broad approaches.

Most concepts and theories are acquired from other core concepts and major theories, which are demonstrated in Chapter II: Literature Review. This study narrows down the broader concepts to practical segregates in two components: IDE and CRE, then conveys hypothesis testing to view relationships, direction of influence and the degree of impact amongst the two variables by using social science research methodology. Conceptual thinking as an ecological approach for crime reduction in this study proposes an alternative for a community's authorities or members and any person that may be inclined to develop this study's results as an adaptive strategy for crime reduction that suits their specific locale.

1.3 Key Research Questions and Hypothesis

The above discussion suggests that there is a gap of knowledge in the theory and application which needs to be filled, particularly in addressing the issues regarding "crime reduction" and crime reduction by environmental programs. A key research question is put forth as follows:

- Can improving a deteriorated physical environment by using a community based environmental approach or (IDE) program increase Crime Reduction Elements (CRE)? How?

A hypothesis is put forth as follows:

- Improving a deteriorated physical environment by using a community based environmental approach or (IDE) can increase Crime Reduction Elements (CRE) with proper methods and approaches.

1.4 Research Objectives

Based on the key-research question, the thesis sets out the following objectives:

- To test whether improving a deteriorated physical environment (IDE) can effectively increase crime reduction elements (CRE)
- To analyze individual factors affecting reductions in CRE from IDE implementation
- To explore various facts hidden beneath successful IDE programs
- To draw conclusions and findings from research objectives 1-3 and develop the conclusions into an alternative strategy for crime reduction

1.5 Conceptual Framework and Scope of Study

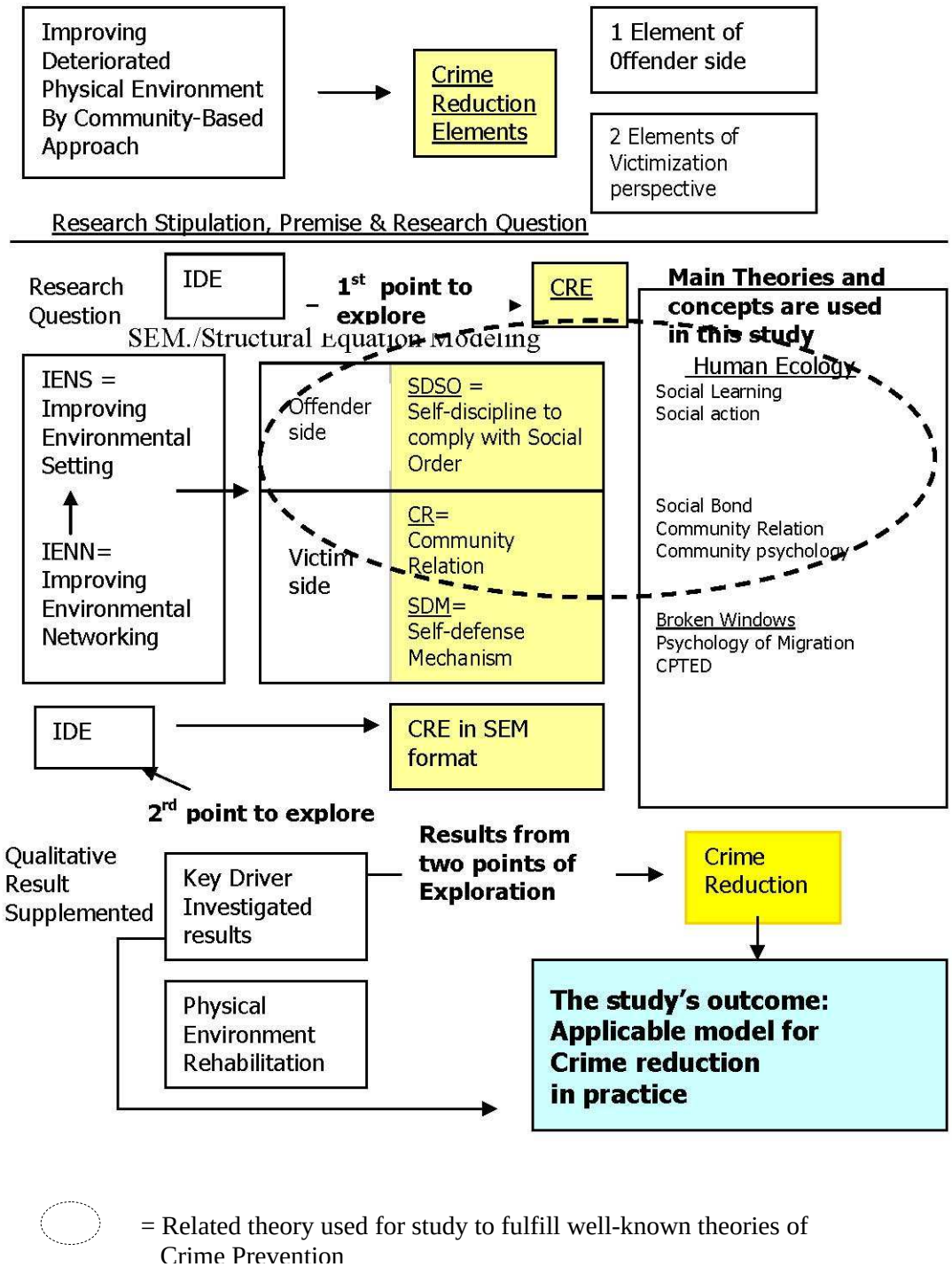


Figure 1.1 Conceptual Framework

1.5.1 The study's Conceptual Framework

Explanations of the study's conceptual framework segments illustrated in Figure 1.1, from top to bottom, are as follows:

Research Stipulation or Premise & Research Question

First, the study raises the question according to this phenomenon using a retrospective approach, a "What if" as a research question in this study. If those adverse physical environments are restored, what consequences would result from a crime reduction aspect and how does it operate? Secondly, community empowerment should be obtained from crime reduction aspects, because it provides more advantages in improving environmental setting when done by the people of a community themselves. Overwhelmingly, findings from many scholars, as reviewed in Chapter 2, indicate that in the initial stage people's perception definitely change according to physical environmental improvements and in turn so is crime likely to be reduced. But there is some knowledge gap in the theoretical and applicable approach to crime reduction. It needs to be further explored and illustrated in a simulation model. Similar to theoretical aspects, in-depth understanding of community psychology needs to be examined in detail. Hypothesis testing in this study, with the conclusion that "crime can be reduced by introduction of a physical environment re-habilitation program using a community based approach with proper methods and approaches", should be acquired from a combination of the four objectives. (See more in Research Design)

As stated by the topic, there are two key variables and their relationships examined. Initially with an independent variable is "Improving Deteriorated Physical Environment by community based approach", also called IDE, and is separated into 2 components as follows: 1) Initiation by improving the environmental network in each community, called IENN, which includes urban-environmental education and leads to an environmental community rehabilitation program. 2) Follow up by improving community environmental settings, called IENS.

For dependent variables represented in crime reduction: In this study, in order to prove that crime can be exactly reduced and create a new indicator for crime which is postulated mainly from Sociology and Criminology, called “Crime Reduction Element or CRE” postulated by major concepts and theories from human ecology, sociology and criminology. The 1st point to explore, fundamental “street crime”, can be separated into two compositions; the offender and the victim. Group elements 1 and 2 belong to the offender and victimization perspectives respectively (See details in Chapter 3: the Definition). The CRE in this study needs enhancing in theoretical robustness by expanding more of the social aspect of community cohesion and sense of civilization as one part of the offender perspective. Related to the conceptual framework in broken line “theoretical linkage exploration” meaning in this study urges an explicit necessary point of view in human ecology and social science in the form of a causal model (Structural Equation Model) which has not been mentioned.

1st point to explore

For the 1st point explored, this study focuses on examining the relationship between IDE and CRE by using Quantitative Research Conduct. After variables were tested and results computed, the research indicates that there is an influencing power in accordance to IDE and CRE. The research conducted by Structural Equation Modeling or SEM has to proceed with the concept of a dual track approach, as illustrated in Figure 1.2.

This study is composed of dual track approaches using basic concepts from crime compositions, and two compositions were borrowed from the idea of predator and prey in nature. Hence, with regard to crime, criminal and victim represent the two main factors in terms of social life. From this concept, we should be able to control the rate of new criminals and new victims. The aim of crime prevention is also meant to prevent the spread of a criminal’s niche as well as child delinquency, which goes along with victim opportunity reduction or reduced victimization. This study proposes an application for crime reduction in practice as shown in the following diagram.

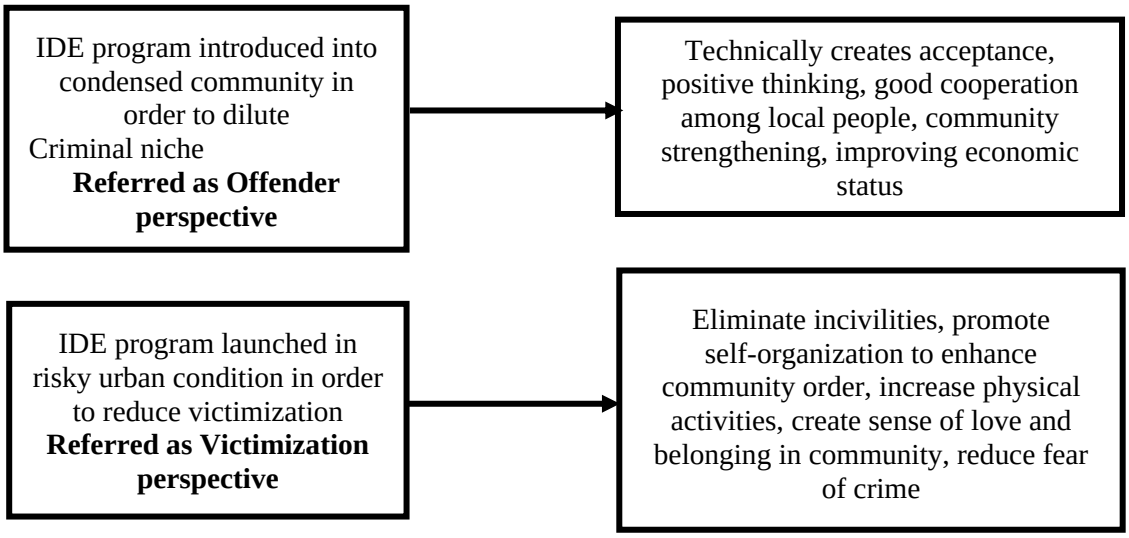


Figure 1.2 The Applications of dual track approaches in Crime Prevention
(Source: This study)

Figure 1.2 shows the concept of an applicable method for a dual track approach which is proposed by this study. Details in the dialogue box on the right hand side indicate certain empirical facts. Beyond that, logical thinking or theoretical analysis should be conducted for better understanding.

2nd point to explore

Beyond the intangible assets associated with the concept of a dual tract approach, both dependent and independent variables in a Behavioral Science study must extract all of these intrinsic values (Latent Variable) to tangible items (Observed Variable) or so called "variable identification". In this study, there are 5 latent variables and 16 observed variables in both IDE and CRE with a total of 166 items whose relationships and moment structures are visible (See more details in Chapter III)

Therefore, the 2nd point to explore is explained mainly by qualitative data which has been coded in quantitative scale, path diagrams, digits and scores to show explicit intangible to tangible assets.

Qualitative Result Supplemented

Theoretical terms for crime reduction from a physical re-habilitation program by community-based approaches have been approved and quantified by three of the objectives mentioned previously, but realistically, an applicable method or technique to propel the program is more interesting to find. The main key driver of an IDE program has to be extracted by qualitative methods. This study was conducted using non-participant observation, focus group discussion and in-depth interviews. In the last chapter, specifically the conclusion, qualitative method results are represented in exploration from selected samples which have a unique and very interesting history regarding their community cohesion.

The Study's Outcome: Recommendation for Crime Reduction in Practice

As noted in the previous paragraph, qualitative methods play an important role in this study. Research is addressed as a key finding and then results from the qualitative method are brought forward to combine with the results from the quantitative method (in the form of an SEM model). Before an IDE program originates in a selective community, an essential step emerged in advance of the program as a horizontal integration by time series. In the end, the combination of both the qualitative and quantitative methods becomes a new strategy for crime-reduction in practice. The resulting model can then be provided as a concept for any entity or authorized person to take away and improvise for their social safety (See more in Chapter 5).

1.5.2 Scope of Study

1) Scope of Content

In accordance with the key research question, this study focuses on the inter-relationship among the two types of variables; 1) Independent variable, and 2) Dependent variable. Improvement of a deteriorated physical environment by a community base is called IDE and forms the independent variable. In an IDE program the first step is generated initially from Improving Environmental

Networking of people in the community with Improving Environmental Settings being the second step to implement action.

For the Dependent variable; Crime Reduction Elements or CRE, had previously been used for crime projection by decomposition crime in elements. All of the elements are postulated using criminology theory. The comparisons from crime elements or crime reduction elements are accepted with a high level of validity and reliability.

Crime Reduction Elements or CRE compose one element of the offender's perspective and two components of the victimization perspective by increasing community cohesion and the self-defense mechanism of a community's people.

For data collection, distributed questionnaire surveys ask people about their perceptions and actions, particularly with regard to street crime. More specifically surveyed were major cases of crime that significantly affects urban people's life. All Crime reduction elements of crimes mentioned and categorized involve life, property, drugs and state victims only, and does not include crimes with a complicated structure such as organized crime, terrorism and computer crime or crimes with an underlying motivation such as psychiatrically induced or revenge based crimes and crimes with other biological factors involved.

2) Scope of the Study Area

This study was conducted in Bangkok, Thailand. The community which was used as a sample site in this study shares similarities with any normal condensed community in any city. But in different parts of the world a condensed community, in terms of environmental programs, built environment, socioeconomic pattern and social aspects, may differ from this study's sample site.

Full implementation of an environmental rehabilitation program is rare and difficult to find in normal settings for the purposes of study and if present, the degree of impact from any environmental improvement program may be not qualified enough for accurate data collection.

Despite this, an environmental rehabilitation program can be tested for further study in different types of community settings, such as in a well-being community, school, commercial area and several others.

CHAPTER II
LITERATURE REVIEW

This study is grounded on nature-based conceptualization through a digging down approach. It initiates from Human Ecology basic concepts to Social Science Theory and the Social Learning Process representing interconnections between environment and human behavior and its' related theory to crime. The process focused on deteriorated physical environment associated concepts in urban-crime environments and the deteriorated physical and social environment to examine people's perception and their reasoning concerning the crime perspective. Continuing with theories and concepts of crime prevention with negative consequences in bad environmental settings can be conducive to crime in criminology. A number of studies on theoretical context have been reviewed to show the relationship between human-beings and physical settings so that an Urban-Crime Environment could be drawn to specify the relationship amongst crime and urban environmental settings at the community level such as land-use patterns, housing construction, urban space and aesthetic conditions including cleanliness and tidiness to explore how these factors are related to positive consequences for community safety.

2.1 Human Ecology Basic Concepts

The explanation of an ecological approach to Crime Prevention was based on an ecological frame of thinking approached by borrowing concepts from the adaptation process of living organisms, which always perceive (stimulated by their milieu) and evolve traits in their behavior to thrive in their environment or to attain their ultimate goal of survival. Then, the adapted and conceptualized basic survival instincts of living-organisms are replicated and adapted as a social learning process for human-

beings aimed at utilization for crime reduction. Several groups of researchers, those who have faith in the powers of nature, continue to pursue this school of thought.

This study follows that thought process and also aims to fulfill and promote an ecological approach with an explicit environmental capability in changing human behavior, particularly to appropriate manners which are necessary to propose an alternative approach for crime reduction.

The interpretation of intangible to tangible assets aims to show that there is a real interconnection between the environment and human behavior in terms of delinquencies and crime as shown in the figure below;

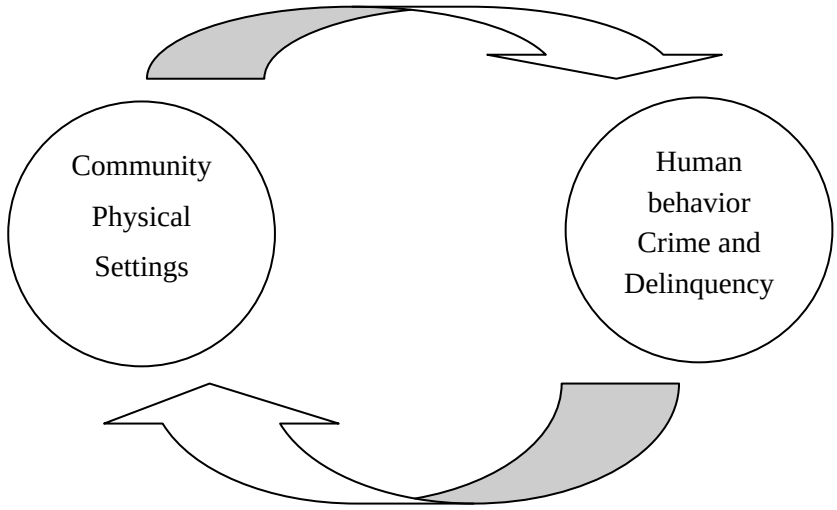


Figure 2.1 Grounded concept of this study, rendered to depict an intangible interrelationship between physical settings and bad behavior
(Source: This study)

As illustrated in Figure 2.1, this study attempts to expand on base concepts by focusing on the interconnection between physical environmental settings and crime. This interconnection is generated from societal perceptions according to positive changes in their community surroundings to their behavioral trait in Crime Reduction Elements lessening. Hence, this study devises a reverse concept of Broken

Window retribution or an “outside-in” approach with ecological approach retribution. The research question stipulates, “What if we can make a better environment to the changes in an aspect of Crime Reduction Elements reduction?”

In conducting the inter-related science it means to demonstrate intervention in different fields of study which are related in some way. Like definitions of theoretical integration and types of integration meaning: To integrate a theory from two theories or more with interrelation into one theory in detail and more explainable kinds of circumstance, this does not mean to concept integration but to propose integration. There are 3 types of integration methods; 1) up-and-down or Deductive, 2) side-by-side or Horizontal and, 3) End-to-End integration (Kuntee, 2000). Therefore, Environmental (Human-ecology) in physical and social environment deduce to social science and finally to criminology.

An ecological basis is proposed for a macro view of crime perception by providing alternative conceptual thinking to an adaptive strategy for crime prevention in addition to a former approach by using the basis of an ecological approach in social contexts such as human-ecology and ecosystem services in environmental science.

From a nature point of view, human ecology is about the relationships between people and their environment. In human ecology the environment is perceived as the ecosystem. Because humans are an integral part of an ecosystem, by instinct, humans must interact with their environment in social systems through a social learning process. This type of dynamic revolves around social systems particularly in urban environments. Urban systems also provide urban-ecosystem services and values such as population, technology, social organization, technology and values. Environment: Ecology is a holistic study of the intricate pattern that is nature, the study of the relationship of each thing to everything else (Hawley, 1950). Enhancements with a metabolic rift in some environmental literature illustrated an interconnection between human behavior and the environment by spending more time and having intimate contact with the biosphere to have better understanding of the

natural process and its adaptation which is beneficial for juveniles in order to preserve the longevity of our environmental resources.

From Environmental Science, an Eco-centric stance provides a deep sense in an ecological approach to crime which is not very popular in western academic papers compared to other approaches because it is related to the attitudes of human nature. It is a kind of abstractive issue in that sense but mainly in animism (spirit religions) of bi-polar spiritual origins: western and eastern. In major eastern religions such as Hinduism, Buddhism and Taoism they have the belief that in every part of the universe is a part of everything else (Marten, 2001). In this sense deep-ecology is call eco-centric. So everything is connected and it is a part of religion's manifestation that humans should listen to nature and be careful in their interactions because everything has its own consciousness and if harmed, nature has the power to produce consequences on the offenders. From the other side of spiritual origins: Western religions have numerous forms of "God" initiating from Judaism. It began in the Middle East with an arid environment type. It is believed that God created man in his own image and therefore they did not consider themselves to be part of or equal in nature like other animals dependent on man as a representative of God able to manage nature with respect in order to survive. However, in western origins not everything was left completely natural, which is called anthropocentric in deep-ecology. This spiritual concept was also inherited by Christianity. In conclusion, in western religious views humans have their own power to manage nature with the respect of God's creations.

In the stance of environmental position by perception through an ecological facet, human-beings are also referred to under the circumstance of the natural system. Moreover, in human ecology, it comprises one of the sub-fields of environmental science which is in depth study of how man and environment can coexist with each other. To use a metaphor, human society is like an ecological community. Because of the complexity of human behavior, these are only a sample of some studies which reflect the ways and views of social science.

"Economic Development causes our social as well as our physical environment to diverge from optimum. Man evolved in the extended family, the lineage group and the small community. In other words, he evolved with a highly structured social environment, which we can regard as his social field" (Durkheim, 1964 and Goldsmith, 1992)

Durkheim and Goldsmith used a fundamental approach to address a holistic view and interrelation in ecological approaches to dynamic social dimensions. In human ecology it is an example of social systems as complex and adaptive systems. The most important things are emergent properties in each individual's senses, feelings and emotions such as fear, anger, anxiety, hate, happiness and love, which are also emergent properties (Marten, 2001). Emergent properties at the population level of organization may be affected with change as a whole in a complex system. Those dynamic changes can be both pros and cons, which are dependent on the dual tracks of surroundings and human emotion.

The concept of human ecology is also mentioned in urbanization. The human ecologist's emphasis on urban systems and how people organize themselves socially to adapt is not only urban ecology to their habitat, particularly to the habitat of cities and their environs (Park, 1952). Urban systems have a dynamic flow of material and energy like an ecology system. Even from an ecological approach to the basic principles of ecology, whether applied to limited sets of phenomena such as plant ecology, animal ecology and urban ecology, interrelationships exist in the ecological elements of Environment, Population, Organization and Technology. Cities are commonly referred to as urban ecosystems. They are organized almost entirely by people. They are usually defined by man-made structures such as buildings and streets also called the built-environment. A city may be linked to other cities to form a metropolitan region. The ecosystems and social systems of each city interact with the ecosystems and social systems of the surrounding area creating the city's zone of influence (Marten, 2001).

Accordingly, if we are to narrow down test research to the community level there must be a very important spatial hierarchy in the area to be focused on because this area becomes vulnerable to negative urban-ecosystem services.

Theory integration would be brought to use from empirical theories in environment and criminology. Logically, the crime study has the same level of understanding in social-incivility in dynamic changes through urbanization process. Since the middle of the 19th century, pseudo-ecological approaches have been explored and refined by Park and Burgess in 1920, who pioneered the ecological approach. The model was borrowed from the study of plant ecosystems. In nature, plants and animals seem to live together in mutual harmony and are ultimately interdependent (Bees pollinate flowers to produce seeds). Such mutual interdependence is called "symbiosis." Park believed that cities might be symbiotic environments. Park also believed that the city was a super-organism (Durkheim's concept of the division of labor typical of organic solidarity was similar) that contained natural areas. Natural areas took many different forms, including 1) ethnic enclaves, 2) activity related areas (business districts, shopping districts, manufacturing districts, residential areas, etc.) and, 3) income groupings.

While the popularity of law enforcement approaches and measures was gradually decreasing with increasingly critical opinions from both academics and practitioners on these traditional approaches, an alternative option for crime prevention was sought out. The second approach was known as “Community Relations”, which initially appeared to be a replacement for the law enforcement approach. Community Relations is based on the concept and study of results of Chicago criminologists known as “The Ecological School of Criminology” pioneered by Robert E. Park and influenced by 1) Darwin’s concept about mutual reliance between animals and plants. 2) Simmel about features of time and place of social relations and 3) Durkheim Theory – the determination of intensity of population factors that cause social competition and work sharing.

2.2 Social Science Theory, Social Learning Process: Interconnections Between Environment and Criminal Behavior and its' Related Theory

2.2.1 Social Learning theory: This theory explains how people learn behavior. People develop their own behavior through observing others' behavior. If people observe positive, desired outcomes in the observed behavior, they are more likely to model, imitate, and adopt the behavior themselves. The Social Learning theory is derived from the work of (Tarde, 1969) which proposed that social learning occurred through four main stages of imitation: close contact, imitation of superiors, understanding of concepts and role model behavior.

2.2.2 Social Learning, Psychology and Behaviorism: Social Learning and Clinical Psychology (Rotter, 1954) proposed concepts based on psychoanalysis and behaviorism and developed a social learning theory. Rotter suggested that the effect of behavior has an impact on the motivation of people to be engaged in that behavior. People wish to avoid negative consequences, while desiring positive results or effects. If one expects a positive outcome from a behavior, or thinks there is a high probability of a positive outcome, then they will be more likely to engage in that behavior. The behavior is reinforced, with positive outcomes, leading a person to repeat the behavior. This social learning theory suggests that behavior is influenced by environmental factors or stimuli, and not psychological factors alone.

Rotter's idea was expanded on by Albert Bandura (1977) as well as earlier work by Miller and Dollard (1941) and is related to the social learning theories of Vygotsky and Lave. This theory incorporates aspects of behavioral and cognitive learning. Behavioral learning assumes that people's environment (surroundings) cause people to behave in certain ways. Cognitive learning presumes that psychological factors are important for influencing how one behaves. Social learning suggests that a combination of environmental, societal and psychological factors influence behavior. Social learning theory outlines four requirements for people to learn and model

behavior including attention, retention (remembering what one observed), reproduction (ability to reproduce the behavior), and motivation (good reason) to want to adopt the behavior.

In criminology, Akers and Burgess (1966) developed social learning theory to explain deviancy by combining variables which encouraged delinquency (for example; the social pressure from delinquent peers) with variables that discouraged delinquency (for example; the parental response to discovering delinquency in their children). Social learning theory has also been used to better understand aggressive behavior (Bandura, 1973).

Functionalism had been the dominant paradigm but, in the 1960s, there was a shift towards Social Control Theories, Conflict Criminology, and Labeling Theories that tried to explain the emerging and more radical social environment. Moreover, people believed that they could observe behavior and see the process of social learning; parents watched their own children and saw the influence of other children on their own; they could also see what kind of affect they had on their own children, the processes of differential association and reinforcement. The conservative political parties were advocating an increase in punishment to deter crime. Unlike Labeling Theory, Social Learning Theory actually supports the use of punishment which translates into longer sentences for those convicted and helps to explain the increase in the prison population that began in the early 1970s (Livingston, 1996).

Burgess and Akers (1966) adapted Sutherland to describe a variety of deviant behaviors:

1). "Criminal behavior is learned according to the principles of operant conditioning" (Sutherland, 1947). Operant behavior is affected by 'environmental consequences', e.g. conditioning, shaping, stimulus control, and extinction. Conditioning aims to produce consistency of response to stimulus. Shaping gives differential reinforcement of behaviors; for example, parents will reinforce 'baby talk' and then as the child gets older, regular speech. Extinction occurs once the operant behavior is no longer reinforced.

2) “Criminal behavior is learned both in non-social situations that are reinforcing or discriminative and through social interaction in which the behavior of other persons is reinforcing or discriminative for criminal behavior” (Sutherland, 1947). Sutherland viewed the process of learning criminal behavior as symbolic interaction, but Burgess and Akers believed that this excluded other sources of reinforcement, e.g. stealing a loaf of bread may not receive social reinforcement, but it does receive reinforcement because eating the bread nourishes a hungry thief which is inherently reinforcing.

3) “The principal part of the learning of criminal behavior occurs in those groups which compromise the individual’s major source of reinforcements” (Sutherland, 1947). The family is the primary example of an ‘intimate primary group’ but Burgess and Akers allowed any ‘groups’ the possibility of offering positive reinforcement.

4) “The learning of criminal behavior, including specific techniques, attitudes, and avoidance procedures, is a function of the effective and available reinforcers, and the existing reinforcement contingencies” (Sutherland, 1947). Burgess and Akers agreed but felt that it was important to study motivation to see how reinforcement gained value.

5) “The specific class of behaviors which are learned and their frequency of occurrence are functions of reinforces manner which are effective and available, and the rules or norms by which these reinforces are applied” (Sutherland, 1947). Burgess and Akers broadened the idea from which reinforcements may be derived. Effective reinforcements must be analyzed to understand the development of individual behavior and behavior within a group.

6) “Criminal behavior is a function of norms which are discriminative for criminal behavior, the learning of which takes place when such behavior is more highly reinforced than non-criminal behavior” (Sutherland, 1947). Burgess and Akers posited that there was a process in which norms discriminated in favor of delinquency and that behavior was then reinforced.

7) "The strength of criminal behavior is a direct function of the amount, frequency, and probability of its reinforcement" (Sutherland, 1947). They proposed that when there is an increase in the amount of reinforcement, there is also an increase in the response rate.

The theory can be applied to most criminals and crimes that produce a "gain", but is best applied to behavior within groups which offer reinforcement, such as gangs, peer groups, or social groups (Akers, 1973). The "gain" can be psychological, positive attention from other group members, or material, what was stolen. The degree of positive reinforcement will determine whether the behavior is continued. In their study of alcohol behavior (Akers, 1989) they found that elderly drinking and youthful drinking follow the same lines of norms and group behavior. The theory was focused on the interaction between the individual and the social group, and did not address individual differences or social context (Jeffery, 1990 and Akers, 1998). Individual differences may be biological, psychological, or the result of other factors; and these differences may affect the interaction between the individual and the social group (Jeffery, 1990, Akers, 1998). Therefore, they expanded the theory by explaining crime rates as a function of social learning in a social structure. While the original theory focused on individual criminal behavior, Social Structure Learning focuses on macro-level causes crime positing that environments impact the individual through learning (Akers 1998).

Unlike situational crime prevention, the theory ignores the opportunistic nature of crime (Jeffery, 1990). To learn, one must first observe criminal behavior, but the theory does not explain how a person might first meet people exhibiting criminal behavior (Jeffery, 1990). Further, the theory does not explain how people who have not been associating with criminals still become criminals. For example; if a solitary child in a rural area steals money from his mother's purse; where was this behavior learned?

The theory does explain how criminal behavior is ‘transmitted’ from one person to another, which can explain increases in types of crimes, but it does not consider how crime can be prevented (Jeffery, 1990), although it may be fairly assumed that the processes of learning behaviors can be changed.

2.2.3 Social Cohesion theory: For Friedkin, (2004) who was interested in developing a general theory of social cohesion, he states that these issues are confronted with a complex body of work that involves various definitions of social cohesion, specialized literatures on particular dimensions of social cohesion (membership turnover, organizational commitment, categorical identifications, interpersonal attachments, network structures), and lines of inquiry focused on the social cohesion of specific types of groups (families, schools, military units, and sports teams). This review addresses the problem of integrating the individual and group levels at which social cohesion has been defined. It also develops a perspective on social cohesion as a domain of causally interrelated phenomena concerned with individuals' membership attitudes and behaviors, in which the major dimensions of social cohesion occupy different theoretical positions with respect to one another as antecedent, intervening, or outcome variables.

2.2.4 Social Action Theory, Theory of Social Action of Parsons (Parsons, 1951), explains the actions of man with the application into general social practice. This general theory of actions stated that any human action depends on:

1) Personality of each person
2) Social system of the person as a member
3) Culture in society of the person as a member. This culture will determine idea of beliefs, primary interest, and system of personal value orientation.

Weber’s Theory of Social Action (Weber, 1976) studied human action. He provided further definition of human action as a combination of both overt and covert behaviors. The person who did defined it personally. According to Weber’s theory, understanding at meaningful levels can occur in one of two ways as follows:

1) Personal meaning from an action of a person can be understood from direct observation

2) There is an understanding of stimulus. We can express our feelings to ourselves in providing reasons. This is an objective of the leader. Alternatively, if the action of a person has no reason, it might understand the emotional components of the action. This can be done by sympathetic participation of the human. Observers have no need to be a part of agreement with the theory or highest purpose, or the value of the person who did the action. However, we can be able to understand the situation and related behaviors. It can be said that some actions are occurring from stimulation result. The understanding of stimulus can be recognized by the real explanation of action time. This is because stimulus will be deeply in the person's mind. Also, for the observers, the stimulus is the suitable basis for behavioral study.

According to the theory of social action, groups of people will be willing to participate in activities in the community in the form of cooperative action. It is a psychological matter to participate in those activities in order to achieve objectives for oneself or for the community.

In this study, researchers rendered some significance in the power of community spirit, which absolutely influences criminal behavior and child delinquency through Social Learning theory.

The relation of human behavior through an individual's social action was hypothesized in Theory of Reasoned Action (TRA), which argues that a person's behavior is determined by that person's intention to perform the behavior and that this intention is, in turn, a function of their attitude towards the behavior and their subjective norms. (Ajzen, 1980, 1991) TRA also found that disorder and crime stem from the same social problem and that it is not disorder that predicts crime but the level of collective efficacy- (the cohesion among residents combined with shared expectations for the social control of public space) and this feeling of shared responsibility relates to the level of crime.

To summarize, this study is conceptualized and constructed by human ecology as a basic concept to illustrate a significant perception in environmental conditions and human behavior by instinct in adaptation. It is initiated from human and natural perceptions through the inherent religious belief that management of natural resources and the environment is reflected from a sociology aspect through a social learning process: environmental and societal aspects still show their interrelationship and goes deeper in practice in civil and city environments such as physical and social environment in urban areas.

2.3 Theories and concepts in Crime Prevention

In Chapter I, To create a sense of safety, the police should play a key role in providing tactics to tackle crime problems by adapting a conceptual crime prevention theory. Normally used in many theories or approaches, it should be implemented in parallel with other approaches to achieve crime reduction. Law enforcement approaches to crime prevention are listed as follows:

2.3.1 Theories concerning crime prevention

Theories have been respected by law enforcement authorities in solving crimes, especially in police departments with huge literature contexts. This study attempts to summarize each theory as follows:

1) Punitive type such as; law enforcement, criminal laws and penology approach

2) Corrective type such as; mentoring, employment, education and counseling approach

3) Preventive type is emphasized in this study as; crime prevention through environmental design, community policing and active participation, situational crime prevention

The relevant contents in a social context of this study are divided into topics as follows:

- Control Theory
- Strain Theory
- Social Bond Theory
- Routine Activity Theory
- Opportunity and crime
- Broken Windows Theory
- Perceptual Deterrence Theory

As listed, law enforcement approaches and Strain Theory are the only two topics unrelated to environment or involving the basic concept of an ecological approach. The rest of the topics are related, but new studies dealing with approaches such as Biosocial Theories, Biochemical Theories, Biological Risk Factors/Protective Factors, Life-Course-Persistent/Adolescence-Limited Theory, Social Bond Theory revisited, and Cognitive Theories of Desistance are not relevant.

Community Relation Approach:

A study on “The Practice of Community Policing: An Attitude of a Police Officer at Provincial Area 1” reveals that the police officers who are responsible for community policing realize that collaboration among police and community leaders is very important for crime treatment and prevention. It also gave some recommendations for police to learn more about community work and administrative management for deploying police in the community by providing proper training.

Recently, this community approach was wildly recognized as a prevailing approach which is powerful, effective, economical and sustainable in practice. Unfortunately, much of the research on participation and empowerment has not used the contextual or "ecological" approaches widely advocated by community psychologists (Levine and Perkins, 1987). The fact that participation is distributed within urban areas in fairly uneven cultural and geographic patterns (Heller, 1984 and Podolefsky, 1983) suggested that many of its determining factors may reside at the

community level. Understanding participation demands careful consideration of the social and environmental context of local communities. Community-based crime prevention is recommended in Security and Crime Prevention (Block, 1981).

An interesting ecological analogy related to community psychology by James Kelly (1966) and Bronfenbrenner (1979) expanded the concept of Kelly's studies and stated that it was not so much how different levels of the environment may impact the individual, but rather understanding how human communities function. Specifically, Kelly suggests that there are 4 important principles that govern people in settings: 1) adaptation: what individuals do is adaptive given the demands of the surrounding context 2) succession: every setting has a history that created current structures, norms, attitudes, and policies, and any intervention in the setting must appreciate this history and understand why the current system exists in the form that it does 3) cycling of resources: each settings has resources that need to be identified and possibilities for new resources to be developed; a resource perspective emphasizes a focus on strengths of individuals, groups, and institutions within the setting and interventions are more likely to succeed if they build on such existing strengths, rather than introducing new external mechanisms for change and 4) interdependence: settings are systems, and any change to one aspect of the setting will have consequences for other aspects of the setting, so any intervention needs to anticipate its impact across the entire setting, and be prepared for unintended consequences (Wikipedia).

2.3.2 Theories and concepts concerning crime in the city

Most famous about the spatial-organization concerns of the Chicago school was Burgess's Concentric-zone Hypothesis, first presented in 1924. This work attempted to explain why cities grow the way they do (Burgess, 1924). Park also tried to motivate criminologists to recognize the importance of environmental factors of a town affecting the behavior of criminals. Burgess, a Chicago criminologist, proposed “Concentric Circles Theory”. This theory was widely accepted, used and applied in many big cities in the United States such as Boston, Detroit and Cincinnati. It showed research results similar to those found in Chicago.

"A city is not only the material mechanism and construction of humans; it is also related to the important processes of a population. A city is the product of nature, especially human nature."

A conclusion of this study is that high crime rates cluster in the inner city and decrease in suburban areas. Newman (1972) suggested that community design should have an increased sense of territoriality, and the survival of an urban ecosystem is seen in the mutual succor provided by its diversity, rather than in the dominance of an individual species.

Taylor and Gottfredson (1986) also looked at the issue of how a potential offender selects a target site. They analyzed the decision process of the offender in terms of three levels as follows; 1) Neighborhood, 2) street or block and, 3) individual crime site. At each level the offender selects a particular environment in which to commit a crime based on opportunity factors. The offender could thus focus his/her attention on specific neighborhoods. Taylor and Gottfredson also supported the social control or "Newman model" of crime prevention.

Sandstrom (1974) stated that humans and animals not only live in environments but they try to occupy a personal territory and fight against the intruders. Human territory can be divided into 3 parts as follows; 1) Primary (private) space or personal territory such as the home, 2) Semi-public space or secondary territory such as a seat in class and 3) Public space or free space such as a park, beach or library.

Oscar Newman's (1969) "Crime-Prevention through Environmental Design", or CPTED, is the main theory about the relationship between environment obstruction to commit crime, environment contribution to commit crime and criminal behavior. Community relations are indicative by dividing urban community space in 3 ways (1) private space, (2) semi-public space and (3) public space. By using these 3 types of additional spaces with the concept of urban space role play will serve as a

platform for human behavior and for their inter-relationship with other sciences such as spatial management in urban land-use or community landscape design (cul-de-sac).

Assuredly, this study will present limited conditions or characteristics which support spatial management in practice. Those characteristics should have already been addressed by those theories like: Collective behavior in social science assumes that human beings will have the same responsive behavior providing they should have the same faith and are confronted with the same problems. According to the example, faith, group leader will be added in the specific neighborhood space management to provide their communications and activities upon community space.

Defensible space and CPTED strategies were tested in the early 1970's and 1980's. A theory was formulated in the second generation of Defensible space (Taylor, Gottfredson and Brower, 1980) and in the latter version, considered was fear of victimization and physical environmental settings in reverse.

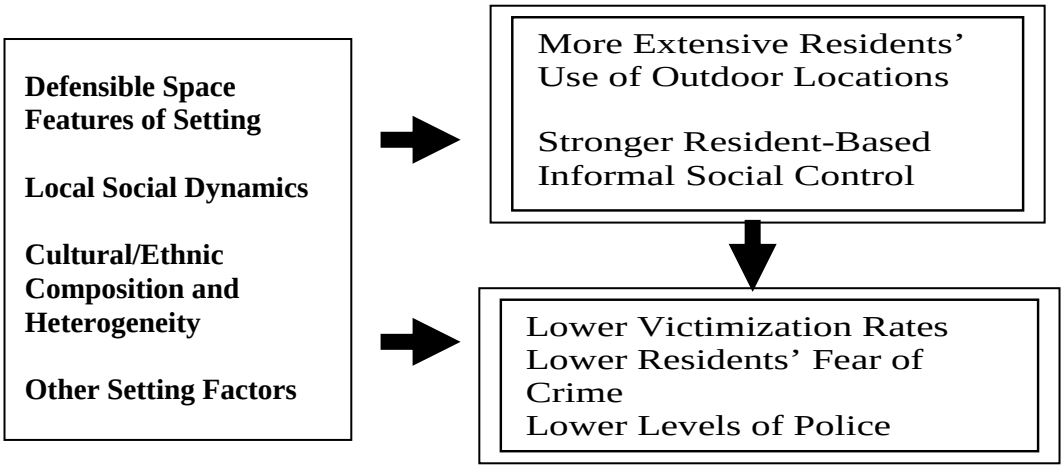


Figure 2.2 Defensible Space and Crime (Taylor, Gottfredson and Brower, 1980)

However, it has not been successfully implemented in most low-income urban public housing environments. Due to a lack of resources or commitment, low-income public housing has more crime and drugs. Newman stated that the elements of physical design (natural surveillance, building form and compatible building placement) both individually and in concert, contribute to the creation of the territorial definition.

For many New Urbanists, it isn't enough to build on the concept that "all development should be in the form of compact, walk-able neighborhoods" and draw the conclusion that a safe community should have broad streets, low densities, separation of residential from commercial uses - while mandating things that had formerly been forbidden, such as narrow streets, high densities, and mixed uses. But some relied on Jane Jacob's notion of "Eye on the street". Single-use residential suburbs, the writer claimed, are easily preyed upon by criminals because they "display clearly identifiable behavioral routines and patterns". For example, most people leave for work at similar times each day and remain there for most of the day. Mixed-use neighborhoods "contribute to a safer, more vital public realm" because shopkeepers and shoppers have eyes on the street at all hours of the day.

This study explores and identifies conditions in the specific characteristics of neighborhoods in the urban community which can promote crime control and then brings it out as a first step of the research outcome. For example, one response to rising urban crime levels, in developing countries in particular, has been to increase pressure to privatize and segregate public space. This has been accompanied by increasing use of private and armed security. Private security and development of gated-communities benefit the wealthier segment of the urban population, but may provide only short-term benefits. They also increase the social exclusion of poorer segments of the population and reinforce inequalities between communities, which is not a way to sustainability.

It is also important to work with and include local communities in the design of crime prevention initiatives. A well-planned crime prevention strategy includes:

(a) Social crime prevention measures that address social, economic, educational and health issues, targeting neighborhoods, families, children and youth at risk

(b) Improving neighborhood and community networks and conditions and strengthening community capacity

(c) Reducing opportunities for crime through situational and environmental design

(d) Preventing recidivism by promoting the reintegration of offenders.

This approach to crime prevention represents an evolution in understanding on how to prevent urban violence. What was once seen as a matter of law enforcement is now recognized as a social, public health and good governance issue that can tackle proactively. Central to effective crime prevention is the important role of cities and local governments, guided and supported by a strong national government commitment and leadership. Enhancing relationships with friends, family members, and romantic partners are a source of great meaning and joy in our lives. However, these same relationships are often the source of our greatest frustration, annoyances, and hurts. The more time people spend together and the closer they become, the more likely it is that they offend, embarrass, insult, and hurt each other through aversive behaviors such as teasing, breaches of propriety, aggression, and betrayal. These aversive behaviors are an inevitable and frequent part of our relationship. If we are given the inevitability of these negative social behaviors, it is fortunate that they sometimes have positive features and are sometimes even motivated by efforts to establish camaraderie and connection with others.

2.3.3 Physical and Social Environment Theories and Concepts in Relation to Crime Occurrence

An ecological approach has been raised as a broad definition for this study with high regard from the group of researchers in the Chicago school who pioneered this concept. In the simplest terms it is divided into 2 types of environment:

- Physical environment - The built environment, which includes the man-made environment such as land use types, demographics, community planning, street block, road, community spaces, activities and lifestyles.
- Social environment - The complexity of relationships between people and with nature is emphasized, along with the importance of establishing social structures.

Broken Windows or Broken Efficacy:

For over 20 years, the Broken Windows Theory - that neighborhood disorder leads to serious violent crime - has influenced policing. Many authorities believe that physical and social disorder serves as predictors of violent crime. To this end, the practicing of zero-tolerance and order maintenance policing has become popular. Wilson and Kelling (1982) proposed the concept of incivilities in the city and considered how an offender might respond to the signs of incivility primarily in community policing and believe in two factors in dynamic flow. Deteriorations in physical environment and large-scale accumulations of graffiti and trash in many urban neighborhoods should be a concern of the neighborhood themselves; if not, these accumulations can double increasingly making a vulnerable dead area. The Community Relation Approach to Broken Windows Theory illustrates the need for strong connections among the people in a neighborhood to eliminate the deterioration of the physical environment.

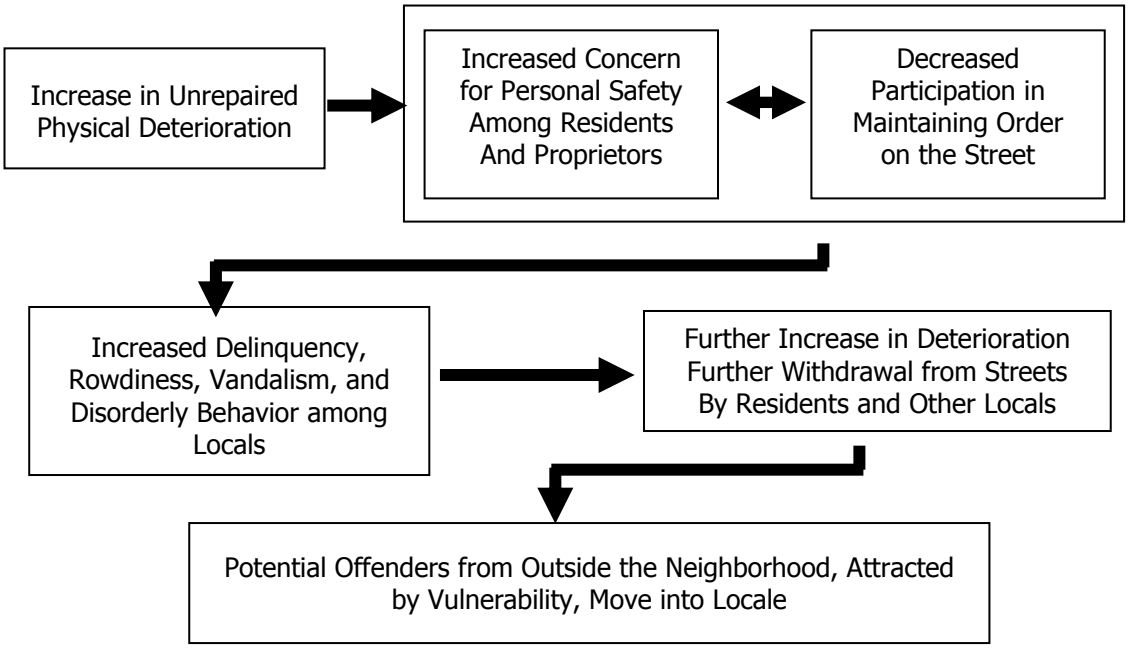


Figure 2.3 Broken Windows Efficacy
Source: Wilson and Kelling (1982)

James Q Wilson and George Kelling presented ideas in Atlantic Monthly in March1982 The linkage between the systematic degradation of the environment. Trends in crime and an offense for example, broken glass, garbage heap up. The lack of restoration of the physical environment, when time passed, degradation that are new so is to create a migration from the area. Will notice the youth will gather on the street corner at night. The various nomadic groups who occupy the area are encouraged to commit more violations. From this situation, “One unrepaired broken window is a signal that no one cares”, “and so breaking more windows costs nothing” (Wilson and Kelling,1982). The concept has ignited the concept of little things lead to big things its has been studied to find proof of this hypothesis by consistently including the making experimental research by Philip Zimbardo in 1969 (Fixing broken windows) by bringing a car to park in a spot of high crime opportunities. The results showed that Windshield broken on doors for some time. The remaining task is broken as well. In some police studies have also shown that by making a practice of fixing these broken

windows, petty crime has drastically been reduce and has ultimately led to greater neighborhood pride, watchfulness and a sense of community. That means broken windows theory requires more than police action to put into practice. If the community isn't involved in reorganize effort, the initiative fails (Stockwell, 2004). Until after the study period for this can be deployed in different situations from country to city and community about the perceived defects in the rules of society, leading to more damage. In the perception weak, disorderly, and ungoverned space carries the potential to produce sites ripe for transnational terrorism, organized crime, tribal conflict, and drug trafficking, negative global activities which might conceivably spill across borders and threaten heretofore secure sovereign domains.(Mitchell,2010). In the current study of environmental crime is still ongoing. Environmental Criminology evaluates a criminal event on a geographic basis: "Criminal events must be understood as confluences of offenders, victims or criminal targets, in specific settings at particular times and places" (Roberts,2011). Broken window theory is also used in view of criminals and Participation of the community for example, probation by Court Service and offender Supervision Agency for the District of Columbia or CSOSA(McGinnis,2003). CSOSA has incorporated this principle into its program model. Community Supervision Officers work in the community to maintain a visible law enforcement presence and contribute to public order. This effective means in correction stage was explicated more in article of "Fixing Broken Windows' Probation" (Taxman and Byrne,2001) argued that treatment is an essential component of successful, truly comprehensive community connections strategy. Their study revealed that it is offender improvement in the areas of employment, substance abuse, personal and family problem is directly related to recidivism reduction. This is an external control exercised through close supervision, offender is watched to be participated in constructive programs which he or she develops the desire and behave differently. This project concluded that influential of "Broken windows theory" to the realities is unique blend of accountability to community and opportunity for the individual. Their success creates benefits for both public and offender side.

2.4 Urban-Crime Environment

Urbanization provides dramatic changes in many dimensions such as environmental alteration of the natural environmental conditions like values, norms, moral and services. It also changes social and community structures, socio-economic structures, physical environment etc. An example of urbanization is people of a community gathering, especially in an urban area. This factoring of the population or people is the key in the dynamics of crime occurrences that might provide an opportunity and motivation for criminals to commit crime. In addition, the concepts of symbiosis might explain the city as a whole urban ecosystem which means an urban change, in particular the patterns of growth, decay, and renewal, which all cities appeared to follow. To explain this phenomenon, a pioneer of the socialist ecological approach (Park, 1952) borrowed another concept from plant ecology. For example, in the early 20th century, English settlers introduced a breed of cactus into Australia that proceeded to grow everywhere and killed off a significant amount of the native vegetation. Park believed that a similar pattern occurred in cities. As the "new" invaded an established natural area, the struggle for dominance was precipitated. If the invasion was successful, the “new” became dominant and the process of succession was complete. Shaw employed an early version of labeling theory, arguing that only after extensive contact with juvenile and adult criminals on the street and in detention centers, jails, and reform schools, plus rejection and stigmatization by the community did the youths come to identify themselves as criminals.

The interrelationship between crime and other factors is not criminology alone dealing with crime problems, as Jeffery C. Ray (1990) noted and argued for criminology based on syntheses of biology, psychology, sociology, and other behavioral sciences. In other words, any theory on criminal behavior must involve an interdisciplinary effort and to prevent crime, we must utilize knowledge from Biology, Neurology, Psychiatry, Psychology, Ecology, Sociology and urban design. According to his concept, he urged a new aspect to understanding criminology from an interdisciplinary approach. This study would be challenged to explore any gaps of knowledge from intangible to tangible assets in the interdisciplinary research of criminology.

In different disciplines in crime, ecology, culture and behavior the study of the Nordic Style and Cognitive Style of human-being settle (Berry, 1975), recommends that it can be considered for new urban dwellers at the present time. His study also illustrated a simple model in eco-culture and behavioral variables. According to this, in relation with people and their habitat they relate to the time in which they belong. The perceptions and feelings of the Cognitive style settlement are longer and more immense in the sense of love and belong in their habitat (community) than the Nordic Style. In schools of human-ecology, they diagnosed and addressed the relationship between human-beings and their physical or social environment in the reciprocal, conducive back and forth. In summary, among the two factors there are interrelated conditions reflected in two ways; social and physical environment which is supported more precisely in children and is so vulnerable to their environment especially in adolescent girls in modifiable factors in built-environments (neighborhood out-door environments) and their physical activities, mostly in low-cost areas. (Castongua and Jutras, 2008)

From above, this is the way of humans (especially in vulnerable targets like children) influenced by their physical environment, especially in the low-cost community, which is reflected in the results of the Castongua and Jutras study. Moreover, children reason about poverty, physical deterioration, danger, and retribution in neighborhood contexts. In 2008, they indicated that in most child participants the immorality of retribution to the negative attributions surrounding context like retribution behaviors by the physical setting appeared to influence their judgments. The findings also suggest that the concept of extreme poverty (as represented by physical incivilities) and danger are fused at the cognitive level through the linked interpretations inverse to the same type of environmental setting. (Pitner and Astor, 2008)

Through the process of urbanization, urban-communities are developed very fast. The urban population is expected to grow from 2.86 billion in 2000 to 4.68 billion in 2030, when some 60 percent of the world’s population will live in cities.

Most of the growth is occurring in developing countries, which stems from the increasing migration of the rural population to urban areas and legal and illegal immigration. (The 11th UN Congress in Crime Prevention and Criminal Justice, 2nd). Recently, the result of an economic expedition, especially in low-income countries, concluded that countries have to maintain an increasing rate of economic growth with an average gain of 3.6 percent per year in order to prevent insufficient income for low-income people (NESDB report, 2003). By the year 2052, the total global population will be greatly increased and more than 65% of those people will live in a city that must have a proper track policy in economical development. In the process of urbanizing, it will also bring the increase of population and the changing of land-use pattern.

Some research indicated that the relationship between population density and crime rates was going in the same direction. Focusing on urban crime, it appears to be stimulated towards increase by those facts and more support by basically cognitive of urban crime. It is widely accepted that it can not totally be eliminated from our society, but it can possibly be controlled. Urban crimes and delinquencies can be both increasing or decreasing by many factors, sometimes crimes can evolutionally be adapted to more severity, but if we can we'll make the community social organization more effective, and the crimes decreased in controversy as well. The National Advisory Commission on Criminal Justice: USA (1973) proposed the study of a criminology perspective as an environmental domain by controlling the physical environment. In this study they indicated that people developing in differing ecological and cultural systems do different things, and value different abilities. The nature of the adaptive problem varies widely, and the human response to these problems also varies across cultures. A psychological study would accept urban behavior as an interface.

One problem of unsuccessful community development, especially in a condensed community, is their physical deterioration and decay such as a lack of order, untidiness, large piles of garbage left all over the place, noise, bad odor, wrecked or abandoned housing, etc. All of these physical settings influence humans

and their feelings and attitudes through their perception. These negative surroundings more or less affect human's perception and are reflected through their behavior as a behavioral trait. In such circumstances, it is running in a dynamic, repeated, increasing feedback loop type. In some big cities, physical settings in neighborhood decayed, when time goes by physical setting more decay turn to blind area eventually. Because of the many ways of responding and solving their problem, solving always happens in passive ways, such as looking for a better living location where they can fulfill their satisfaction instead of making improvements in their created deteriorated conditions. Then they plan to migrate and their perception is changed in obedience to a lower level of laws and social order to comply with, which can contribute to their self-discipline, decreasing self-esteem in their good citizenship, their possible decreased neighborhood bond and their changed physical activities. Eventually, more crime arises with people's fear and unsafe feelings then trait their behavior in individualistic response by leaving their own residence with unattended desire. Then all of these areas can easily be occupied by outsiders and the children become delinquent or even become criminals eventually.

2.5 The Deterioration of Physical, Social Environment and Crime

But, there is research that argued about its relationship. The example of a study about physical environment and crime "The relationship between Physical Environment and Offences Against Property in Donmuang Metropolitan Police Station" (Singchompoo, 2004) never showed any significance in physical environment factors at the community level and offenses against property. Argued with those as follows:

Ralph B. Taylor and Adele V. Harrel (1996), in "Physical Environment and Crime" discussed crime, fear of crime and physical environment and addressed 4 overviews of approach in crime-related problems as follows: 1) Housing design or block layout, 2) Land use and circulation pattern, 3) Territorial features, and 4) Physical deterioration. The study also suggested the reducing of incivilities as follows:

Secure closed private vacant dwellings to prevent further deterioration and to preserve house values and neat block appearance, removing trash and abandoned cars from large vacant lots, razing deteriorated vacant houses, repaving worn sidewalks in commercial area.

Moreover, Further study needed investigating by the Taylor and Harrel recommendation:

"To the practitioner, these different views on this issue suggest different points and types of intervention. A more powerful understanding of the relationship between crime and design may emerge from an integration of these different perspectives".

"Numerous practical and theoretical questions remain in the amount of works in specific situations and why"

Noted in the 4 pending issues that Taylor and Harrel suggested needed more exploration:

1) The sequences of relationships between physical change, crime events, fear of crime and perception of place vulnerability are not well understood.

2) How do social, cultural and organization features contribute to the success of crime reduction through physical environment modifications?

3) What is the effect of larger social, political and economic environment on the risk of crime and how do these broader issues relate to the physical environment features discuss here?

4) Can housing disrepair and vacancy, certain land use patterns, vandalism, physical layout and pedestrian circulation increase the risk of crime?

According to Taylor and Harrel, upper pending issues needed more investigation in order to achieve crime reduction in practice. The potential outcome of this study may provide some answer into the effectiveness of intentionally improving deteriorated physical environment, particularly in neighborhoods.

Clifford R. Shaw and Henry D. Mckay (1969) applied Burgess's Concentric Circles Theory into youth education in Chicago by collecting statistical data about children and youth with criminal guilt. They designed and analyzed the city map and the plotting methods. The study found that children and youths broke the laws most in the area of the city center, and the number gradually decreased in order when moving away from the city center or from an industrial area. In the area with high records, Shaw and Mckay also found that there were many other interfering problems such as health problems, family problems, and escaping problems of children and youths. These issues served as indicators of the deterioration of the community environment.

Moreover, Taft and England added details about areas with a high rate of youth problems. They were divided into 7 categories as follows:

1) Poor area with normal family structure

2) Slum area - Apart from the poor, people in this area feel that they are blocked from opportunities, and it is the area of people with a variety of nationalities and religions

3) Isolated area- It is considered similar to slums and isolated from overall society because of physical or social barriers together with cultural conflicts

4) Room for living area - A kind of residential area without personal relations with neighbors

5) Majority people area - A residential area consisting of groups of people with same nationalities/races

6) Gambling area – An area controlled by the police to protect the sex trade and gambling until it becomes a free area without any interference

7) Wonton area - An area of escaping people guilty of criminal cases and a meeting place of young gangs

Dan A. Lewis and Greta W. Salem (1981) authored “Crime and Delinquency” and proposed **“**Community Crime Prevention: An Analysis of a Developing Strategy”. Crime prevention strategies often aim at changing the motivations and predispositions of offenders. A new approach has developed within the last decade which focuses on changing the behavior of potential victims. The authors explored the theoretical foundations of the new strategies for reducing crime, commonly known as community crime prevention. They suggested that innovation is a result of a major shift in the research paradigm for studying the effects of crime. The orientation underlying community crime prevention is labeled the "victimization perspective." Following a description of some limitations in that perspective, the authors offer, as an alternative, a perspective oriented toward social control. The social control perspective, which is based on the empirical findings of several recently completed research projects, offers a theoretical foundation both for a fresh approach to the study of the effects of crime and for the development of policies for community crime prevention.

According to the research findings of Chicago criminologists, it could be summarized that crimes are permanent phenomenon according to particular areas. The areas with frequent crime occurring will repeat the same occurrences. In some areas with deterioration, even though people of different nationalities and religions always move in and out from time to time, the crime rate in the area is still high.

In socio-economic contexts, especially in an American city where deterioration in physical environment has been found to always coincide with criminal occurrence. The strong associations between high rates of inner-city poverty and high rates of childhood aggression are perhaps the most consistent findings in social science research (Farrington, 2000). For the past 30 years, architects, criminologists, and urban planners have gathered empirical evidence suggesting that the most *physically deteriorated urban neighborhoods* also tend to be both our society's poorest and most dangerous settings. (Newman, 1973 and Skogan, 1976)

Given this, it is reasonable to suggest that neighborhoods with high levels of physical incivilities serve as implicit markers for both poverty and danger. Nevertheless, children and youth's understandings of the relationship between the physical deterioration of neighborhoods, poverty, and perceived community danger have rarely been examined in empirical studies (Taylor and Harrel, 1996).

2.5.1 Built Environment and Physical Activity

In the late 20th century, community behavior study went deeper and more interrelated in different fields of study. More urban designers and the community psychology became more concerned about citizen participation in grass-roots organizations and other mediating structures gained the interest of community psychologists for several reasons. In crime prevention by a community relations approach such as in the populist mandates for a local democracy, citizen involvement in government services and civic voluntarism have long enjoyed both popular and political support (Bellah, 1985). Furthermore, the related concepts of participation and empowerment are seen as having great heuristic potential as guiding principles for theory, research and practice across the many settings and levels of analysis encompassed by community psychology (Rappaport, 1981).

An Exploration of Sense of Community and Fear of Crime in Gated Communities, written from the University of Wisconsin-Green Bay, (2000) states as communities become more urbanized, there is concern about a decline in sense of community and an increase in fear of crime. Developers are creating gated communities to reverse this trend, but their success remains unknown. This study empirically addresses the issues of sense of community, crime, and fear of crime in a comparative study of two gated and two non-gated communities with similar attributes. Mail surveys were conducted in both a gated and a non-gated community in two contexts: public housing and high-income suburban communities. Results showed that high-income gated community residents reported a significantly lower sense of community, significantly higher perceived personal safety and comparative community safety, and no significant difference in actual crime rate as compared to

their non-gated counterparts. In the low-income communities, there were no significant differences between the gated and non-gated communities on any of the measures. Implications of creating gated communities in different economic contexts are discussed." (Wilson-Doenges, 2000)

Beyond an urban and community design, Physical Activity (PA) among community members has been found to play an important role in crime prevention measures. Those activities of the active upon semi-public space platform of human interaction. The benefits of PA in crime prevention provide a strong intangible social bond in a particular community. This also provides defensive means in deterrence of criminal offenses. There are a myriad of perspectives in different fields of research.

The importance of PA in community relations and fear of crime is also mentioned by a group of researchers: Mai Stafford, Tarani Chandola, and Michael Marmot in "Association Between Fear of Crime and Mental Health and Physical Functioning" in the year 2007. Their study about the association between fear of crime, mental health and physical functioning indicated that: Fearful people exercised less, saw friends less often, and participated in fewer social activities compared with the less fearful participants. Curtailed physical and social activities helped explain the link between fear of crime and health. Fear of crime may be a barrier to participation in health-promoting physical and social activities. Public health practitioners should support fear-reduction initiatives.

About participation, the social and physical environment of residential blocks crime and community context (Perkins, 1990). They proposed a framework for understanding the relationship of participation in block associations to a wide range of block-level variables (demographics, the built environment, crime, and the transient social and physical environment). Data were obtained from 48 New York City blocks using 1) a telephone survey of residents (n=1,081), 2) the Block Environmental Inventory (BEI), 3) police records of reported crime, and 4) a survey of block association members (n=469). The BEI, which measures the built environment,

physical disorder and territoriality, was reliable and correlated significantly with the social climate, crime, demographics and participation. The transient portion of the framework received particular support as four variables independently explained a total of almost forty percent of the variance in participation. The results suggest that a combination of catalysts in the physical environment like poorly maintained properties and enablers in the social environment may increase participation. The relationship between participation and crime and reactions to crime remains unclear.

Social Learning Theory has been used in mentoring programs that should, in theory, prevent some future criminal behavior. The idea behind the mentor programs is that an adult is paired with a child, who supposedly learns from the behavior of the adult and is positively reinforced for good behavior (Brown, 1997). Social Cohesion is respected as a key success in community policing for example in the report of an “Empowerment for the safety of people and property as viewed by the civil society” The study suggested that people’s participation, identity and activity can increase community empowerment. The method used documents and a field survey to collect data which was evaluated by SPSS program in charts and graphs. The study revealed that there is a high level of eagerness in participation in their community. They also agree in concepts of equality, with freedom in decision making to be very significant. The uniqueness of these activities is possible if only in their sense of love and belonging. The study recommended that to make a community stronger, activity should be encouraged among community members (especially in larger groups) and coordination with other organizations are also needed to run any program throughout the year. A community’s leaders play an important role in community member’s education.

2.5.2 Community Safety

Community safety is a new approach to achieve a safer district. Community crime problems are recognized and communities know that no single agency can solve community safety issues on its own. Whilst the private sector may not be the primary agency in tackling violent crime and burglaries they have an essential role to reducing lesser crime and the fear of crime. In its broadest sense and

at high levels, the community council can help create a safer district by working with partners, local residents, business and voluntary sector to significantly contribute to a government agenda like creating a safer environment, promoting cleaner, safer and greener communities, stronger and more effective communities and respect for the sense of community responsibility.

New term in sociological ecology within complex link in different aspect called “Environmental determinants” in general mean any external factor in social, physical, culture including with biological, chemical to indicate community environmental heath is upcoming. In related literature about community-crime is also written in “The relative influence of individual, social and physical environment determinants of physical activity” (Robert, 2002) mentioned that Environmental determinants of health are receiving growing attention in the literature, although there is a little empirical study in this area. The Study on Environmental and Individual Determinants of Physical Activity (known as the *SEID* project) was a social ecological project that examined the relative influence of individual, social environmental and physical environmental determinants of recreational physical activity. Physical environmental determinants were mainly conceptualized as spatial access to popular recreational facilities. The physical environment has direct influences on exercising as recommended was found to be secondary to individual and social environmental determinants. Nevertheless, accessible facilities determined whether or not they were used and in this way, supported and enhanced the achievement of recommended levels of physical activity behavior by providing opportunities. The results suggest that access to a supportive physical environment is necessary, but may be insufficient to increase recommended levels of physical activity in the community.

Physical activity in any community public space misusage can contribute to less activity in social action and physical action. A result of the study in “Socioeconomic Status Differences in Recreational Physical Activity Levels and Real and Perceived Access to a Supportive Physical Environment” Corti and Donovan, 2002) found that the spatial access to recreational facilities and perceptions of the

neighborhood environment and physical activity levels were examined by the socioeconomic status of area of residence (SES) by a cross-sectional survey of adults (18–59 years) (n = 1,803) stratified by SES using a geographic-based index was conducted. The results show respondents in low SES areas had superior spatial access to many recreational facilities, but were less likely to use them compared with those living in the high SES areas. They were more likely to perceive that they had access to sidewalks and shops, but also perceived that their neighborhood was busier with traffic, less attractive, and less supportive of walking. After adjustment, respondents living in the low SES areas were 36% less likely to undertake vigorous activity. Modifiable environmental factors were associated with walking and vigorous activity, especially perceived access to sidewalks and neighborhood attractiveness. Spatial access to attractive, public open space was associated with walking. In conclusion, creating supportive environments—particularly sidewalks in attractive neighborhoods—have the potential to increase walking and vigorous activity.

Billie Giles-Corti and Robert J. Donovan (2002) also continued studying in Relative Influences of Individual, Social Environmental, and Physical Environmental Correlates of Walking**.** This study sought to examine the individual, social environmental, and physical environmental correlates of walking. By using a cross-sectional survey conducted among healthy workers and homemakers residing in metropolitan Perth, Western Australia - The results indicated that most respondents walked for transport or recreation, but only 17.2% did a sufficient amount of walking to accrue health benefits. After adjustment, the relative influences of individual, social environmental, and physical environmental factors were found to be almost equally important. Even though walking is popular, few people do enough walking to benefit their health. Those who walk as well as engage in other physical activities appear more likely to achieve recommended levels of activity. Promoting walking may require a comprehensive strategy.

Even though this study is not related directly to studying the topic “Does Neighborhood Deterioration Lead to Poor Health?”, in U.S.A in Rand health

publication 2005. But it shows some significance that semi-public space such as sidewalks and community alley can contribute to other effects such as people's health because of less of walking activity in deteriorated community environment. Further application is needed and future studies may be able to shed more light on the role of the environment in determining people's health. Understanding cause-and-effect relationships will require residents' health to be tracked at multiple points in time so that researchers can determine when and under what conditions individuals experience particular health outcomes. The city administration might also support the development of local civic organizations and clubs, which can provide opportunities for a neighborhood to increase its collective efficacy by enhancing more positive social interactions and building social support networks among neighbors. It is important to recognize that, beyond a certain point of neighborhood deterioration, it may not be possible to initiate viable or sustainable voluntary organizations where there are neither appropriate physical infrastructures to house them nor complementary structures that could provide additional support. In summarization, positive environment should be an important role of positive perception of human-beings through in their social interactions.

From literature review, several studies have investigated physical and social environment conducive to human behavior in different aspects with those underpinned beneath the conceptual aspects of human ecology. Human-beings are assured as one type of living-organism that will always relate to their environment. By instinct, to survive, reproduce, etc., also the same type under the rule of natural process. But for human-beings, it is more complicated than what reflects in the social context. Human behavior tends to change to fit their environmental condition regularly in order for better living. This type of phenomenon, man and environment can conducive to each other such as in part of built environment like block, gate etc., in physical factors mutually support in changing in human-act. Moreover, myriad of studies and journals are emphasized in social cohesion, community spirit, community empowerment, community safety that might be played a key role to create sense of belonging and community responsibility. Referring in experiences of expert, the

powerful of community bonding should be more distressed in how to develop this strategy and tactics to prevent crime in each community. It is impossible in positive relation in the social bond without a supportive mechanism by physical and social activity like an un-deteriorated environment settings such as community design and proper semi-public space utilization. Eventually, positive in physical and social environment probably be one of the effective mechanism that might be more considerate in practice and respect as another alternative strategy in crime control.

2.5.3 Community and Crime; People's Perception and Satisfaction

Crime prevention in Community relation approach by Improving Deteriorated Community Environment to less Fear of Crime, in late 19th century, extensive research has linked perception of physical deteriorated environment and social incivilities with fear of crime and other outcomes relevant to neighborhood viability (Skogan,1990) one study had found that effects of incivilities index on perceiving of crime problems, fear at night, and robbery victimization while controlling for neighborhood poverty, minority and minority status contribute to more fearful in personal safety.

As a matter of fact the problem is no different, In Thailand mainly the same due to different views of the police sector to public sector. Hence, the solution is to learn from each other, consulting and adjusting to reach the right point by considering the socio-economic status and which needs have the participation of the civil sector, not just the police sector. This process will empower, strengthen and enhance the success of the community's crime prevention.

In Thailand, The Royal Thai Police is the organization which is responsible for safety of life and property. As mentioned above, in order to achieve crime reduction, it needs to set and choose the right track or policing strategy. Although crime can never be eliminated from our society, crime prevention is widely accepted as a pro-active strategy to fight crime, much better than suppression and investigation. Simply said, to prevent is better than to correct.

According to the democratic regime in Thailand, for the administration dimension, government officials have to respond for the peoples' satisfaction. Crime problems should be one of the first priorities for people's concern because it directly affects their lives. To evaluate safety service performance, it can be many ways such as: crime cases, call for services, self-report, uniform crime report etc. If we want to evaluate people satisfactory of their perceived in any kind of the policing services can be measure by the sense of safety and fear of crime. The total amount of crime cases represent their performance of police including fairness, building in society and updated the major group of people of the country. So the strategy must be used in the smart way to achieve the target. In order to the safety building for life and property, this issue has been currently identified the improvement of efficiency of administration and managing systems concerning security for life and property in the 10^{th} of National Economic and Social Development Plan (2007-2010). It has addressed and emphasized on the role of community level. Local-organization plays an important role as a main key to make it success for government mission in many dimensions. For safety in life and property of the peoples, there should be some appropriate and efficient measure for police practice to reduce crime rate and create sense of peaceful in the community.

According to increasing safety in local security, the Royal Thai Police have decided to enhance the security of life and property, making a society really peaceful and orderly. The tactics were changed, protection being placed before suppression. The important factor in its effectiveness is the people's cooperation accordingly. A community relation program was introduced as a sub-plan in the first Police Development Master Plan 2007-2011 in working process and crime prevention to achieve its mission and vision to serve, protect and provide the best services. These were evaluated by civil satisfaction.

The results of an urban community survey case study show a population who live in the Bangkok area by Assumption Business Administration College later updated in 12/02/2009. By using 2,449 random samplings, results revealed that 86.3%

receive news and information from media regularly or weekly; 62.1% of informants said that they had an experience of incivilities annoyance. In addition the results revealed that it is reflected by economic downturn and they were stimulated by information from media, 60.3% about murder, 55.0% for rape, 51.9% for robbery, 49.6% for drug cases and 48.4% about aggravated assault respectively. The greatest concern is that most of them live among risky environmental conditions, ranging from 300 meters away from their home, with deterioration in physical environmental conditions such as 77.0% for habitual drunkards, 64.2% for graffiti, 59.4 % for vandalism, 55.4% for adolescent assembly for illegal purposes, 48.6% for gang disturbance, 48.5% for abandoned buildings and 45.4% concerning drug usage.

The survey continued asking about their experiences with crime and revealed that 62.1% have experienced being annoyed, 32.2% had been robbed, 26.2% suffered harmful assault, 25.3% were fraud victims and 24.1% confronted in drug situations. Added to that, more than half of the samples surveyed had never seen any police presence around their community. The most worrisome item of the total 66.1% are fear of crime if they are walking alone in their community. 74.8% of women are afraid of crime in their urban community. There is more interesting information in the terms of an environmental index of people in Bangkok: Even though people in Bangkok ranked first in the efficiency of transportation and technical communication they ranked 74th in the environmental index of social cohesion ranking.

The study of relationships between urban physical environments have been studied and mentioned for a long time. In Thailand, Pieamsomboon (1983) provided conceptualization of several crime prevention approaches, especially which are related to this study in urban planning since 1990. The same as Yungyoen(1982), who also provided an accredited ecological approach for crime prevention. His study results indicated that crime density and urban land use show a significant relation in reciprocal change. Additionally with the researcher's previous study in "Physical Environmental Pattern Contributing to Crimes in Bangkok: A Case Study of Phaya Thai Police Station" (Kaewumporn, 1995), the results of this study explicitly crime case is related to condensed community and slum areas.

The project “Statistical Survey in Crime by Public Sector” by the Public Administration Faculty of Chulalongkorn University in 2006 conducted in-depth interviews of crime victims totaling 1,531 persons. Some of them had an experience in crime victimization more than once. This survey used SR or self- reporting from actual victims (some of them never reported the crime to the police station). The results of the survey revealed that most of the people who live in Bangkok, 84.8%, have been a crime victim and most of them were property theft victims. More interesting data about victimization is that the highest risk group is married-women older than 41 years of age, poor with low education, selling small items of merchandize to earn a living, living in un-private and un-gated houses with easy access. Information about the same case, the offender was normally male and between 18-25 years of age. Regarding the crime scene, more than half of incidents occurred at the night hours around 0000-0600. Other important data is that more than half (63.3%) of crime victims in Bangkok never reported crime to the police station. This survey also suggested to The Royal Thai Police Headquarter to pay more attention in reducing condition to commit crime. The suggestion for the public sector should be more campaigns in crime prevention by using community policing or a community relations approach to disseminate useful information in self-preventive measures.

Fear of crime is one of the reflective ways in a qualitative scale of perception in satisfaction in a crime situation of individuals safety and security for human life, even though it is not totally explained in validity of crime occurrence but it can be the most responsive in people’s satisfaction in crime prevention performance. Studies of the fear of crime, it can be differentiated into public feelings, thoughts and behaviors about the personal risk of criminal victimization. These feelings, thoughts and behaviors have a number of damaging effects on individual and group life: they can erode public health and psychological well-being; they can alter routine activities and habits; they can destroy community cohesion, trust and neighborhood stability. There may also be some wider cultural influences: some have argued that modern times have left people especially sensitive to issues of safety and insecurity. According to a survey at Assumption Business Administrative College in Bangkok, Thailand for

2,445 random samplings studying fear of crime in Bangkok, the survey found out that 74.8% are in fear of crime in the community and mostly in women with an average age between 40-50 yrs. Further, 62.1% of those surveyed stated they were a crime victim at least once.

In conclusion, the relationship between physical environmental settings and crime is existent and has been confirmed by numerous studies in different fields of study such as human-ecology, sociology and criminology. All fields conclude that physical deteriorated conditions can contribute to crime.

CHAPTER III
RESEARCH METHODOLOGY

This study is employed two types of research method; quantitative and qualitative as follows; 1) Quantitative method lies in concept and theory reductionism. In order to make more concise of physical environmental recovery program which called “Improving Deteriorated Physical Environment by community-based approach” or IDE program to crime reduction elements or CRE, and 2) Qualitative method is needed to explore preliminary community atmosphere and also crucial hidden facts that need to use inductive information as an inductive approach.

From Chapter II, in crime reduction especially in the theory Broken Windows theory focusing on environmental improvements to improve from victimization perspective in any type of actions to prevent bad events which may arise from environmental degradation such as slightly impaired can lead to more damage. But for this study incorporates the concept of crime victims for both points of view with the outside in approach to target both sides of the elements in the crime.

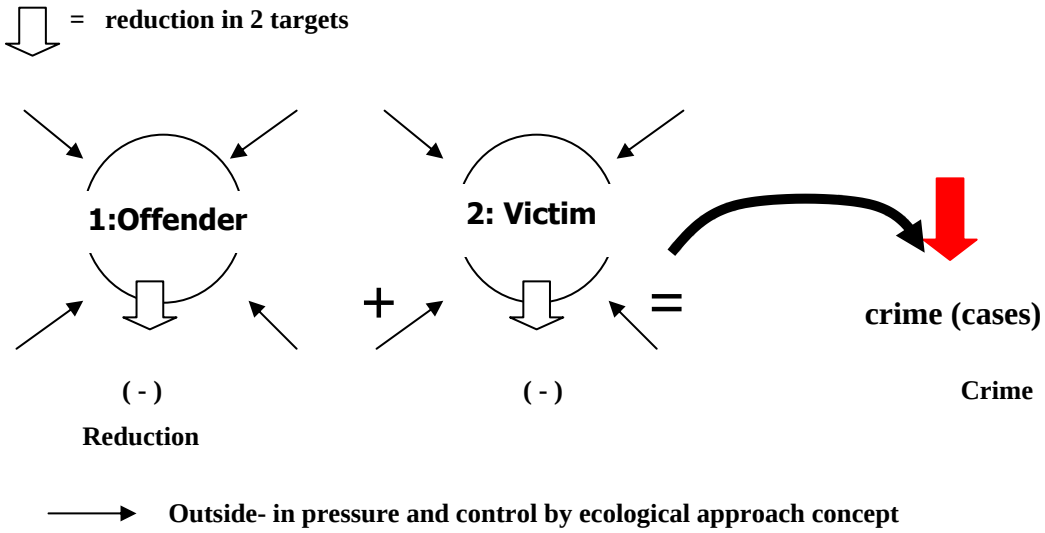


Figure 3.1 Two main targets to reducing crime: offenders and victims
(Source: This study)

Figure 3.1 represents the conceptualization used in this study. It is constructed by using an outside-in approach for community crime prevention which comes along with an ecological approach to crime prevention. The main objective to reduce crime in any circumstance requires lessening the number of offenders and victims. The Ecological Approach is represented by thin arrows. Reducing the number of victims and offenders by ecological approach cannot be directly or individually solved (straight forward from offender and victim) but, in order to find a way and to provide efforts to control or reduce the birth of offenders and victims, indirect ways must be used. The total cases of crime on the right hand side (thick short arrow) would be lowered by these two individual groups. In this study, three samples sites were selected with purpose because both aspects are representative in the same community; an offender's nursery and the prey's habitat.

Because urbanization is a natural process of people's development and adaptation it can be observed by physical settings development. Many locations around the globe are steadily conforming to urbanization and this is usually accompanied by having crime problems. Crime has been regarded as a usual phenomenon for human society since ancient times. Hence, urban crime was also simultaneously studied. For these reasons, this study is focused on urban crime and is therefore related to the land-use type in urban areas and crime in relation to population density.

According to previous study by researcher it is found that dense communities and poor conditions normally contributed to both roles of crime occurrences (Kaewumporn, 1995). From the role of offender: child delinquencies and criminals were certainly found staying in the dense or poor type of community mentioned, metaphorically the same as a specific species being found in a specific type of habitat. For the second role, even though in a dense or poor community they have a low risk of being victimized because they lack valuable belongings, especially for the elderly and children, they are still plagued by drunkards, vandalism and fears of drug abuse. In short, they are still afraid to be victims anyway.

In the "big picture" of crime prevention, this type of community is the most vulnerable. For this reason, this study chose the dense community as a study area to import and research a full program of physical environment improvement. A unique program like this study, which combines improving the environmental setting through fully cooperative action from the community's members, is difficult to find in real life and only a few were found in Thailand. Most communities in Thailand are upset by outsiders such as the governmental sector or municipal authority putting programs in a community without public participation.

3.1 The Definition

Due to this study's stipulation in words, there are two compositions adhered with: 1) improving the deteriorated physical environment or environmental settings, and 2) a community-based approach. These two compositions, for evaluation purposes, need to be itemized and put in a questionnaire. It can then be broken in two main steps of approach. Social aspects through environmental networking must come first. A community's people must be provided a proper concept and education about urban environment and the severe environmental problems caused by human actions. Next come proper guidance and coaching. All of these steps are implemented in terms of community as follow;

Improving Deteriorated Physical Environment (IDE): This can be elaborated in terms of an improving deteriorated physical environment. A "Deteriorated Physical Environment" can be found in many cities, particularly in developing countries, and various names are attached such as slum, favela, skid row,shanty town, ghettos, barrio etc. These areas are usually categorized by urban decay, high rates of poverty, illiteracy and unemployment. Some areas have inadequate access to clean water, inadequate access to infrastructure and sanitation and most of them have poor basic structural qualities in terms of housing material. Most are definitely overcrowded. IDE is one type of positive community program for building up many aspects such as creating adaptive learning processes, outdoor classes for democracy subjects, community fiscal management, effective communication and so on. IDE is composed by main context of Community-based Environmental Approach. This approach is categorized in 2 sub-groups 1) IENS – Improving environmental setting, and 2) IENN – Improving environmental education. Each provides their meaning below. From this point forward, IDE will be represented as an independent variable (X).

<u>Activities of IDE</u>

Improving physical settings and environmental aspects;

1) Elevated housing or re-construction, making it higher and orderly

2) Community pathways re-constructed

3) Green space extension

4) Community has environmental activities; production of home-made microbes as natural water treatment material, home-made grease trap tanks and/or construction of community on-site waste treatment tanks

5) Waste management program

6) Beautiful scenery program

7) Land relocation program

8) Garbage-bank program

9) Strict compliance with Cleaning Day campaign and gradual Community-based or social networking

10) Child and/or teenager participation program

11) Rehabilitation program in housing and environmental issues

12) Provide training program for better understanding of environmental rehabilitation

13) Teaching of housing and friendly-environmental development or network expertise using face-to-face interaction

14) Community Co-op

15) Social networking with other communities

Hereafter, qualitative data needs to be quantified in terms of items, so there are many abbreviations and terms in the terminological list.

CRE / Crime Reduction Elements refer to people's perceptions to behavioral traits in doing risky actions in 3 senses: 1 from a criminal side and 2 from victimization perspectives. For the first sense, 1) This means easy delinquency and performance of improper actions for social order like littering in public, spray paint and painting, stalking, vagabonding, vandalism, 2) This also means easily being a victim or target of criminals by lacking a sense of awareness, being in outdoor spaces without any attention, low levels of physical activity outside the home, low levels of

community relationships, etc. and 3) it can mean the manifest actions of people by latent factors such as self-discipline to comply with social order, their community relationships and also their self-defense mechanisms, etc. From this point on CRE will be represented as a dependent variable or (Y).

IENS / Improving Environmental Setting are a sub-group of any activity from IDE. For IENS, this means improving an environmental setting which was decayed by doing anything positive involving the environmental settings like activities that are initiated by community people for people to develop their physical surroundings (Reconstruction, repairing or fixing their homes, re-painting), better management of community waste, extension of space, performance of cleaning day, regulation of lettering, planting. IENS is a latent variable of the independent variable (X).

IENN / Improving Environmental Education are also a sub-group of IDE. IENN means an intangible aspect of environmental improvement from people's initiative for their own sake like environmental education or training programs and social-networking. The encompass activity is also a latent variable of independent variable (X).

Self-Discipline to comply with Social Order or Conscientiousness (SDSO) is the broad sense of civic virtue and appropriate manners including organizational loyalty, sportsmanship and integrity among others. If any society has a majority of its people that comply with their own agreement, orderly certainly comes after. People's behavior traits can be manifested in the community's order such as level of cleanliness and tidiness, including actions and responses from community leaders.

Community Relations (CR) criminology mentions the power of social cohesion among people over a community's space including the spending of time. It can be manifested and is also measured by people's experiences and practices in their level of information flow and conflict.

Self-defense Mechanism (SDM) is a group of observed variables mainly acquired from criminology as follows: crime prevention, psychology of migration, originated preventive measurement by community people and level of their fear of crime and drug problems.

3.2 List of Terminology and Variable Identification in Model

Latent Variables of Independent Variables (Latent Constructs for X1-6)

Improving Environmental Setting (IENS) (X1-X3)

Improving Environmental Network (IENN) (X4-X6)

Variable identification

(1) Independent variable: (X)

IDE is represented as an independent variable (X) composed of two Latent Variables. Data will be collected from heads of households and household members in the case study area. Each latent variable, as mentioned, manifests itself through observation variables. For IENS in 3 items and IENN in 3 items the conclusion is 6 observed variables as follows;

Observed Variables in Independent Variables

(IENS – Improving environmental settings) (X1-X3)

IENS – Improving environmental settings in 3 items:

The independent variables are constructed for evaluating physical environmental settings such as roads, alleys, co-habitation space, buildings and also waste management.

These observed variables have been constructed:

1) Housing Reorganization (HSR=X1)
2) Cleaning day campaign (CDC=X2)
3) Community's physical setting order (CPS=X3)

Housing Reorganization (HSR) = X1

Fixed (sqm/household) = X1.1

Painted (sqm/household) = X1.2

Elevated ground level (sqm/household) =X1.3

Living area readjusted (sqm/household) = X1.4

Cleaning (times/week) = X1.5

Grease trap tank were built = X1.6

Waste treatment tank were built = X1.7

Cleaning-day Campaign (CDC) = X2

Campaign frequency (times/week) = X2.1

Level of participation (attitude in Likert scale) = X2.2

Waste that was left (piece) = X2.3

Things are left unused (piece) = X2.4

Community Waste-management in practice (times) = X2.5

Bad odor (Yes/No) = X2.6

Waste sorting (Yes/No) = X2.7

Community's physical setting Order (CPS) = X3

Improve the corridor in the community (sqm) = X3.1

Planting trees (unit/area) = X3.2

Flower decoration (unit/area) = X3.3

Relocation (land plot readjustment) (household/total area) = X3.4

Hanging clothes outside the house (pieces/household) = X3.5

Parking arrangement (sqm/total area) = X3.6

Clean and orderly (Likert scale) = X3.7

Aesthetical perception (Likert scale) = X3.8

(IENN – Increases in environmental network) (X4-X6)

IENN – Increasing in environmental networks in 3 items:

The independent variables are constructed for evaluating environmental networks (especially for children) as follows:

1) Environmental education & training program (EEDP=X4)
2) Environmental rehabilitation program (EREP=X5)

3) Social-networking program (SONP=X6)

Environmental education program (EEDP) = X4

Garbage bank

- Participation (attitude in Likert scale) = X4.1
- Knowledge (Knowledge in Likert scale) = X4.2

Home-made microbe treatment tank

- Participation (attitude in Likert scale) = X4.3
- Knowledge (knowledge in Likert scale) = X4.4

On-site waste treatment tank

- Participation (attitude in Likert scale) = X4.5
- Knowledge (knowledge in Likert scale) = X4.6

Environmental rehabilitation program (EREP) = X5

Community rehabilitation program

- Participation (attitude in Likert scale) = X5.1
- Knowledge (knowledge in Likert scale) = X5.2

Social-networking project (SONP) = X6

Community Co-op for housing

- Participation (attitude in Likert scale) = X6.1

Social network with other condensed community

- Participation (attitude in Likert scale) = X6.2

Academic people entering for training or/and academic purposes

- Participation (times) = X 6.3

Crime Reduction Element or CRE (Y) / People's behavioral traits in CRE

Latent Variables of Dependent Variables (Latent Constructs for Y1-Y10)

1) Self-discipline to comply with social order (SDSO) (Y1-Y3)
2) Community relations (CR) (Y4-Y6)
3) Self-defensive measurement (SDM) (Y7-Y10)

Observed Variables in Dependent Variables

(2) Dependent variables (Y)

Dependent variables are divided mainly in 3 conditions and will be collected by people in every household in the case study areas. Dependent variables (Y) are divided into 3 main groups as an endogenous variable.

(SDSO) Self-Discipline to comply with Social Order (Y1-Y3)

1) SDSO – Self-discipline to comply with social order or conscientiousness is categorized into 3 sub-groups.

This dependent variable is constructed in terms of people's perception and practice to evaluate social order obedience categorized in 3 items of observed variables:

1) Community order in practice (COR=Y1)

2) Cleanliness in action (CLA=Y2)

3) Level of obedience in community leader guidance (OLG=Y3)

Community orders in practice (COR) = Y1

- A wandering nomad, annoying-experience (experience in Likert scale) = Y1.1
- Level of graffiti (place) = Y1.2
- Common property destruction (experience in Likert scale) = Y1.3
- Level of public caring and awareness (attitude in Likert scale) = Y1.4
- Energy saving (Level in practice in Likert scale) = Y1.5
- Habit of planting trees (time/yr) = Y1.6
- Responsibility in child raising (Level in practice in Likert scale) = Y1.7
- Gambling (times/month) = Y1.8
- Disturbances by drunken community members (times/month) = Y1.9
- Social responsibility level (Likert scale) =Y1.10
- Self-esteem (Likert scale) =Y1.11
- Natural-resources conservation awareness (Likert scale) =Y1.12
- Consciousness (Likert scale) =Y1.13

Cleanliness in action (CLA) = Y2

- Amount of garbage left on co-habited space (piece/day) = Y2.1

Cleaning-day campaign participation (times/month) = Y2.2

Amount of waste underneath the house (pieces/household) = Y2.3

Amount of garbage being dumped in canal (pieces/day) = Y2.4

Cleanliness in clubhouse (times/month) = Y2.5

Level of obedience from community leader guidance (OLG) = Y3

Frequency of participation in community's activities (times/year) = Y3.1

Willingness (attitude in Likert scale) = Y3.2

(CR- Community relation) (Y4-Y6)

2) CR - Community Relation level

This dependent variable is constructed in terms of people's practice to evaluate physical activities and community cohesion categorized in 3 items of observed variables:

1) Physical Activity (Time spending in community space) (PA=Y4)
2) Community information flow (CIF=Y5)
3) Community conflicts (CCF=Y6)

Physical Activity (Time spending in community space) (PA) = Y4

Use in semi-public space (attitude in Likert scale) = Y4.1

Time spending inside house / kind of activity (hrs/day) = Y4.2

Time spending in semi-public space / kind of activity (hrs/day) = Y4.3

Time spending in club house / kind of activity (hrs/day) = Y4.4

Community information flow (CIF) = Y5

Frequency of face to face interaction with neighbors (times/week) = Y5.1

Time spending for face to face interactions (hrs/time) = Y5.2

Neighborhood details (attitude in Likert scale) = Y5.3

Community's conflict (CCF) = Y6

Frequency of family quarrels/conflict among family member (time/yr) = Y6.1

Frequency of family quarrels/conflict among neighbors (times/yr) = Y6.2

(SDM-Self-defense measurement) (Y7-Y10)

3) SDM – Self-defense mechanism

This dependent variable is constructed in terms of people's planning and decision making in addition to their feelings and practices categorized in 4 items of observed variables;

1) Migration (MIG=Y7)
2) Crime Prevention (CP=Y8)
3) Outsider detection capability (ODC=Y9),
4) Civilian self-defense (CSD=Y10)

Migration (MIG) = Y7
- Plan to migrate in the future (attitude in Likert scale) = Y7.1
- Sibling's migration (unit/household) = Y7.2

Crime Prevention (CP) = Y8
- Fear of crime (feelings in Likert scale) in both day and night = Y8.1
- Outside community (feelings in Likert scale)
  - At day = Y8.2
  - At night = Y8.3
- Inside community (feelings in Likert scale)
  - At day = Y8.4
  - At night = Y8.5
- Crime experience = Y8.6
  - Stealing, theft, robbery, aggravated assault,
  - Sexual harassment, threatening, annoying and drugs (times)
- Fear of drugs (feelings in Likert scale) = Y8.7
- Level of self-awareness (practice in Likert scale)

Outsider detection Capability (ODC) = Y9
- Detected outsider (unit/day) = Y9.1
- Detection ability (feelings in Likert scale) = Y9.2
- Difficulties in area monitoring (unit/total area) = Y9.3

Civilian self-defense (CSD) = Y10
- Civilian patrol (times/day) =Y10.1
- Civilian checkpoint (times/day) =Y10.2
- Law enforcement relationship (attitude in Likert scale) =Y10.3

In order to answer research questions, design and development, research objectives need to be constructed to go along with research questions.For real research outcome, coefficient and correlation between 2 key variables are the main key points. The first is the IDE program as an independent variable in perception and behavioral traits of people in Crime Reduction Elements as a dependent variable. Prior to that, literature review has been conducted for preliminary and reasonable cause and effect between program treatment and human behavior alteration. This research is raised as correlation type research, not direct experimental research. This means that data about people's attitudes are respected as source data from the people in any activities and the perceptions of Crime Reduction Elements.

3.3 Research Design

Research design is related to the conceptual framework in Chapter I. For hypothesis testing, the research method is divided into 4 main steps in an approved objective (see figure) as follows;

1. Objective 1: To examine the relationship between IDE and CRE
2. Objective 2: To analyze factors affecting CRE from IDE implementation
3. Objective 3: To investigate actual drivers of external factors that influence people's perception and behavior; the real reason for the success of the project.
4. Objective 4: To connect this study's results from qualitative and quantitative methods as a new strategy for crime reduction in practice.

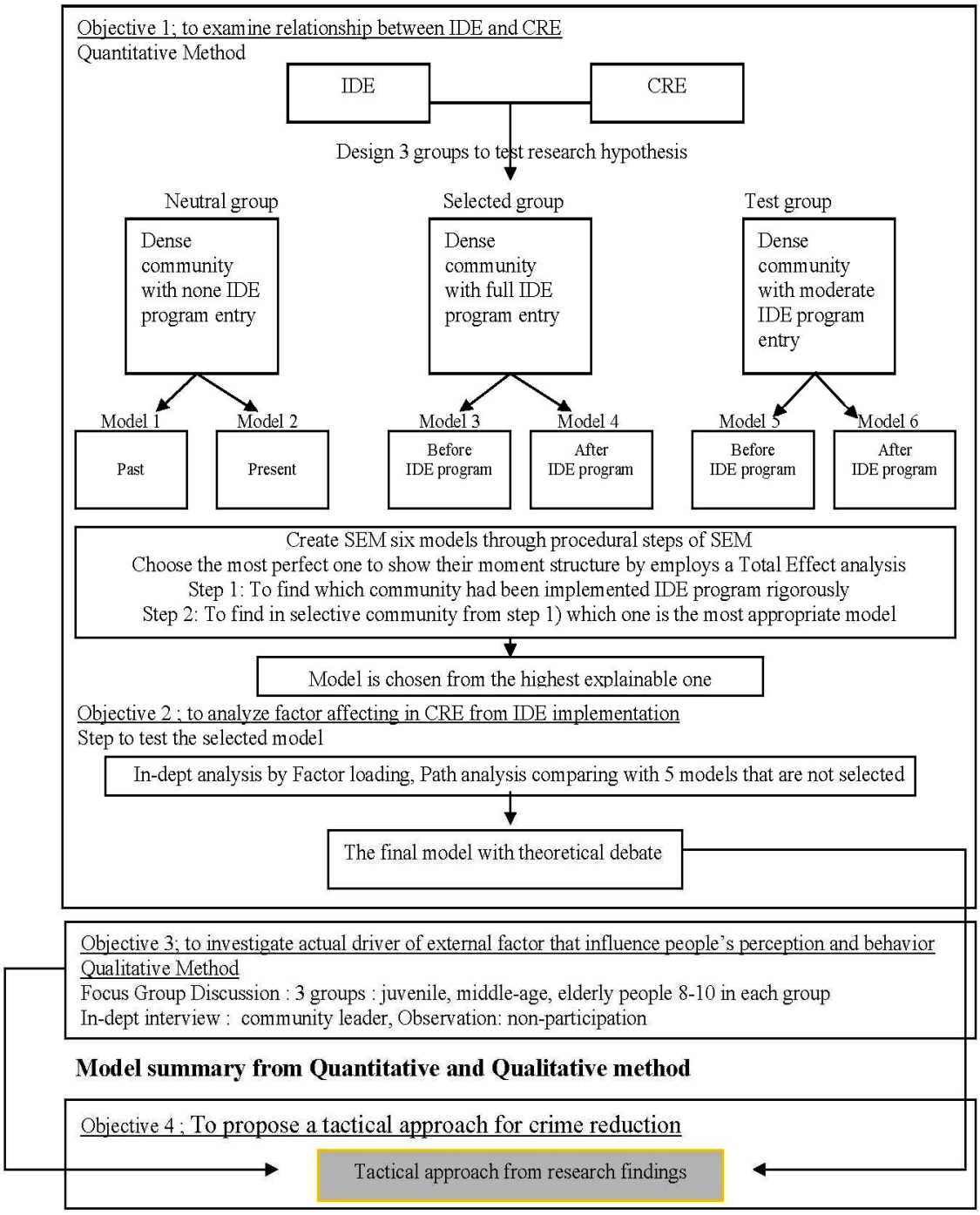


Figure 3.2 Research Design

(Source : This study)

3.3.1 Objective 1: To examine the relationship between IDE and CRE

3.3.1.1 Sample selection method

A case study was designed by logical thinking from the beginning with Improving Deteriorated Physical Environment program (IDE program) leading to Crime Reduction Elements (Crime). According to an ecological approach to crime prevention, this study used the concept of reducing offenders' and Victim's habitats which hypothetically might contribute to crime reduction. An IDE program is respected as a catalytic substance to dilute improper surroundings which might in turn stimulate more criminal activity. When we analyzed two conditions in variables, the IDE program was set as an independent variable (X) to influence dependent variables (Y) – crime reduction element. (See also Figure 3.2)

Normally, doing research by using Structural Equation Modeling in order to clarify and proof all reviewed theories have become a more popular methodology for non-experimental research, where methods for testing theories are not well developed and ethical considerations make experimental design unfeasible (Bentler, 1980). Statistical models provide an efficient and convenient way of describing the latent structure underlying a set of observed variables. Typically, a researcher postulates a statistical model based on his or her knowledge of related theory (Byrne B.M., 2010). This normally means SEM can be used to confirm a conceptual model and existing outcomes in degree of impact among variables. The application of software such as AMOS provides model-testing procedures to determine validation between constructed models and empirical data by a "wellness-of-fit" process. For this study, researchers need to proof the constructed-model from a selected sample in Step 4 that is valid and accurate. These 3 constructed comparative models were built by researchers to compare their structure and mainly to compare TE or Total Effect (see appendix B) changes to provide more strong evidence to support research hypotheses. Comparative models, as mentioned, are composed of 3 samples as follows:

1) Neutral group is created for model checking of the Selected group's model validation because it represents a normal community that has no launched constructive program. This community is sought from all condensed communities for the total of 10 communities without IDE program. Picked up was a Simple Random Sampling method to distribute the questionnaires and collected were 16 questionnaires from each community for a total from the neutral group of 160 informants. Then, random sampling methods were used with 10 communities where the same socio-economic characteristics exist with the Selected and Test groups. The Neutral group is divided into two time-periods, with each time period shown in one model of moment structure (SEM model format) with specific questionnaires (see Appendix A). The Total SEM model in this Neutral group has two models: Past and Recent model or Model 1 and Model 2 respectively.

2) Selected group is the group of target communities in this study because this study needs a specific kind of community that matches the research objectives. The study requires communities with a need for realistic implementation of a physical environment improvement program. This community was acquired from the Community Organizations Development Institute (CODI) of Thailand and in a specific condition: this community has never launched an IDE program and was finally found in Klongchan District, Bangkok, Thailand. Data was collected using face-to-face interviews with questionnaires from a total of 160 informants. The Selected group is the same as the Neutral group but is divided by IDE program in two time-periods; 1) Before IDE program entry, and 2) After the date of IDE program entry. In each time period is shown one model of moment structure (SEM model format) with questionnaire (see Appendix A). The Total SEM model in this Neutral group has two models: Before and After IDE program entry or Model 3 and Model 4 respectively.

3) Test group is a group that provides for accuracy checking of the Selected group. This community has to import IDE program the same as the Selected group with the same community characteristics as other groups. Such a community was found in Bungkum District, Bangkok, Thailand to represent the Test group. Questionnaires from this group were distributed to only 96 respondents because of land area limitations. The Test group is similar to the Selected group and is divided by

IDE program in two time-periods; 1) Before IDE program entry, and 2) After the date of IDE program entry. Then, the Total SEM model in the Neutral group has two models: Before and After IDE program entry or Model 3 and Model 4 respectively in one community in Bangkok, Thailand.

3.3.1.2 Study's cite selection method

This research was conducted in Bangkok, Thailand, and used as a case study. Thailand is a country situated in the Southeast Asia region and was established in the mid-14th century. Thailand's only current capitol is Bangkok and it is the biggest metropolis in the country. Bangkok is the world's 22nd largest city by population with approximately 8,160,522 registered residents as of July 2007, but due to the large influx of unregistered migrants, the population of greater Bangkok is estimated at nearly 15 million people. Bangkok is settled on 2,589 rai (4.14 Square kilometers) with an average population density per area of 5.9 people per rai. The area with the most population density is the inner city. After the reign of King Rama 5th, Bangkok rapidly urbanized and increased in population. Bangkok can roughly be separated in 3 types of land use 1) residential area-23% 2) agricultural area-23.58% 3) vacancy and green area-24%. The rest, approximately 26%, is for commercial, governmental and industrial land use. It is divided into 3 zones concentrically and initiates from the inner city sprawling along the Chaopaya River where mostly commercial areas exist such as: Sumpanthawong, Pomprab-satrupai, Bangrak and Pratumwan. The second layer spreads out by the transport system with some areas in the second layer combining with commercial and residential areas such as Wattana, Bang-sue and Dindang. The third layer or the outer ring consists of zones of large areas of non-productive vacant land and agricultural area.

When all three communities were selected, it was followed by preliminary data acquisition by obtaining fundamental data using conducted field surveys and in-depth interviews combined with theoretical support from literature review. All three techniques were used as instruments before construction of any key variables. Researchers decided to conduct in-depth interviews of community leaders.

Researchers participated in community activities, spent time to keep any crucial information and illustrate exogenous/endogenous variables which are shown as observed or manifest variables. For further steps, semi-structured interview guides must be prepared and used as a guideline for deep dialogue with selected community leaders by following this guideline. After finishing the in-depth interviews, all data must be listed in item form in pre-test questionnaires. Pre-test questionnaires must be tested for validity and reliability before actual testing and the completed ones were used for all respondents in every household in the case study areas. Constructed questionnaires were distributed to obtain information about decision making, practice, attitude and their feelings with closed and open-ended questionnaires to evaluate changes or differentiations that occurred after the IDE program had been running.

To correct for limitations in informants' ability to recall, the constructed questionnaire was quite complicated. At the first stage there were unconfident feelings that came up. This problem should be planned and accounted for. In this case, it was solved by conducting the face to face interviews with questionnaires individually. But the qualitative and quantitative methods revealed results beyond any expectations due to good cooperation from those respondents. This sort of program was referred as a big event for their lifetime and it is still continuing to this day.

This study employs Structural Equation Modeling or SEM as a research tool in confidence with the most reliable statistic method recently. It is also providing in variation among variables quite delicately. Because of its complex in covariance among variables, Computer software Analysis of Moment Structure or AMOS version 6 were used for all SEM procedural steps so all details will be congregated in Appendix B.

After, the results that gathered from quantitative method, all questionnaires must be coded and scored. SEM or Structural Equation Modeling used to examine significant and reliability by using Coefficient of correlation afterwards to compare changes in before and after IDE program started and ended up with an expression from their experience. SEM. has its capability to classify either as an interdependence or

dependence technique. And then analyze in changes and differentiations among their relations by using AMOS or Analysis of Moment Structure; statistical computer software AMOS version 6 which are provided for social science, psychological study and behavioral science. The result from analysis can quantify level of changes and differentiations between after and before IDE program launch in user default relationship model.

3.3.1.3 Questionnaires validity and reliability test

Before the genuine questionnaires are distributed, it was conducted a pre-test with 30 respondents to evaluated and assessed in terms of "reliability" and "validity". Reliability is about consistency of the results obtained from a measuring instrument in a piece of research. If the measuring instrument is a questionnaire, then the questions should obtain the same answer from a person each time it being asked. In addition, a reliable question will be a simple, clearly worded question that will yield the same result on different occasions (Finn, 2000).

Validity is a measuring instrument measures what is supposed to measure. Nevertheless, there are various components to the idea validity. At this instant, we can make the distinction between "internal" validity and "external" validity. Internal validity refers to whether the comparative different cause produces the given effect in the piece of research. In addition, external validity refers to the extent to which the results of the research can be generalized. This is also referred to as the representative of the research result.

In this research, pilot testing the 30 copies of the questionnaire applied from the reliability coefficient alpha by Cronbach's technique. The result for latent variables in "X" was totally 0.7837 for Improving Environmental Setting or IENS , 0.8958 for Improving Environmental Network or IENN and in latent variables "Y" 0.9215 for Self-discipline to comply with Social Order or SDSO, 0.7519 for Community Relation or CR, 0.7877 for Self-defense Mechanism. Normally in the Cronbach Alpha of 0.70 was acceptable (Cronbach, 1990: 204) (see Table 3.1)

As a result of this pilot testing, researcher was able to identify some of the weaknesses and circumlocution of the pre-test questionnaires and also prospected the way to improve the questionnaires to suit respondent groups in some small pieces of questionnaires before a genuine one being distributed.

Table 3.1 Reliability Analysis

Factors	Number of Item	Cronbach Alpha
Improve Environmental Setting/ IENS(X1-X3)	44	0.7837
X1 = Housing Reorganization/HSR	14	0.8171
X2 = Cleaning day Campaign/CDC	14	0.7202
X3 = Community's Physical Setting/CPS	16	0.7188
Improve Environmental Network / IENN(X4-X6)	22	0.8958
X4 = Environmental Education Program/EEDP	12	0.7948
X5= Environmental Rehabilitation Program/EREP	4	0.7782
X6 = Social Networking Program/SONP	6	0.7822
Self-discipline to comply with social order (Y1-Y3)/SDSO	44	0.9215
Y1 = Community Order/COR	26	0.9017
Y2 = Cleanliness in Action/CLA	10	0.7244
Y3 = Leader Trust/OLG	8	0.7301
Community relation (Y4-Y6)/CR	20	0.7519
Y4 = Physical Activity/PA	10	0.7637
Y5 = Community Information Flow/CIF	6	0.7059
Y6 = Community's conflict/CCF	4	0.7026
Self Defense mechanism (Y7-Y10)/SDM	36	0.7877
Y7 = Migration/MIG	8	0.7197
Y8 = Crime Prevention/CP	16	0.7087
Y9 = Outsider Detection Capability/ODC	6	0.7131
Y10 = Civilian Self-defense/CSD	6	0.7028

3.3.1.4 Procedural Steps of SEM in Data Analysis

All preliminary data analyzed by examining missing data, data distribution and fundamental observation variables by normal descriptive statistics including initial agreement in a data analysis process.

1. All variables were analyzed in order to verify a convergent validity acceptance for testing the constructed model and the existing consistency before conclusion.

2. Checking Measurement Model to confirm all variable discriminants actually are accepted and suitable enough to represent each latent variable data set.

3. There are several methods of model fit testing in Factor Analysis. In this case, Causal Model analysis between IDE and CRE in the form of a Structural Equation Model was chosen for Maximum Likelihood or ML estimation principally. This computer software technique can compute Fit Indexes more efficiently and more consistently than the Full-information techniques which each data set must compute by pairing calculations.

4. Analysis of IDE to CRE model by Structural Equation Modeling, Maximum Likelihood: ML estimation was mainly used to test model fit, because this method (AMOS) can computed quite accurate and acceptable valid statistics. It draws all variables in the model to calculate and estimate in real time, called a “Full-information technique” without segregation into parts as in other usual methods. Model identification is essentially used for constructed models. First, researchers had to set Over Identified model to import whole components in the model, which means there should be more equations than parameters or absolute values in estimation. More advantageous for Over Identification is comparing the capability among data sets to pick up or extract inappropriate observed variables from the model. There are two conditions in Model identification procedure as follow:

1) Necessary Conditions by considering the T-rule, which when coded shows the amount of Free Parameters that should be lower or equal amounts in Variance-Covariance Matrix in a selected sample or $T<(1/2)(Ni)(Ni+1)$ / t=amount of estimation parameter in hypothesis model and Ni = amount of observed variable.

2) Sufficient Condition to identify variables for non-error of estimation under Recursive Rule (one-direction relationships) referring influential causal relationship among endogenous variables (Beta Matrix) has to identify under Sub-diagonal Matrix. Variance-Covariance Matrix has to be Diagonal Matrix.

If the computed-result is clear under the referred condition as above, the conclusion can reveal the hypothesized-model and represent all parameters.

5. Test of the model validation means the method of model constructed convergent with empirical data to investigate the level of equivalency by Goodness of Fit Measures. For Goodness of Fit indices, there are several methods for use in testing model evaluation is divided into 2 steps: 1) Evaluate the whole model (Overall Model Fit Measure), and 2) Evaluate each component (Component Fit Measure) (Wiratchai, 1994). Model Evaluation leads to the next step: Model Development, but SEM would pass specific conditions in 2 steps as mentioned.

1) To evaluate the Constructed Model and Empirical Model for validity.

2) Chi-square Statistics were used in order to test the Covariance Matrix of population and whether it is definitely different from the Covariance Matrix of estimation by setting the error term in the 1st type in level of significance at 0.05. Then, if Chi-square did not show the level of significance at 0.05, it means the covariance of correlation in population did not differ from the covariance of correlation of the computed one. This result can conclude that the model is an accurate overall model. The conclusion is that Chi-square is basically used to test statistical hypotheses in SEM but is quite an inflexible method because if p-values exist over 0.05 it means a model shows a strong equivalence. But rarely found is that a constructed-model is convergent with empirical data (Chi-square insignificance) the first time or is a “perfect fit”. Moreover, Chi-square was normally influenced by covariance from other variables and paths: this can cause statistical significance tendency, especially in a model that has a lot of latent and constructed variables with a large sample size; Chi-square tends to show more statistical significance. This phenomenon is called “Chi-square Sensitivity to violate basic rules of normal distribution or Multivariate Normality” (Joreskog & Sorbom, 1996).

3) As noted above, Chi-square is more appropriately used for indicating “imperfection” of the model (Badness of Measure) than as a statistical method to test model perfection. Simply said, if the results show high scores of Chi-square, the model is “less” in equivalence.

a) Fit Index is also used to test among constructed and empirical models. Fit index has various types such as: GFI (Goodness of Fit Index), which was developed by Joreskog and Sorbom (1996). This index indicates an Observed Covariance Matrix which can be explained by Implied Covariance Matrix ($\Sigma(\hat{\theta})$). So, the interpretation scheme is similar to square multiple R2 in regression analysis. AGFI (Adjusted Goodness of Fit Index) is the index which is adjusted by df (degree of freedom). More influencing lines will approach the Just-identified model. AGFI is the index that scrutinizes the path coefficient score 0-1 (normally the GFI score should approach closer to 1 and higher than 0.9) but the AGFI can be a bit lower (0.80-0.85). If any model has a wide range between GFI and AGFI, this means that there are insufficient path coefficients in the model. Another Fit Index is recommended, IFI (Incremental Fit Index). If these scores are between 0 and 1, the area of accepted range must be above 0.90, called model fit. (Arbuckle,1995) If it is closer to 1 that means highly fit (Bollen, 1989) and CFI (Comparative Fit Index) is marked in between 0 and 1 with CFI close to 1 meaning the model is fit.

RMR or Root Mean Square Residual as an index to measure a covariance’s mean square residual and this type of index would be proper to use if all of the observed variables are standard variables and the accepted area is close to ‘0’ (it should be lower than 0.05) (Nongluck Wiratchai,1994).

b) Another type of index is RMSEA (Root Mean Square Error of Approximation). It was developed to test Chi-square and its ‘scores depend on sample size (n) and Degree of Freedom (df) if we have more amount of parameters Chi-square would be decreased and it shows insignificant bending. RMSEA can also indicate model fit between covariance matrix and empirical data, which should be less than 0.05’ (Brown & Cudeek, 1993), but it should not be above 0.08 for the model to be acceptable. If RMSEA is 0, this means the model is exactly fit (Arbuckle, 1995), (Bron & Cudeck, 1993).

c) CMIN/DF (Chi-square statistic comparing the tested model and the independent model with the saturated model) is a type of index to compare differences between covariance matrix and empirical data.

4) To evaluate Constructed Models in each item and that they are actually valid and explainable. This testing was conducted in 2 groups of parameters :

- Standard Error or S.E: An error score should be in a short range to show their significance. If an error score is too wide it means the model is not good enough. Square Multiple Correlation or R^2: If R^2 shows results between 0 and 1 for a high score it shows approved validity of the model but if its less it means the model is invalid (Joreskog & Sorbom, 1993). In analyzing the SEM process, if it can explain covariance variables better than 40%, it means the model is reliable and acceptable (Saris & Strenkhos, 1984)

As these procedural steps of SEM above indicate that all six models have qualify for further steps of model comparisons. In this study, the selected model is the only one to be used to test for further step below.

3.3.1.5 The reason in using Total Effect and Factor Loading

The contribution of SEM is not only for depicting measurement and moment structure of the model but also the explanation of degree of influence from independent to dependent variable through Total Effect (TE) score. Total Effect is composed of two types of effects: direct and indirect. It represents overall effects among variables, especially from independent variables to dependent variables as mentioned above. Crime Reduction Elements or CRE (SDSO, CR and SDM) can be influenced by independent variables in IDE from IENN directly or affected through IENS. Revised on research Objective 1; the result in numeric score of an influencing effect to CRE is the main key point. It leads to the approved primary research hypothesis that improving physical settings can contribute to increased crime reduction elements. All six constructed models are simulated from different conditions. This study chooses only one model that has the most perfect IDE program entry so Total Effect and Factor loading comparison are employed for objective 1.

For Total Effect analysis, the study acquires the most reliable output from computed data to proceed in two steps as follow;

Step 1: To find which community had been implemented IDE program rigorously

The result from Total Effect comparison indicates influencing power from Improving Environmental Networking or IENN cause in physical changing among two communities by investigating on statistical significant as first priority and following by which community propose the highest Total Effect score.

Step 2: To find in selective community from step 1) which one is the most appropriate model

This study chooses only one community from Step 1) repeat the same condition of Total Effect score comparison between two periods of time which one can perform more explainable capability for further explanation.

3.3.2 Objective 2: To analyze factor affecting in CRE from IDE implementation

As stated, the main objective to scrutinize, in detail, the composition of physical environmental improvement programs in condensed communities, particularly people's willingness through participation to influence crime reduction elements. This objective can indicate that a program is re-enforced by what kinds of activities (Factor Loading score in exogenous factor from Latent to Observed variables) cause changes in people's perception traits to their actions (by Correlation coefficient) for more social responsibility and public concern, including self-cautiousness (Factor Loading score from Latent to Observed variable in endogenous factor). All three factors as mentioned represent crime reduction elements. Before becoming a form of complex model as shown below, it is composed of many statistical vocabularies and numerous procedural steps. In this Chapter, some steps have necessarily been moved to the appendix in order to address only the material that is related to the research topic, including the calculated results obtained from AMOS software Version 6.

For Objective 2 is described in two steps 1) Analysis Results and Explanation in SEM by AMOS and 2) Step to test the accuracy in the selected model

The model that is selected from the analysis of comparative data on measurement model and structure of the model among six models are used to scrutinize the relationships of all latent and observed variables more delicately by methods of Factor loading to comparing their measurement capability and Path coefficient comparisons to comparing their model's structure. The analysis results are brought to support in model validity and accuracy that is selected from the strongest implementation of IDE program in certain period of time.

3.3.3 Objective 3: To investigate actual drivers of external factors that influence people's perception and behavior

Based on all 3 samples, researcher conducted a 2nd session of observation, in-depth interviews and focus group discussions in each sample. These methods can tremendously expand all facts and glean some interesting information about IDE program in each study site.

Researcher conducted dialogue with community leaders of the selected community by following a guideline and also conducted FGD in the 3 target groups 1) juvenile group, 2) middle age group, and 3) elderly people group with 7-8 people in each group in conjunction with videotaping.

For the third objective, the study needs to find the most important key success of IDE because it signifies the real leverage of the whole story.

3.3.4 Objective 4: To conclude answers and findings from research Objectives 1 to 3 for proposal as an alternative strategy for crime reduction

This study is based on different sciences and related concepts and is connected in time series. The final product of this study, like CRE, has its own process especially in terms of Social and Behavioral Science and Human ecology concepts. Hence, the scope of Criminology should be involved as an interdisciplinary effort (Jeffery, 1990). So, it should bring concepts of theory integration and a type of side-by-side theory integration (Kuntee, 2011) as shows in the figure 3.3.

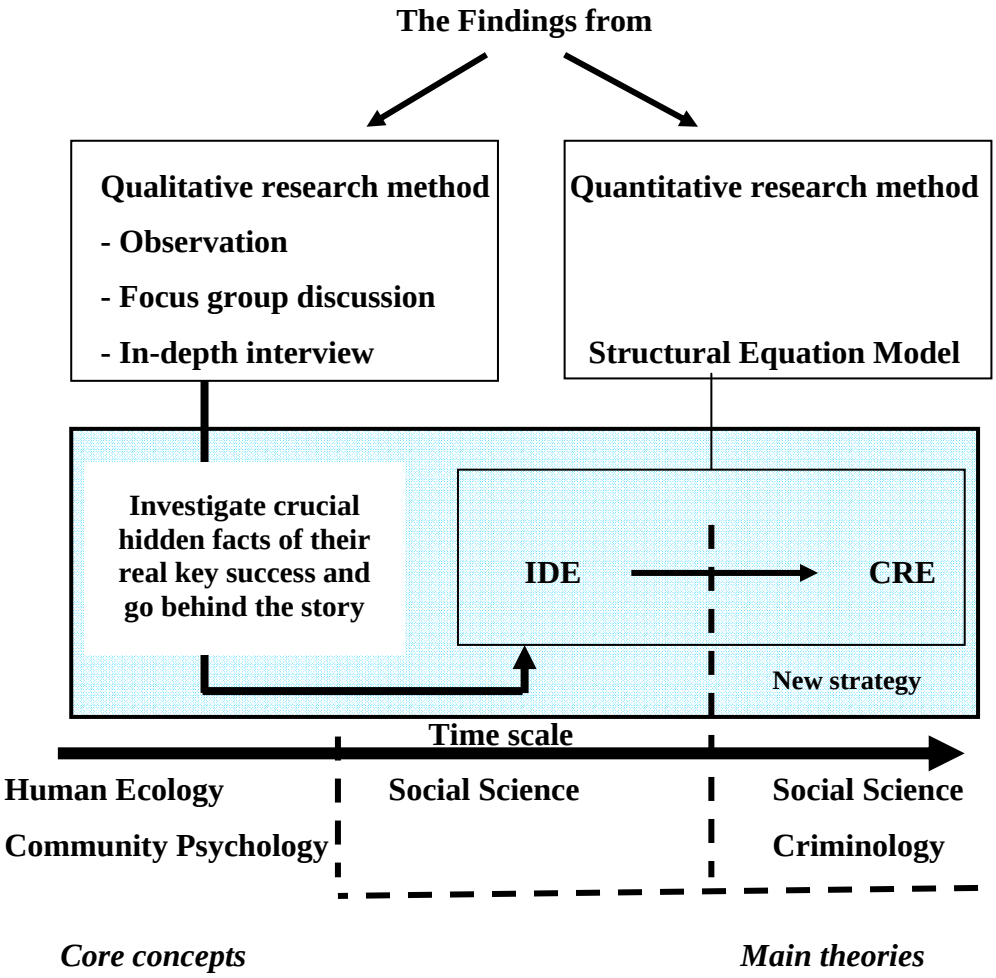


Figure 3.3 Concept of Theory integration as Interdisciplinary research
Note: Adaptive concept of Side-by-Side theory integration
(Source: This study)

Figure 3.3 represents the whole process of this study to its conclusion and findings (shaded box). The findings are constructed from a combination of qualitative and quantitative research methods respectively from real situations that were uncovered before and explored by this study. The findings were explicated from real scenarios at the study site to applicable methods, strategies or approaches that lead to utilization for crime reduction. The emergent property from this phenomenon is supplemented by basic concepts and theories by borrowing concepts of side-by-side theory integration (broken line).

This study proposes a quantitative research method as a first step. Numeric results computed by AMOS represent causal models and show its interrelationships, which are explained part by part (small shaded box). This research outcome represents the overall strength of influence among variables from Objective 1 and 2 added up with qualitative data from Objective 3. An unexpected benefit of the IDE program in CRE reduction is recommended by the study's results. An exploration in key success drivers were founded from in-depth investigation and qualitative methods, which fulfilled an unseen gap of the main key driver of the IDE project.

In the end, this study aimed to promote and expand other aspects of Broken Window Theory by combining deductive and inductive approaches together. Researchers will explain in narrative writing by combining both quantitative and qualitative outcomes to illustrate retribution of Broken Window effects by proposing a new systematic leverage concept of a dual track approach to Fixing Broken Window in order to apply a policy for crime reduction in practice.

CHAPTER IV
RESULT AND DISCUSSION

Results are from data analysis of the four objectives proposed and discussed. Objective 1 aims to examine the relationship between IDE and CRE as well as the outcome of quantitative analysis from total effect comparisons. Objective 2 is analyzed in detail to look at factors influencing CRE from importing the Factor Analysis to IDE program and secondly to get the outcome and answer the qualitative data. Objective 3 is to examine the background of the success of the program. Moreover, there are parts of discussion about the outcome of change in people's responses for their community in main two periods: during a serious or supportive program period and during program nonperformance. Objective 4 is the connection of the study's results from qualitative and quantitative methods as a new strategy for crime reduction in practice.

Data interpretation was divided into 3 main groups; 1) Controlled or Neutral group, 2) Selected group, and 3) Test group. Each of these groups was composed of 2 subgroups or 2 models. The first group, the controlled or neutral group, had 2 models: Model (1) represented activities of community people before the years 1995 (before IDE entry) as a normal community where no launched IDE program existed. Model (2) represented the present time of a normal community group 2) contained with 2 models: model (3) and (4) of selected community / before IDE and after IDE entry respectively and group 3 also contained 2 sub-groups: model (5) and (6) / before IDE and after IDE entry. There will be six total models for this study. This study demonstrates a step by step process from four situated objectives. Quantitative results are represented by Structural Equation Modeling or SEM, proclaimed from Objective 1 to Objective 2. Objective 2 aims to investigate factors affecting CRE from IDE programs in the chosen study site mentioned above. The influencing power on

CRE (dependent variable) is scrutinized in factor loading from each observation to latent variables the same as path analysis among variables specifically only in numbers of regression weights and correlation coefficients that have statistical significance.

4.1 Relationship between IDE and CRE (Objective 1)

Referring to the conceptual framework in Chapter 1 and the research design in Figure 3.2, the first step in answering key questions about a physical setting improvement program is raising a preliminary impact factor to crime reduction elements. This study employed three sample sites (Chapter 3) with six Structural Equation Models to show that the physical setting improvement program really created an impact on CRE independent variables. The computed result from AMOS Version 6 is used for data analysis in steps.

Social science methodology by Structural Equation Modeling or SEM can be explained and interpreted in different forms of description. It depends on the purpose of the study such as to describe (descriptive statistics), to compare (comparisons statistics) or to view relationships, usually known as a regression analysis. As mentioned in Chapter 3, a long process and complicated data analysis before the final product (Total Effect) was conducted. Better understanding of hypothesis testing in this study is necessary to move all details of the data analysis to Appendix B. Hence, this study is mainly obtained from Total Effects for Objective 1 and Total Effects with Factor Loading for Objective 2. Both printed out reports from these two methods can be utilized for answering key research questions.

4.1.1 The reason in using Total Effect and Factor Loading

Related to the research hypothesis, this study's result is aimed to improvise crime prevention for mankind. This study was hypothesized by using independent factors that are proposed by this study, called IDE: a special program of environmental rehabilitation in a condensed community in an urban area (actual endeavors for environmental purposes) can provide good benefits from the aspect of crime reduction.

CRE or crime reduction elements must be proven to be stirred and influenced by the IDE program with questions like: How strong is it? These questions can be answered by Total Effect and Factor Loading in SEM.

Total Effect (TE):

Total Effect (TE) = Direct Effect (DE) + Indirect Effect (IE),

DE = The direction of influencing power from independent to dependent variables in a causal model with the degree of impact called effect size, which can be seen as a standardized regression weight in path coefficient from independent variable to dependent variable and can be from either direction or both directions.

IE = Influencing power from independent to dependent variables which is derived from mediation (The effect of the independent on dependent variable may be mediated by a process or mediating variable and the independent variable may still affect the dependent variable, called the total effect), which is not shown in a SEM equation is calculated by direct effect in the form of total effect.

Factor Loading means that each observed variable has its own explanation capacity in which the normal level Factor Loading score is higher than 0.03 (not necessary to see statistical significance) and is qualified enough. (Wanitbuncha.2003)

1) IDE program (independent variable) is composed of two latent variables; initiate by 1) IENN/ Improving environmental networking program influencing IENS/ Improving environmental settings. The first point to be considered is statistical significance and the second is the highest score acquired from IENN to IENS showing the highest degree, which shows the IDE has performed effectively. Then, capturing causes in a model structure by changing or employing Total Effect score comparisons in the three study sites and which community demonstrates the highest total effect score. The highest score is respected as the model which can converge with purpose of this study. Only one community represents the most near perfect environmental rehabilitation program implementation by numbers of total effect and is suitable for analysis.

4.1.2 Choose the most appropriate model from Total Effect analysis

All data obtained from the SEM procedural steps, mentioned in Chapter III, were computed by AMOS software Version 6. AMOS printed out 5 eliminated models as shown in Appendix B. There is only one model chosen to analyze for capturing factor effects to CRE from IDE illustrated in this Chapter.

All 3 sample groups in the 3 study sites were evaluated with model variations before and after, past and present by analyzing Total Effect among the 6 models and comparing Total Effect as follow;

Table 4.1 Total Effect comparison

	Neutral group				Selected group				Test group			
	Past model 1		Present model 2		Before IDE entry model 3		After IDE entry model 4		Before IDE entry model 5		After IDE entry model 6	
	IENN	IENS	IENN	IENS	IENN	IENS	IENN	IENS	IENN	IENS	IENN	IENS
IENS	0.154	0	0.332	0	0.649	0	0.681	0	0.509	0	0.594	0
SDSO	0.577	0.047	0.264	0.146	0.455	1.058	0.734	0.915	0.283	-0.217	0.631	-0.022
CR	0.357	0.042	0.421	0.02	0.967	-0.066	1.083	-0.015	0.775	-0.026	0.663	-0.273
SDM	-0.289	0.357	-0.056	0.371	-0.648	-0.648	0.545	0.978	1.21	0.198	1.135	0.076

CRE = SDSO, CR and SDM

Statistical significance P<0.01

For Total Effect analysis, the study acquires the most reliable output from computed data. The highest degree of statistical significance is chosen in levels of $P<0.01$ in three steps as follows;

4.1.2.1 Step 1: To find which community implemented IDE program rigorously

The results from Total Effect comparison indicate influencing power from Improving Environmental Networking or IENN caused physical changes among two communities as follows;

1) In Selected group, Total Effect (TE) score = 0.649 before IDE program entry and after IDE program entry Total Effect score = 0.681 with the highest level of statistical significance.

2) In Test group, Total Effect (TE) score = 0.509 before IDE program entry, and after IDE program entry Total Effect score =0.594 with the highest level of statistical significance.

a) Total Effect (TE) score is interpreted in two steps as follows:

1) After the Selected and Test group implemented an IDE program, their physical condition changed according to the effects of their environmental networking. The results and data indicated that the Neutral group (random sampling in 10 communities with 16 informants in the same condition with no IDE program entry) showed a very low level of Total Effect score (0.154 and 0.332 from past to present respectively) with no statistical significance. But both the Test and Selected group showed stronger degrees of influence because people in both communities applied their knowledge and skill for program completion. The significance of this is that IDE program did not exist in the neutral group and it indicated that the neutral group was properly designed to test if IDE really existed in a normal community.

In summary, the Total Effect scores indicated that the Selected and Test groups both implemented IDE program in their communities and further that it had positive outcomes.

2) As indicated above, there are 2 communities to be considered to seek for time periods that implement full IDE programs. Even though both Selected and Test communities had high statistical significance the calculated results of Total Effect

were indicated in different scores, the highest chosen for model interpretation for the next step: to analyze the influencing power from IDE on CRE. Reviewed in 1) and 2) in step 1, four numbers indicate before and after IDE program in the rest of two groups in the Selected group, 0.649 and 0.681. In the Test group, 0.509 and 0.594 with the highest level of statistical significance.

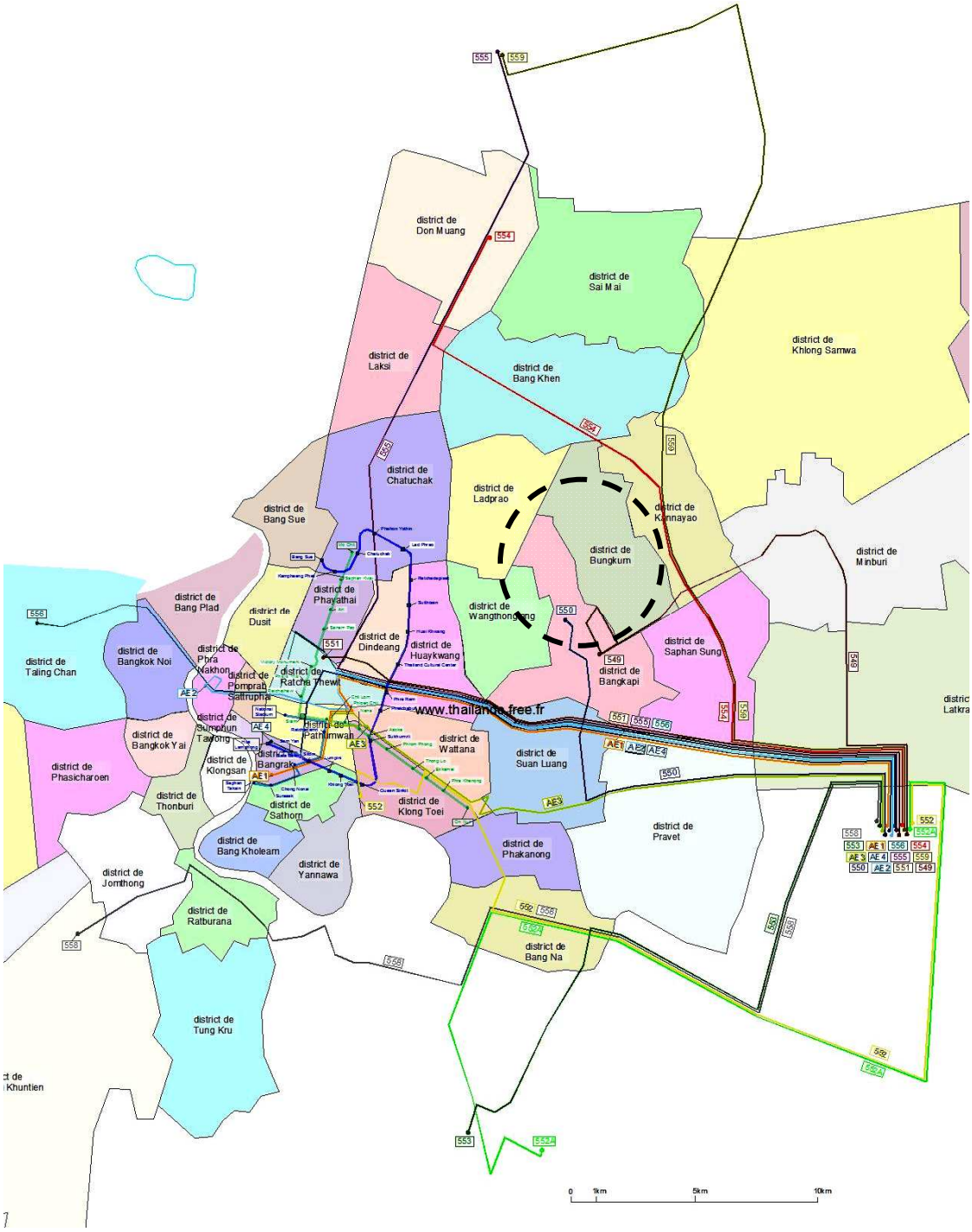
In summary; After IDE program entry in the Selected community with a Total Effect score = 0.681 shows the strongest degree of total effect from IENN to IENS among the 6 models. This can be interpreted that the Selected community (Model 4) imported IDE program for their community causing changes in their physical setting. After the Selected community was chosen as Selective for continuing explanation, both other communities (Neutral and Test) are considered non-selective.

b) Description of non-selective communities

In Bangkok Thailand, temporary settlements are primarily constructed by low-income people, generally from upcountry. They migrate to the city for the purpose of seeking new opportunities. Lacking the means and resources to buy land, migrants normally occupy any vacant land left unattended by authorities for temporary settlements. There are approximately 1,020 condensed communities or slums in Bangkok. 1,589 communities in Thailand with demographics of 1.8 million or only 3% of Thai people with a decreasing rate (Pornchokechai,2007), while an overview of the population in slums report a gradual increase from 830 million (The Economist, 2010).

Naturally, condensed communities found in Bangkok, Thailand have the same physical setting characteristics with various sizes of land and features such as small pathways, poor housing structural quality made of metal sheets and overcrowding. Nowadays, slum settlers in Bangkok have more opportunity and access to clean water and ease of access to facilities with better transportation choices. They even have satellite receivers for watching TV programs.

Picture 4.1 Case study area in Thailand



Picture 4.2 Case study area in Bangkok Thailand

Picture 4.3 Location of Test group
(Non-selective community)

Picture 4.4 Surroundings of Test Group (Non-selective community); Area of Bangkok, Thailand, importing a moderate environmental rehabilitation program

Picture 4.5 An example of the community type in Neutral Group (10 non-selective communities). Normal communities with no IDE program entry can be found all around Bangkok, Thailand.

The study was carried out in the study site and covered 160 households. The ages of the 160 key informants (98 females and 62 males) ranged from 12-68 years with an average age of 38 years for females and 42 years for males. All of them were Buddhists. Their education level was generally considered to be low to mid (average of 6 years schooling) with a moderate illiteracy rate of approximately 50%. The household profiles are discussed below.

a. Community demographic characteristics

Locate on Seri-Thai Road, Bungkum, Bangkok, Thailand, the area of land was two rais. Its compound consisted of a movie theatre in front, on the left attached with public land, with flats and apartments making up the rest of the area. The total number of family members within the group of 160 informants is 245 (161 females, 84 males) in 68 households. In terms of family structure, nuclear or single families were slightly more prevalent than extended family structures (nuclear=51%, extended=49%). 70% were immigrant households, 34 of them having migrated from North-eastern Thailand and occupying this area for more than 40 years. The majority of the people (62%) migrated into this area seeking a better quality of life, better transportation to workplaces and lower or free housing rental expenses. The migrants were observed to have relatives or friends already settled in the area prior to their

moving in. Those who have resided for long periods were individuals who moved in when they were young, got married and then permanently settled with his/her own family. All of the teenage informants were born and bred in the area.

b. Community physical and social environment characteristic

They built their house along the canal with a small piece of land (approximately 20 square m) with their own money and their own effort. Big spaces and well decorated interiors are nowhere to be found. Most of the respondents (69%) have regular employment and earn adequately to provide for their basic needs like food and clothing as well other things like radios, refrigerators, televisions and recently some can even afford motor vehicles and laptop computers.

As for their social life, their education isn't advanced but most of them have some literacy capacity (above elementary school level). Most of them have regular work, even for those having lower education, working on a daily basis as factory workers, food vendors and motorcycle drivers. Almost 30% of the women and elderly people stayed and worked in the home for daily wages. For those few persons who acquired vocational certificates or bachelor degrees, they could be accepted to work as clerks and also government employee. The household members' working income averaged approximately 7,000 Baht per month per head, spending 53% of that family income for food and 30% for transportation with an average of 2,000-3,000 Baht per month for debts.

c. Community's history and safety

This unpopulated land belonged to the government. In 1977, four to five families had moved into the area because of the green revolution and looking for jobs in the city. All of them moved from the north-eastern part of Thailand. In 1993, their community was claimed by the government to be an environmental danger by way of polluted canal. This caused a shifting point from isolated living to collaborative community action. They tried to negotiate with government officials and also challenged them to prove their accusations. A community committee had since been established. Up to and from 1995, their physical environment improving project was gradually implemented for better living conditions.

Because of their past collaborative actions, their social network had been set up. Many programs have since been launched and continue to this day such as: housing development fund, infrastructure fund, community learning center, anti-drug campaign, network of land reform, land sharing, re-blocking and also a neighborhood watch program. For the last of these, they have deployed “patrol checking” every night and have a noticeably low crime rate. Moreover, a family of drug dealers was unable to stay in the community because of their cooperation. In summary, social networking in their community provided them with an immense benefit for their quality of life.

Picture 4.6 Location of Selective community

Picture 4.7 Community rehabilitation program in Selective community (Selected group)

Step 2) to find a selective community from Step 1) which one is the most appropriate model (between Model 3 and 4)

From Chapter 3 in 3.3.1.5 step 2, Model 3; before IDE program entry IDE influencing CRE only in SDSO total effect score=1.058 P<0.01 but in Model 4 IDE influencing CRE on both SDSO and SDM total effect score=0.915 and 0.978 respectively. It can be concluded that Total Effect comparison shows in Table 2, Model 4; The model in the Selected group after IDE program performed the best model to explain the relationship from IDE (independent variable) to CRE (dependent variable) and generated reinforcing power (positive total effect) to CRE. This result can be brought for analysis afterwards for research hypothesis approval in Objective 2.

4.2 Analysis results of factors affecting CRE from IDE implementation (Objective 2)

Behind the complexity of the SEM model in this study, unnecessary details are collectively proposed in the appendix. However, some crucial parts of SEM steps need to be illustrated briefly as follows;

1. SEM is a comprehensive statistical approach for analyzing relationships between observed and latent variables. It is composed of many equations of multiple linear regressions.

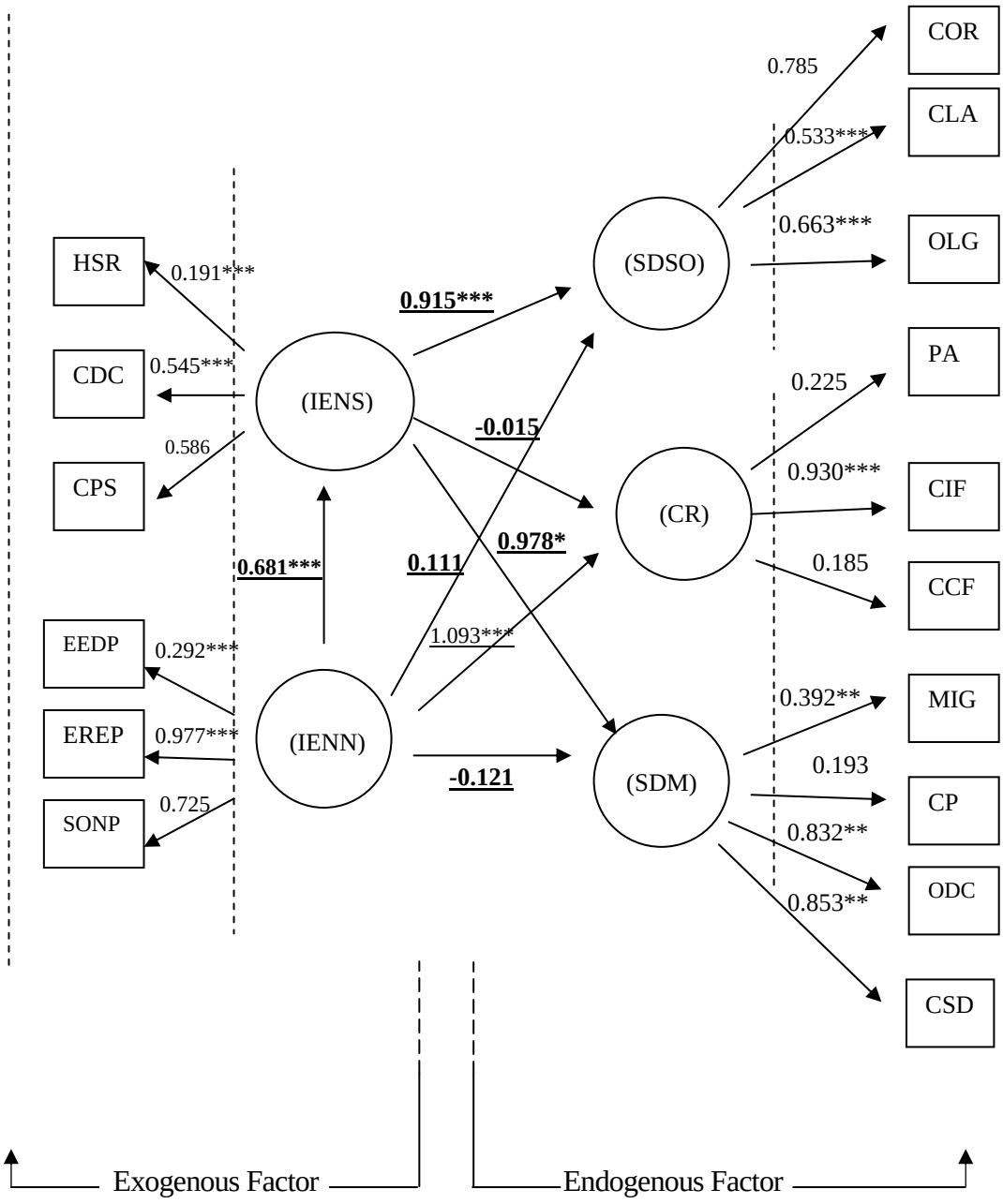
2. SEM consists of two components: 1) Measurement Model, by utilizing Confirmatory Factor Analysis or CFA which aims to explore relationships between latent and observed variables, both endogenous and exogenous, and 2) Structural Model, used for the basis of causal relationships in a rational way, also called path analysis.

3. SEM is useful for testing the theoretical relationships between certain hypothesized models (derived from research hypothesis) and empirical data that is obtained.

4. This study pursued steps for using SEM (noted in Chapter III). All of these steps are detailed in Appendix B.,

5. This study imports only computed results that are related to research Objective 2 in simple patterns by focusing on each specific factor that provides influencing power over them. A Total Effect score is picked up for hypothesis testing in Objective 1. For Objective 2, this study employs two calculated scores from 1) beta-weight score for measurement model or Confirmatory Factor Analysis (CFA), and 2) Correlation Coefficient score for path analysis. (Ref: this study)

Hereafter, a simple diagram is shown after data was analyzed by AMOS software Version 6 (see analysis and computed results in Appendix B) and it has been simplified for better presentation. This hypothesized model finds exogenous factors are stirred by external forces from outside the model structure. The first entry point is IENN or improving environmental networking passing through improving environmental settings (IENS) to endogenous factors. All three latent variables of CRE (SDSO, CR and SDM) empirical data merge with it in the next diagram;



0.xxx = Beta-weight
x.xxx = Correlation Coefficient
Note: Statistical significance / *P< 0.010 **P<0.05 ***P<0.01

Figure 4.1 SEM Model: Selected group after IDE program entry (Model 4)

The subject that this study is interested in is Objective 2. SEM can illustrate moment structure from factors that affect observed and latent variables in both endogenous and exogenous factors. In review, if a score is computed and shown in Confirmatory Factor Analysis (Table 3) the Factor Loading score is represented in three columns in the table but this study concentrated particularly in B, or beta-weight. This score demonstrates in effect the size of factor loading to observed variables (it can be measured in any type of scale; this study uses nominal, ordinal and interval scale) that are derived from latent variables. If a score of beta-weight shows positive it explains re-enforcing type, if it shows negative it explains an inverse direction. As interpreted next in Table 3, this study employs beta-weight scores (analysis from total relation in model) with statistical significance over 0.05, and if not, beta-weight scores that are higher than 0.03 would be taken into consideration (Wanitbuncha, 2003). Square multiple $\mathbf{R^2}$ is explained as all independent variables and how much capability to elucidate dependent variables (normally $\mathbf{R^2}$ score higher than 0.40 is satisfactory) (Wanitbuncha, 2003). The blanked result from Table 3 below, calculated from a paired t-test divided by S.E. if beta-weight in paired t-test score =1.0 the blanked result is shown as it appears in the table.

Table 4.2 Enforcing power from latent to observed variables shown by beta-weight

CRE Factor	Factor Loading			R^2
	B	S.E.	B	
IENS=*Improving Environmental Settings*				
HSR = Housing reorganization	0.291	0.123	0.191***	0.040
CDC= Cleaning day campaign	0.819	0.139	0.545***	0.297
CPS= Community's physical setting	1.000		0.586	0.343
IENN*=Improving Environmental Networking*				
EEDP= Environmental education program	0.313	0.075	0.292***	0.085
EREP= Environmental rehabilitation program	1.843	0.145	0.977***	0.954
SONP= Social networking program	1.000		0.725	0.526
SDSO*=Self-discipline to comply with Social order*				
COR= Community order	1.000		0.785	0.616
CLA= Cleanliness in action	1.121	0.165	0.533***	0.284
OLG= Obedience to community leader's guidance	1.403	0.164	0.663***	0.440
CR *=Community Relation*				
PA = Physical activity	1.000		0.225	0.051
CIF = Community information flow	7.818	2.488	0.920***	0.847
CCF= Community's conflict	0.896	0.507	0.185*	0.034
SDM *= Self-defense Mechanism*				
MIG = Migration	1.636	0.707	0.392**	0.154
CP = Crime prevention	1.000		0.193	0.037
ODC = Outsider detection capability	5.925	2.640	0.832**	0.692
CSD = Civilian self-defense	3.986	1.704	0.853**	0.728

Note: B – beta weight Score from 0-1.000, lower to stronger degree of impact

*P< 0.10 **P<0.05 ***P<0.01

Table 4.2 indicates that a constructed model of the Selected group is composed of five latent variables and divided into two exogenous factors and three endogenous factors as follows; 1) Improving Environmental Networking (IENN), 2) Improving Environmental Setting (IENS), 3) Self-Discipline to comply with Social Order (SDSO), 4) Community Relation (CR) and 5) Self Defense Mechanism (SDM). Each latent variable segregates into an Observed Variable in the IDE to CRE model as follows:

Model (4) Latent Variable of IENS is composed of 3 Observed Variables but only one Observed Variable (X3) / Community Physical Settings (CPS) showed a moderate degree of beta weight = 0.586. The Observed Variable (X3) Cleaning day campaign (CDC) showing moderate beta weight = 0.545 and very low in (X1) / Housing Reorganization (HSR) (B or Beta weight = 0.191 showed a level of statistical significance of 0.01) (X2). If non-statistical significance is shown in beta-weight, in general the score should be higher than 0.3 (Wanitbuncha.2003) which means there is only X3 and X2 to influence IENS and there is a low level of HSR. Their physical setting, a part of Housing Reorganization, is showing the lowest impact to IENS.

The Latent Variable of IENN is composed of 3 Observed Variables (X4-X6). The results from calculation indicate that all of the Observed Variables / Environmental Education Program (EENP) (X4)/ Environmental Rehabilitation Program (EREP)(X5) and Social Networking or (SONP), show a strong influencing degree in terms of Environmental Networking. They are ranked from X5 = 0.977 with 0.01 level of significance, X6 = 0.725 and very low X4=0.292. According to the data, this can be interpreted in the Environmental Networking program as not so effective on the part of Environmental Education program or having a good understanding about environmental problems overall. Most of the people’s perceptions immediately acknowledged the rehab program. But, they had quite strong community cohesion through their Social Networking.

For Dependent Variables, there are 3 Latent Variables composed of Self Discipline to Comply with Social Order (SDSO) (Y1-Y3), Community Relation (CR) (Y4-Y6) and Self defense Mechanism (SDM) (Y7-Y10). For the first (SDSO), COR (Y1) community order has a high degree of beta- weight = 0.785, OLG (Y3) Level of obedience to Community Leader's Guidance showed a moderate beta-weight score= 0.663 followed by CLA (Y2) Cleanliness in Action with 0.533 score in beta-weight at a statistical significance level of 0.01. For interpretation, most of the people got more acknowledgment from community order aspects such as clean and tidy habits and good organization of their physical setting than cleaning and leader trust.

The second order of Latent Variable Y is CR/ Community Relation. CR has 3 Observed Variables: Physical Activities (PA) (Y4), Community Information Flow (CIF) (Y5) and Community's Conflict (CCF) (Y6). The most powerful impact from observation of Y is still the same as Model (3) CIF (Y5) =0.920 with the highest statistical significance of 0.01. The others showed quite a low level of impact (Y4) =0.225 and (Y6) =0.185. This means that the most influential Observed Variable, influencing CR, is mainly acquired from their information flow.

The last order of Latent Variable Y is SDM or Self Defensive Mechanism, composed of 4 Observed Variables (Y7-10): Y7 (MIG) Migration, Y8 (CP) Crime Prevention, Y9 (ODC) Outsider Detection Capability and Y10 (CSD) Civilian Self Defense. There is a moderate influencing power from Observed Variable to Latent Variable of SDM. It was discovered from calculation that there are 2 Observed Variables that are strong enforcing powers to SDM Y10 and Y9 (beta-weight 0.853 and 0.832 respectively, with a 0.05 level of significance) while Y7/Migration, provides a moderate degree of impact showed by a beta-weight score = 0.392 with a 0.05 level of significance and the lowest influencing power for SDM is Y8 / Crime Prevention (beta-weight = 0.193, with no statistical significance). For interpretation, their self-defensive measurement mainly reacted in terms of civil self-defense through neighborhood watches and a civilian patrol system.

This part still aims to capture the influencing power among all factors in the SEM model. Another type of calculated score that is derived from AMOS Version 6 is the correlation coefficient. As addressed in Chapter 3, path analysis is used to investigate a model's structure, also called a structural model. The interpretation that is needed is derived from the standardized regression weight in Objective 1 data, which was analyzed and proved the existing relationship between IDE and CRE. Nevertheless, path analysis in Table 4 is as follows;

Table 4.3 Path Analysis in Model 4: Selected group after IDE program entry

Factors			Regression Weights		Standardized Regression Weights	C.R.	P
			Estimate	S.E.	Estimate		
IENS	<---	IENN	0.166	0.027	**0.681*** **	6.114	0.000
SDSO	<---	IENS	1.734	0.346	**0.915*** **	5.019	0.000
SDSO	<---	IENN	0.051	0.063	**0.111**	0.819	0.413
SDM	<---	IENS	0.742	0.356	**0.978****	2.084	0.037
CR	<---	IENS	-0.005	0.015	**-0.015**	-0.332	0.740
CR	<---	IENN	0.092	0.030	**1.093*** **	3.062	0.002
SDM	<---	IENN	-0.022	0.029	**-0.121**	-0.761	0.447

Note: *P< 0.10 significant level 0.10 (C.R. (t-test) > 1.64)

**P<0.05 significant level 0.05 (C.R. (t-test) > 1.96)

***P<0.01 significant level 0.01 (C.R. (t-test) > 2.58)

Standardized Regression Weights: Higher scores show stronger degree of impact

An analysis of the Path Coefficient in Model (4) is a combination of three paths from Latent Variable to Independent Variable to Latent Variable in Dependent Variable in order to find; 1) the direction of covariance among Latent Variables and whether it is positive or negative, and 2) to evaluate the degree of correlation coefficient in a direct way / Direct Effect (DE), indirect way / Indirect Effect (IE) and the Total Effect or (TE).

Table 4.3 is the Standardized Regression Weights from Latent Variables X to Latent Variables Y in Model (4) showed in four paths: from IENN to IENS with 0.681, IENS to SDSO with 0.915 in level of significance at 0.10, IENS to SDM with 0.978 in level of significance 0.05 and IENN to CR with 1.093 in level of significance 0.01.

According to the influencing power from Table 4.3, ranked from the highest amount of regression weights, the strongest was from Improving Environmental Networking (IENN) to Community Relation (CR)=1.093. The meaning is that usual social networking needs a volume of communication to go along with the same goal, positive manner and avoidance of every type of argument. This prominent result showed an intangible asset inside human-beings: rapport and cooperation seem to be the most important in these kinds of projects. For the second path, physical settings improvement (IENS) also performed a significant role for safety behavior. It is not derived solely from physical setting but also obtained from IENN in an indirect way as well. Perceptions of physical settings in their community is also significant for civilian's responsibility, by regression weights of IENS to SDSO (peoples' conscientious) quite high bare scores (0.915) means physical settings are acknowledged by people's visual perception. If the community's atmosphere is well presented then a sense of good behavior will come afterwards. Undeniably, IENN or the environmental network should be admired as part of this achievement because it is initiated from IENN as a starting point. For the last path, in this case the bare score from Increasing Environmental Network (IENN) to physical setting alteration (IENS) should be presented higher than actually existed. The environmental network is supposed to take more actions than physical settings (IENS). This is because in this case study, one important part of the program is not just new construction that is built, but involves cost concerns for community development.

In summary, influencing power in this structural model is initiated from IENN at an above moderate level (0.681). This enforcing power is disseminated to the other latent variables. Its immense benefit generates a changing physical setting improvement and influences people's behavior in crime reduction as well.

For arithmetic equations the SEM is respected as a final output. Influencing power is referred as a highlight of this study and it is also shown in the arithmetic equation format. For completion, this study respects this equation before stepping forward to the next part; Model Conclusion.

Table 4.4 Degree of impact calculation in the Selected group (After IDE entry) to Total Effect and SEM equation

Dependent	Effect	Independent	
		IENN	IENS
IENS	Direct Effect	0.681	0.000
	Indirect Effect	0.000	0.000
	Total Effect	0.681	0.000
SDSO	Direct Effect	0.111	0.915
	Indirect Effect	0.623	0.000
	Total Effect	0.734	0.915
CR	Direct Effect	1.093	-0.015
	Indirect Effect	-0.010	0.000
	Total Effect	1.083	-0.015
SDM	Direct Effect	-0.121	0.978
	Indirect Effect	0.666	0.000
	Total Effect	0.545	0.978

Structural Equation Model: SEM equation of Selected group (After IDE entry)

IENS = 0.681*** IENN; R^2 = 0.463
SDSO = 0.111 IENN +0.915*** IENS; R^2 = 0.987
CR = 1.093*** IENN -0.015 IENS; R^2 = 1.174
SDM = -0.121 IENN +0.978*** IENS; R^2 = 0.810

*P< 0.10 **P<0.05 ***P<0.01

Table 4.4 From the mathematical equation above it must be considered only in the equations that show a statistical significance in the highlight numbers from Latent Variable X to Latent Variable Y. Calculated results indicate that there is a direct effect (DE) from IENN to IENS = 0.681 in correlation coefficient with p<0.10.

There is also direct effect (DE) from IENN to CR = 1.093 in correlation coefficient with $p<0.10$. In Latent Variables Y, SDSO and SDM are impacted by IENS =0.915, 0.978 with $p<0.10$. So we can conclude in Model (4), which represented the Selected community, that they had a physical rehabilitation environmental settings program entered or conducted in their community. Based on statistical significance of the latent variable, CR shows a total effect score slightly changed according to the influence effect from Indirect effect (IE), down to 1.089 from 1.093.

This study proposes 3 total community groups and 6 model comparisons. Initiated from the first process in this Chapter, the total effect comparison result reported that there was only one community (Selected group) that presented the most accuracy ($p<0.01$) and provided the highest degree of Total Effect score. Furthermore, a narrowing down method found the same selected group but after environmental rehabilitation program entry showed the highest degree of Total Effect score. The most practical and suitable manner to represent this study might choose the best community in the above condition. “Selected Community” in after IDE program entry or Model (4) was the best suited choice, with IDE program launched and proceeded well, good participation, a self-learning process, great effort from all community members in stewardships, and so on as mentioned. For the rest, two non-selective communities must be used to support the selective one.

4.2.1 Step to test the accuracy in the selected model

The selected model is (model 4), chosen by the method above. The analysis of comparative data on a measurement model and structure of the model among six models are used to scrutinize the relationships of all latent and observed variables more delicately.

Table 4.5 The comparison and analysis of Factor Loading in six models

CRE Factor	Neutral group		Selected group		Test group	
	Past Model 1	Present Model 2	Before IDE entry Model 3	After IDE entry Model 4	Before IDE entry Model 5	After IDE entry Model 6
IENS						
X1 = HSR	0.575**	0.833***	0.246***	0.191***	0.253	0.604***
X2 = CDC	0.142	0.201*	0.286***	0.545***	-0.198	-0.063
X3 = CPS	0.893	0.725	0.707	0.586	1.717	1.077
IENN						
X4 = EEDP	0.463***	0.451***	0.860***	0.292***	0.648***	0.798***
X5 = EREP	0.703***	0.691***	0.985***	0.977***	0.563***	0.746***
X6 = SONP	0.857	0.833	0.809	0.725	0.642	0.687
SDSO						
Y1 = COR	0.201	0.067	0.922	0.785	0.507	1.046
Y2 = CLA	-0.257	-0.08	0.481***	0.533***	0.499***	0.007
Y3 =OLG	0.65	1.462	0.545***	0.663***	0.626***	0.451**
CR						
Y4 =PA	0.298	0.343	0.322	0.225	0.127	0.04
Y5 = CIF	-0.013	0.071	1.030***	0.920***	0.687	-0.598
Y6 =CCF	-0.728	-0.649	0.301	0.185*	-0.832	0.984
SDM						
Y7 =MIG	0.418***	0.407**	0.394*	0.392**	0.320**	0.275**
Y8 = CP	0.459	0.535	0.331	0.193	0.748	0.631
Y9 = ODC	0.470***	0.626***	-0.839	0.832**	-0.728***	-0.610***
Y10 =CSD	-0.053	-0.145	-0.671	0.853**	-0.714***	-0.666***

Note: *P< 0.10 **P<0.05 ***P<0.01

4.2.2.1 Factor analysis comparison

Table 4.5 discloses the factors of the observed variables behind each latent variable in comparisons among the 6 models. Output from factor loading analysis is an average amount of the most influential to drive changing degrees inside latent variables. It is initially approved by only picking up numbers that have statistical significance and then computing to find the mean of each observed variable in each latent and/or a degree of beta-weight that is higher than 0.03. It should be reiterated that the Measurement Model or Factor Analysis is explicit to the level of influence from Observed Variables to Hypothesized Variables, which for the most part cannot be observed, evaluated, intangible and is based on theoretical assumptions which were obtained by literature review. Statistical numbers were calculated by a technique of multiple regressions. Calculated output indicated a degree of impact on each Latent Variable in order to discern which Observed Variable was enforcing or impeding total influencing power. Each item of Observed Variable is listed for comparative discussion, item by item, as follows:

1) Improving Environmental Settings or IENS

X1 / (HSR) Housing Reorganization in IENN, Factor Loading apparently signifies that it is the highest score in the neutral group in both past and present time (beta-weight = 0.575,0.833 at $p< 0.01$) because of the people in this community having higher incomes and education. Even though it supposes that having a lower degree of housing renovation is in accordance with physical environment detriment, in reality it still has gradual improvement by reason of change over time. Look at the selected group: After the IDE program entered; unexpectedly scores became lower than before IDE program entry because of X1 having strong influence in CLA in the selected group. For the test group, it indicated that there is significant changing in Housing Reorganization overall and people's perception in the test group gave weight on HSR higher than CLA.

X2 / (CLA) Cleaning Day Campaign, the IDE showed the most practical action only in the selected group (beta-weight= 0.286, 0.545 before and after IDE entry respectively at the same level of $p< 0.01$). With the researcher's notion, in the selected group, juveniles played a crucial role in this campaign; moreover, they could

propel the middle-age and elderly people. The other groups did not show any Statistical Significance T at all.

X3 / (CPS) Community Physical Setting, according to the IDE program in the test community, caused some changes in community physical settings such as: new pathways were built; with the smallest sample size they acknowledged better aesthetical atmosphere in their visible community (beta-weight = 1.717, 1.077 at $p< 0.01$ in past to present time respectively). All of these changes can be easily found around their community and easy to acknowledge and perceive by human sight. But total Factor Loading of the test group at the present time put more weight on X1(HSR), so it made the declining score X3. This phenomenon also occurred in the selected and neutral groups (in the case of X3, declining by more Factor Loading from X1).

2) Improving Environmental Networking or IENN

X4 / (ENED) Environmental Education Program with unexpected results, namely that all members in every community answered and expressed their environmental responsibility even though from the researcher's preliminary data in the neutral group, no such IDE program had been entered before. Most of them (in all three groups) acknowledged environmental improvement because calculated results showed significance. Among the selected group and test group there were differences in beta score between before and after IDE program entry, with people wishing to avoid negative consequences (Rotter, 1954).

X5 / (EREP) Environmental Rehabilitation Program, desiring positive results or effects. From in-depth interviews with the community leader of the test group, the researcher was informed that an NGO always came by and gradually gave interactive activities until the IDE program finished, which was different from the selected group. When they got a budget to develop the site they focused on collaborative activity and a cleaning day campaign. With some argument, before the IDE program existed, at the preparation stage in the selected group, the community leader of the selected group acknowledged that after they came to understand how important community rehabilitation was, they tended to reduce their endeavoring to seek further information.

X6 / (SONP) Social Networking Program: X6 and X5 result from AMOS analysis gave the same direction as mentioned above. For example, in the test group the score increased from before to after IDE program entry because of outsider or external factors providing regularly assistance.

3) Self-discipline to comply with Social Order or SDSO

This variable concerns conscientious reflection. Some differences can be found in Factor Loading comparisons among the 6 models.

(Y1) / COR Community Order, for the neutral group, was not taken into account because of non-significance and a beta-weight score lower than 0.3. But obviously seen in the test group after IDE program entry, COR is the highest score in Factor Loading for SDSO.

(Y2) / CLA Cleanliness in Action, the same as (Y1) for the neutral group, there is no significance and absolute beta-weight lower than 0.3. In the selected group beta-weight increased after IDE program entry. If looking at the test group, CLA factor loading after IDE program entry was less than before because the weight had already been shifted to COR in the test group.

(Y3) / OLG Obedience to Community Leader's Guidance: In this Observed Variable more emphasis was on the selected group, especially after IDE program entry because this is the highest score of Factor Loading among all 6 models (beta-weight = 0.633 at $p< 0.01$). This was due to the selected community respected as an achievement in IDE program due to leadership performance.

4) Community Relation or CR

(Y4) / PA Physical Activity: According to literature review, PA was referred to as important behavior to create intimate contact which could contribute to creating more relationships among people on the secondary-space platform as a human interface. But from this research outcome, as shown in a very low Factor Loading score, it was not significant in the statistics. So, the researcher urged this matter to be investigated further as a theoretical argument.

(Y5) / CIF Community Information Flow: We can see a strong impact on Factor Loading in the selected group (Model (3) and (4)) with a beta-weight score = 1.030, 0.920 at the highest $p< 0.01$) which means that during the time the IDE program was activated there was an immense flow of communication which dropped a little after IDE program entry. For the other two communities, there was no significance but there was a huge drop in the test group after IDE program entry because Factor Loading shifted to (Y6)/ CCF.

(Y6) / CCF Community Conflict: Results from data analysis in this variable, most of all, have no significance. If needed to scrutinize just only in beta-weight we find in Test group that bad scores like (Y6) seemed to provide strong negative impact on CR beta-weight score -0.832, 0.934 in before and after IDE entry respectively.

5) Self-Defense Mechanism or SDM

(Y7) / MIG Migration: This variable directly involved Broken Window Theory at the first stage mentioned in that most people tend to move out for reasons of dissatisfaction with their environment. Therefore, it was categorized in SDM. The beta-weight score indicated that they showed quite height significance and almost all of them had scores above 0.30. Data results emerged interestingly in the neutral group – the group that people had higher incomes and education; this group had the highest score from (Y7) of Factor Loading to SDM.

(Y8) / CP Crime Prevention: Crime prevention was composed of 7 sub-variables including: fear of crime, crime experience and fear of drugs, which didn't show so much impact on SDM. Because of this, there was no significance inside and low beta-weight scores in all groups of the community. It doesn't mean that crime prevention is not significant in SDM; it is just low in measurement value.

(Y9)/ ODC Outsider Detection Capability: To reiterate, this variable was generated from theoretical assumption using CPTED or Crime Prevention through Environmental Design (Newman, 1969) and it was categorized in SDM. From computed results for degree of impact from (Y9) to SDM, it showed they were quite height significant. An interesting outcome might focus on the selected group. There is a big change in beta-weight score from -0.839 to 0.832. So, SDM was impacted by (Y9), especially in Model (4) after IDE program entry in the selected group.

(Y10)/ CSD Civilian Self-defense is quite similar to (Y9). The selected group had a big change from IDE after from before, -0.671 to 0.853. According to this, it could be interpreted that after the IDE program was entered, the community simultaneously emerged their own protection which can provide huge impact scores to SDM.

Analyzing comparative factor loading among the 6 models is aimed to perceive an Observed Variable and how strong is the degree of impact in each Latent Variable. Sometimes seen are their changes or even comparisons among groups. In other words, it is the process of comparing measurable ability in each model.

4.2.2.2 Path analysis comparison among six models

Among six models of SEM in this study, computed result from AMOS after correlation coefficient relationship had been drawn for their illustration of their moment structure. Because of different circumstance in each six model, the result of Path directions are reflected as by straight line with numeric score and head of arrows. From now on, all those structural relationships present in table and diagrams below;

Table 4.6 Path analysis and comparison of correlation coefficient among six models

	Neutral		Selected Group		Testing Group	
	Past	Present	Before IDE entry	After IDE entry	Before IDE entry	After IDE entry
Correlation Coefficient	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
IENS ← IENN	0.157	0.332	0.649***	0.681***	0.509***	0.594***
SDSO ← IENS	0.047	0.146	1.058***	0.915***	-0.217	-0.022
SDSO ← IENN	0.570	0.216	-0.232*	0.111	0.393*	0.644***
SDM ← IENS	0.357*	0.371	-0.648	0.978**	0.198	0.076
CR ← IENS	0.042	0.020	-0.066*	-0.015	-0.026	-0.273
CR ← IENN	0.351	0.414	1.010***	1.093***	0.789	-0.501
SDM ← IENN	-0.344	-0.179	-0.227	-0.121	1.019***	1.090***

Path co-efficient figures:

IENS = Improving Environmental Setting

IENN = Improving Environmental Networking

SDSO = Self-discipline to comply with social order

CR = Community Relation

SDM = Self-defense mechanism

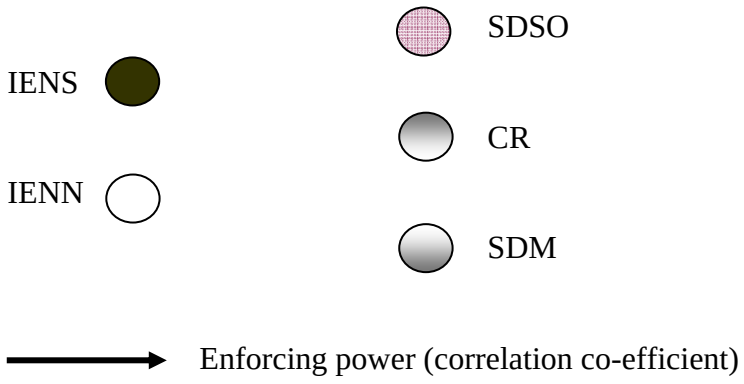


Figure 4.2 Symbolic figure for path analysis in each model

Table 4.7 The direction of path co-efficient in each model

	Neutral		Selected Group		Testing Group	
	Past	Present	Before IDE entry	After IDE entry	Before IDE entry	After IDE entry
Correlation Coefficient	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Path co-efficient figure						

Path co-efficient figure in Structure Measurement Model

1) Path analysis of Neutral group

Model 1 Neutral group in past time and Model 2 Neutral group at present time

Model 1 and 2, by calculated results, indicated that there was only one relationship among the 5 Latent Variables, being the flow of influencing direction initiated from IENS to SDM with r=0.357,0.371 and at $p < 0.10$. According to a path-

analysis its summarized that the Path-coefficient in the neutral group which did not have an IDE program entry Improving Environmental Setting acted as a natural circumstance for ordinary physical environment alterations over time. Even if initial physical environmental detriment had been found around the area, almost all of the informants (who had long residence) agreed that their community in the past was better than the community's surrounding in recent years. By Table 4.7, there are no paths of coefficient from IENN to IENS and also the other Latent Variables because of there being no Statistical Significance shown among those relationships.

2) Path analysis in Selected Group

Model (3) Selected Group before IDE program entry and Model (4) Selected Group after IDE program entry.

For Models (3) and (4), the IDE program did enforce changes in the model structure from IENN to IENS with r= 0.649, 0.681 at the highest level of p< 0.01. Accordingly, it could be interpreted that there was a real enforcing power among most of the informants' perception from IENN to physical environment modification. The IDE program was a little more influencing after IDE program entry (diff approx. = 0.032 / 0.681-0.649). IDE entry IENN also provided impact on endogenous (Y) -CR both before and after with r=1.010, 1.093 at the highest level of p< 0.01 and it also showed an increase in coefficient (r) from 1.010 to 1.093. The total increase of 0.063 means the IDE program could increase more relationships among people in the selected community. When moving forward to see influencing effects from IENS to other Latent Variables as SDSO and SDM;

3) Path analysis in Test Group

Model (5) test group before IDE entry and (6) test group after IDE entry

Models (5) and (6) were also influenced by the IDE program after entry with r=0.509, 0.594 at a level of p< 0.01, which can be interpreted as a real enforcing power among most of informants' perception from IENN to physical environment modification in the test group. By observation, the rehabilitation program in the test

community was smaller in size than in the selected group but still provided a moment to IENS. In accordance with the IDE program, IENN program can also influence SDSO, especially after program entry (r= 0.393 at significance level 0.10 and 0.694 at significance level 0.01) but it is different from the selected group that found one path from IENS to SDSO because in this test community, movement from environmental activists can help people in the test community to train their behavior in positive attitudes but their physical environment doesn't change as much as what happened in the selected community. As seen in the table, IENN can be confirmed as exactly initiating people's perception to train their behavior in crime reduction.

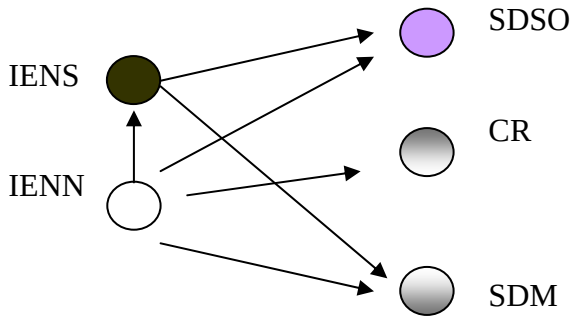


Figure 4.3 Integration of all path analysis in 6 models

Path analysis summary:

See path diagram from integration in Figure 14, selected community in Model (4) showed four paths to Coefficient of Correlation from IENN to IENS, IENN to CR, IENS to SDSO and IENS to SDM. In the test group, there were 3 path coefficients of correlation from IENN to IENS, IENN to SDSO, IENN to SDM. From the neutral group, there was only one path coefficient of correlation from IENS to SDM. Whilst all paths in the six models merged together, there was only one path from IENS to CR that showed correlation never existed.

4.2.2 Finalized model

This study is finalized in part by quantitative methods used to accomplish research Objectives 1) and 2) as follows;

1) To test whether improving deteriorated physical environments (IDE) really increases crime reduction elements (CRE)

2) To analyze factors affecting the reduction of CRE from IDE implementation

For Objective 1, this study employs 2 steps from Total Effect comparisons. Because of key research questions and hypotheses in this study, exploration is needed in the accomplishments of IDE program in aspects of crime reduction that really existed. Hence, the Total Effect from SEM is selected because of the inherent capability to tell the direction and degree of influencing power among assigned variables. The objective is tested by two sub-steps of Total Effect comparison. Finally, the study's results indicated that IDE can increase CRE (from Model 4: Selected group after IDE program entry is chosen and approved by a highest score of Total Effect with highest statistical significance).

In the case of Objective 2, this study employed two techniques from SEM. Influencing power that flows inside both observed and latent variables performed two types of measurement, referring to Factor Loading by beta-weight score and correlation coefficient by standardized regression weights. All details were analyzed totally in the upper section. The combination between structure and measurement from Model 4 is shown in SEM finalized model as follows;

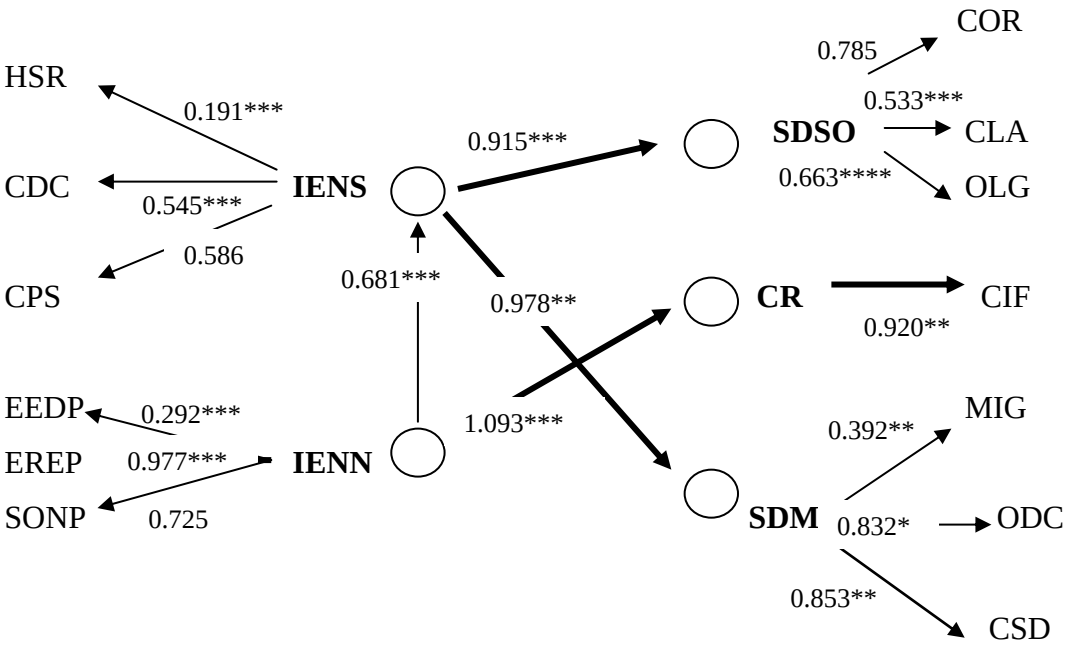


Figure 4.4 SEM Model 4; Depicted diagram from Model 4 (after IDE program entry into the selected community)

From Figure 4.4, the total influencing power mainly assured that it was generated from IENN and the results from review of Factor Loading scores of IENN were composed of three subgroups as follows; Environmental Education Program or EEDP(X4), Environmental Rehabilitation Program or EREP(X5) and Social Networking Program or SONP(X6). The highest score of Factor Loading was derived from EREP (beta-weight = 0.977 with a level of $P < 0.01$), followed by EEDP(X4) score = 0.292 with a level of $P <$ of 0.01.

An enforcing power from IENN to IENS was reflected by people's perception with the highest score of beta-weight in Factor Loading to the Cleaning Day Campaign or CDC(X2) score =0.545, followed by Housing Reorganization or HSR(X1) score = 0.191. All of these scores had the highest statistical significance at a level of 0.01.

Afterwards, the people of the selected community perceived program benefit. Their behavioral traits altered in all three endogenous variables at different levels. The first factor is Self-Discipline to comply with Social Order or SDSO, totally effected by IENS with a coefficient of correlation = 0.915 and a level of $P < 0.01$, through the level of obedience from community-leader's guidance or OLG (Y3), beta-weight=0.663, followed by Cleanliness in Action or CLA, beta-weight= 0.533. All of these scores are highly $P <$ at 0.01.

In the second endogenous factor, Community Relation or CR derived influence by IENN with a coefficient of correlation = 1.093 reflected by only one of the observed variables with a very high score of beta-weight = 0.920 after IDE entry with high significance in (Y6) / Community Information Flow or CIF. For the last endogenous factor regarding Self-defense Mechanism or SDM, which composed of four observed variables but derived from IENS =0.978 with moderate significance of $P < 0.05$, it represented up to 3 observed variables as follows: (Y10) Civilian Self-defense, (Y9) Outsider Detection Capability or ODC and (Y7) Migration or MIG with beta-weight score = 0.853, 0.832 and 0.392 respectively. All of these variables have a 0.05 level of significance.

In the following part, after various points were discussed, this study summarized the causal model derived from the two objectives as above and illustrated it in the form of an SEM model for better understanding. The model also needs to be grounded and discussed by the core concepts and theories reviewed in Chapter II.

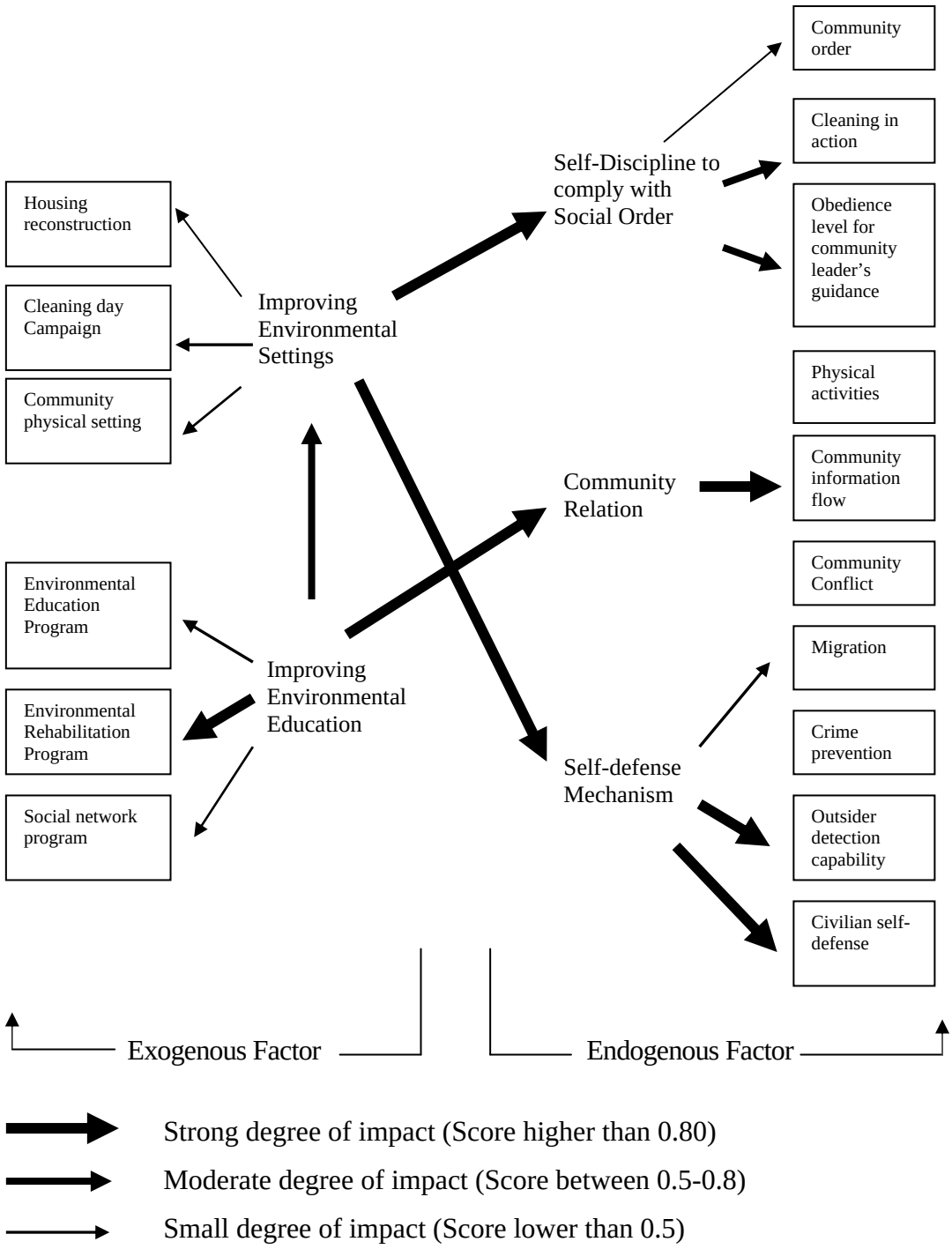


Figure 4.5 Final model illustrated from Figure 4.4 by uncomplicated representation (*Source: this study)

From quantitative research method findings to the finalized model shown in Figure 4.5, it is proposed to simplify the model in a form of understandable figures. It is illustrated in effect size from numbers to straight lines with full explanations. Seen in the first entry point IENN, it shows enforcing power directly flowing through all variables in the model. Some observed variables have no access line, meaning that it was unqualified to interpret and generally had no statistical significance. All straight lines that represent degrees of impact, assigned by this study, are done to explain the simple diagram.

Theories revisited

This study lies beneath an ecological approach and urban ecology study, focusing on crime problems as well as traditional academic approaches and grounded on human ecology by Hawley (1950) and Kenworthy (1999), which provides the broad concept of Human ecology as the study of human interrelation, with each other and with their environment (Marten,2001).

Under the urban ecological framework, urbanization and human behavior show their interconnection and dynamism. Cities are referred to as urban ecosystems having a dynamic flow of material and energy (Park, 1952). As noted, behind the complexity of human behavior evolves a highly structured social environment (The Way, Goldsmith, 1992). This supposition is argued by none, interrelationships among physical environment and organism adaptation are declared as empirical truths. This knowledge can be brought to improvise for environmental (physical environment) modification (improvement) benefits for people to decrease their bad habits using this logical causal relationship. Some scholars mention that physical environment can modify children's perceptions and their activities in low-cost places (Costongua and Jutras., Pitner and Astor, 2008) as found in the site of this study. Then, the IDE program represents a method of environmental improvement to human's adaptation in crime facets and constructive actions, called CRE.

From approved Objective 1, one of the non-selective community IDE programs brought into this community did not achieve anything (low beta-weight score with no statistical significance). In order to determine a model analysis, selection of a model was needed for the most completeness of IDE implementation. From this study, the four given models are the selected ones for explanation of the same found in the emergent properties of Model 4; their fear, anger, anxiety, hate, happiness and love as their behavioral responses (Park, 1952 and Marten, 2001) by being afraid of being evicted by local authorities.

Improving Environmental Networking (IENN) to Improving Environmental Settings (IENS) and Community Relation (CR)

The IDE program, which is initially seen as the objective, started as an environmental community network or IENN and is the first inner factor to improve the condition to generate a community visual aspect project later on. Considering the value of Regression Weight, which has important meaning in high statistical scoring up to 99%, it was found that the environmental network can create the change of management of visual aspects in a community by quite strong levels (0.681). The findings from a quantitative research method can well be explained by Social Learning, Psychology and Behaviorism from Rotter (1954) and Tarde (1969). The participatory actions of community people in a community context are found and suggest that a combination of catalysts in the physical environment, like poorly maintained properties, enables the social environment to increase participation (Perkins, 1990). This will be affected in change to the inner factor of variables, say the Community Relation or CR at a high level (Direct Effect value= 1.093). Community Relation or CR got heightened scores because it is received by changes in environmental settings or IENS as its direct effect. An environmental networking program is supported by concepts of participation and empowerment as noted in community psychology (Rappaport, 1981). The first steps of IENN, because of low ability of investment, cleaning and reorganizing on both private and community public spaces (semi-public space), are conducted as preliminary actions. This first constructive action is called Cleaning day Campaign (CDC), and can generate

enormous positive unintended consequences like; cleanliness and tidiness, space expansion with more order (beta-weight 0.545 $p<0.01$). This example was addressed from the upper part of Social Action Theory (Weber, 1976) and can be used and utilized as in this study site. Housing design or block layouts show relationships of crime situations and criminal offenses (Taylor and Harrel, 1996). The results show an influencing power from IENS housing reconstruction (HSR) with minuscule effects (beta-weight 0.191 $p<0.01$).

So, what is the strongest influencing power in this model? The answer is shown in the middle part of the model with the highest score of beta-weight in path coefficient (1.093 $p<0.01$) IENN to CR. Rated theory mainly from social science with complex interrelationships picked up by the major subject for this study. CR is represented as the highest score obtained from CIF or community information flow. This matter is mentioned in social cohesion subject (Perkins, 1990, Friedkin, 2004) and some parts from Robert (2002) about physical determinants and habitual physical activities in public health. Enhanced with the field surveyed found some distinguished characteristics of the secondary space in the slum neighborhood, such as population density, social-diversity, dynamic-community, non-routine of the narrow walkway pattern which can create visual contact, neighborhood surveillance, neighbor-warning. These contributions can create a stronger community, found in community psychology (Rappaport, 1981).

Improving Environmental Setting (IENS) to Self-Discipline to comply with Social Order (SDSO) and to Self-Defense Mechanism (SDM)

The improvement of a community's scenery, as a consequence of an environmental network, has influencing power transferred to both offender and victimization perspectives. For the offender, IENS plays a significant role of intimate scheme in a well-ordered society for people, especially in children. From this study, it states that the element to reduce the crime rate by reducing the changes and possibility to the people's future in the community and the youth who will commit crime with more consciousness to society through basic morals and obedience with the social

order (the result of SDSO is increased from IENS at the high level of 0.915 by the important statistical mean of 99%). Their perceptions are derived from major Social science theory as: Social Learning by Tarde (1969) people in selected group observed each other with a positive manner. Their goal was already set after their agreement to stay on the land in cognitive style (Berry, 1978) even though they were blamed as environmental degraders. The community's history and value also generated a byproduct. In succession principle from a community's psychology, if a community has its own history, sense of belonging also gets stronger. By their collaborative action in Social learning, psychological and Behaviorism by Rotter (1954) can compare with this study site. Majority's agreement, people desired to follow and avoid negative consequences. In other words, high probability of a positive outcome, they will be more likely to engage. Besides, in Criminology about social pressure from delinquent peers by Aker and Burgess (1966) which is grounded from Sutherland (1947) including with Miller and Dollard (1941) behavioral learning assumes that people's environment (surrounding) cause people to behave in certain ways. People discipline is uncovered through community order changing by villager's action (COR) with beta-weight score 0.785 the same as in their actions of cleaning activities (CLA) as this two points show empowerment of people (Brown,1997). With one more interesting point related to leadership's important role for all community members.

The model also provides significant findings from improving physical environmental setting (IENS) in crime reduction, especially in crime prevention aspects related to main theoretical debates in criminology as follows;

IENS mostly affects the support of the self-defense program. This was clearly shown in the topic of ability building in patrolling a community area, by community patrol (the 2nd independent variable – second order IENS which got pressure from the first independent variable and is the First order IENN which effects the high level toward the variable as SDM). SDM or self-crime prevention segregates into four observed variables as follows; 1) migration (psychology of migration from psychology of migration (Berry, 1975) study's result shows low significance and

beta-weight score 0.392, which means this concept sometimes cannot be employed in an empirical case, such as in this study. In some area of inner city, abandoned buildings are left according to insider migration that causes broken windows effects (owner of that building has potential to move out). But this case must be excluded because of low potential of moving out from inherent villagers. Hence, this model relates to empirical facts. Moreover, in the aspect of crime prevention (CP) as a victimization perspective score of beta-weight was very low which is emergence with empirical fact because people in this community has low-income so all valuable properties and assets cannot be found. By low targeting from the offender's perspective, people expressed low levels of fear of crime but reversely they are in fear of drugs (see Appendix B). As a theoretical debate about crime experienced and fear of crime by Stafford, Chandola, Marmot (2007) and Wilson-Doenges (2000) also aimed victimization perspective approaches which are not covered by all cases that possibly could be found in some types of communities, as found in this study site. Another well-known crime prevention theory from a victimization perspective is an outsider detection capability from Crime Prevention through Environmental Design or CPTED (Newman, 1969). This study finds very high scores of beta-weight 0.832 with $p<0.05$ and the result certainly supports Newman's Theory. (Arguing with Singchompoo, 2004). Most of community in the study site all agreed that improving physical settings in their community could create a better vision for inspection and detection, especially for enemy "drug distributors". The last observed variable 4) Civilian self-defense mechanism (SDM), the result shows a strong volume of effect size which is manifested from civilian self-defense. In this case it means the program compares with neighborhood watches in western countries (Community-based crime prevention/ security and neighborhood watch by Block, 1981). This selective community obtained some benefit from latent variables and support for this program. Related to literature that was reviewed in Chapter 2 about SDM, this concept had been previously proposed in Japan. Called "Operation Flower", it began in 2006 after a neighborhood watch organization reported that houses with flowers in front had less burglary (Weird Asia News, 2009). Recently, in Cincinnati, a Neighborhood Enhancement Program or NEP conducted experiments related to deteriorated physical

environmental improvement, focusing on crime hotspots. It found that crime actually reduced according to this program (Simes, 2011).

More details of analysis

The numerous advantages of SEM and results computed from the six models initiate from descriptive data on distributed questionnaires by Likert scale and are brought forth in the table in SPSS Version 16. Arithmetic means are discussed to differentiate. For example; the highest differential of arithmetic mean, rising from 2.26 to 3.50=1.24 of IENN, means that in the Selected Group data it showed this group had the strongest environmental networking among the two non-selective groups which were realistically synchronized. This is only one attribute that was brought to utilize for research analysis from the descriptive data obtained. The rest is narrated in Appendix B, including comparative analysis in each attribute of Factor Loading (measurement model) and Path analysis (structural model) saying that all details of analysis shows in 4.2.1 Step to test the accuracy in the selected model.

4.3 The exploration of key successes of the project (Objective 3)

4.3.1 Findings from qualitative method

The result obtained from Objective 3 is the outcome of qualitative data analysis, in-depth interviews, discussion groups and observation by non-participating form which divided the program into 3 periods. Found during the serious program processing, during the continued natural program processing and during the program being without a leader and serious actual processing. Researchers collected data and at the same time observed the processing for 3 months. They changed some opinions, held discussions with the community leaders and members and discovered that, actually, it was quite necessary for the community to comply with the conditions of Bangkok officials, who surveyed nearby canals according to a policy to survey canals for water-releasing flood protection. Prior to this, the community had set housing beyond the canal line, named the community, requested house numbers and got

electricity meters. But they did not have joint water drainage and released wastewater into canals. Around 1993, the BMA accused the community's people of damaging the environment along the canal lines. At the same time, the BMA brought the 1992 Act on cleanliness maintenance and the 1902 Act on canal maintenance to be enforced and indicated the punishment of imprisonment and the taking of legal action. The BMA filed an eviction notice because the environment in the community was damaged. Apart from this, no one actually had legal rights to possess the land.

The law enforcement of the BMA from this Act meant the beginning of a story, and the mentioned situation seemed to set a rule of the BMA authorities and create pressure from outside so that people in the community had only one chance. They had to cooperate in order to solve the problem as they faced the same fate. (Succession: Community Psychology, Bronfenbrenner, 1979).

With regard for the larger urban population an official unintentionally generated positive external forces in a community system that caused changes in the community structure. The people's basic instincts of survival and preservation were aroused from their fear and uncertainty of being evicted and homeless. From this situation, as mentioned in Psychology of Migration (Berry, 1975) about human's style of settlement: Nordic and Cognitive, in this case the people in the study sited conformed their behavior as a cognitive style. The only way out for them was to figure out that turning to face others as the same stakeholders required discussion, asking for opinions, and this successful quote from the community leader's statement;

"By that time the people did not know each other, now they know each other. They came home after work and stayed with their family, now they have to join together to find the solution as they all are in trouble now. Some of them have to go to make living and if they cannot stay in this place they have to find out or to rent a house and their income is not sufficient for housing expenses...."

The community's agreement was released to stay as cognitive settlers (Organizational Commitment by Friedkin, 2004). While the community leader has noticed the change clearly after its members faced the same fate and were asked to demolish their homes. This pressure was inattentively made by the state authority, at leave this phenomenon was just the beginning for people in the dense community. They had to struggle for their own fates. The next process would be to create natural leaders and environmental networks which should have arisen by this time, according to this expression by the community leader:

"By that time, we had no knowledge about environment, especially about the canal area and we all (the community people) were sure that we could become developers and take good care of our canal the same way as other communities do".

By a process of education, anyone anywhere can supply the requirements they seek. These phenomena are referred from Social Action Theory (Weber, 1976). In Thailand, environmental networking originated in a condensed community network from four regions of Thailand. When social networking was originated, a coaching system came afterwards. Effective communication was provided by professional instructors from this network. They should receive good credit for their professional performance because the product was that this community can stand on its own feet. As said, the community learning organization needs to see through the strategy. To create a learning organizational system (in condense community) is not an easy task. A lot of supportive factors and effort are required for success.

"We started from elevating our pathways up higher, some households reconstructed their own homes and by all cooperating we dredged the canal. We found afterwards that it was a good starting point for contributing to the community's aesthetic value. Even now, we still pour our EM (Effective Microorganism) every week"

Picture 4.8 Demonstration of people's effort through collaborative action to reject and refute governmental accusations of canal pollution

Regarding the environmental problem, they had no idea about the regulation, and the people tried to look for knowledge by themselves in order to get out of trouble. That is why they had to look for an environment network, though during the initial steps the people in the dense community joined together to create a strong community in many different means: protection of the community benefit apart from the state's policy rules, or the creation of negotiating power with the private sector, such as the big retail sector who rounded up plots of land for purchase, and eviction. This also includes the project responding to the narcotics resolution program.

At the same time, apart from selecting the community leader, the people still expressed their opinions and volunteered to work for the community according to their experience.

"By that time, several families had small children. Some are with their teen children, who by then acknowledged the problem, and they had changed themselves and quit playing activities to become volunteers. They were willing to do some cleaning and dredging of the canal. It was a time when children in the community knew each other better", the community leader added regarding duty sharing in the society within this community.

"For some adults with construction experience, they would join working on their skill … I can remember that almost everybody took part in this program…"

This scenario is supported by Social Action Theory (Parsons, 1951). Conducting the program in the mentioned manner, during the initial step people collected money to establish a central fund and at the same time got a certain supportive budget from the network. A financial management system in a cooperative type was built in easy form by making an account of incomes and expenses and trying to get other incomes for the fund. For the garbage bank, the income from garbage selling would be rolled into this fund to develop the community later on.

Picture 4.9, 4.10 Collective actions generate immense advantages for community relations

However, after some time passed, this community faced some problems in the second period obtained by the middle of the program after getting income from garbage selling for some time. Because of less communication among people in the community according to the situation and time, they did not trust in the fund management so a new team of committee was selected as the second team. It could be concluded that the problems ended after some time passed.

From the mentioned circumstance, it showed that communication among people in the community was needed and must continue with effectiveness. The result obtained from the discussion group and youth group got many advantageous and interesting data, while the researcher's discussion group noticed the reaction of the

children from the answers on some questionnaires. After having considered the benefit from the program it affected much towards the sensitive group, children and juveniles. The program has taken time from children and become constructive behavior for them, taking free time for good activities and playing among their groups. They also had time to study some subjects which the network provided with lecturers for such knowledge.

Because children are vulnerable to the first principle of Kelly (1966), adaptation; individuals are adaptive given the demands of the surrounding context. Because of changes in their community's settings, community order plays a significant role for children to understand, follow, respect and have self-discipline to comply with social order beyond their boundaries. Furthermore, benefits from environmental education such as EM make adolescents see their ancestoral habits in caring for their physical environment on a second principle: succession.

"Usually I did not go out during the holiday, but would play in the garden (knowledge center) – the games which we play are chasing around, bicycling or badminton, but it is bad now because there are lots of trees as the shuttlecocks would be stuck on the treetop (laughing)"

In Thailand, especially in Bangkok, most children in the dense community will not have public space to join in some activities, so they will go roaming around, riding motorcycles, gathering in groups around various deserted places, some going to trade centers. Such circumstances have facilitated the lack of opportunity to study social order. From a selected group of children who gave us some data, all in this community did not have such mentioned activities and some will use free time by watching television in their own homes.

This study was conducted among three groups of informants. The answers from these three groups revealed the same directions. But the most fruitful answers were from the juvenile group. Absolutely, by positive attitude and honesty, some answers were beyond the interviewer's expectations and came from teenagers who stayed in the condensed community. Some of them are studying in university, aiming for bachelor's

degrees. According to the data, it can be assumed that even if a teenager lives in any kind of area, they are always ready to adapt themselves in order to improve their environment and make it better.

Besides, the youths in this community have studied how to solve the problems of the adults in the community, how to take part in activities, and are fearless to express their opinions. The children (who are now grown up) have good feelings and want to become good community leaders in the future. Some children in this community actually used to take the position of youth leader in the dense community network.

Picture 4.11 Children making EM under the supervision of their parents

In order to promote the lessening of crime elements by using the offenders' perspective and to protect or lessen child delinquency – according to this program - the improved environment in the community has indirect advantages that no one has studied before. By qualitative calculation and data, this can indicate that the IDE program, according to the mentioned condition, can enhance consciousness. This means less chance for children and youth to commit any offenses and the lessening of offenders in the general society.

4.3.2 Emergent property: Findings from a qualitative method

The researcher borrowed conceptual thinking from an ecological perspective grounded on the thought that a living organism's normally self-regulated physical conditions are more hospitable to suit its life. This adaptation process, especially in human beings and definitely in reference to urban-people if a way out found using the same goal, would all get down into trouble, which is stated in the community's psychology (Rappaport, 2000).

After people in the selected community were accused of being environmental degraders, the government sector of the BMA tried to recover the riverbank in order to reduce urban flooding and to increase the BOD in the rivers and canals. However, most of the temporary settlers had invaded the riverbanks and canals with bad physical settings and low aesthetical housing designs. For these reasons, they potentially could be evicted at any time.

Fear and uncertainty provided a strong driving force in behavioral changes. People's collective behavior, such as their basic intrinsic motivation, had emerged and propelled their own solution as follows:

1) Leadership

In any first step of a crisis, people are always looking for a brave person among them to direct and guide the rest towards the right track. The same was true in this selected community; a true leader had emerged from the beginning. This leader must have the capability to lead and fortunately, in this community they found the right person at the right time. People in this community should take this grant from the first leader whom brought down the IDE program in practice. This situation is given support by the work "Task-Oriented Leader: Contingency Theory of Leadership Effectiveness (Fiedler, 1967).

Referring to an informant's words, this community had its own history. They had to fight together to keep their land using their strong collective behavior. If they had the chance, they would go out and assist other community members (in their network) as political activists for the main purpose of making them big enough to

prevent harm from other sectors such as land developers and the governmental sector. Situational factors in Interactionism Model (Endler and Magnusson, 1976). These activities could not happen without a process of situational leader revolution.

2) Environmental networking

This matter is respected to be the second order of their achievement. In the simple way of people who have suffered from something, they tried to find someone to ask for help. There were two target groups from their point of view; the government or civil side. The community leader said that he was moving forward to see both target groups and tried to develop a relationship among them (Banes, 1954; Social Network Analysis), Assistance at this time seemed to be a sweet drop of water for a thirsty man. Even though an official organization was found in the first stages, a very good friendship from another condensed community provided them with a middle-man. It did not take long until an NGO gave them a helping-hand. With fantastic assistance, wonderful things came about afterwards as follows:

3) Communication skills

According to the leader, who was born at the right time as revealed in 1) Environmental Networking emerged in 2) the leader played an important role to gather all cooperative performance from many sectors, both inside and out. Without good communication skills, he would have not achieved this mission. Being a good leader, people should have accepted this man. More than that, building trust and confidence was also very difficult to do just then. After the researcher spent some time as an observer, this community created their own channels of public communication with landline cables, microphones and speakers to communicate their local news.

4) Learning Organization

Because children are vulnerable to the first principle of Kelly (1966) adaptation, individuals adapt given the demands of the surrounding context. Because of changes in their community's settings, community order played a significant role for children to understand, follow, respect and have self-discipline to comply with

social order beyond their boundaries. Furthermore, benefits from environmental education such as EM made adolescents see their ancestral habits in caring for their physical environment from the second principle: succession.

Learning organization is based-line beneath complex concepts of the learning process. It can tell us about cooperative action to entail their environmental program to new predecessors. From the results of the focus group discussion of the teenage group, informants attended some environmental education and environmental rehabilitation courses such as; garbage bank, bacterial microbe treatment. Data from the quantitative method indicated that they acquired the knowledge very well.

5) Transparency Budgeting and Community Co-Op

The findings from a qualitative method found that sometimes the community's fund caused trouble. It is not an over-exaggeration to say that the IDE program cannot be achievable without money. The community's leader performed and behaved very well as the IDE program director but still had problems with financial management. In the real situation in this community, it so happened that an argument occurred after garbage bank had been conducted and after they got some incentives this argument led them into trouble and a reshuffling of the community's committee.

Later on, they established a Community Co-Op with some amount of their money reserved in the bank savings. In the last 5 years until recently, they learned to manage their budget better than before.

6) An out-door class in Democratic regime subject

Along with the IDE program that was entered, it wasn't perfect in every aspect all the time. Absolutely, some arguments, disappointments and lack of willingness occurred in some developing stages. It is a natural phenomenon. During FGD conducted, the interviewer found some emotions of frustration among people in each group. They had been taught to understand preliminary rights of protection and

they acted and spoke out loud in order to draw others' attention (analogy with the public sector and policy making) to see and respond to their requirements.

For a person who is not familiar with people in the condensed community, believe that they are totally beyond your imagination. They are quite highly disciplined, loyal, well behaved in energy conservation, well thought of, adorable and more. For their knowledge and their intuition in every aspect, assuredly they are higher than your expectations. So in their democratic portrayal, they really understand their political responsibility, which is supported and represented by degrees and a well monitoring system to persist in community committee attainment the same as reflected from their community's Co-Op management.

7) Crime Reduction Elements

Finally yet importantly, all research attempts for several pages in this research paper confirmed that underlying assumption had been rendering in stringent levels of statistical scores. So, from now on this study can conclude that "Improving Deteriorated Physical Environment in any condition must generate from the community's people and can alter people's perception to train their behavior to increase Crime Reduction Elements".

4.4 The conclusion from findings: new strategy for crime reduction

The outcome of the study from the selected group in IDE program is the most complete group obtained from Model 4, with the background factor of change according to the data of Objective 3. This study realizes its significance. This unique scenario should be one proposed and this lesson taught to other authorities as a new idea for implementation. Then a concept of side-by-side theory integration (mentioned in Chapter 3) is borrowed for linking those findings from qualitative to quantitative methods followed by time series start from hidden facts of the whole story to IDE program launching to the end of crime reduction elements.

Improved environment program in a community can happen using a top down policy or by using the effort of the people in the community, not only from the improvement of visual aspects, adjusting the area and setting new pathways, but also as in this study. When Objective 3 was brought in from the beginning to link with Model 4, this link was founded step by step and lead to the last chapter in detail. It will be elaborated on in Chapter 5: Conclusion and Recommendation.

CHAPTER V
CONCLUSION AND RECOMMENDATION

The study endeavors targeting crime reduction as an end through its composition called crime reduction elements. The framework of this study lies within the basic ideology of an ecological approach. In criminology, well-known theories are underpinned with this approach, from Crime Prevention through Environmental Design or CPTED) by Oscar Newman (1969) and Broken Windows theory by Wilson and Keling (1982). This research work aims to revisit this approach with faith in its benefits. Moreover, this study provides a strategy to prevent crime with the target of reducing rising chances and possibility not only of victimization but also from the offender perspective. Therefore, in crime reduction, if we can control the facilitated elements the increasing numbers of children have trends to commit offenses. At the same time, to build strength in the community and reduce the chance of criminals coming to commit offenses, we can increase factors to reduce crime in general, leading to lesser crime.

Mentioned above, the ideology that has brought a supposition of this study is the first variable and states that to adjust the community environment by people in the community to the followed variable. For elements to reduce crime; 1) to reduce the chance for “growing” offenders, and 2) the number of victims. By other means, this research tried to propose positive side-effects of an urbanized community rehabilitation program to encourage people to see the beneficial and its’ contribution in terms of crime reduction, which had never been explored before. The findings proposed that an IDE program could promote crime reduction.

In theoretical terms, re-managing the physical to sociological environment by community based approaches in a high density area (where play both roles of crime occurrence; offender and victim) can contribute in two main beneficial ways; pro-actively

by physical environmental adjustment. It can create deterrence for criminal acts, and passively separated in two functions; first is the benefit from environmental management activities which can create more intangible networks intensifying the community bond and the second is by establishing a better environment in their habitat for them to gain knowledge and eventually automate change.

Improving deteriorated physical environment or the IDE program, was introduced in the research hypothesis from Chapter 1 as having unintentional benefits in crime aspects through crime reduction elements or CRE. In this study are step-by step settings with four objectives engaging the assumptions. 1) Examining the relationship between two variables IDE as an independent and CRE as a dependent variable to prove the assumption of existing of positive relationships between IDE and CRE, 2) Investigating factors or attributes of CRE that are affected by attributes from IDE, 3) To get the key successes of the IDE program, and 4) For proposing findings from this study as a new strategy for crime reduction. According to the accomplishments from the four objectives above, when crime reduction elements increase, crime in each society will definitely decrease and concurs with the heading of this study; “Consequences of Crime Reduction from Improving Physical Environment”.

5.1 Conclusion

The conclusion is implicated by the analysis results from research objectives, as noted in Chapter 4, are described in four points as follows;

5.1.1 Improving Deteriorated Physical Environment by a Community based approach or IDE can increase Crime Reduction Elements or CRE: The accomplishment from Objective 1

The results found a Total Effect score comparison with three study sites after computation by AMOS software Version 6. All sample groups in the study sites

were evaluated by model variation before and after, past and present, by analyzing the Total Effect among the 6 models to compare Total Effect in order to make a complete data analysis. There was only one model chosen to analyze for capturing a total effect score to accomplish Objective 1, which divided into two steps of analysis.

1) Community perform the most rigorous of IDE implementation

From a Total Effect analysis, the study acquired the most reliable output from the computed data. The highest degree of statistical significance was chosen in level of $P<0.01$. The result from Step 1 Total Effect comparison indicates the influencing power from Improving Environmental Networking or IENN caused physical changes amongst the two communities. Selected group (total effect score = 0.649 in before IDE program entry, and after IDE program entry total effect score = 0.681 with the highest level of statistical significance) Test group (total effect score = 0.509 in before IDE program entry. After IDE program entry total effect score =0.594 with the highest level of statistical significance). In the case of Neutral group, it had to be eliminated due to a lack of statistical significance and a very low total effect score. Proceeding to a further step, there were two communities left to be considered to seek a time period that implemented a full IDE program. Total effect score was reviewed again from 1), four numbers indicated before and after IDE program in the last two groups of the selected group 0.649 and 0.681. In the Test group, 0.509 and 0.594 show high level of statistical significance. It can be concluded that IDE program entry in the Selected community with a total effect score shows the strongest degree of total effect from IENN to IENS among the 6 models. It can be interpreted that the selected community (Model 3 and 4) imported IDE program for their community causing changes in their physical setting.

2) Model 4 presents as the most appropriate model

As the numbers show in 1), the selected group had to bring Model 3 and 4 to see Crime Reduction Elements or CRE (SDSO, CR and SDM). It leads to approval in the primary research hypothesis that improving physical setting can contribute to increases in crime reduction elements. Comparative results of Model 3 and 4 in CRE present total effect scores from IDE program influencing CRE for Model 3 only in

SDSO =1.058 but in Model 4 presents both SDSO and SDM=0.915,0.978 respectively.

In summary, this study stated that Model 4, the model in the Selected group after IDE program, performs the most perfect model to explain the relationship from IDE (independent variable) to CRE (dependent variable) and generates reinforcing power (positive total effect) to CRE which makes key research question and hypothesis approved.

5.1.2 Analysis results from factors that affect CRE from IDE implementation: convergence of theory and empirical evidence from Objective 2

The conclusion in this part is narrated on the basic concept of interrelationships. An interrelationship, as mentioned amongst physical environment and organism adaptation, really exists. An intangible link can pass through an IDE program and represents a method of environmental improvement for human's adaptation in crime facets as constructive actions called CRE from SEM model. Conclusions can be drawn as follows;

Improving Environmental Networking (IENN) to Improving Environmental Settings (IENS) and to Community Relation (CR)

The findings from a quantitative research method are supported by "Social Learning, Psychological and Behaviorism" from Rotter (1954) and Tarde (1969). Environmental networking can contribute to physical environment alteration through participatory actions from community people in a community context is found and suggests that the combination of catalysts in the physical environment, like poorly maintained properties, enables the social environment to increase participation as mentioned by Perkins (1990). Community Relation or CR also shows its consequences from IENN in strong levels of influencing power. An environmental networking program is supported by concepts of participation and empowerment as noted in community psychology by Rappaport (1981), Perkins (1990) and Friedkin (2004). Community Relation or CR seems to be the most important intangible asset for a community. Even though, CR is categorized from a victim perspective but is good to

present community values which can be used for other dimensions of community development. In conclusion, this case study site can be supplemented by core theory such as Social Action Theory (Weber, 1976). Enhanced with the field survey found some distinguished characteristics of secondary space which can create a stronger community and found in community psychology (Rappaport, 1981).

Improving Environmental Setting (IENS) to Self-Discipline to comply with Social Order (SDSO) and to Self-Defense Mechanism (SDM)

The relationship between IENS and SDSO shows a moderate level of significance. Their goal was already set after their agreement to stay on this land in cognitive style (Berry, 1978). Besides, in Criminology social pressure from delinquent peers (Aker and Burgess, 1966), which is grounded on Sutherland (1947), including Miller and Dollard (1941), behavioral learning assumes that people's environments (surroundings) cause people to behave in certain ways. Community order (COR) represents a reflection from IENS for community people to acknowledge their visual perceptions. Cleanliness, tidiness and orderly performance intimates social order for people and will not succeed if they have no capable leader.

From a victimization perspective, most law enforcement agencies still adapt this concept for crime prevention by borrowing the concept of a well-known scholar from a Chicago school such as mentioned in CPTED and Broken Windows Theory. The results from this study go along with the theory as stated. The study needs to support and promote findings from these scholars. For example, results from one attribute, which are postulated by CPTED, show obvious benefit from outsider detection capability. But in some aspects it cannot be supported by the result of this study such as the aspect of crime prevention (CP) as a victimization perspective. People in this community have low-incomes and low levels of fear of crime but reversely are fearful of drugs instead. For civilian self-defense mechanism (SDM), the result shows a strong degree of influencing power. The psychology concept of migration is stated by John W. Berry (1975) and can be explained by this community response in the style of cognitive living.

5.1.3 Key success drivers of IDE program: Crucial hidden facts revealed from Objective 3

The results are obtained from qualitative data analysis, in-depth interviews, discussion groups and observation. The real cause of the whole story creating change in this community is from outside or external factors (government authority) but the positive side created pressure and offered only one chance for people to make a community agreement. Human ecology related to this study is mentioned by "Psychology of Migration" (Berry, 1975). As stated, they only had one option if they desired to stay as a cognitive style. Their solutions started from turning to confront problems but fortunately the accusation by local authorities showed a constructive way out for them to seek. When they were blamed as environmental polluters they challenged authorities with a bet for success. A process of education came after, learning organizations emerged without textbooks. This rapport coincides with emotional action in social action theory by Parsons (1951) and Weber (1976).

The findings from a qualitative method in Objective 3, behind their collaborative actions unintentional sequences emerged in their system as an emergent property in sequences as follows;

1) Leadership
2) Environmental networking
3) Communication skills
4) Learning Organization
5) Transparency Budgeting, Community Co-Op
6) An out-door class in Democratic regime subject
7) Crime Reduction Elements

All seven steps are key drivers of success in an IDE program. This does not mean that to implement an IDE program all these steps are always needed. It depends on different situations.

5.1.4 New strategy for crime reduction: proposal from Objective 4

This study assembles both results from a quantitative method, which was confirmed as a deductive approach by posture in the form of SEM. It could tell us in sequences from external perception forcing internal factors through behavioral traits. As discussed in Chapter 1, the real factors that were hidden or could be questioned were “What is the real driving force behind this whole story?” and “Why and How are the IDE programs effective in just some specific communities?” “What are those components?”

5.2 Recommendation

5.2.1 “Stalemate Strategy”: Recommendation from the findings

In this final section, the study proposes a recommendation for policy working groups, besides law-enforcement policy makers, to acknowledge an emergent property in providing unintentional positive-side-effects to crime reduction through environmental and social constructive programs. It is not only law-enforcement’s concern but also involves other sectors of government. Beyond the boundary of solving crime, an ecological approach is still everlasting to crime prevention in practice, which needs a proper tactical approach. This approach is revisited and confirmed by the study according to the research findings. This recommendation is derived from an existing phenomenon and is a lesson learned from this study.

From “Stalemate Strategy”, CRE increases by influencing power from IDE program but a more important matter is the “driving force”, not absolutely from external factors but from internal turbulence (turbulence from external stimulus). The external pressure that has a strong degree, enough to stir people’s attention and finally to turn collective behavior is a “Close-ended situation”, as shown in Figure 5.1.

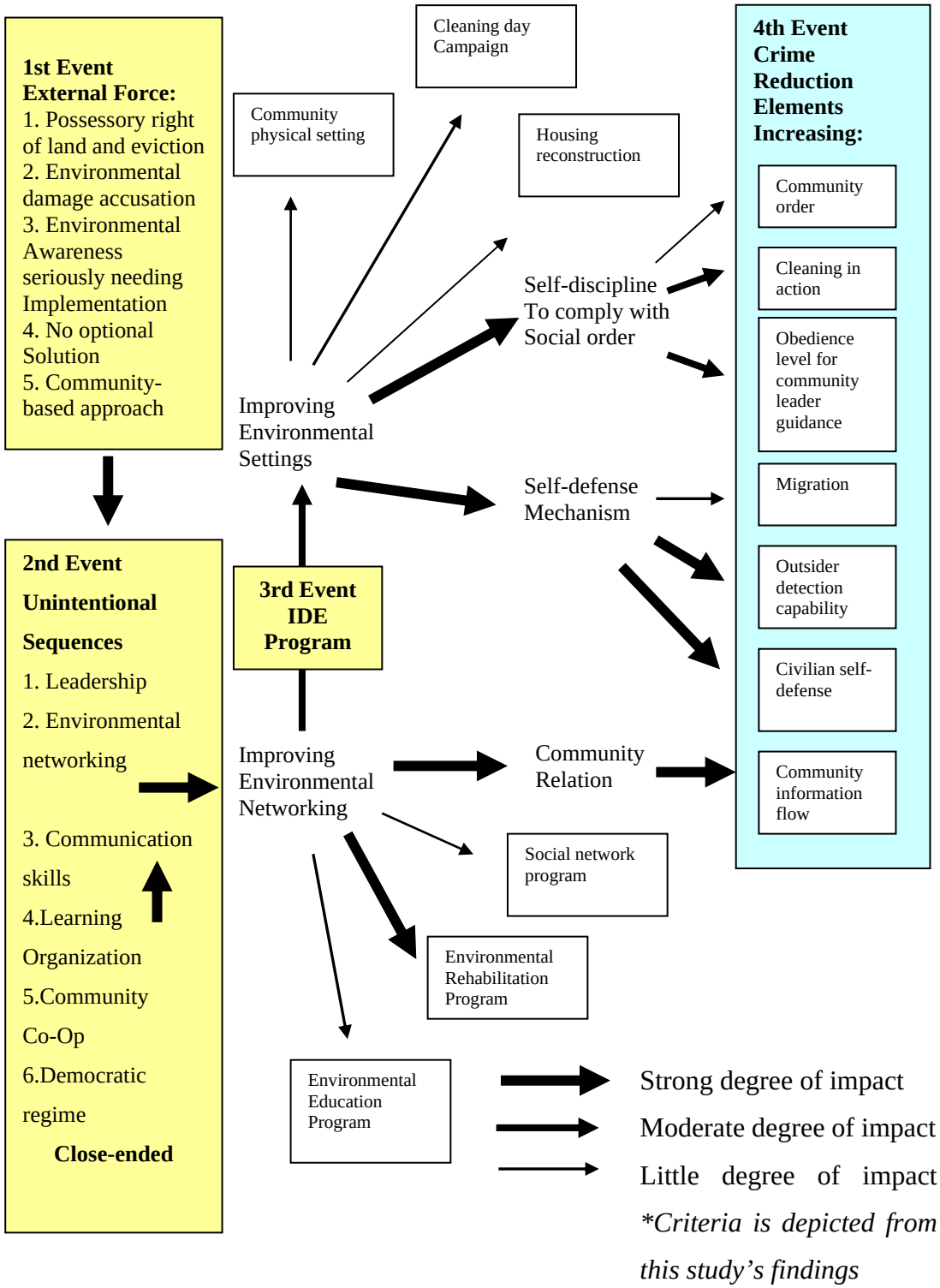


Figure 5.1 Stalemate Strategy: integration from the findings

(Source: This study)

Revised in this last section, this study endeavors to propose intuitive thinking from a real scenario that connects and demonstrates a cause and effect diagram changing over time. The diagram explanation from now on is narrated and aimed to suit for program implementation as a crucial point of any strategy. Not all related study results will be repeated in this further description.

1st Event: External Force

Normally in any system, the cause of immediate change needs an external factor for stimulus. The same is true in any social system in this community scale. Sometimes certain events can happen by chance. Conflicts about the right to occupy land led to the allegations either for want of eviction. In this case study, environmental issues for better living in the city are alleged to find fault through law enforcement measures (Maintain Cleanliness and Tidiness Act for the city in 1992). This impetus from the outside, if it does not have it already, a collective behavior of people might not have happened. The most difficult and delicate job is an appropriate approach. This case study site presents a good example of external forces by using environment rehabilitation solutions as its proposal. This technique sometimes cannot be used in different types of communities, especially where there is response to a Nordic style of settlement.

2nd Event: Unintentional consequences

This study suggests that external factors (normally from the government sector) should not provide community development projects in the way of traditional financial support straight to communities as it was. For example; building new community pathways for them or paying cash or check by hand might be wasted if financial support is provided through per capita distribution or money brings local politician without the processing of the Co-Op because this traditional funding cannot generate social network capacity. Finally, it will be gone without social revenue. Retrospectively, a taught method like pushing or throwing a crisis situation makes it unavoidable to produce their own resolution and their basic instincts are aroused. Along with that, plausible generation of out-ward thinking turned to collective behavior starting from leader’s leadership. Some interesting data was obtained from the study site. A good leader and transparency budgeting system should keep undivided couple.

3rd Event: IDE program

According to study's result, compositions of IDE program are manifested through visible activities. The scene of this successful program is derived from an environmental rehabilitation program. The way they get is from outsource through Non-Governmental Organizations (NGOs). These programs like social network program, environmental education program need experience professionalism. For a community rehabilitation program, as in this case study, the impact from IDE to CRE reveals that money is not necessary to for use because it can be conducted by reorganizing and cleaning activities. Every single community may be unable to generate IDE as this study site does. Then an appropriate approach or some tricks is needed by challenging them, keep watching and also point only one exit, sometimes they need someone to provide a proper guidance.

4th Event: Crime Reduction Element increasing

Crime Reduction Elements as this study found from unique scenario, people received no optional solution only by improving their deteriorated physical environment. Two perspective of crime occurrence as found in this study site confirmed that even in the area of low-cost place victimization still be considered especially from drug abuse case or called this area so vulnerable for drug dealer and distributor targeting. In the real world, a victim of drug abuse, especially a juvenile, can turn to offenders depending on the drug situation. According to this findings and can be concluded that IDE program perform effectively deter drugs problem obviously. In street crime, even though in condensed community from victimized perspective play insignificant role in crime occurrence but before becoming a future offender. IDE program can cause changing in crime aspect because of IDE evidently increasing in CRE in Self-discipline to comply with social order (SDSO) or say, IDE program can increase people's conscience.

5.3 Originality and Contributions

5.3.1 Originality

The originality of this study is the discovery of gaps in knowledge of crime reduction from both the offender and victimization perspective using an ecological approach through improving physical environment by community participation. In practice, the study's outcome proposes a "Stalemate Strategy" as a new approach for crime reduction.

5.3.2 Contributions

The study's results stated that the IDE program or Improving deteriorated physical environment by community participation has the ability for use as a new approach to reduce crime. IDE in a condensed community with a right way of approaching it could also be used as a key success in crime reduction in the long term.

5.4 Recommendation for further study

As noted in Chapter 1, an environmental rehabilitation program should be tested in different locations and/or in various types of communities. For studying crime on this line from an ecological approach, integrated research is still needed to find more evidence and is an endless job. In the real world, some constructive programs, apart from environmental rehabilitation programs, are certainly being operated. These are needed by eco-criminologists to disseminate finding's and results to make our society safer.

5.5 Epilogue

This study endeavors to provide the importance of dimension apart from the old frame of thinking. For example, law enforcement emphasizes only suppression, investigation and arrest of the offender. Such subjects run after the issues and these are the symptoms of root causes. Managing any problem is not only for one organization

because problems run in systems. Crime problems are not just for or about the law enforcement sector alone. Hence, The Metropolitan Administrative Office or Human Security and Social Welfare Ministry could possibly be unaware that they are actually acting in a crucial role of crime reduction. Under this complex system, it's a challenge to discover other tactics to fix problems using new approaches, approaches beyond using law-enforcement approaches. These personnel might be provoked by its implications but must find a beginning to fix the real cause of problems rather than waiting to correct at the last. Contribution from the results of this study are eager to expand new tactics of approach to crime prevention in the future by focusing on rehabilitating physical and social environments in urban communities.

While this study is almost finished, there is one late update from February 2011. A Neighborhood Enhancement Program or NEP was launched using the concept of Broken Windows Theory fulfilled with a community empowerment concept in Cincinnati, Ohio, USA by developing neighborhood assets and improving the quality of life through the NEP. Cincinnati's NEP has won numerous awards in crime reduction, especially the "cooling down" of crime hot spots (Simes, 2011). It appears to confirm this study's results for accuracy and applicability in reality. Therefore, to Improve Deteriorated-Physical Environment in the aspect of crime reduction is not obsolete by any means.

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APPENDICES

APPENDIX A
QUESTIONNAIRE

1. Title: Improvement of environment in the community (X1-X3)

Title: Improved Community Physical Setting (IENS)	Prior the project (before July 2544)	During the project (after July 2544)
(x1) Renovate dwelling (House owner only)/ How you carried on the following questions (answer by own limitation) - 1. House repairing (sq.m) - 2. House painting (sq.m) - 3. House elevated (sq.m) - 4. Renovated central resting room - 5. House cleaning (times/day) - 6. Setting fat detecting tank - 7. Setting night-soil tank	( ) done…sq.m ( ) not do ( ) done…sq.m ( ) not do ( ) done…sq.m ( ) not do ( ) done…sq.m ( ) not do ( ) done…times ( ) not do ( ) done ( ) not do ( ) done ( ) not do	( ) done…sq.m ( ) not do ( ) done…sq.m ( ) not do ( ) done…sq.m ( ) not do ( ) done… sq.m ( ) not do ( ) done…sq.m ( ) not do ( ) done ( ) not do ( ) done ( ) not do
(x2) Cleaning day project You have done according to the project - 1. Project frequency (times/week) - 2.In what level you're taking part (1-5 marks)	( ) done…times ( ) not do	( ) done…times ( ) not do
	1 2 3 4 5	1 2 3 4 5
Getting rid of garbage and the leftovers - 3. Saw some around the house - 4. Saw pieces of material left, not in mess - 5.Place for garbage & be collected continuously - 6.Stink from garbage - 7.Working on garbage splitting up	( ) saw…pieces ( ) not see ( ) saw…pieces ( ) not see ( ) saw…times ( ) not see ( )some ( ) none ( )done ( ) not do	( ) saw…pieces ( ) not see ( ) saw… pieces ( ) not see ( ) saw … times ( ) not see ( ) some ( ) none ( ) done ( ) not do
(x3) Adjust the front of the house or central space/ How have you carried on the matter? - 1.Adjust the walkway in front of the house (sq.m) - 2.Planting trees in front of the house (trees) - 3. Decorate the front of the house w/flowering plant - 4.Adjust/change the land in the community (sq.m) - 5.Drying clothes in front of the house (pieces) - 6.Parking cars in order (1-5 marks)	( ) done…sq.m ( ) not do ( ) done…trees ( ) not do ( ) done…trees ( ) not do ( ) done…sq.m ( ) not do ( ) done…pieces (not do)	( ) done…sq.m ( ) not do ( ) done…trees ( ) not do ( ) done…trees ( ) not do ( ) done…sq.m ( ) not do ( ) done…pieces ( ) not do
	1 2 3 4 5	1 2 3 4 5
	1 2 3 4 5	1 2 3 4 5

Title: Improved Community Physical Setting (IENS)	Prior the project (Before July 2544)					During the project (After July 2544)				
-7.Well management										
-8.Beautiful, shady and well-looking	1	2	3	4	5	1	2	3	4	5
	1	2	3	4	5	1	2	3	4	5

2. Network complimentary in environment conservative of community (X4-X6)

Title: Network complimentary in conservative of community (IENN)	Prior the project (before July 2544)					During the project (after July 1544				
(x4) Project on environment study										
- Garbage Bank										
1. Participating level	1	2	3	4	5	1	2	3	4	5
2. Knowledge from the project	1	2	3	4	5	1	2	3	4	5
- Central water-treatment bin										
3. Participating level	1	2	3	4	5	1	2	3	4	5
4. Knowledge from the project	1	2	3	4	5	1	2	3	4	5
- Water-treatment bin in each house										
5. Participating level	1	2	3	4	5	1	2	3	4	5
6. Knowledge from the project	1	2	3	4	5	1	2	3	4	5
x5) Network project of environment in community										
- Saving cooperative project for welfare building for use to adjust the community environment										
1. Participating level	1	2	3	4	5	1	2	3	4	5
2. Knowledge from the project	1	2	3	4	5	1	2	3	4	5
(x6) Project of slum network in 4 sections										
1. Participating level	1	2	3	4	5	1	2	3	4	5
2. Knowledge from the project	1	2	3	4	5	1	2	3	4	5

Title: Network complimentary of environment in community (IENN)	Prior the project (before July 2544)	During the project (After July 2544)
3. Network of outsiders coming to provide knowledge and take parts - Number of time/week - Coming time/times - Joined activities	( ) saw…times ( ) not see …..hrs/time ( ) none… ( ) some are… ( ) talking ( ) teaching ( ) changing views ( ) others…	( ) saw…times ( ) not see ….hrs/time ( ) none ( ) some are… ( ) talking ( ) teaching ( ) changing views ( ) others…
Other projects, apart from this	( ) some ( ) none To name the project and outline……	( ) some ( ) none To name the project and outline……..

3. Acknowledgement and complying with social rules (Y1-Y3)

Title: Acknowledgement and complying with social rules (SDSO)	Prior the project (before July 2544)	During the project (after July 2544)
(y1) Experience concerning social rules		
- 1. Are you disturbed by wandering/roaming or not (1-5 marks)	1 2 3 4 5	1 2 3 4 5
- 2. Have you ever seen wall painting/writing on?/times		
- 3. Have you ever seen public pulling-down in community?	( ) saw….places ( ) none ( ) saw…times ( ) none	( ) saw….places ( ) none ( ) saw… times ( ) none
- 4.Are you feeling responsibility and must look after the community for nice-looking (1-5 marks)	1 2 3 4 5	1 2 3 4 5
- 5. Are you having consciousness in energy saving? (1-5 marks)	1 2 3 4 5	1 2 3 4 5
- 6. Have you ever planted (trees/year)?	( ) some… trees ( ) none	( ) some… trees ( ) none
- 7. Are you having consciousness to look after your children? (1-5 marks)	1 2 3 4 5	1 2 3 4 5
- 8. Have you ever seen people gambling? (times/month) - 9. Have you ever seen people drinking? (times/month)	( ) saw… times ( ) none ( ) saw… times ( ) none	( ) saw… times ( ) none ( ) saw… times ( ) none

Title: Acknowledge and to act according to the social rules (SDSO)	Prior the project (before July 2544)					During the project (after July 2544)				
Position viewpoints										
- 10. Motivation to scarify for public	1	2	3	4	5	1	2	3	4	5
- 11. Being accepted in society	1	2	3	4	5	1	2	3	4	5
- 12.Conscious in saving natural resources	1	2	3	4	5	1	2	3	4	5
- 13.Feel ashamed to break the community rules	1	2	3	4	5	1	2	3	4	5
(y2) Take good care of community cleanliness										
	1	2	3	4	5	1	2	3	4	5
- 1. Garbage are left outside the house										
	1	2	3	4	5	1	2	3	4	5
- 2. Participating level in cleaning day										
	1	2	3	4	5	1	2	3	4	5
- 3. Garbage are seen under the neighbor's house										
	1	2	3	4	5	1	2	3	4	5
- 4. Pieces of garbage are left in canal										
	1	2	3	4	5	1	2	3	4	5
- 5. Take part in cleaning your learning-how center										
(y3) Trustiness and be obediently to community leaders	( ) joined…times ( ) not join					( ) joined…times ( ) not join				
- 1. How many times you joined in community work, when informed by community leader? (times/month)										
	1	2	3	4	5	1	2	3	4	5
- 2. Do you trust the community leaders during the said period, at what level? (1-5 marks)										

4. Subject - Relationship in community (Y4-Y6)

Title: Relationship in community (CR)	Prior the project (before July 2544)					During the project (after July 2544)				
Taking time in community and activities (y4) Do you get any benefit in using the front space of your house, at what level (1-5 marks)										
	1	2	3	4	5	1	2	3	4	5

Title: Relationship in community (CR)	Prior the project (before July 2544)					During the project (after July 2544)				
- 1. At home, how long are you taking time to do these activities? Sleeping Working Watching television Look after children Chat Others - 2. In front or at the back of the house, how long are you taking time to do these activities? Sleeping Working Watching television Look after children Chat Others - 3. At what level, you use the place in the community (mini-park, and learning center) (1-5 marks)	……hrs/day ……hrs/day ……hrs/day ……hrs/day ……hrs/day ……hrs/day ……..hrs/day ……..hrs/day ……..hrs/day ……..hrs/day ……..hrs/day ……..hrs/day					……hrs/day ……hrs/day ……hrs/day ……hrs/day ……hrs/day ……hrs/day …….hrs/day ……hrs/day ……hrs/day ……hrs/day ……hrs/day ……hrs/day				
	1	2	3	4	5	1	2	3	4	5
(y5) Information in community - 1. Frequency of your relationship with neighbor (times/week) - 2.The average time of chatting (minutes) - 3. Info from neighbor, as, member in the family, tel. number, daily activities (1-5 marks)	( ) some…times ( ) none ( ) some…minutes ( ) none					( ) some…times ( ) none ( ) some…minutes ( ) none				
	1	2	3	4	5	1	2	3	4	5
(y6) Conflict in the community - 1. Conflict in family (times/year) - 2. Conflict with neighbor (times/year)	( ) some… times ( ) none ( ) some…times ( ) none					( ) some…times ( ) none ( ) some…times ( ) none				

Subject – Self-defense from crime (Y7-Y10)

Title: Self-defense from crime (SDM)	Prior the project (before July 2544)	During the project (after July 2544)
(y7) Decision to move out of community - 1. Thinking to move out of the community (1-5 marks) - 2. Member in family, relatives, acquaintance moved out of the community (people) Decision to move out of community due to frighten of crime - 3. Thinking to move out of the community due to frighten of crime (1-5 marks) - 4. Member in family, relatives, acquaintance moved out of the community due to frighten of crime (people)	1 2 3 4 5 ( ) some… people ( ) none 1 2 3 4 5 ( ) some…people ( ) none	1 2 3 4 5 ( ) some…people ( ) none 1 2 3 4 5 ( ) some…people ( ) none
(y8) Measure to defense crime - 1. Frightening level of crime (1-5 marks) 2-3. Crime frightening outside community 4-5 Crime frightening inside the community 7. Experience from crime experience Was stolen (times) Was robbed (times) Was snatched and run (times) Was plundered (times) Motorcycle was stolen (times) Body assaulted (times) Sex abused (times) Threatening (times) Disturbance from noises Met fault on drug (times)	1 2 3 4 5 1 2 3 4 5 1 2 3 4 5 ( ) ever… times ( ) none ( ) ever… times ( ) none ( ) ever…times ( ) none ( ) ever…times ( ) none ( ) ever… times ( ) none ( ) ever…times ( ) none ( ) ever…times ( ) none ( ) ever…times ( ) none ( ) ever…times ( ) none ( ) ever…times ( ) none	1 2 3 4 5 1 2 3 4 5 1 2 3 4 5 ( ) ever… times ( ) none ( ) ever…times ( ) none ( ) ever…times ( ) none ( ) ever…times ( ) none ( ) ever…times ( ) none ( ) ever…times ( ) none ( ) ever…times ( ) none ( ) ever…times ( ) none ( ) ever…times ( ) none

Title: Self-defense from Crime (SDM)	Prior the project (before July 2544)	During the project (after July 2544)
- 7. Feeling frighten against community crime (1-5 marks)	1 2 3 4 5	1 2 3 4 5
(y9) Come across some outsiders - 1. Seeing strangers coming in the community (people/day) - 2. Your ability in seeing strangers coming in the community (1-5 marks) - 3. Circumstance in the community that facilitates to see - Strangers (1-5 marks)	( ) saw…times ( ) none 1 2 3 4 5	( ) saw…times ( ) none 1 2 3 4 5
(y10) Self-defense measure in community level - 1. Community patrol (times/day) - 2. Community checkpoint (times/day) - 3. Relationship with police (1-5 marks)	( ) some…times ( ) none ( ) some…times ( ) none 1 2 3 4 5	( ) some…times ( ) none ( ) some…times ( ) none 1 2 3 4 5
Acknowledgement on crime and security issues - Do you think there is crime problem in community? - Do you think there is drug problem in community? - You learn of crime problem in Thailand from: Television Radio Newspaper Internet Hearsay - From experience, how to solve crime and disorderly problem? By ourselves Inform neighbor Inform community leaders Inform police	( ) yes ( ) no ( ) yes ( ) no ( ) yes ( ) no ( ) yes ( ) no ( ) yes ( ) no ( ) yes ( ) no ( ) yes ( ) no ( ) yes ( ) no ( ) yes ( ) no ( ) yes ( ) no	( ) yes ( ) no ( ) yes ( ) no ( ) yes ( ) no ( ) yes ( ) no ( ) yes ( ) no ( ) yes ( ) no ( ) yes ( ) no ( ) yes ( ) no ( ) yes ( ) no ( ) yes ( ) no

Title: Other issues	Prior the project (before July 2544)	During the project (after July 2544)
- Health issues Numbers of animal spreading virus disease, as, rats, mosquitoes and cockroaches	1 2 3 4 5	1 2 3 4 5
As from the above mentioned issues, how to solve the Issues		
By ourselves Inform neighbor Inform community leader Inform police	( ) yes ( ) no ( ) yes ( ) no ( ) yes ( ) no ( ) yes ( ) no	( ) yes ( ) no ( ) yes ( ) no ( ) yes ( ) no ( ) yes ( ) no
- Violent problem on life safety, from external factors or from nature, From poisonous animal, as venomous snake Problem on fire		
- How to solve the problem on life safety of the above mentioned,	1 2 3 4 5	1 2 3 4 5
By ourselves Inform neighbor Inform community leader Inform police	1 2 3 4 5 ( ) yes ( ) no ( ) yes ( ) no ( ) yes ( ) no ( ) yes ( ) no	1 2 3 4 5 ( ) yes ( ) no ( ) yes ( ) no ( ) yes ( ) no ( ) yes ( ) no

Suggestion/others :

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โครงการวิจัยเรื่อง

CONSEQUENCES OF CRIME REDUCTION FROM IMPROVING PHYSICAL ENVIRONMENT

ด้วยคณะสิ่งแวดล้อมและทรัพยากรศาสตร์ มหาวิทยาลัยมหิดล ได้ทำการศึกษาเกี่ยวกับเรื่องของการปรับปรุงสภาพแวดล้อมทางกายภาพในชุมชน ที่มีผลนำไปสู่การลดปัจจัยเสี่ยงในการเกิดอาชญากรรม ผู้วิจัยขอเรียนว่า ทุกคำตอบของท่านมีความสำคัญอย่างยิ่งสำหรับผลของการศึกษา ซึ่งความเที่ยงตรงถูกต้องของผลการวิจัย จะได้มาจากข้อมูลเบื้องต้นที่ท่านได้กรุณาอ่านคำถามอย่างละเอียด และตอบคำถามตามความเป็นจริง ตามที่ท่านได้กระทำในชีวิตประจำวัน หรือทัศนคติของบางเรื่อง รวมถึง ความรู้สึกในเรื่องต่างๆ คำตอบของท่าน จะถูกรวบรวมไว้ โดยที่ท่านไม่ต้องกังวลต่อผลเสียที่จะเกิดขึ้นกับตัวท่าน เนื่องจากท่านไม่ต้องลงนามในแบบสอบถามฉบับนี้แต่อย่างใด หากท่านไม่เข้าใจในข้อคำถามใด สามารถสอบถามผู้วิจัยได้ทันที

ผู้วิจัยใคร่ขอขอบพระคุณในความกรุณาของท่านที่ได้สละเวลาให้ข้อมูลกับผู้ทำการสัมภาษณ์ตามแนวหัวข้อคำถามฉบับนี้ ท้ายที่สุดผลการศึกษาจะได้นำเสนอกับหน่วยงานที่เกี่ยวข้องชุมชนอื่นๆ หรือผู้สนใจได้ศึกษาต่อไป

ขอแสดงความนับถือ

คณะสิ่งแวดล้อมและทรัพยากรศาสตร์

มหาวิทยาลัยมหิดล

ส่วนที่ 1 ข้อมูลพื้นฐานของตัวผู้ให้ข้อมูล

1. เพศ ☐ ชาย ☐ หญิง /
อายุ . ☐ 10-20 ปี / ☐ 20-30 ปี/ ☐ 30-40 ปี/ ☐ 40-50 ปี / ☐ 50-60 ปี /
☐ มา กกว่า 60 ปี

2. สถานภาพสมรส/ ☐ โสด/ ☐ สมรส/ ☐ หย่าร้าง แยกกันอยู่/ ☐ หย่าร้าง อยู่ด้วยกัน/
☐ อยู่ด้วยกัน (ไม่สมรส)/ ☐ หม้าย /จำนวนบุตร .....คน

3. ศาสนา ☐ พุทธ/ ☐ คริสต์/ ☐ อิสลาม/ ☐ อื่น ๆ .....

4. การศึกษาสูงสุด ☐ ประถมศึกษาปีที่ 1 - ประถมศึกษาปีที่ 6 / ☐ มัธยมศึกษาปีที่ 1 - มัธยมศึกษาปีที่ 6
/ ☐ ปริญญาตรี ขึ้นไป / ☐ ไม่ได้รับการศึกษา

5. ความสามารถในการอ่าน-เขียน ☐ อ่านภาษาไทยได้เป็นอย่างดี/ ☐ สามารถเขียนภาษาไทยได้เป็นอย่างดี

6. อาชีพปัจจุบัน... ☐ มีอาชีพ /
ลักษณะอาชีพ ☐ ลูกจ้างเต็มเวลา
รายได้ ☐ ไม่เกิน 10,000 บาท/เดือน ☐ 10,000-20,000 บาท/เดือน
☐ 20,000-30,000 บาท/เดือน ☐ มากกว่า 30,000 บาท/เดือน

☐ ลูกจ้างล่วงเวลา
รายได้ ☐ ไม่เกิน 10,000 บาท/เดือน ☐ 10,000-20,000 บาท/เดือน
☐ 20,000-30,000 บาท/เดือน ☐ มากกว่า 30,000 บาท/เดือน

☐ ทำงานรับจ้างทั่วไป ☐ ทำงานในชุมชน วันละ.....บาท
☐ ทำงานนอกชุมชน วันละ.....บาท

☐ รับราชการ
รายได้ ☐ ไม่เกิน 10,000 บาท/เดือน ☐ 10,000-20,000 บาท/เดือน
☐ 20,000-30,000 บาท/เดือน ☐ มากกว่า 30,000 บาท/เดือน

☐ นักเรียน /นักศึกษา
☐ ไม่ได้ทำงาน เนื่องจาก
☐ หางานทำไม่ได้ ☐ เกษียณอายุ ☐ มีรายได้จากคู่สมรส/คนในครอบครัว
☐ ป่วยไม่สามารถทำงานได้ ☐ เป็นผู้สูงอายุ

รายได้ หักภาระหนี้สินแล้ว ☐ ไม่เกิน 5,000 บาท/เดือน ☐ 5,000-10,000 บาท/เดือน
☐ 10,000-20,000 บาท/เดือน ☐ มากกว่า 20,000 บาท/เดือน

7. จากรายได้รายเดือนข้างต้น (ตามข้อ 6)

ใช้เป็นค่าอาหารประมาณ ..... บาท
ใช้เป็นค่าเดินทางประมาณ ..... บาท
ใช้ปรับปรุงที่อยู่อาศัยประมาณ ..... บาท
ใช้เป็นค่ารักษาพยาบาล ..... บาท
ใช้อำนวยความสะดวกสบายประมาณ ..... บาท
สนับสนุนค่าใช้จ่ายส่วนกลาง ..... บาท

8. ลักษณะการครอบครอง ☐ เป็นเจ้าของ ☐ เช่า ☐ อยู่ร่วมกับญาติพี่น้อง

9. พื้นที่ครอบครอง เฉพาะตัวบ้าน .....ตรม. พื้นที่หน้าบ้าน ประมาณ.....ตรม.

10. การพร้อมเรื่องปัจจัยพื้นฐาน ☐ มีทะเบียนบ้าน ☐ มีมิเตอร์ไฟฟ้า ☐ มีมิเตอร์น้ำประปา

11. ลักษณะของครอบครัว ☐ เดี่ยว ☐ ขยาย สมาชิกในครอบครัว.....คน

12. ตำแหน่งในครอบครัว ☐ เจ้าของบ้าน ☐ สมาชิกในครอบครัว

13. ทีตั้งของบ้านที่พักอาศัย ☐ ต้นซอย ☐ กลางซอย ☐ ปลายซอย

14. ท่านอยู่ในชุมชนนี้ได้อย่างไร ☐ เกิดที่นี่ ☐ พ่อ แม่อยู่ที่นี่.. ☐ มาตั้งรกรากที่นี่

ท่านย้ายเข้ามาอยู่ในชุมชนนี้ตั้งแต่เมื่อใด ..... รวมระยะเวลาประมาณ..... ปี

ภูมิลำเนาเดิมจาก.....

15. ตำแหน่งใดในกลุ่มบริหารชุมชน ☐ ไม่มี ☐ มี ตำแหน่งเป็น .....

16. ข้าวของเครื่องใช้มาตรฐานในบ้าน

ชนิด	ไม่มี	มี	ชนิด	ไม่มี	มี
ชุดครัว			เครื่องปรับอากาศ		
พื้นที่พักผ่อนส่วนกลางในบ้าน			ตู้เย็น		
เตา			โทรทัศน์		
เตาไมโครเวฟ			รับ บริการ cable tv, จานดาวเทียม		
พัดลมไฟฟ้า			เครื่องเล่น Vcd, Dvd		
หม้อหุงข้าว			วิทยุ		
เครื่องทำแซนด์วิช			โทรศัพท์		
เตารีด			โทรศัพท์มือถือ		
เครื่องกรองน้ำ			คอมพิวเตอร์ตั้งโต๊ะ		
เครื่องซักผ้า			คอมพิวเตอร์โน๊ตบุ๊ก		
ปั๊มน้ำ			รถยนต์,รถปิคอัพ		
ถังบำบัดน้ำเสีย			รถจักรยานยนต์		
ถังดักไขมัน			รถจักรยาน		
อื่น ๆ.....			อื่น ๆ		

18. ความสัมพันธ์ผู้ให้ข้อมูลกับเพื่อนบ้านในละแวกบ้าน

1) ความสัมพันธ์ที่เป็นญาติพี่น้อง ☐ มี ☐ ไม่มี

☐ ติดต่อกันบ้างเป็นครั้งคราว ☐ ติดต่อกันบ่อยครั้ง

☐ ช่วยเหลือกันบางเรื่อง ☐ ช่วยเหลือกันทุกเรื่อง

2) ความสัมพันธ์ระหว่างเพื่อนบ้าน ☐ มี ☐ ไม่มี

☐ ติดต่อกันบ้างเป็นครั้งคราว ☐ ติดต่อกันบ่อยครั้ง

☐ ช่วยเหลือกันบางเรื่อง ☐ ช่วยเหลือกันทุกเรื่อง

ส่วนที่ 2 คำถามที่เกี่ยวกับโครงการปรับปรุงสภาพแวดล้อมในชุมชน

ข้อแนะนำในการตอบแบบสอบถาม

แบบสอบถามในส่วนที่ 2 นี้จะสอบถามท่านถึงกิจกรรม การใช้ชีวิต ทัศนคติ ความรู้ การรับรู้ ความรู้สึก และสิ่งต่าง ๆ ที่เกี่ยวกับสภาพแวดล้อมในชุมชน และ กิจกรรมที่เกิดขึ้น ใน 2 ห้วงเวลา คือ ห้วงเวลาในอดีต (ย้อนหลังไปประมาณ 10 ปี) ประมาณปี พ.ศ.2544 ซึ่งผู้วิจัยเข้าใจดีว่า ข้อคำถามบางข้อจะยากที่จะตอบ เพราะท่านต้องทบทวนความทรงจำของท่านย้อนหลังไปเป็นเวลานานพอสมควร เปรียบเทียบกับห้วงเวลาปัจจุบัน

แนวทางในการทำแบบสอบถามในส่วนนี้ หากท่านไม่สามารถทบทวนได้ จึงใคร่แนะนำท่านได้เทียบเคียงเหตุการณ์อื่นๆ ที่เกิดขึ้นในชีวิตของท่านในห้วงเวลาดังกล่าวในอดีตที่สำคัญ เช่น ในช่วงที่บุตรหลานของท่านกำลังเข้าศึกษาต่อในระดับมหาวิทยาลัย ช่วงที่ท่านกำลังริเริ่มทำธุรกิจตัวใหม่ ช่วงที่บุตรกำลังแต่งงาน ช่วงที่ท่านมีคณะกรรมการชุมชนชุดแรก ฯลฯ ในห้วงเวลาสำคัญดังกล่าวนั้น สภาพแวดล้อมทางกายภาพในชุมชนของท่านเป็นอย่างไร ภาพเหตุการณ์ที่เกิดขึ้นในห้วงเวลานั้น รอบ ๆ บริเวณที่อยู่อาศัย สภาพชุมชนของท่านเป็นอย่างไร พร้อมทั้งกรอกลงในตารางที่ 2 ว่าในห้วงปัจจุบันเป็นอย่างไร เนื่องจาก ผลการศึกษานี้จะมุ่งเน้น ความแตกต่าง ของ 2 ช่วงเวลา คือ ในอดีต และ ปัจจุบัน ว่า ดีขึ้น-เลวลง / เพิ่มขึ้น-น้อยลง/ มากกว่า-น้อยกว่า เป็นสำคัญ

เมื่อท่านได้อ่านคำถามอย่างละเอียดแล้ว กรุณาทบทวนถึงเหตุการณ์ตามช่วงเวลาดังกล่าว ให้คำตอบตามคำถามแต่ละข้อ สำหรับข้อที่มีคำถามที่ระบุว่าให้ให้คะแนน 1-5 ให้ท่านทบทวนตามความเป็นจริงในการปฏิบัติจริง ความถูกต้อง ทัศนคติ และความรู้สึกของท่านจากน้อยไปมาก ตามคะแนนดังนี้ คือ

ให้คะแนนในช่องหมายเลข 1 คือ ไม่ถูกต้องอย่างยิ่ง หรือ ไม่เห็นด้วยอย่างยิ่ง

ให้คะแนนในช่องหมายเลข 2 คือ ไม่ถูกต้อง หรือ ไม่เห็นด้วยอย่างยิ่ง

ให้คะแนนในช่องหมายเลข 3 คือ เฉย ๆ ไม่แตกต่างอะไร หรือ ไม่ได้ดำเนินการอะไร

ให้คะแนนในช่องหมายเลข 4 คือ ถูกต้อง หรือ เห็นด้วย

ให้คะแนนในช่องหมายเลข 5 คือ ถูกต้องที่สุด และ เห็นด้วยอย่างยิ่ง

อนึ่ง หากท่านสงสัย หรือ คำถามในข้อใดที่ยังไม่ได้เขียนไว้ชัดเจน กรุณา สอบถามผู้วิจัยได้ทันที

5

1. หัวข้อเรื่อง : การปรับปรุงสภาพแวดล้อมในชุมชน (X1-X3)

หัวข้อเรื่อง : การปรับปรุงสภาพแวดล้อมกายภาพในชุมชน (IENS)	อดีต (ก่อนปี พ.ศ.2544)	ปัจจุบัน
(x1) การปรับปรุงบ้านพักอาศัย) / ท่านได้มีการดำเนินการตามข้อต่อไปนี้อย่างไร (ให้ตอบโดยประมาณ) - 1. การซ่อมแซมบ้าน (ตรม.) - 2. การทาสีบ้าน (ตรม.) - 3. การยกระดับพื้นบ้าน (ตรม.) - 4. ปรับปรุงห้องพักผ่อนส่วนกลาง (ตรม.) - 5. การทำความสะอาดบ้าน (ครั้งต่อวัน) - 6. การจัดทำถังดักไขมัน - 7. การจัดทำถังเกรอะ	( ) ทำ .....ตรม. ( )ไม่ทำ ( ) ทำ .....ตรม. ( )ไม่ทำ ( ) ทำ .....ตรม. ( )ไม่ทำ ( ) ทำ .....ตรม. ( )ไม่ทำ ( ) ทำ .....ครั้ง. ( )ไม่ทำ ( ) ทำ ( )ไม่ทำ ( ) ทำ ( )ไม่ทำ	( ) ทำ .....ตรม. ( )ไม่ทำ ( ) ทำ .....ตรม. ( )ไม่ทำ ( ) ทำ .....ตรม. ( )ไม่ทำ ( ) ทำ .....ตรม. ( )ไม่ทำ ( ) ทำ .....ครั้ง ( )ไม่ทำ ( ) ทำ ( )ไม่ทำ ( ) ทำ ( )ไม่ทำ
(x2)โครงการทำความสะอาด (cleaning day) / ท่านได้ดำเนินตามโครงการ - 1. ความถี่ของโครงการ (ครั้ง/สัปดาห์) - 2. ท่านมีส่วนร่วมในระดับใด (ให้คะแนน 1-5) เรื่องการกำจัดขยะ และของเหลือใช้ - 3. พบเห็นขยะบริเวณหน้าบ้าน - 4. พบเห็นของเหลือใช้ เศษวัสดุไม่ได้ทิ้งเกลื่อนกลาด - 5. จุดรวมขยะวางพักไว้ และมีการเก็บไปทิ้งอย่างต่อเนื่อง - 6. กลิ่นจากขยะมูลฝอย - 7. การปฏิบัติในการแยกขยะ	( ) ทำ .....ครั้ง. ( )ไม่ทำ 1 2 3 4 5 ( ) มากขึ้น ( ) น้อยลง( )ไม่พบ ( ) มากขึ้น ( ) น้อยลง( )ไม่พบ ( ) มากขึ้น ( ) น้อยลง( )ไม่พบ ( ) มากขึ้น ( ) น้อยลง( )ไม่พบ ( ) มากขึ้น ( ) น้อยลง( )ไม่พบ	( ) ทำ .....ครั้ง. ( )ไม่ทำ 1 2 3 4 5 ( ) มากขึ้น ( ) น้อยลง( )ไม่พบ ( ) มากขึ้น ( ) น้อยลง( )ไม่พบ ( ) มากขึ้น ( ) น้อยลง( )ไม่พบ ( ) มากขึ้น ( ) น้อยลง( )ไม่พบ ( ) มากขึ้น ( ) น้อยลง( )ไม่พบ
(x3) การปรับปรุงบริเวณหน้าบ้าน หรือ พื้นที่ส่วนกลาง/ ท่านได้ดำเนินการในเรื่องต่อไปนี้อย่างไร - 1. การปรับปรุงพื้นทีทางเดินหน้าบ้าน (ตรม.) - 2. การปลูกต้นไม้หน้าบ้าน (ต้น) - 3. การตกแต่งหน้าบ้านด้วยไม้ดอก (ต้น) - 4. การปรับ / เปลี่ยนแปลงที่ดินในชุมชน (ตรม.) - 5. การตากผ้าหน้าบ้าน (ชิ้น) - 6. การจอดรถอย่างมีระเบียบ (ให้คะแนน 1-5)	( ) ทำ .....ตรม. ( )ไม่ทำ ( ) ทำ .....ต้น ( )ไม่ทำ ( ) ทำ .....ต้น ( )ไม่ทำ ( ) ทำ .....ตรม. ( )ไม่ทำ ( ) ทำ .....ชิ้น ( )ไม่ทำ 1 2 3 4 5	( ) ทำ .....ตรม. ( )ไม่ทำ ( ) ทำ .....ต้น ( )ไม่ทำ ( ) ทำ .....ต้น ( )ไม่ทำ ( ) ทำ .....ตรม. ( )ไม่ทำ ( ) ทำ .....ชิ้น ( )ไม่ทำ 1 2 3 4 5

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หัวข้อเรื่อง : การปรับปรุงสภาพแวดล้อมกายภาพในชุมชน (IENS)	อดีต (ก่อนปี พ.ศ.2544)	ปัจจุบัน
- 7. ความมีระเบียบเรียบร้อย ของชุมชน	1 2 3 4 5	1 2 3 4 5
- 8. ความสวยงาม ร่มรื่น สบายหู สบายตา ของชุมชน	1 2 3 4 5	1 2 3 4 5

2. เรื่อง การเสริมสร้างเครือข่ายชุมชนอนุรักษ์สิ่งแวดล้อม (X4-X6)

หัวข้อเรื่อง : การเสริมสร้างเครือข่ายชุมชนสิ่งแวดล้อม (IENN)	อดีต (ก่อนปี พ.ศ.2544)	ปัจจุบัน
(x4)โครงการให้ความรู้เกี่ยวกับการศึกษาด้านสิ่งแวดล้อม		
- ธนาคารขยะ		
1. ระดับการมีส่วนร่วม	1 2 3 4 5	1 2 3 4 5
2. ความรู้ที่ท่านได้รับจากโครงการ	1 2 3 4 5	1 2 3 4 5
- ถังบำบัดส่วนกลางก่อนปล่อยลงคลอง		
3. ระดับการมีส่วนร่วม	1 2 3 4 5	1 2 3 4 5
4. ความรู้ที่ท่านได้รับจากโครงการ	1 2 3 4 5	1 2 3 4 5
- ถังบำบัดของแต่ละบ้าน		
5. ระดับการมีส่วนร่วม	1 2 3 4 5	1 2 3 4 5
6. ความรู้ที่ท่านได้รับจากโครงการ	1 2 3 4 5	1 2 3 4 5
(x5)โครงการเครือข่ายชุมชนสิ่งแวดล้อม		
- โครงการสหกรณ์ออมทรัพย์สำหรับอาคารสงเคราะห์ เพื่อใช้ในการปรับปรุงสภาพแวดล้อมชุมชน		
1. ระดับการมีส่วนร่วม	1 2 3 4 5	1 2 3 4 5
2. ความรู้ที่ท่านได้รับจากโครงการ	1 2 3 4 5	1 2 3 4 5
(x6)โครงการเครือข่ายสลัม 4 ภาค		
1. ระดับการมีส่วนร่วม	1 2 3 4 5	1 2 3 4 5
2. ความรู้ที่ท่านได้รับจากโครงการ	1 2 3 4 5	1 2 3 4 5

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หัวข้อเรื่อง : การเสริมสร้างเครือข่ายชุมชนสิ่งแวดล้อม (IENN)	อดีต (ก่อนปี พ.ศ.2544)	ปัจจุบัน
3. บุคคลภายนอก ที่เป็นเครือข่ายฯ เดินทางเข้ามาให้ความรู้และมีส่วนร่วม - จำนวนครั้ง / สัปดาห์ - เวลาที่มา / ครั้ง - กิจกรรมที่ทำร่วมกัน	( ) พบ.....ครั้ง ( ) ไม่พบ .....ชม / ครั้ง ( ) ไม่มี ( ) มี ได้แก่ ... ( ) พูดคุย ( ) ให้ความรู้ ( ) แลกเปลี่ยนความคิดเห็น ( ) อื่น ๆ	( ) พบ.....ครั้ง ( ) ไม่พบ .....ชม/ครั้ง ( ) ไม่มี ( ) มี ได้แก่ ... ( ) พูดคุย ( ) ให้ความรู้ ( ) แลกเปลี่ยนความคิดเห็น ( ) อื่น ๆ .....
โครงการอื่น ๆ นอกเหนือจากนี้	( ) มี ( ) ไม่มี ระบุชื่อโครงการ และอธิบาย.....	( ) มี ( ) ไม่มี ระบุชื่อโครงการ และอธิบาย.....

3. เรื่อง การรับรู้ และ การปฏิบัติตามกฎระเบียบของสังคม (Y1-Y3)

หัวข้อเรื่อง : การรับรู้ และ การปฏิบัติตามกฎระเบียบของสังคม (SDSO)	อดีต (ก่อนปี พ.ศ.2544)	ปัจจุบัน
(y1)ประสบการณ์ที่เกี่ยวข้องกับกฎระเบียบของสังคม - 1. ท่านถูกรบกวนจากการเตร็ดเตร เร่ร่อน หรือไม่ (ให้คะแนน 1-5)	1 2 3 4 5	1 2 3 4 5
- 2. ท่านพบเห็นการพ่นสี หรือ ขีดเขียนกำแพง (แห่ง)	( ) พบ....แห่ง ( ) ไม่พบ	( ) พบ....แห่ง ( ) ไม่พบ
- 3. ท่านพบเห็นการทำลายข้าวของส่วนกลางของชุมชน	( ) พบ.....ครั้ง ( ) ไม่พบ	( ) พบ....ครั้ง ( ) ไม่พบ
- 4. ท่านรู้สึกรับผิดชอบ และ ต้องมีหน้าที่ดูแลชุมชนให้สะอาดเรียบร้อย (ให้คะแนน 1-5)	1 2 3 4 5	1 2 3 4 5
- 5. สำนึกในการประหยัดพลังงาน (ให้คะแนน 1-5)	1 2 3 4 5	1 2 3 4 5
- 6. ท่านปลูกต้นไม้ (ต้น/ปี)	( )ปลูก .....ต้น ( )ไม่ปลูก	( )ปลูก .....ต้น ( )ไม่ปลูก
- 7. ท่านมีสำนึกในการดูแลบุตรหลาน (ให้คะแนน 1-5)	1 2 3 4 5	1 2 3 4 5
- 8. ท่านพบเห็นผู้อื่นเล่นการพนัน (ครั้ง/เดือน)	( ) พบ.....ครั้ง ( )ไม่พบ	( ) พบ.....ครั้ง ( )ไม่พบ
- 9. ท่านพบเห็นผู้อื่นดื่มสุรา (ครั้ง/เดือน)	( ) พบ.....ครั้ง ( )ไม่พบ	( ) พบ.....ครั้ง ( )ไม่พบ

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หัวข้อเรื่อง : การรับรู้ และ การปฏิบัติตามกฎระเบียบของสังคม (SDSO)	อดีต (ก่อนปี พ.ศ.2544)	ปัจจุบัน
ทัศนคติเชิงบวก - 10. มีแรงจูงใจที่จะเสียสละเพื่อส่วนรวม	1 2 3 4 5	1 2 3 4 5
- 11. ได้รับการยอมรับจากบุคคลในสังคม	1 2 3 4 5	1 2 3 4 5
- 12. มีสำนึกในการใช้ทรัพยากรธรรมชาติอย่างประหยัด	1 2 3 4 5	1 2 3 4 5
- 13. มีความละอายในการกระทำความผิดต่อกฎระเบียบของชุมชน	1 2 3 4 5	1 2 3 4 5
(y2) การดูแลความสะอาดของชุมชน - 1. พบเห็นขยะทิ้งไว้นอกบ้าน	1 2 3 4 5	1 2 3 4 5
- 2. ระดับการมีส่วนร่วมในโครงการวันทำความสะอาด (cleaning day)	1 2 3 4 5	1 2 3 4 5
- 3. ท่านพบเห็นจำนวนขยะใต้ถุนบ้านของเพื่อนบ้านท่าน	1 2 3 4 5	1 2 3 4 5
- 4. พบเห็นจำนวนขยะที่ทิ้งลงในแม่น้ำลำคลอง	1 2 3 4 5	1 2 3 4 5
- 5. การมีส่วนร่วมในการทำความสะอาดศูนย์การ เรียนรู้ของท่าน	1 2 3 4 5	1 2 3 4 5
(y3) การเชื่อถือและเชื่อฟังผู้นำชุมชน - 1. ท่านได้เข้ามามีส่วนร่วมกับงานของชุมชน เมื่อผู้นำชุมชนได้แจ้งให้ท่านเข้าร่วม (ครั้ง / เดือน)	( ) ร่วม.....ครั้ง( )ไม่ร่วม	( ) ร่วม.....ครั้ง ( )ไม่ร่วม
- 2. ท่านมีความเชื่อมั่นในตัวผู้นำให้ห้วงเวลาดังกล่าวระดับใด (ให้คะแนน 1-5)	1 2 3 4 5	1 2 3 4 5

4. เรื่อง ความสัมพันธ์ในชุมชน (Y4-Y6)

หัวข้อเรื่อง : ความสัมพันธ์ในชุมชน (CR)	อดีต (ก่อนปี พ.ศ.2544)	ปัจจุบัน
การใช้เวลาในพื้นที่ส่วนกลาง และ กิจกรรม (y4) ท่านได้ใช้ประโยชน์จากพื้นที่หน้าบ้าน ในระดับใด (ให้คะแนน 1-5)	1 2 3 4 5	1 2 3 4 5

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หัวข้อเรื่อง : ความสัมพันธ์ในชุมชน (CR)	อดีต (ก่อนปี พ.ศ.2544)	ปัจจุบัน
- 1. ขณะที่อยู่ในบ้าน ท่านทำกิจกรรมเหล่านี้ เป็นเวลานานเท่าใด		
นอน	( ) มากขึ้น ( ) น้อยลง ( ) เท่าเดิม	( ) มากขึ้น ( ) น้อยลง ( ) เท่าเดิม
ทำงาน	( ) มากขึ้น ( ) น้อยลง ( ) เท่าเดิม	( ) มากขึ้น ( ) น้อยลง ( ) เท่าเดิม
ดูโทรทัศน์	( ) มากขึ้น ( ) น้อยลง ( ) เท่าเดิม	( ) มากขึ้น ( ) น้อยลง ( ) เท่าเดิม
เลี้ยงดูบุตรหลาน	( ) มากขึ้น ( ) น้อยลง ( ) เท่าเดิม	( ) มากขึ้น ( ) น้อยลง ( ) เท่าเดิม
พูดคุย	( ) มากขึ้น ( ) น้อยลง ( ) เท่าเดิม	( ) มากขึ้น ( ) น้อยลง ( ) เท่าเดิม
อื่น ๆ	.....	.....
- 2. ขณะที่ท่านอยู่บริเวณหน้า หรือ หลังบ้าน ท่านทำกิจกรรมเหล่านี้ เป็นเวลานานเท่าใด		
นอน	( ) มากขึ้น ( ) น้อยลง ( ) เท่าเดิม	( ) มากขึ้น ( ) น้อยลง ( ) เท่าเดิม
ทำงาน	( ) มากขึ้น ( ) น้อยลง ( ) เท่าเดิม	( ) มากขึ้น ( ) น้อยลง ( ) เท่าเดิม
ดูโทรทัศน์	( ) มากขึ้น ( ) น้อยลง ( ) เท่าเดิม	( ) มากขึ้น ( ) น้อยลง ( ) เท่าเดิม
เลี้ยงดูบุตรหลาน	( ) มากขึ้น ( ) น้อยลง ( ) เท่าเดิม	( ) มากขึ้น ( ) น้อยลง ( ) เท่าเดิม
พูดคุย	( ) มากขึ้น ( ) น้อยลง ( ) เท่าเดิม	( ) มากขึ้น ( ) น้อยลง ( ) เท่าเดิม
อื่น ๆ	.....	.....
3. ท่านได้ใช้พื้นที่ส่วนกลางของชุมชน (สวนหย่อม และศูนย์การเรียนรู้) ในระดับใด (ให้คะแนน 1-5)	1 2 3 4 5	1 2 3 4 5
(y5) ข้อมูล ข่าวสาร ในชุมชน		
- 1. ความถี่ที่ท่านมีปฏิสัมพันธ์กับเพื่อนบ้าน	( ) มากขึ้น ( ) น้อยลง ( ) เท่าเดิม	( ) มากขึ้น ( ) น้อยลง ( ) เท่าเดิม
- 2. การพบปะพูดคุยต่อครั้ง โดยเฉลี่ย	( ) มากขึ้น ( ) น้อยลง ( ) เท่าเดิม	( ) มากขึ้น ( ) น้อยลง ( ) เท่าเดิม
- 3. ท่านรู้ข้อมูลของเพื่อนบ้าน เช่น จำนวนสมาชิกในครอบครัว หมายเลขโทรศัพท์ กิจกรรมในแต่ละวัน (ให้คะแนน 1-5)	1 2 3 4 5	1 2 3 4 5
(y6)ความขัดแย้งในชุมชน		
- 1. ความขัดแย้งในครอบครัว (ครั้ง/ปี)	( ) มากขึ้น ( ) น้อยลง ( ) เท่าเดิม	( ) มากขึ้น ( ) น้อยลง ( ) เท่าเดิม
- 2. ความขัดแย้งกับเพื่อนบ้าน (ครั้ง/ ปี)	( ) มากขึ้น ( ) น้อยลง ( ) เท่าเดิม	( ) มากขึ้น ( ) น้อยลง ( ) เท่าเดิม

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เรื่อง การป้องกันตนเองจากอาชญากรรม (Y7-Y10)

หัวข้อเรื่อง : การป้องกันตนเองจากอาชญากรรม (SDM)	อดีต (ก่อนปี พ.ศ.2544)	ปัจจุบัน
(y7) การตัดสินใจย้ายออกนอกชุมชน		
- 1. ความคิดที่อยากจะย้ายออกจากชุมชน (ให้คะแนน 1-5)	1 2 3 4 5	1 2 3 4 5
- 2. คนในครอบครัว ญาติ คนรู้จัก ได้ย้ายออกจากชุมชน (คน)	( ) มี.....คน ( ) ไม่มี	( ) มี.....คน ( ) ไม่มี
การตัดสินใจย้ายออกนอกชุมชน อันเนื่อง จากความหวาดกลัวต่ออาชญากรรม		
- 3. ความคิดที่อยากจะย้ายออกจากชุมชนจากความหวาดกลัวอาชญากรรม (ให้คะแนน 1-5)	1 2 3 4 5	1 2 3 4 5
- 4. คนในครอบครัว ญาติ คนรู้จัก ได้ย้ายออกจากชุมชน จากความหวาดกลัวอาชญากรรม (คน)	( ) มี.....คน ( ) ไม่มี	( ) มี.....คน ( ) ไม่มี
(y8) มาตรการในการป้องกันอาชญากรรม		
-1. ระดับความรู้สึกหวาดกลัวต่ออาชญากรรม (ให้คะแนน 1-5)	1 2 3 4 5	1 2 3 4 5
2-3ความหวาดกลัวอาชญากรรมภายนอกชุมชน		
. เวลากลางวัน และ	1 2 3 4 5	1 2 3 4 5
. เวลากลางคืน		
4-5ความหวาดกลัวอาชญากรรมภายในชุมชน		
เวลากลางวัน และ	1 2 3 4 5	1 2 3 4 5
เวลากลางคืน		
6. ประสบการณ์เกี่ยวกับประสบการณ์ด้านอาชญากรรม		
ถูกลักทรัพย์ (ครั้ง)	( ) เคย.....ครั้ง ( ) ไม่เคย	( ) เคย.....ครั้ง ( ) ไม่เคย
ถูกปล้นทรัพย์ (ครั้ง)	( ) เคย.....ครั้ง ( ) ไม่เคย	( ) เคย.....ครั้ง ( ) ไม่เคย
ถูกวิ่งราวทรัพย์ (ครั้ง)	( ) เคย.....ครั้ง ( ) ไม่เคย	( ) เคย.....ครั้ง ( ) ไม่เคย
ถูกชิงทรัพย์ (ครั้ง)	( ) เคย.....ครั้ง ( ) ไม่เคย	( ) เคย.....ครั้ง ( ) ไม่เคย
ถูกลักยานพาหนะ	( ) เคย.....ครั้ง ( ) ไม่เคย	( ) เคย.....ครั้ง ( ) ไม่เคย
ถูกทำร้ายร่างกาย (ครั้ง)	( ) เคย.....ครั้ง ( ) ไม่เคย	( ) เคย.....ครั้ง ( ) ไม่เคย
ความผิดที่เกี่ยวกับเพศต่าง ๆ (ครั้ง)	( ) เคย.....ครั้ง ( ) ไม่เคย	( ) เคย.....ครั้ง ( ) ไม่เคย
ถูกข่มขู่ คุกคาม	( ) เคย.....ครั้ง ( ) ไม่เคย	( ) เคย.....ครั้ง ( ) ไม่เคย
ถูกรบกวน จากเสียงดังเอะอะ	( ) เคย.....ครั้ง ( ) ไม่เคย	( ) เคย.....ครั้ง ( ) ไม่เคย
พบเห็นความผิดเกี่ยวกับยาเสพติด (ครั้ง)	( ) เคย.....ครั้ง ( ) ไม่เคย	( ) เคย.....ครั้ง ( ) ไม่เคย

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หัวข้อเรื่อง : การป้องกันตนเองจากอาชญากรรม (SDM)	อดีต (ก่อนปี พ.ศ.2544)	ปัจจุบัน
- 7. ความรู้สึกหวาดกลัวต่อปัญหายาเสพติดในชุมชน (ให้คะแนน 1-5)	1 2 3 4 5	1 2 3 4 5
(y9) การพบเห็นบุคคลภายนอก - 1. พบเห็นบุคคลแปลกหน้าเข้ามาในชุมชน (คน/วัน) - 2. ความสามารถของท่านในการพบเห็นบุคคลแปลกหน้าที่เข้ามาในชุมชน (ให้คะแนน 1-5) - 3. สภาพแวดล้อมในชุมชนที่เอื้ออำนวยให้ง่ายต่อการตรวจเห็นบุคคลแปลกหน้า (ให้คะแนน 1-5)	( ) พบ.....ครั้ง ( ) ไม่พบ 1 2 3 4 5 1 2 3 4 5	( ) พบ.....ครั้ง ( ) ไม่พบ 1 2 3 4 5 1 2 3 4 5
(y10) มาตรการป้องกันตนเองในระดับชุมชน - 1. สายตรวจชุมชน (ครั้ง/วัน) - 2. จุดตรวจชุมชน (ครั้ง/วัน) - 3.ความสัมพันธ์กับเจ้าหน้าที่ตำรวจ (ให้คะแนน 1-5)	( ) มี.....ครั้ง ( ) ไม่มี ( ) มี.....ครั้ง ( ) ไม่มี 1 2 3 4 5	( ) มี.....ครั้ง ( ) ไม่มี ( ) มี.....ครั้ง ( ) ไม่มี 1 2 3 4 5
การรับรู้เกี่ยวกับปัญหาอาชญากรรม และ ความปลอดภัย - ท่านคิดว่าในชุมชนมีปัญหาด้านอาชญากรรมหรือไม่ - ท่านคิดว่าในชุมชนมีปัญหาด้านยาเสพติดหรือไม่ - ท่านรับรู้ปัญหาอาชญากรรมในประเทศไทยจาก โทรทัศน์ วิทยุ หนังสือพิมพ์ นิตยสาร อินเตอร์เนต คำบอกเล่า - จากประสบการณ์เมื่อพบปัญหาด้านอาชญากรรม และความไม่สงบเรียบร้อย ทำอย่างไร แก้ไขปัญหาด้วยตนเอง แจ้งเพื่อนบ้าน แจ้งผู้นำชุมชน แจ้งเจ้าหน้าที่ตำรวจ	( ) มี ( ) ไม่มี ( ) มี ( ) ไม่มี ( ) ได้รับ ( ) ไม่ได้รับ ( ) ได้รับ ( ) ไม่ได้รับ ( ) ได้รับ ( ) ไม่ได้รับ ( ) ได้รับ ( ) ไม่ได้รับ ( ) ได้รับ ( ) ไม่ได้รับ ( ) ได้รับ ( ) ไม่ได้รับ ( ) ใช่ ( ) ไม่ใช่ ( ) ใช่ ( ) ไม่ใช่ ( ) ใช่ ( ) ไม่ใช่ ( ) ใช่ ( ) ไม่ใช่	( ) มี ( ) ไม่มี ( ) มี ( ) ไม่มี ( ) ได้รับ ( ) ไม่ได้รับ ( ) ได้รับ ( ) ไม่ได้รับ ( ) ได้รับ ( ) ไม่ได้รับ ( ) ได้รับ ( ) ไม่ได้รับ ( ) ได้รับ ( ) ไม่ได้รับ ( ) ได้รับ ( ) ไม่ได้รับ ( ) ใช่ ( ) ไม่ใช่ ( ) ใช่ ( ) ไม่ใช่ ( ) ใช่ ( ) ไม่ใช่ ( ) ใช่ ( ) ไม่ใช่

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หัวข้อเรื่อง : ปัญหาเรื่องอื่น ๆ	อดีต (ก่อนปี พ.ศ.2544)	ปัจจุบัน
- ปัญหาด้านด้านสุขอนามัย		
จำนวนสัตว์แพร่เชื้อโรค เช่น หนู ยุง และแมลงสาบ	1 2 3 4 5	1 2 3 4 5
จากปัญหาด้านสุขอนามัยดังกล่าวข้างต้น เมื่อประสบปัญหาแล้ว ทำอย่างไร		
แก้ไขปัญหาด้วยตนเอง	( ) ใช่ ( ) ไม่ใช่	( ) ใช่ ( ) ไม่ใช่
แจ้งเพื่อนบ้าน	( ) ใช่ ( ) ไม่ใช่	( ) ใช่ ( ) ไม่ใช่
แจ้งผู้นำชุมชน	( ) ใช่ ( ) ไม่ใช่	( ) ใช่ ( ) ไม่ใช่
แจ้งเจ้าหน้าที่ตำรวจ	( ) ใช่ ( ) ไม่ใช่	( ) ใช่ ( ) ไม่ใช่
- ความรุนแรงในปัญหาความปลอดภัยในชีวิต จากปัจจัยภายนอก หรือ จากธรรมชาติ		
จากสัตว์ที่มีพิษต่าง ๆ เช่น งูพิษ ฯลฯ	1 2 3 4 5	1 2 3 4 5
ปัญหาจากเหตุเพลิงไหม้	1 2 3 4 5	1 2 3 4 5
จากปัญหาด้านความปลอดภัยในชีวิต ข้างต้น เมื่อประสบปัญหาแล้ว ทำอย่างไร		
แก้ไขปัญหาด้วยตนเอง	( ) ใช่ ( ) ไม่ใช่	( ) ใช่ ( ) ไม่ใช่
แจ้งเพื่อนบ้าน	( ) ใช่ ( ) ไม่ใช่	( ) ใช่ ( ) ไม่ใช่
แจ้งผู้นำชุมชน	( ) ใช่ ( ) ไม่ใช่	( ) ใช่ ( ) ไม่ใช่
แจ้งเจ้าหน้าที่ตำรวจ	( ) ใช่ ( ) ไม่ใช่	( ) ใช่ ( ) ไม่ใช่

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APPENDIX B

In this appendix, every steps of SEM by AMOS version 6 are assembled in this part in order to show analysis results in details as follow;

1) Abbreviation
2) Process of description
3) Model analysis from model 1 to 3 and model 5 to 6
4) Significant Descriptive statistic discussion

1) Abbreviation

In this chapter illustrates a result from data analysis by AMOS version 6 in the form of SEM with interpretation. And a lot of abbreviation will be found from now on, so these are an abbreviation's meaning.

Structural Equation Modeling (SEM.) – Statistical Abbreviation

Table 1 Model equivalence indices

N	Meaning	Sample Size
%	Meaning	Percentage
$\overline{X}$	Meaning	Arithmetic Mean
S.D.	Meaning	Standard Deviation
R	Meaning	Pearson ' s Correlation Coefficient
χ^2	Meaning	Chi-square test
Df	Meaning	Degree of Freedom
CMIN/DF	Meaning	Chi-square statistic comparing the tested model and the independent model with the saturated model
GFI,AGFI, NFI, IFI	Meaning	GFI(Goodness of Fit Index), AGFI(Adjust Goodness of Fit Index), NFI (Normal Fit Index) (IFI) (Incremental Fit Index)

CFI	Meaning	Comparative Fit Index
RMSEA	Meaning	Root Mean Square Error of Approximation
RMR	Meaning	Root Mean Square Residual
S.E.	Meaning	Standard Error
R	Meaning	Multiple Correlation
R^2	Meaning	Square Multiple Correlation
TE	Meaning	Total Effect
DE	Meaning	Direct Effect
IE	Meaning	Indirect Effect
T	Meaning	T-distribution
F	Meaning	F-distribution
P-value	Meaning	Probability value

All of these criteria below: they're referred for model validation hereinafter.

D. Index and Criteria in SEM

Absolute Fit Index

Likelihood Ratio Chi-Square Statistic ($\chi 2$) $p > 0.050$

relative χ^2 (χ^2/df) < 3.000

Goodness of Fit Index (GFI) > 0.900

Adjusted Goodness of Fit Index (AGFI) > 0.900

Root Mean Squared Residuals (RMR) < 0.050

Standardized Root Mean Squared Residual (SRMR) < 0.050

Root Mean Squared Error of Approximation (RMSEA) < 0.050

P-Value for Test of Close Fit>0.050

Incremental Fit Index

Norm Fit Index (NFI) > 0.90

Incremental Fit Index (IFI) > 0.900

Comparative Fit Index (CFI) > 0.900

Parsimonious Fit Index

Parsimonious Goodness of Fit Index (PGFI) > 0.900

Parsimonious Norm Fit Index (PNFI) > 0.900

Critical N (CN) ≥ 200

2) Process of description

Hereafter, SEM symbol shape and arrows would represent a repeatedly format in all 6 models. From AMOS print out of model structure there are several results from computed action as illustrating as follow;

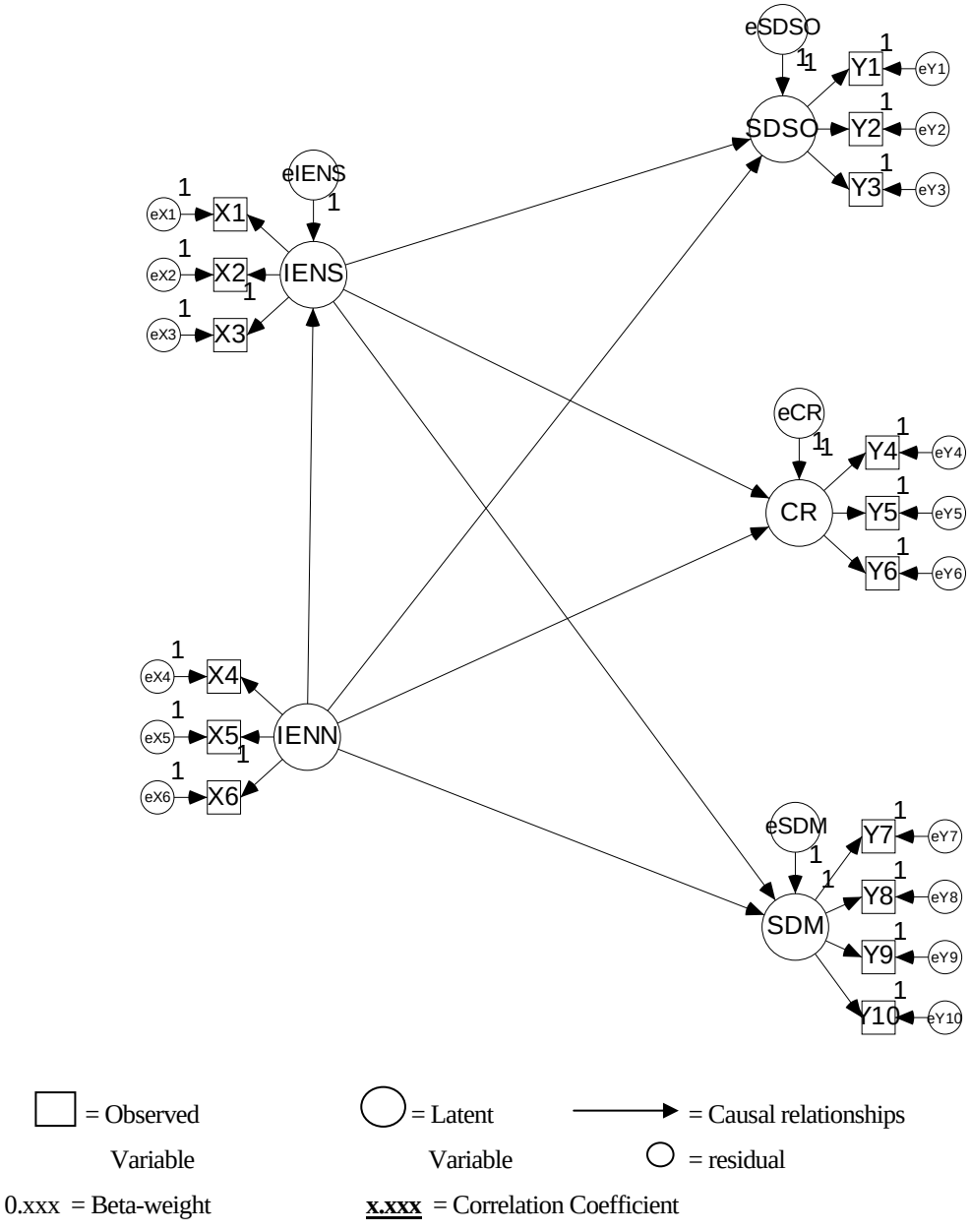


Figure 1 Structural Theorized Model of IDE and CRE model

1) Data result and explanation from SEM output format that is used to explain in six models

1.1 SEM model: print out by AMOS

1.2 SEM model: model simplify by eliminated unnecessary details

1.3 Model equivalence

1.4 Factor Loading of Confirmatory Factor Analysis

1.5 Structural hypothesized model, Path Analysis or structural analysis

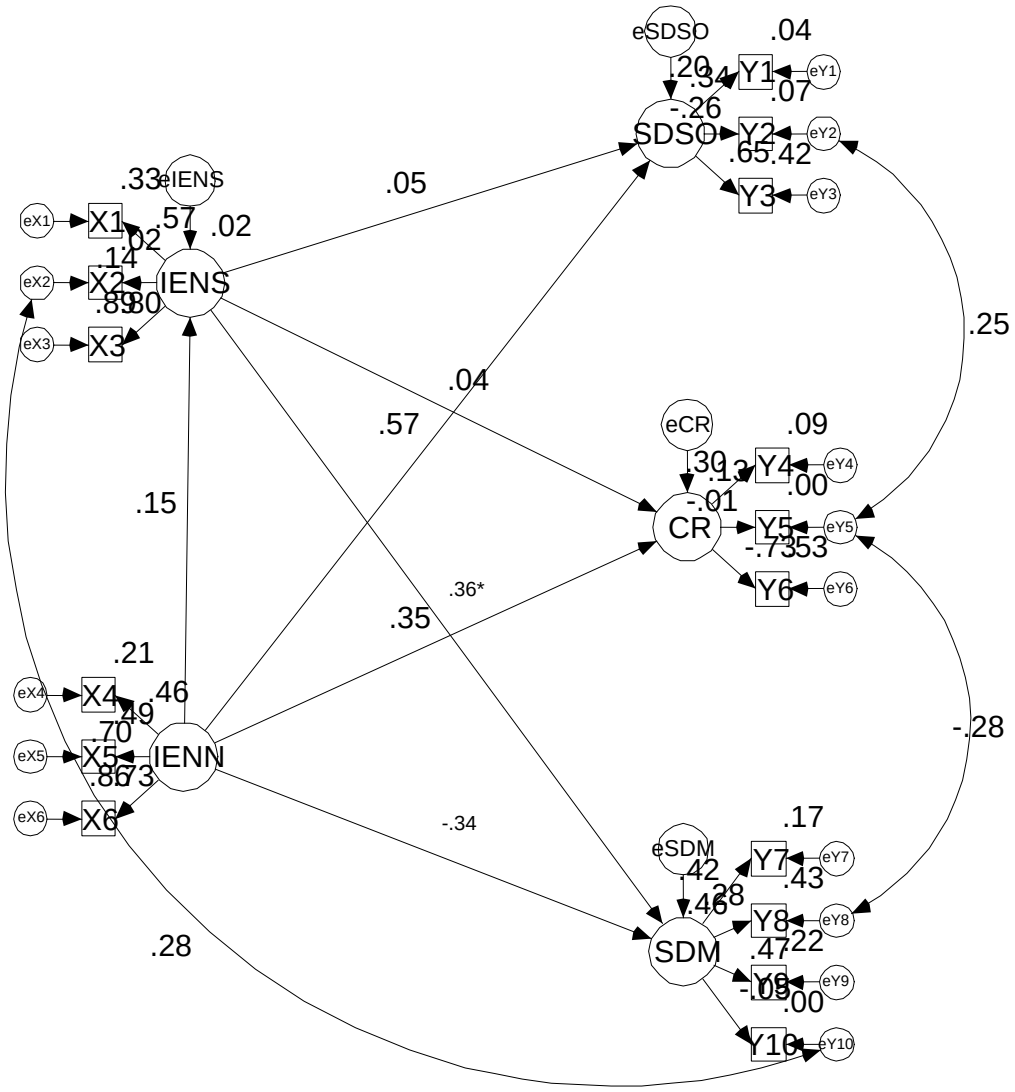
- Path coefficient / direct, indirect and total effect

1.6 Model interpretation in each group (only in model 2,4 and 6)

All AMOS print out analysis summary was attached in this appendix B with the detail as: variable summary, descriptive statistic in each variable, variable counts, parameter summary, model details, estimations, regression weights, standardized regression weights, covariance, correlation, square multiple correlations, Matrices of total effects, standardized total effects, direct effects, standardized direct effects, indirect effects, standardized indirect effects And model fit summary by CMIN, RMR,GFI, Baseline Comparisons, Parsimony-Adjusted Measures, NCP, FMIN, RMSEA, AIC, ECVI, Hoelter covariance matrix and equivalence testing model clarification

1) Model 1 : Neutral group in past time (Without IDE) model
2) Model 2 : Neutral group at present time (Recent) model
3) Model 3 : Selected group (Before IDE program entry) model
4) Model 4 : Selected group (After IDE program entry) model
   (Removed to analyze in full paper)
5) Model 5 : Test group (Before IDE program entry) model
6) Model 6 : Test group (After IDE program entry) model

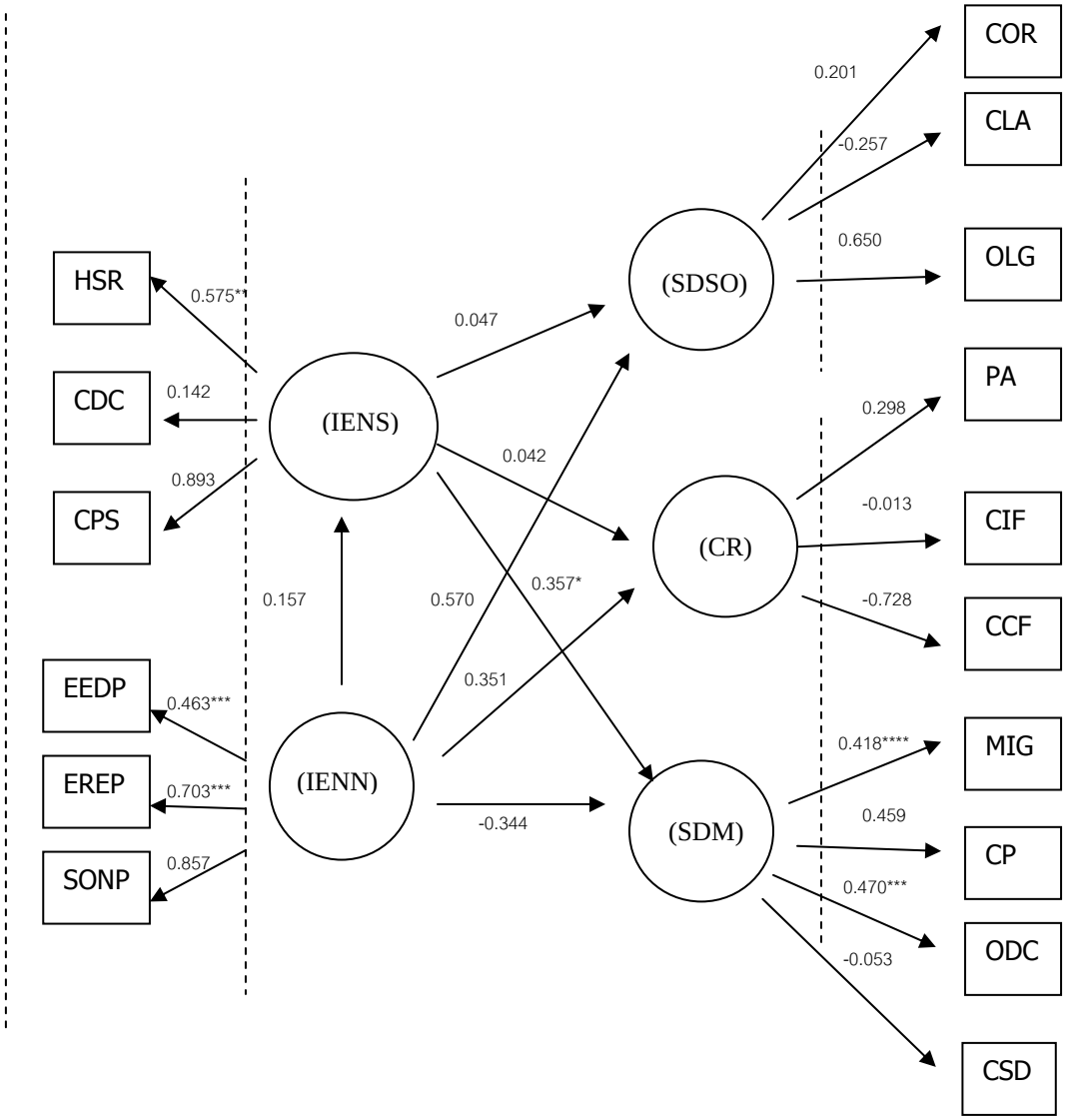
2) Model analysis from model 1 to 6 (except model 4)
(Model 4 is extracted for analysis in Chapter 4)



Chi-square =111.862, df = 94, P = 0.101, CMIN/DF =1.190, GFI = 0.922, RMSEA = 0.035

Note : *P< 0.10 **P<0.05 ***P<0.01

Figure 2 Model (1) Neutral group in past time (print out by AMOS)



Chi-square =111.862, df = 94, P = 0.101, CMIN/DF = 1.190, GFI = 0.922, RMSEA = 0.035

Note : *P<0.10 **P<0.05 ***P<0.01

Figure 3 Model (1) Neutral group in past time

Table 2 Model equivalence test of Neutral group in past time (Model 1)

Index	Criteria	Calculation of Measure: Last Trimming Model
Chi-square	P≥ 0.05	0.101
CMIN/DF	approach to 1	1.190
GFI	≥ 0.90	0.922
AGFI	≥ 0.90	0.887 (acceptable)
NFI	≥ 0.90	0.717 (acceptable)
IFI	≥ 0.90	0.941
CFI	≥ 0.90	0.935
RMR	< 0.05	0.026
RMSEA	< 0.05	0.035

Conclusion Model fit : Constructed model fit with empirical data

Table 2 Show the analysis of model equivalence of causal model from IDE to CRE. Result from Calculation of Measure of Last Trimming Model indicated that Constructed model fit with empirical data by showing Goodness of Fit Measure as follows: Likelihood Ratio Chi-Square Statistic (χ^2) = 0.101 is acceptable because P-value score higher than 0.05, Goodness of Fit Index (GFI) = 0.922, Adjusted Goodness of Fit Index (AGFI) = 0.887, Normed Fit Index (NFI)= 0.717,Incremental Fit Index = 0.941, Comparative Fit Index (CFI) = 0.935 are all acceptable because score higher than 0.90. Another Absolute Fit Index such as: Root Means Square Residuals (RMR) = 0.026 and Root Mean Square Error of Approximation (RMSEA) = 0.035 are also acceptable because residual score lower than 0.05

Table 3 Factor Loading of Neutral Group in past time (Model 1)

CRE Factor	Factor Loading			R^2
	b	S.E.	B	
IENS				
X1 = Housing Reorganization	0.799	0.274	0.575**	0.330
X2 = Cleaning day Campaign	0.166	0.100	0.142	0.020
X3 = Community's Physical Setting	1.000		0.893	0.797
IENN				
X4 = Environmental Education Program	0.570	0.113	0.463***	0.215
X5 = Environmental Rehabilitation Program	1.006	0.149	0.703***	0.494
X6 = Social Networking Program	1.000		0.857	0.734
SDSO				
Y1 = Community Order	1.000		0.201	0.040
Y2 = Cleanliness in action	-2.271	1.512	-0.257	0.066
Y3 = Obedience to community's leader guidance	6.553	4.110	0.650	0.423
CR				
Y4 = Physical Activity	1.000		0.298	0.089
Y5 = Community information flow	-0.060	0.463	-0.013	0.000
Y6 = Community's conflict	-3.874	3.151	-0.728	0.530
SDM				
Y7 = Migration	0.743	0.225	0.418***	0.175
Y8 = Crime prevention	1.000		0.459	0.435
Y9 = Outsider Detection Capability	0.970	0.278	0.470***	0.221
Y10 = Civilian Self-defense	-0.117	0.218	-0.053	0.003

Note : *P< 0.10 **P<0.05 ***P<0.01

Table 3 Indicated that constructed model of Neutral group in Past combined with 4 Latent Variables as: Improving Environmental Networking (IENN) , Improving Environmental Setting (IENS), Self-discipline to comply with Social order (SDSO), Community Relation (CR) and Self Defense Mechanism (SDM). Each of Latent Variable segregates to Observed Variable in IDE to CRE model as fallows:

Latent Variable of IENS compose of 3 Observed Variables 2 Observed Variables provide an impact on Latent X as : (X1) / Housing Reorganization (HSR) showed level $p< 0.05$ (B or Beta weight = 0.575) and also Observed Variable (X3)/ Community Physical Settings (CPS) showed high degree of beta weight = 0.893 because score higher than 0.3 except only Cleaning Day Campaign (CDC) or (X2) show low beta weight = 0.142 $p>0.05$ means unable to identify that any programs or campaigns of cooperative cleaning for community in Neutral group.

Latent Variable of IENN is also compose of 3 Observed Variable (X4-X6) result from calculation indicated that there are 2 Observed Variable / Environmental Education Program (EENP)(X4)/ Environmental Rehabilitation Program (EREP)(X5) influence Latent Variable with strong degree of beta-weight X5 = 0.703 to X4 = 0.463 with $p<0.01$ respectively. And it showed there is also a Social Networking Program entering in this community with high score of beta-weight = 0.857, then sees in the section of Dependent Variable. There are 3 Latent Variable compose of Self Discipline to Comply with Social Order (SDSO)(Y1-Y3), Community Relation (CR) (Y4-Y6) and Self defense Mechanism (SDM) (Y7-Y10). For the first one (SDSO), there is only one main factor influence to Latent Variable Y of SDSO: OLG (Y3) / Level of obedience to community's Leader Guidance = 0.65 and for COR Community Order and CLA or Cleanliness in Action has quite low beta-weight that means OLG play major role to influence of Latent Variable in Dependent Variable.

The second order of Latent Variable Y is CR/ Community Relation. CR has 3 Observed Variables as Physical Activities (Y4), Community Information Flow (CIF) and Community's Conflict (CCF). For this Latent Variable got no any influencing power from Observed Variable at all because calculation measure showed low level of beta-weight and $p>0.05$ in Model (1)

In the last order of Latent Variable Y is SDM or Self Defensive Mechanism compose of 4 Observed Variables (Y7-10) : Y7 (MIG) Migration, Y8 (CP) Crime Prevention. Y9 (ODC) Outsider Detection Capability and CSD Civilian Self Defense. There is a moderate influencing power from Observed Variable to Latent Variable of SDM. From calculation found that there are 3 Observed Variables as Y7, Y8 and Y9 provide a moderate degree of impact showed by beta-weight score = 0.418, 0.459 and 0.470 only Y7 and Y9 ($p<0.01$) that means there are a real impact from Observed Y to Latent Y in subject of SDM in moderate level.

Results obtained from the model stated that the Observed Variables were used in Model (1) providing a good Factor Loading score and strong enforced power to influence Latent Variables in both Independent and Dependent Variable in Model (1) at moderate level (average 0.04)

Table 4 Path Analysis of Neutral Group in past time (Model 1)

Factors			Regression Weights		Standardized Regression Weights		
			Estimate	**S.E.**	**Estimate**	**C.R.**	**P**
IENS	<---	IENN	0.089	0.057	0.157	1.557	0.120
SDSO	<---	IENS	0.009	0.042	0.047	0.366	0.715
SDSO	<---	IENN	0.063	0.040	0.570	1.592	0.111
SDM	<---	IENS	0.325	0.142	0.357*	2.284	0.022
CR	<---	IENS	0.018	0.053	0.042	0.344	0.731
CR	<---	IENN	0.089	0.073	0.351	1.212	0.226
SDM	<---	IENN	-0.181	0.117	-0.344	-1.549	0.124

Note : *P< 0.10 Significant level 0.10 (C.R. (t-test) > 1.64)

**P<0.05 Significant level 0.05 (C.R. (t-test) > 1.96)

***P<0.01 Significant level 0.01 (C.R. (t-test) > 2.58)

An analysis of Path Coefficient in Model (1) is the combination of 3 paths from Latent Variable from Independent Variable to Latent Variable in Dependent Variable in order to know; 1) the direction of covariance among Latent Variable whether positive or negative, and 2) to evaluate degree correlation coefficient in direct way / direct Effect (DE), indirect way / Indirect Effect (IE) and its Total Effects or (TE)

Table 4 Standardized Regression Weights from Latent Variables X to Latent Variables Y in Model (1) showed only 1 direction: from IENS to SDM with 0.357 at p<0.10

Table 5 Square multiple (R^2) test of Neutral Group in past time (Model 1)

(i) Dependent variable	Square multiple (R^2)
IENS	0.024
SDSO	0.335
CR	0.129
SDM	0.284

Table 6 Effect size in model structure of Neutral Group in past time (Model 1)

Dependent variable	Effect, influencing	Independent Variable	
		IENN	IENS
IENS	Direct Effect	0.157	0.000
	Indirect Effect	0.000	0.000
	Total Effect	0.157	0.000
SDSO	Direct Effect	0.570	0.047
	Indirect Effect	0.007	0.000
	Total Effect	0.577	0.047
CR	Direct Effect	0.351	0.042
	Indirect Effect	0.006	0.000
	Total Effect	0.357	0.042
SDM	Direct Effect	-0.344	0.357
	Indirect Effect	0.055	0.000
	Total Effect	-0.289	0.357

Structural Equation Model: SEM

IENS = 0.157 IENN; $R^2 = 0.024$

SDSO = 0.570 IENN + 0.047 IENS; $R^2 = 0.335$

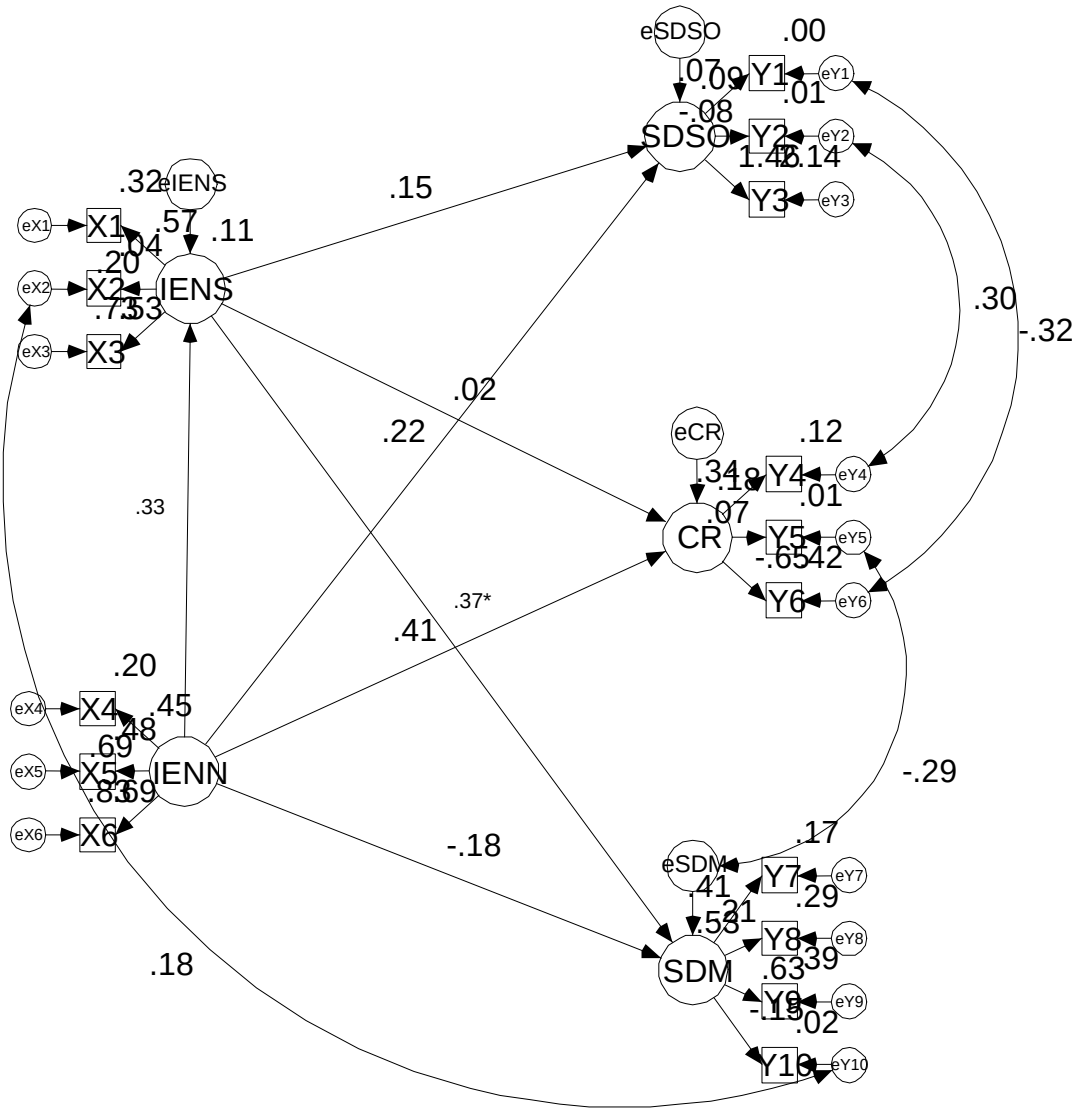
CR = 0.351 IENN + 0.042 IENS; $R^2 = 0.129$

SDM = -0.344 IENN + 0.357* IENS; $R^2 = 0.284$

Note : *P< 0.10 **P<0.05 ***P<0.01

From table 6 From Mathematic Equation as above it must be considered only in equation that show a p< from Latent Variable X to Latent Variable Y. Calculation result indicated that there is direct effect or (DE) from IENN to SDM = 0.357 in correlation coefficient with p< 0.10, so we can conclude that in Model (1) which represented Neutral community that did not have any physical rehabilitation environmental settings program entered or conducted in their community ever. In the past 10 years in this land plot : even though some informants provided some information about their good perception of IDE program but according to the model validation found that there is no any significant level showing path coefficient from IENN to IENS and also other Paths. Then, there is still only one direction from IENS (influenced mainly from X3 / CPS / Community's Physical Setting (Factor Loading 0.893) and X1/HSR/Housing Reorganization Factor Loading 0.575 significant level at 0.05) to SDM / Self Defense Mechanism with 0.357 of Total Effect (TE). SDM articulated through (Y7-Y9) about Migration (MIG), Crime Prevention (CP) and Outsider Detection Capability (ODC) in moderate level (average 0.4)

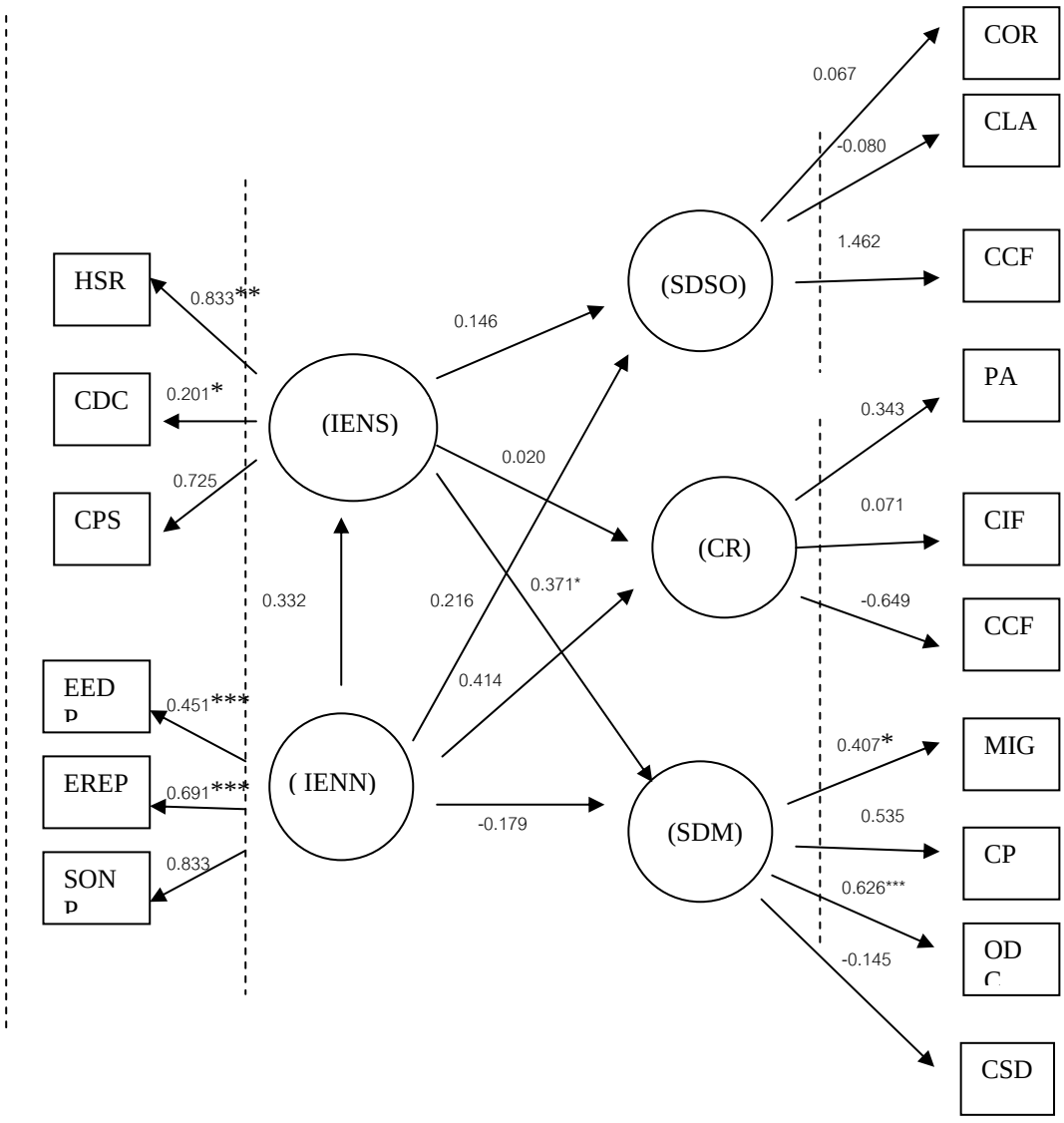
To simplify meaning : Model (1) is represented Neutral group in the past 10 years there is exactly people's perception from Environmental Setting and their behavior can be altered by Physical Environment to their Self defense Mechanism in 3 aspects; 1) about their plan to migrate, 2) about their individuals' crime prevention, and 3) their capability to detect outsider.



Chi-square = 110.412, df = 93, P = 0.105, CMIN/DF =1.187, GFI = 0.921, RMSEA = 0.034

Note : *P< 0.10 **P<0.05 ***P<0.01

Figure 4 Model (2) Neutral group at present time (print out by AMOS)



Chi-square = 110.412, df = 93, P = 0.105, CMIN/DF = 1.187, GFI = 0.921, RMSEA = 0.034

Note : *P< 0.10 **P<0.05 ***P<0.01

Figure 5 Model (2) Neutral group at present time

Table 7 Model equivalence test of Neutral group at present time (Model 2)

(ii) Index	Criteria	Output
Chi-square	P≥ 0.05	0.105
CMIN/DF	(iii) Approach to 1	1.187
GFI	≥ 0.90	0.921
AGFI	≥ 0.90	0.884 (acceptable)
NFI	≥ 0.90	0.709 (acceptable)
IFI	≥ 0.90	0.939
CFI	≥ 0.90	0.933
RMR	< 0.05	0.026
RMSEA	< 0.05	0.034
Conclusion Model fit : Constructed model fit with empirical data		

Table 7 show the analysis of model equivalence of causal model from IDE to CRE. Result from Calculation of Measure of Last Trimming Model indicated that Constructed model fit with empirical data by showing Goodness of Fit Measure as fallows: Likelihood Ratio Chi-Square Statistic (χ^2) = 0.105 is acceptable because P-value score higher than 0.05, Goodness of Fit Index (GFI) = 0.921, Adjusted Goodness of Fit Index (AGFI) = 0.884, Norm Fit Index (NFI)= 0.709, Incremental Fit Index = 0.939, Comparative Fit Index (CFI) = 0.933 are all acceptable because score is higher than 0.90. Another Absolute Fit Index such as: Root Means Square Residuals (RMR) =0.026 and Root Mean Square Error of Approximation (RMSEA) = 0.034 are also acceptable because residual score is lower than 0.05

Table 8 Factor Loading of Neutral Group at present time (Model 2)

CRE Factor	Factor Loading			R^2
	b	S.E.	B	
IENS				
X1 = Housing Reorganization	0.747	0.212	0.833***	0.321
X2 = Cleaning day Campaign	0.215	0.111	0.201*	0.041
X3 = Community's Physical Setting	1.000		0.725	0.526
IENN				
X4 = Environmental Education Program	0.571	0.119	0.451***	0.203
X5 = Environmental Rehabilitation Program	1.002	0.159	0.691***	0.477
X6 = Social Networking Program	1.000		0.833	0.695
SDSO				
Y1 = Community Order	1.000		0.067	0.005
Y2 = Cleanliness in action	-1.798	1.790	-0.080	0.006
Y3 = Obedience to community's leader guidance	42.845	122.186	1.462	2.139
CR				
Y4 = Physical Activity	1.000		0.343	0.118
Y5 = Community information flow	0.286	0.442	0.071	0.005
Y6 = Community's conflict	-3.157	1.930	-0.649	0.421
SDM				
Y7 = Migration	0.900	0.278	0.407**	0.166
Y8 = Crime prevention	1.000		0.535	0.286
Y9 = Outsider Detection Capability	1.480	0.406	0.626***	0.391
Y10 = Civilian Self-defense	-0.365	0.261	-0.145	0.021

Note : *P< 0.10 **P<0.05 ***P<0.01

Table 8 Indicate that constructed model of Neutral group at present time combined with 4 Latent Variables as: Improving Environmental Networking (IENN), Improving Environmental Setting (IENS), Self-discipline to comply with Social order (SDSO), Community Relation (CR) and Self Defense Mechanism (SDM). Each of Latent Variable segregates to Observed Variable in IDE to CRE model as follows:

Latent Variable of IENS compose of 3 Observed Variables but there are also 2 Observed Variables (X1) / Housing Reorganization (HSR) showing level $p< 0.01$ (B or Beta weight = 0.833) and also Observed Variable (X3) / Community Physical Settings (CPS) showing high degree of beta weight = 0.725 because score is higher than 0.3 except only Cleaning Day Campaign (CDC) or (X2) shows low beta weight = 0.201 without $p<$ means there is no program or campaign of cooperative cleaning for community in Neutral group until now.

Latent Variable of IENN is composed of 3 Observed Variable (X4-X6) result from calculation indicate that all of Observed Variables / Environmental Education Program (EENP)(X4)/ Environmental Rehabilitation Program (EREP)(X5) and Social Networking or (SONP) are all influence Latent Variable with strong degree of beta-weight X6 = 0.833, X5 = 0.691 and X4 = 0.451 with $p< 0.01$in X5 and X4 respectively.

For Dependent Variable, there are 3 Latent Variables composing of Self Discipline to comply with Social Order (SDSO)(Y1-Y3), Community Relation (CR) (Y4-Y6) and Self defense Mechanism (SDM) (Y7-Y10). For the first one (SDSO), there is not any factor influence to Latent Variable Y at all because beta-weight score is lower than 0.3 and does not show any significant for statistical hypothesis.

For CR in Latent Variable Y/Community Relation has 3 Observed Variables as Physical Activities (Y4), Community Information Flow (CIF) and Community's Conflict (CCF). For this Latent Variable, there got no any influencing power from Observed Variable at all, because calculation measure showed low level of beta-weight and do not have any significant in Model (2). This phenomenon also happened with Model (1)

The SDM or Self Defensive Mechanism in Latent variable Y composing of 4 Observed Variables (Y7-10) : Y7 (MIG) Migration, Y8 (CP) Crime Prevention, Y9 (ODC) Outsider Detection Capability and Y10 (CSD) Civilian Self Defense. There is a moderate influencing power from Observed Variables to Latent Variable of SDM. It was found from the calculation that there are 3 Observed Variables as Y7, Y8 and Y9 providing a moderate degree of the impact showed by beta-weight score = 0.407, 0.535 and 0.626 but only Y7 and Y9 showed at $p < 0.01$ (the same as happened in Model (1)) that means there are a real impact from Observed Y to Latent Y in subject of SDM in moderate level.

Results obtained from the Observed Variables were used in Model (2) provides a good Factor Loading score and strong enforced power to influence Latent Variables especially IENS got enforcing power from X1 and X3. For Independent Variable Y7-Y9: about migration, crime prevention and outsider detection capability in Model (2) at moderate level (average 0.04)

Table 9 Path Analysis of Neutral Group at present time (Model 2)

Factors			Regression Weights		Standardized Regression Weights	C.R.	P
			Estimate	S.E.	Estimate		
IENS	<---	IENN	0.217	0.139	0.332	1.563	0.121
SDSO	<---	IENS	0.009	0.026	0.146	0.343	0.732
SDSO	<---	IENN	0.008	0.025	0.216	0.347	0.729
SDM	<---	IENS	0.246	0.114	0.371*	2.163	0.031
CR	<---	IENS	0.009	0.065	0.020	0.131	0.896
CR	<---	IENN	0.117	0.072	0.414	1.613	0.107
SDM	<---	IENN	-0.078	0.057	-0.179	-1.354	0.176

Note : *P< 0.10 Significant level 0.10 (C.R. (t-test) > 1.64)

**P<0.05 Significant level 0.05 (C.R. (t-test) > 1.96)

***P<0.01 Significant level 0.01 (C.R. (t-test) > 2.58)

An analysis of the Path Coefficient in Model (2) is the combination of 3 paths from Latent Variable from Independent Variable to Latent Variable in Dependent Variable in order to know 1) the direction of covariance among Latent Variable whether it is in positive or negative and 2) to evaluate degree correlation coefficient in direct way / direct Effect (DE), indirect way / Indirect Effect (IE) and its Total Effects or (TE)

Table 9 shows Standardized Regression Weights from Latent Variables X to Latent Variables Y in Model (1) showed only 1 direction: from IENS to SDM with 0.371 in p< at 0.10

Table 10 Square multiple (R^2) test of Neutral Group at present time (Model 2)

(iv) Dependent variable	(R^2)
(v) IENS	0.110
(vi) SDSO	0.089
CR	0.177
SDM	0.214

Table 11 Effect size in model structure of Neutral Group at Present time (Model 2)

Dependent variable	Effect, influencing	Independent Variable	
		IENN	IENS
IENS	Direct Effect	0.332	0.000
	Indirect Effect	0.000	0.000
	Total Effect	0.332	0.000
SDSO	Direct Effect	0.216	0.146
	Indirect Effect	0.048	0.000
	Total Effect	0.264	0.146
CR	Direct Effect	0.414	0.020
	Indirect Effect	0.007	0.000
	Total Effect	0.421	0.020
SDM	Direct Effect	-0.179	0.371
	Indirect Effect	0.123	0.000
	Total Effect	-0.056	0.371

Structural Equation Model: SEM

IENS = 0.332 IENN; R^2 = 0.110

SDSO = 0.146 IENN + 0.216 IENS; R^2 = 0.089

CR = 0.414 IENN + 0.020 IENS; R^2 = 0.177

SDM = -0.179 IENN + 0.371* IENS; R^2 = 0.214

Note : *P< 0.10 **P<0.05 ***P<0.01

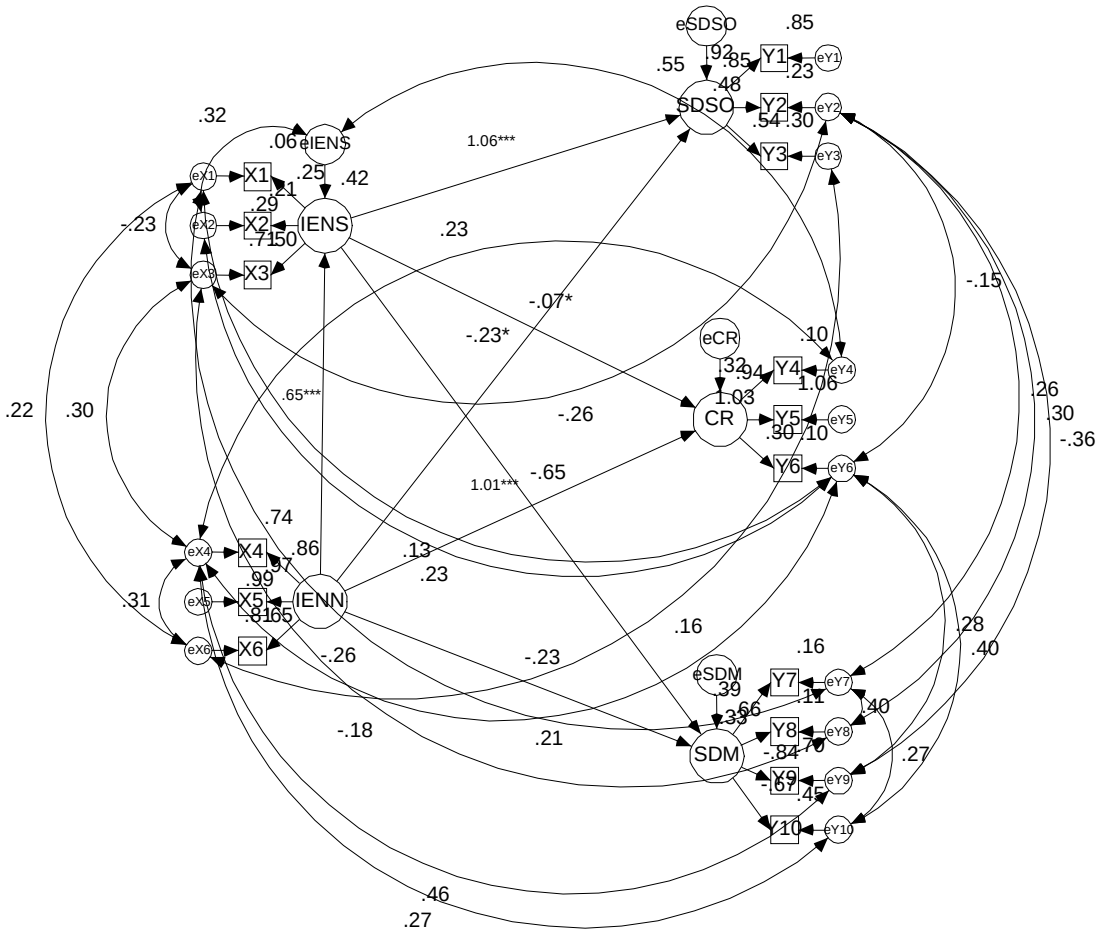
From table 11 From Mathematic Equation as above it must be considered only in equation that show significant from Latent Variable X to Latent Variable Y. Calculation result indicate that there is a direct effect or (DE) from IENN to SDM = 0.371 in correlation coefficient with $p< 0.10$, so we can conclude for Model (2) which represented Neutral community at present time that did not have any physical rehabilitation environmental settings program entered or conducted in their community ever from the past 10 years until now. There were some informants providing information about their good perception of IDE program but according to the model validation, it found out that there is no any significantlevel showing the path coefficient from IENN to IENS, the same as it did happen in Model (1). There is still only one direction from IENS (influenced mainly from X1/HSR/Housing Reorganization Factor Loading 0.833 significant level at 0.01) and X3 / CPS / Community's Physical Setting (Factor Loading 0.725) and to SDM / Self Defense Mechanism with 0.371 of Total Effect (TE). SDM articulated through (Y9-Y7) about Outsider Detection Capability, Crime Prevention (CP) and Migration (MIG), (ODC) respectively in the moderate level (average 0.4)

To simplify the meaning: Model (2) is represented Neutral group in recent year. They exactly found people's perception from Environmental Setting and their behavior can be altered by Physical Environment to their Self defense Mechanism in 3 aspects 1) their capability to detect outsider 2) about their individuals' crime prevention and 3) about their plan to migrate respectively.

Model interpretation summary in Neutral Group

The model was not reinforced by external factor and represented with first level of exogenous variable (IENN) at all. By the result of factor loading in IENS indicate that HSR or Housing Reorganization and Community's Physical Setting are the main key to enforce IENS.

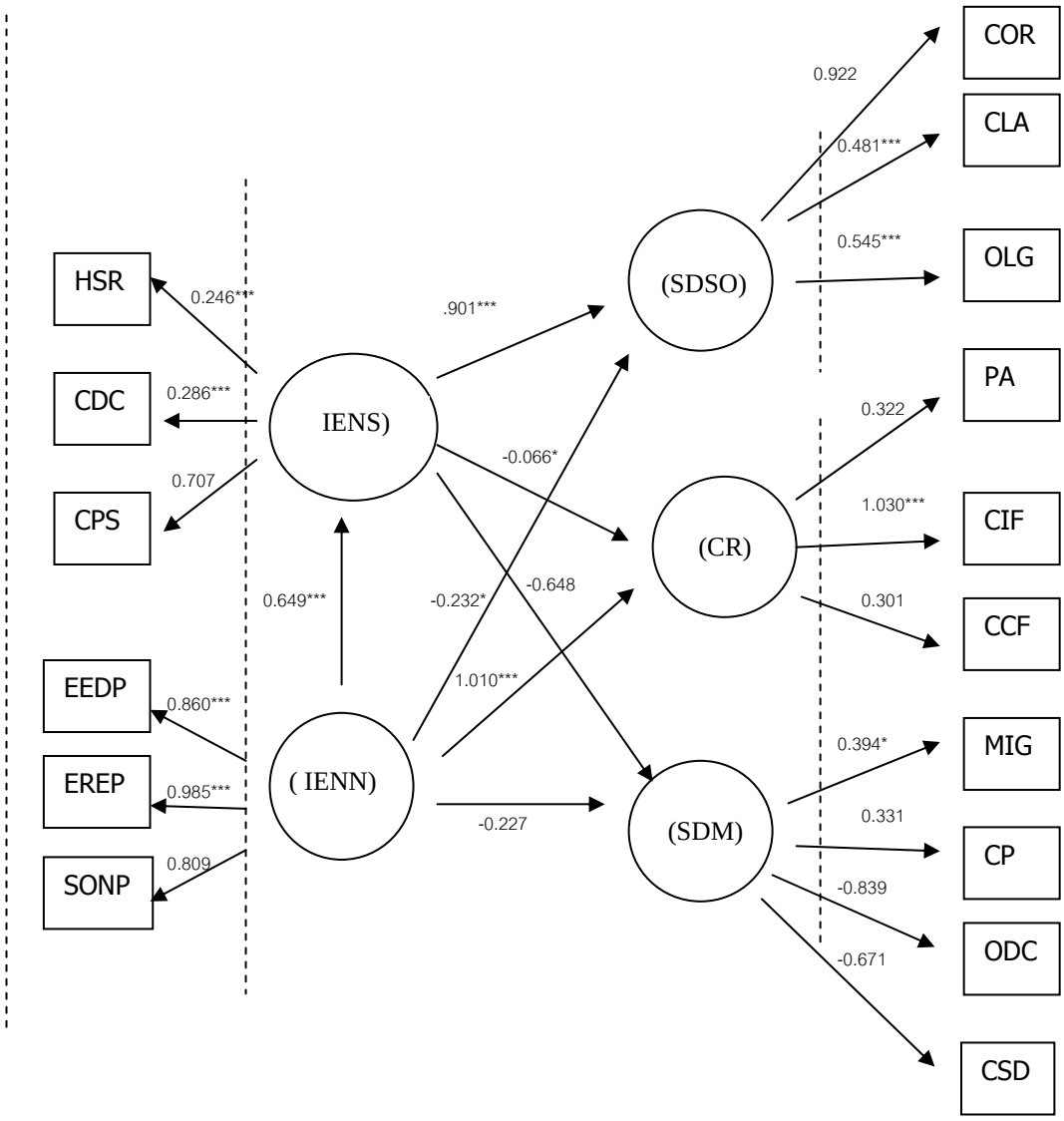
For people's behavioral trait to Crime Reduction Element reduction, SDM or Self defense Mechanism of people's in community is with 0.357 in Past and 0.371 at present time in $p < 0.01$: From model figure, even though, the degree of impact from IENS to SDM bared in low relationship and not so highly significant but sometimes beta-weight higher than 0.3 should be considered about people's perception from Improving Deteriorated Physical Environment by community base approach or IDE to behavioral trait to reduce Crime Reduction Element or CRE.



Chi-square =85.380, df = 73, P = 0.136, CMIN/DF =1.183, GFI = 0.939, RMSEA = 0.034

Note : *P< 0.10 **P<0.05 ***P<0.01

Figure 6 Model (3) Selected group before IDE program entry (print out by AMOS)



Chi-square =85.380, df = 73, P = 0.136, CMIN/DF =1.183, GFI = 0.939, RMSEA = 0.034

Note : *P< 0.10 **P<0.05 ***P<0.01

Figure 7 Model (3) Selected group before IDE program entry

Table 12 Model equivalence test of Selected group before IDE program entry (Model 3)

Index	**Criteria**	**Result**
Chi-square	$P \geq 0.05$	0.136
CMIN/DF	Approach to 1	1.183
GFI	≥ 0.90	0.939
AGFI	≥ 0.90	0.887 (acceptable)
NFI	≥ 0.90	0.949
IFI	≥ 0.90	0.992
CFI	≥ 0.90	0.992
RMR	< 0.05	0.022
RMSEA	< 0.05	0.034
Conclusion Model fit : Constructed model fit with empirical data		

Table 12 show the analysis of model equivalence of causal model from IDE to CRE. The result from Calculation of Measure of Last Trimming Model indicate that Constructed model fit with empirical data by showing Goodness of Fit Measure as follows: Likelihood Ratio Chi-Square Statistic (χ^2) = 0.136 is acceptable because P-value score is higher than 0.05, Goodness of Fit Index (GFI) = 0.939, Adjusted Goodness of Fit Index (AGFI) = 0.887, Norm Fit Index (NFI)= 0.949, Incremental Fit Index = 0.992, Comparative Fit Index (CFI) = 0.992 are all acceptable because score is higher than 0.90 . Another Absolute Fit Index such as: Root Means Square Residuals (RMR) =0.022 and Root Mean Square Error of Approximation (RMSEA) = 0.034 are also acceptable because residual score is lower than 0.05

Table 13 Factor Loading of Selected group before IDE program entry (Model 3)

CRE Factor	Factor Loading			R^2
	b	S.E.	B	
IENS				
X1 = Housing Reorganization	0.157	0.055	0.246***	0.061
X2 = Cleaning day Campaign	0.355	0.117	0.286***	0.206
X3 = Community's Physical Setting	1.000		0.707	0.499
IENN				
X4 = Environmental Education Program	1.201	0.073	0.860***	0.739
X5 = Environmental Rehabilitation Program	1.678	0.097	0.985***	0.970
X6 = Social Networking Program	1.000		0.809	0.655
SDSO				
Y1 = Community Order	1.000		0.922	0.850
Y2 = Cleanliness in action	0.699	0.114	0.481***	0.231
Y3 = Obedience to community's leader guidance	0.784	0.111	0.545***	0.297
CR				
Y4 = Physical Activity	1.000		0.322	0.104
Y5 = Community information flow	4.979	1.797	1.030***	1.061
Y6 = Community's conflict	0.294	0.224	0.301	0.091
SDM				
Y7 = Migration	2.187	1.277	0.394*	0.155
Y8 = Crime prevention	1.000		0.331	0.110
Y9 = Outsider Detection Capability	-6.371	4.058	-0.839	0.704
Y10 = Civilian Self-defense	-2.967	1.900	-0.671	0.450

Note : *P< 0.10 **P<0.05 ***P<0.01

Table 13 Indicate that constructed model of Neutral group at present time combined with 4 Latent Variables as: Improving Environmental Networking (IENN), Improving Environmental Setting (IENS), Self-discipline to comply with Social order (SDSO), Community Relation (CR) and Self Defense Mechanism (SDM). Each of Latent Variable segregates to Observed Variable in IDE to CRE model as fallows:

Model (3) Latent Variable of IENS composes of 3 Observed Variables but there is one Observed Variable (X3) / Community Physical Settings (CPS) showing high degree of beta weight = 0.707 are 2 Observed Variables (X1) / Housing Reorganization (HSR) (B or Beta weight = 0.246) (X2) Cleaning day campaign (CDC) show low beta weight = 0.286 showed level $p< 0.01$ because score should higher than 0.3 means so there is only X3 influence to IENS and there is low level of CPS or say that community's physical environment in Selected group is still low and poor at this stage.

Latent Variable of IENN is composed of 3 Observed Variable (X4-X6), the result from calculation indicate that all of Observed Variables / Environmental Education Program (EENP)(X4)/ Environmental Rehabilitation Program (EREP)(X5) and Social Networking or (SONP) Data showing strong influencing degree about Environmental Networking. They are ranking from X4 = 0.922, X6 = 0.545, and X5 = 0.481 with $p<0.01$

For Dependent Variable, there are 3 Latent Variable composing of Self Discipline to Comply with Social Order (SDSO) (Y1-Y3), Community Relation (CR) (Y4-Y6) and Self defense Mechanism (SDM) (Y7-Y10). For the first one (SDSO) COR (Y1) community order has high degree of beta- weight = 0.922, OLG (Y3) Level of obedient to community Leader Guidance showed moderate score of beta-weight = 0.545 fallowed by CLA (Y2) Cleanliness in Action with 0.481 score of beta-weight at $p< 0.01$

For CR/ Community Relation in Latent variable Y has 3 Observed Variables as Physical Activities (PA) (Y4), Community Information Flow (CIF) (Y5) and Community's Conflict (CCF) (Y6). The most powerful impact from observed Y is

CIF (Y5) = 1.030 and also the highest significant at $p < 0.01$. The others shows quite low level of impact (Y5) = 0.322 and (Y6) = 0.301

In the last order of Latent Variable Y is SDM or Self Defensive Mechanism composing of 4 Observed Variables (Y7-10) : Y7 (MIG) Migration, Y8 (CP) Crime Prevention, Y9 (ODC) Outsider Detection Capability and Y10 (CSD) Civilian Self Defense. There is a moderate influencing power from Observed Variable to Latent Variable of SDM. It was found from the calculation that there are 2 Observed Variables as Y7, Y8 providing a moderate degree of impact showed by beta-weight score = 0.394, 0.331 and Y8, Y9 have a negative variation in Model (3) = -0.839 and -0.671 respectively.

Table 14 Path Analysis of Selected group before IDE program entry (Model 3)

Factors			Regression Weights		Standardized Regression Weights	C.R.	P
			Estimate	S.E.	Estimate		
IENS	<---	IENN	0.244	0.038	0.649***	6.440	0.000
SDSO	<---	IENS	2.132	0.282	0.901***	7.565	0.000
SDSO	<---	IENN	-0.175	0.090	-0.232*	-1.950	0.051
SDM	<---	IENS	-0.271	0.176	-0.648	-1.546	0.122
CR	<---	IENS	-0.031	0.016	-0.066*	-1.959	0.050
CR	<---	IENN	0.177	0.065	1.010***	2.720	0.007
SDM	<---	IENN	-0.036	0.028	-0.227	-1.297	0.195

Note : *P< 0.10 Significant level .010 (C.R. (t-test) > 1.64)

**P<0.05 Significant level 0.05 (C.R. (t-test) > 1.9)

***P<0.01 Significant level 0.01 (C.R. (t-test) > 2.58)

An analysis of Path Coefficient in Model (3) is the combination of 3 paths from Latent Variable, from Independent Variable to Latent Variable in Dependent Variable in order to know 1) the direction of covariance among Latent Variable whether it is in positive or negative and 2) to evaluate degree correlation coefficient in direct way / direct Effect (DE), indirect way / Indirect Effect (IE) and it's Total Effects or (TE)

Table 11 Standardized Regression Weights from Latent Variables X to Latent Variables Y in Model (1) showed 3 paths: from IENN to IENS with 0.649, IENS to SDSO with 0.901 and IENN to CR with 1.010 at p< 0.10

Table 15 Square multiple (R^2) test of Selected group before IDE program entry (Model 3)

Independent variable	**(R2)**
IENS	0.422
SDSO	0.855
CR	0.939
SDM	0.663

Table 16 Effect size in model structure of Selected group before IDE program entry (Model 3)

Dependent variable	Effect	Independent variable	
		IENN	IENS
IENS	Direct Effect	0.649	0.000
	Indirect Effect	0.000	0.000
	Total Effect	0.649	0.000
SDSO	Direct Effect	-0.232	1.058
	Indirect Effect	0.687	0.000
	Total Effect	0.455	1.058
CR	Direct Effect	1.010	-0.066
	Indirect Effect	-0.043	0.000
	Total Effect	0.967	-0.066
SDM	Direct Effect	-0.227	-0.648
	Indirect Effect	-0.421	0.000
	Total Effect	-0.648	-0.648

Structural Equation Model: SEM Equation in Selected group (Before IDE entry)

IENS = 0.649*** IENN; $R^2 = 0.422$

SDSO = -0.232* IENN + 1.058*** IENS; $R^2 = 0.855$

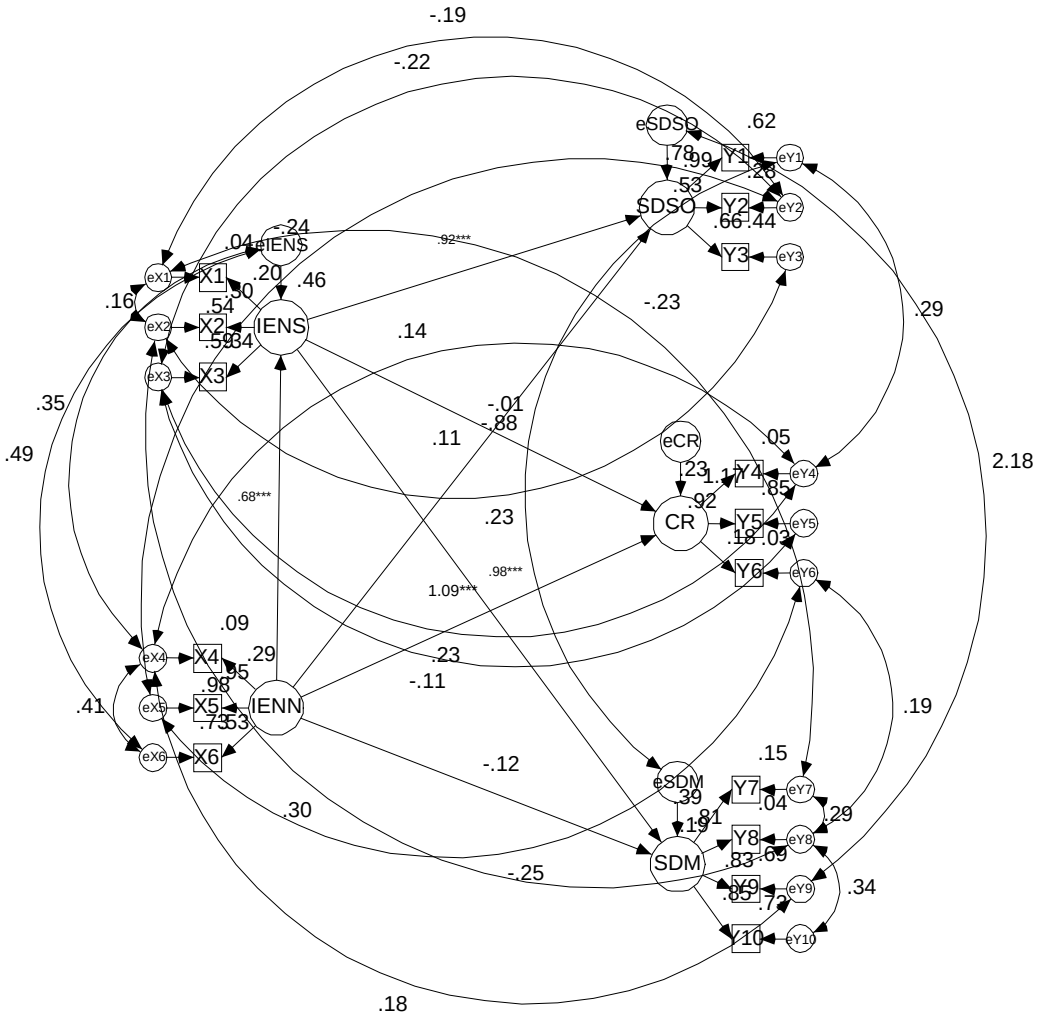
CR = 1.010*** IENN - 0.066* IENS; $R^2 = 0.939$

SDM = -0227 IENN - 0.640 IENS; $R^2 = 0.663$

Note : *P< 0.10 **P<0.05 ***P<0.01

From table 16 The Mathematic Equation as above it is considered only in equation that show significant from Latent Variable X to Latent Variable Y. The calculation result indicate that there is direct effect or (DE) in 3 line equations from IENN to IENS = 0.649 in correlation coefficient with $p < 0.10$, SDSO also influenced by IENN and IENS in both direct and indirect effect and the total effect score indicate IENS create a total effect to SDSO= 1.058 and IENN creates a total effect to SDSO = 0.455. CR also effected by IENN and IENS = 0.967, -0.660 respectively. And there is no effect from IENN and IENS to SDM in Model (3)

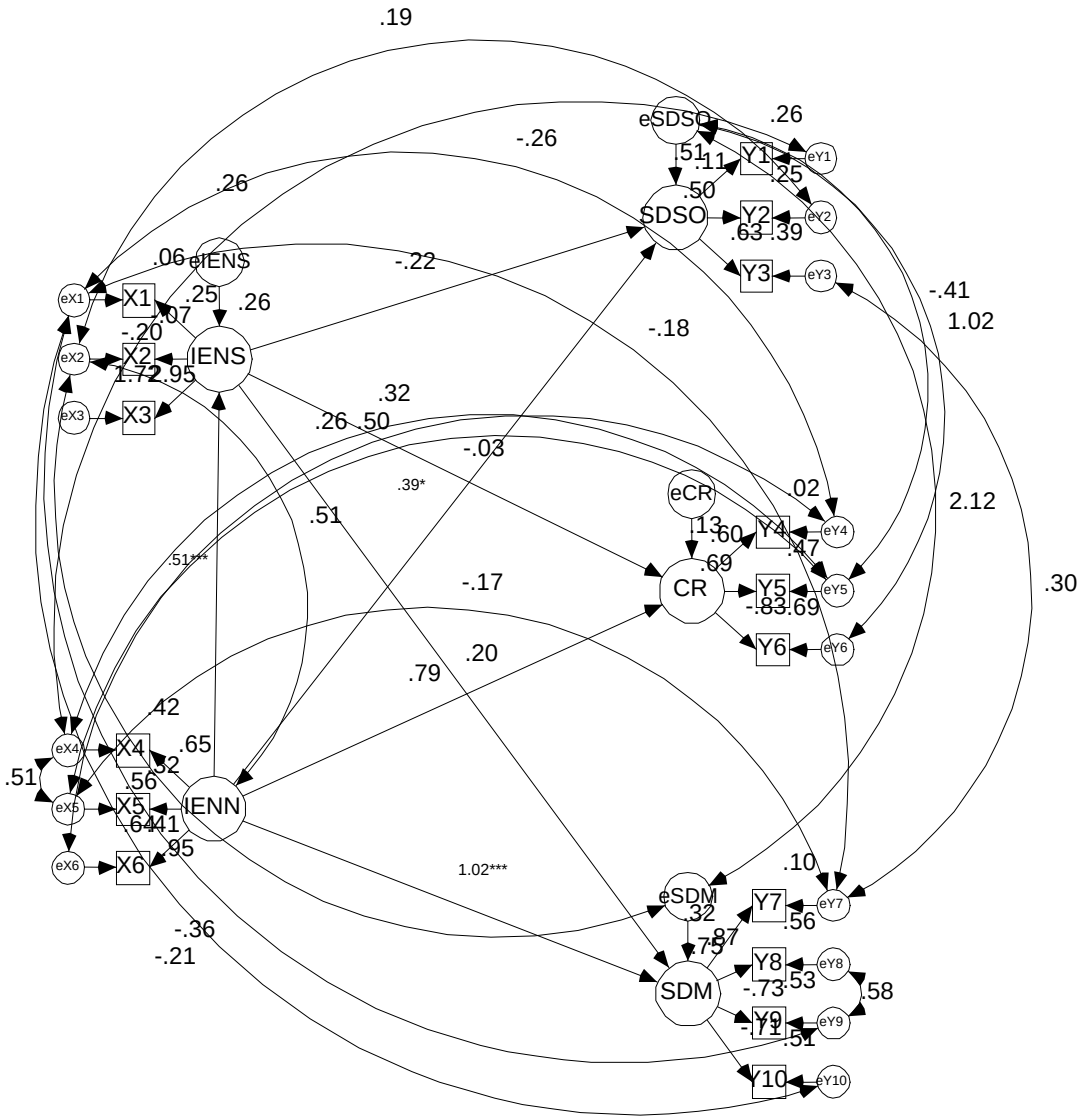
Result show that in Model (3) which represents selected community before IDE program entry, we found more relationship inside each Latent Variables, both dependent and independent variable than Model (1) and Model (2). Even though, this model represents before IDE entry but we can see people's perception ready and prepare to join IDE program (high score in Factor Loading from IENN) and they gave an immense of information sharing before IDE entry.



Chi-square =77.734, df = 76, P = 0.423, CMIN/DF =1.023, GFI = 0.945, RMSEA = 0.012

Note : *P< 0.10 **P<0.05 ***P<0.01

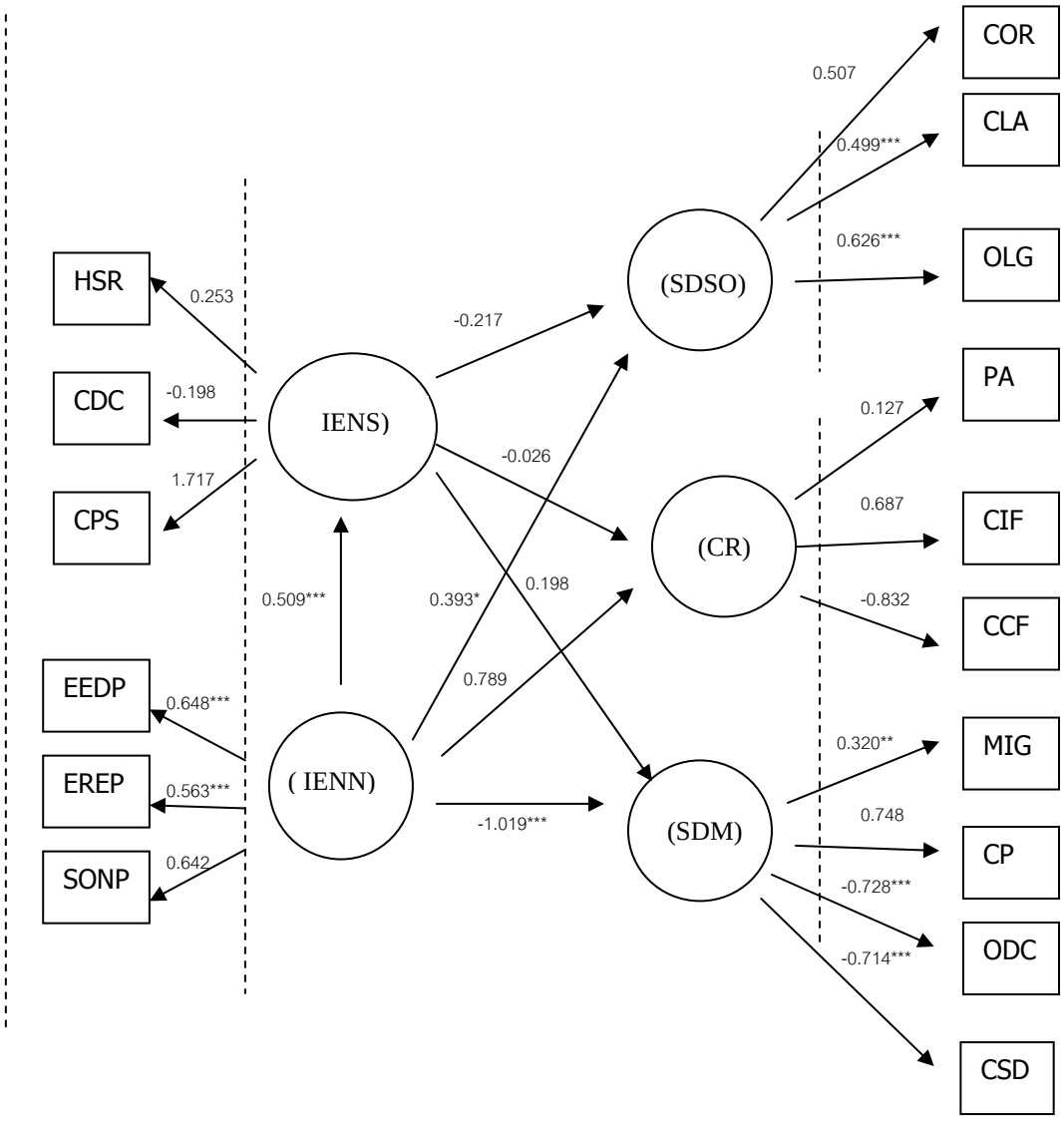
Figure 8 Model (4) Selected group after IDE program entry (print out by AMOS)



Chi-square =78.109, df = 79, P = 0.507, CMIN/DF =0.989, GFI = 0.911, RMSEA = 0.000

Note : *P< 0.10 **P<0.05 ***P<0.01

Figure 9 Model (5) Test group before IDE program entry (printed out by AMOS)



Chi-square =78.109, df = 79, P = 0.507, CMIN/DF =0.989, GFI = 0.911, RMSEA = 0.000

Note : *P< 0.10 **P<0.05 ***P<0.01

Figure 10 Model (5) Test group before IDE program entry

Table 17 Model equivalence test of Test group before IDE entry (Model 5)

(v) Index	Criteria	result
Chi-square	P ≥ 0.05	0.507
CMIN/DF	(vi) Approach 1	0.989
GFI	≥ 0.90	0.911
AGFI	≥ 0.90	0.847 (acceptable)
NFI	≥ 0.90	0.885 (acceptable)
IFI	≥ 0.90	1.001
CFI	≥ 0.90	1.000
RMR	< 0.05	0.033
RMSEA	< 0.05	0.000
Conclusion: Constructed model fit with empirical data		

Table 17 show the analysis of model equivalence of causal model from IDE to CRE. Result from Calculation of Measure of Last Trimming Model indicate that Constructed model fit with empirical data by showing Goodness of Fit Measure as follows: Likelihood Ratio Chi-Square Statistic (χ^2) = 0.507 is acceptable because P-value score is higher than 0.05 , Goodness of Fit Index (GFI) = 0.911, Adjusted Goodness of Fit Index (AGFI) = 0.847, Norm Fit Index (NFI)= 0.885,Incremental Fit Index = 1.001, Comparative Fit Index (CFI) = 1.000 are all acceptable because score is higher than 0.90 . Another Absolute Fit Index such as: Root Means Square Residuals (RMR) =0.033 and Root Mean Square Error of Approximation (RMSEA) = 0.000 are also acceptable because residual score is lower than 0.05

Table 18 Factor Loading of Test group before IDE program entry (Model 5)

CRE Factor	Factor Loading			R^2
	b	S.E.	B	
IENS				
X1 = Housing Reorganization	0.158	0.133	0.253	0.064
X2 = Cleaning day Campaign	-0.081	0.083	-0.198	-0.66
X3 = Community's Physical Setting	1.000		1.717	2.948
IENN				
X4 = Environmental Education Program	1.098	0.167	0.648***	0.420
X5 = Environmental Rehabilitation Program	1.128	0.194	0.563***	0.317
X6 = Social Networking Program	1.000		0.642	0.412
SDSO				
Y1 = Community Order	1.000		0.507	0.257
Y2 = Cleanliness in action	0.360	0.103	0.499***	0.249
Y3 = Obedience to community's leader guidance	0.432	0.108	0.626***	0.392
CR				
Y4 = Physical Activity	1.000		0.127	0.016
Y5 = Community information flow	9.924	7.482	0.687	0.472
Y6 = Community's conflict	-13.918	10.430	-0.832	0.692
SDM				
Y7 = Migration	0.340	0.111	0.320**	0.102
Y8 = Crime prevention	1.000		0.748	0.560
Y9 = Outsider Detection Capability	-0.954	0.176	-0.728***	0.531
Y10 = Civilian Self-defense	-1.100	0.167	-0.714***	0.510

Note : *P< 0.10 **P<0.05 ***P<0.01

Table 18 Indicate that constructed model of Test group before IDE program entry (Model 5) combined with 4 Latent Variables as: Improving Environmental Networking (IENN), Improving Environmental Setting (IENS), Self-discipline to comply with Social order (SDSO), Community Relation (CR) and Self Defense Mechanism (SDM). Each of Latent Variable segregates to Observed Variable in IDE to CRE model as follows:

Model (5) Latent Variable of IENS composes of 3 Observed Variables (X1) / Housing Reorganization (HSR) , (X2) Cleaning day campaign(CDC) and (X3)/ Community Physical Settings (CPS) show no any significant in all Observed Variables and also have a lowest score of beta-weight. So, there is not any influencing power from all 3 observed variables to IENS at all.

Latent Variable of IENN is composed of 3 Observed Variables (X4-X6), the result from calculation indicate that all of Observed Variables / Environmental Education Program (EENP)(X4)/ Environmental Rehabilitation Program (EREP)(X5) and Social Networking or (SONP) Data showed strong influencing degree about Environmental Networking. They are ranking from X4 = 0.648, X5 = 0.563 with $p< 0.01$, and X6 = 0.642 respectively. So, at the first stage test group there is mid-high level of Observed Variable about Environmental Education on IENN and Environmental Rehabilitation program is running up.

For Dependent Variable, There are 3 Latent Variable composing of Self Discipline to Comply with Social Order (SDSO) (Y1-Y3), Community Relation (CR) (Y4-Y6) and Self defense Mechanism (SDM) (Y7-Y10). For the first one (SDSO) OLG (Y3) Level of obedient to community Leader Guidance showed mid-high score of beta-weight = 0.626 and follow by CLA (Y2) Cleanliness in Action with moderate score (beta weight 0.499) at $p< 0.01$ and the last is COR (Y1) community order has high degree of beta- weight = 0.507. For interpretation, there is an interesting point of people's positive manner like SDSO in the first place before IDE coming in their community. People expressed their intention and trust quite high for their community's leader.

For CR / Community Relation has 3 Observed Variables as Physical Activities (PA) (Y4), Community Information Flow (CIF) (Y5) and Community's Conflict (CCF) (Y6). For CR, there is not any significant from Observed variable to Latent Variable, there is a few impact on CR from Community conflict in negative direction. According to this, we can interpret before IDE had entered into this community it can reverse their conflict to cooperative manner that is a very useful mechanism to propel IDE program proceeding.

In the last order of Latent Variable Y is SDM or Self Defensive Mechanism composing of 4 Observed Variables (Y7-10): Y7 (MIG) Migration, Y8 (CP) Crime Prevention, Y9 (ODC) Outsider Detection Capability and Y10 (CSD) Civilian Self Defense. There is a strong influencing power from Observed Variable to Latent Variable of SDM. From calculation found that there are 2 Observed Variables as Y9 (Outsider Detection Capability) and Y10 (civilian self-defense) in negative direction

With score of beta-weight = -0.728, - 0.714 at the $p< 0.01$ and Y8 (Crime prevention) also provides a strong degree of impact showed by beta-weight score = 0.748 and Y7 showed the lowest score of beta-weight 0.320 at $p< 0.01$. For interpretation in this part is also interesting especially during the period before IDE entered they have an immense problems about their Self Defensive Mechanism because data had been analyzed and indicate that there are two negative enforcing power Civilian self-defense and Outsider Detection Capability) to SDM even though they have a high level of crime prevention.

Table 19 Path analysis of Test group before IDE program entry (Model 5)

Factors			Regression Weights		Standardized Regression Weights	C.R.	P
			Estimate	S.E.	Estimate		
IENS	<---	IENN	1.098	0.176	0.509***	6.236	0.000
SDSO	<---	IENS	-0.104	0.111	-0.217	-0.939	0.348
SDSO	<---	IENN	0.405	0.237	0.393*	1.710	0.087
SDM	<---	IENS	0.100	0.102	0.198	0.981	0.327
CR	<---	IENS	-0.001	0.003	-0.026	-0.443	0.658
CR	<---	IENN	0.095	0.069	0.789	1.369	0.171
SDM	<---	IENN	1.106	0.236	1.019***	4.691	0.000

Note : *P< 0.10 significant level 0.10 (C.R. (t-test) > 1.64)

**P<0.05 significant level 0.05 (C.R. (t-test) > 1.96)

***P<0.01 significant level 0.01 (C.R. (t-test) > 2.58)

An analysis of Path Coefficient in Model (5) is the combination of 3 paths from Latent Variable from Independent Variable to Latent Variable in Dependent Variable in order to know 1) the direction of covariance among Latent Variable whether it is in positive or negative and 2) to evaluate degree correlation coefficient in direct way / direct Effect (DE), indirect way / Indirect Effect (IE) and it's Total Effects or (TE)

Table 19 Standardized Regression Weights from Latent Variables X to Latent Variables Y in Model (5) showed 3 paths: from IENN to IENS with 0.509 at p< at 0.01, IENN to SDSO with 0.393 at p< 0.05 , IENN to SDM with 1.019 at p< 0.01

Table 20 Square multiple (R^2) test of Test group before IDE program entry (Model 5)

(vii) Dependent	(R^2)
IENS	0.259
SDSO	0.115
CR	0.602
SDM	0.872

Table 21 Effect size in model structure of Test group before IDE program entry (Model 5)

Dependent	Effect	Independent	
		IENN	IENS
IENS	Direct Effect	0.509	0.000
	Indirect Effect	0.000	0.000
	Total Effect	0.509	0.000
SDSO	Direct Effect	0.393	-0.217
	Indirect Effect	-0.111	0.000
	Total Effect	0.283	-0.217
CR	Direct Effect	0.789	-0.026
	Indirect Effect	-0.013	0.000
	Total Effect	0.775	-0.026
SDM	Direct Effect	1.019	0.198
	Indirect Effect	0.101	0.000
	Total Effect	1.210	0.198

Structural Equation Model: SEM equation of Testing group (Before IDE entry)

IENS = 0.509*** IENN; R^2 = 0.259

SDSO = 0.393* IENN -0.217 IENS; R^2 = 0.115

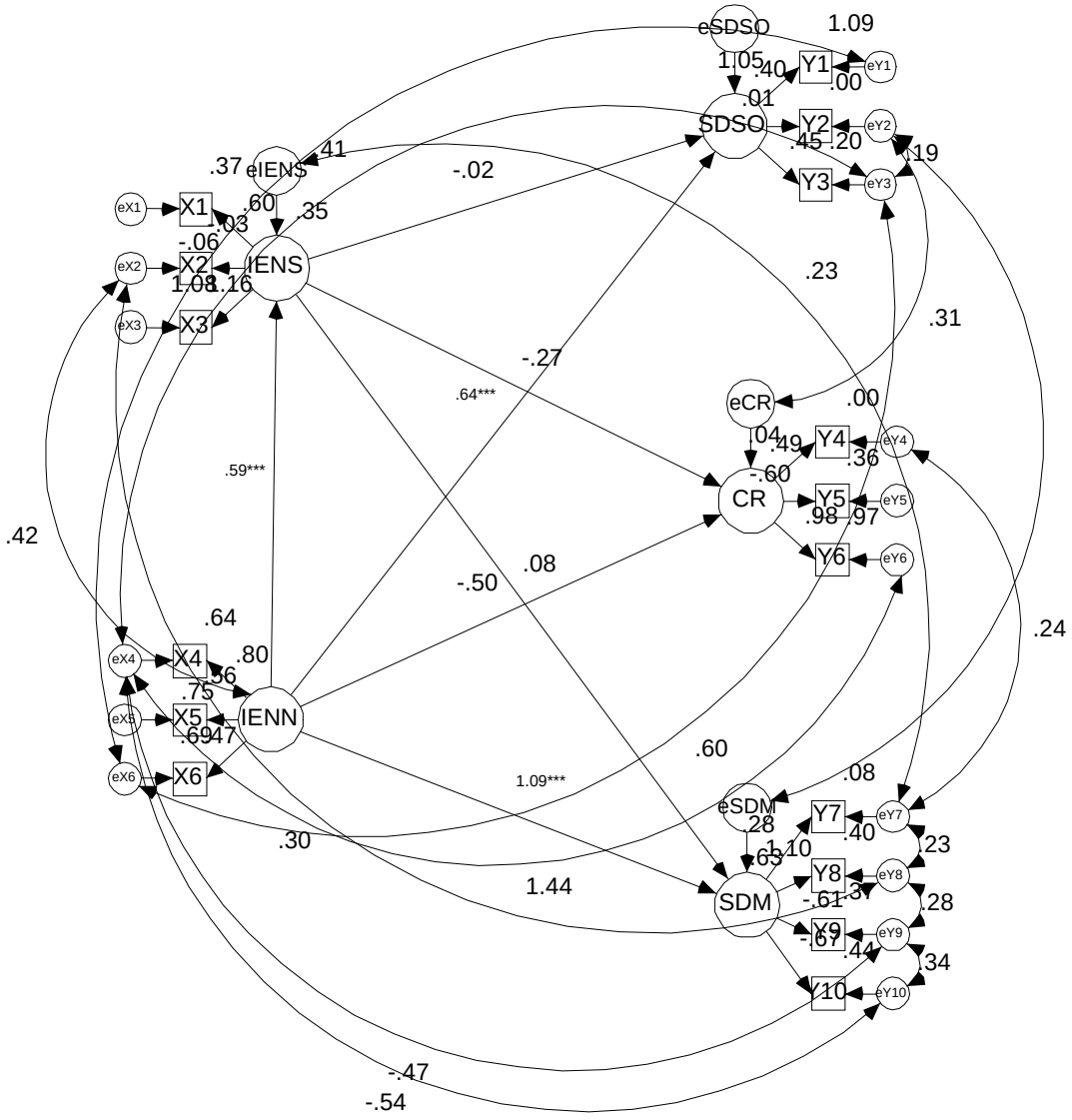
CR = 0.789 IENN -0.026 IENS; R^2 = 0.602

SDM = 1.019*** IENN 0.198 IENS; R^2 = 0.872

Note : *P< 0.10 **P<0.05 ***P<0.01

From table 21 Hypothesized model is supported by calculation as above it must be considered only in equation that show significant from Latent Variable X to Latent Variable Y. Calculation result indicate that there is direct effect or (DE) in 3 line equations from IENN to IENS = 0.509 in correlation coefficient with $p < 0.10$, SDSO also influenced only by IENN total effect score indicate and IENN create a total effect to SDSO = 0.283, but CR is not effected by IENN and IENS, and there is a very strong effects from IENN to SDM with total effect = 1.210 in Model (5)

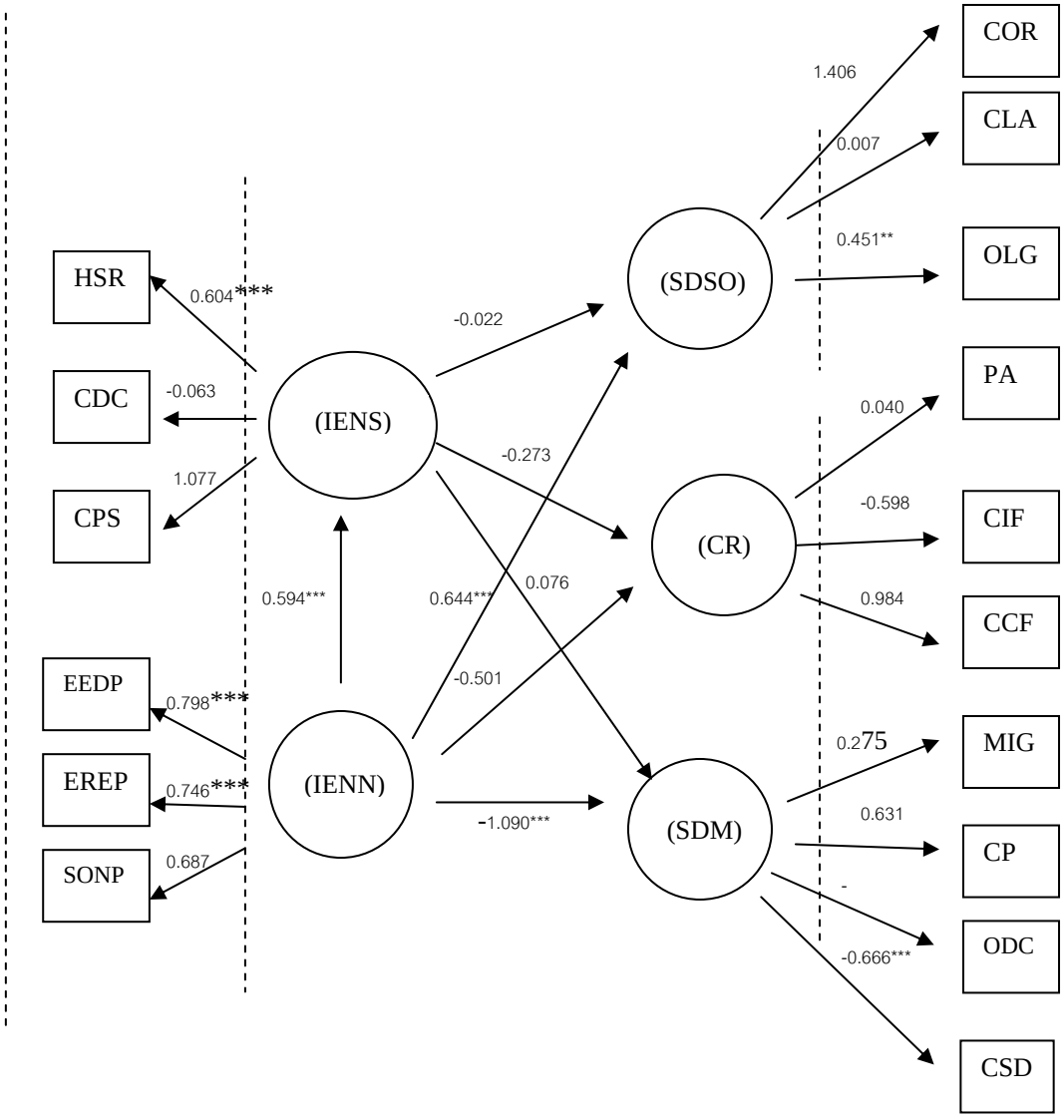
So we can conclude for Model (5) which represents test community before IDE program entry, we found out that before IDE program entry, they were already had some collective behavior to convey any program that possibly be entered. This is an interesting sign for improvement. Even though, in past time, there are no any program entered but their environmental setting still improve gradually in moderate level. There were several indirect effects from IENN to SDSO means that their environmental and social networking initially enforcing to their conscientious, it's also the good sign to provide a positive component to reduce size of crime-niche.



Chi-square =99.215, df = 81, P = 0.083, CMIN/DF =1.225, GFI = 0.894, RMSEA = 0.049

Note : *P< 0.10 **P<0.05 ***P<0.01

Figure 11 Model (6) Test group after IDE program entry (printed out by AMOS)



Chi-square =99.215, df = 81, P = 0.083, CMIN/DF =1.225, GFI = 0.894, RMSEA = 0.049

Note : *P< 0.10 **P<0.05 ***P<0.01

Figure 12 Model (6) Test group after IDE program entry

Table 22 Model equivalence Test of Test group after IDE program entry (Model 6)

(viii) Index	Criteria	Result
Chi-square	$P \geq 0.05$	0.083
CMIN/DF	(ix) approach 1	1.225
GFI	≥ 0.90	0.894
AGFI	≥ 0.90	0.822 (acceptable)
NFI	≥ 0.90	0.863 (acceptable)
IFI	≥ 0.90	0.972
CFI	≥ 0.90	0.970
RMR	< 0.05	0.028
RMSEA	< 0.05	0.049
Conclusion : Constructed model fit with empirical data		

Table 22 show the analysis of model equivalence of causal model from IDE to CRE. Result from Calculation of Measure of Last Trimming Model indicate that Constructed model fit with empirical data by showing Goodness of Fit Measure as follows: Likelihood Ratio Chi-Square Statistic (χ^2) = 0.083 is acceptable because P-value score higher than 0.05, Goodness of Fit Index (GFI) = 0.894, Adjusted Goodness of Fit Index (AGFI) = 0.822, Norm Fit Index (NFI)= 0.863, Incremental Fit Index = 0.972, Comparative Fit Index (CFI) = 0.970 are all acceptable because score is higher than 0.90 . Another Absolute Fit Index such as: Root Means Square Residuals (RMR) = 0.028 and Root Mean Square Error of Approximation (RMSEA) = 0.049 are also acceptable because residual score lower than 0.05.

Table 23 Factor Loading of Test group after IDE program entry (Model 6)

CRE Factor	Factor Loading			R^2
	B	S.E.	B	
IENS				
X1 = Housing Reorganization	0.592	0.111	0.604***	0.365
X2 = Cleaning day Campaign	-0.040	0.065	-0.063	-0.027
X3 = Community's Physical Setting	1.000		1.077	1.160
IENN				
X4 = Environmental Education Program	1.301	0.185	0.798***	0.637
X5 = Environmental Rehabilitation Program	1.457	0.208	0.746***	0.556
X6 = Social Networking Program	1.000		0.687	0.471
SDSO				
Y1 = Community Order	1.000		1.046	1.094
Y2 = Cleanliness in action	0.006	0.80	0.007	0.000
Y3 = Obedience to community's leader guidance	0.666	0.223	0.451**	0.203
CR				
Y4 = Physical Activity	1.000		0.040	0.002
Y5 = Community information flow	-21.169	52.955	-0.598	0.358
Y6 = Community's conflict	48.330	120.905	0.984	0.968
SDM				
Y7 = Migration	0.354	0.120	0.275**	0.083
Y8 = Crime prevention	1.000		0.631	0.399
Y9 = Outsider Detection Capability	-0.989	0.206	-0.610***	0.373
Y10 = Civilian Self-defense	-1.234	0.211	-0.666***	0.443

Note : *P< 0.10 **P<0.05 ***P<0.01

Table 23 Indicate that constructed model of Test group after IDE entry combined with 4 Latent Variables as: Improving Environmental Networking (IENN), Improving Environmental Setting (IENS), Self-discipline to comply with Social order (SDSO), Community Relation (CR) and Self Defense Mechanism (SDM). Each of Latent Variable segregates to Observed Variable in IDE to CRE model as follows:

Model (6) Latent Variable of IENS composes of 3 Observed Variables but there is one Observed Variable (X1) / Housing Reorganization (HSR)) showed high degree of beta weight (B or Beta weight = 0.604 at $p < 0.01$) and (X3)/ Community Physical Settings (CPS) also raised very high = 1.077 and (X2) Cleaning day campaign (CDC) showed no level of statistical significant and beta-weight score below 0.3. It can be interpreted as after IDE program entry in test community people's perception towards physical setting readjustment in high level. In opposite side there is not so much different about cleaning day campaign.

Latent Variable of IENN is composed of 3 Observed Variable (X4-X6) result from calculation indicate that all of Observed Variables / Environmental Education Program (EENP) (X4) / Environmental Rehabilitation Program (EREP) (X5) and Social Networking or (SONP). Data showed strong influencing degree about Environmental Networking. For the highest score of beta-weight 0.798 (b over 0.7) for Environmental Education Program, the second is X5 about Environmental Rehabilitation Program = 0.746 (X4, X5) with $p < 0.01$) the third is (X6) Social Networking Program = 0.646. This result can be interpreted as: IDE program capably be enforced mainly by (X4), (X5) and moderate level on (X6)

For Dependent Variable, there are 3 Latent Variable composing of Self Discipline to Comply with Social Order (SDSO) (Y1-Y3), Community Relation (CR) (Y4-Y6) and Self defense Mechanism (SDM) (Y7-Y10). For the first one (SDSO) COR (Y1) community order has high degree of beta- weight = 1.046, the second is OLG (Y3) Level of obedient to community Leader Guidance showed moderate score of beta-weight = 0.451 at $p < 0.05$, and there is no any significant and score is below 0.3 for (Y2) cleanliness in action.(CLA)

For CR/ Community Relation has 3 Observed Variables as Physical Activities (PA) (Y4), Community Information Flow (CIF) (Y5) and Community's Conflict (CCF) (Y6). For CR there is no any significant in observed variables. But there is an impact on CR from Community conflict in negative direction in about information.

In the last order of Latent Variable Y is SDM or Self Defensive Mechanism composes of 4 Observed Variables (Y7-10): Y7 (MIG) Migration, Y8 (CP) Crime Prevention, Y9 (ODC) Outsider Detection Capability and Y10 (CSD) Civilian Self Defense. There is a moderate influencing power from Observed Variable to Latent Variable of SDM. It was found from calculation that there are two Observed Variables as Y10 and Y9 showed a mid-high degree of impact showed by beta-weight score = 0.666, 0.610 respectively and Y8 has beta-weight score 0.631. For the last order of Latent Variable Y which is about Self Defensive Mechanism in Test group after IDE program entry. SDM mainly influenced by Y10 and Y9 in negative effects it means that among all Observed Variables there are only Y9 and Y10 that have a capable to pull score down while the other provides an enforcing power.

Table 24 Path Analysis of Test group after IDE entry (Model 6)

Factors			Regression Weights		Standardized Regression Weights	C.R.	P
			Estimate	S.E.	Estimate		
IENS	<---	IENN	0.801	0.139	0.594***	5.768	0.000
SDSO	<---	IENS	-0.016	0.059	-0.022	-0.278	0.781
SDSO	<---	IENN	0.666	0.100	0.644***	6.632	0.000
SDM	<---	IENS	0.050	0.071	0.076	0.702	0.482
CR	<---	IENS	-0.008	0.020	-0.273	-0.395	0.693
CR	<---	IENN	-0.20	0.049	-0.501	-0.398	0.691
SDM	<---	IENN	0.955	0.173	1.090***	5.530	0.000

Note : *P< 0.10 significant level 0.10 (C.R. (t-test) > 1.64)

**P<0.05 significant level 0.05 (C.R. (t-test) > 1.96)

***P<0.01 significant level 0.01 (C.R. (t-test) > 2.58)

An analysis of Path Coefficient in Model (6) is the combination of 3 paths from Latent Variable from Independent Variable to Latent Variable in Dependent Variable in order to know 1) the direction of covariance among Latent Variable whether positive or negative and 2) to evaluate degree correlation coefficient in direct way / direct Effect (DE), indirect way / Indirect Effect (IE) and it's Total Effects or (TE)

Table 24 Standardized Regression Weights from Latent Variables X to Latent Variables Y in Model (6) showed 3 paths: from IENN to IENS with 0.594 and IENN to SDSO with 0.644 in p< at 0.01, IENN to SDM with 1.090 at p< 0.01

Table 25 Square Multiple (R^2) Test of Test group after IDE program entry (Model 6)

(x) Independent	(R^2)
IENS	0.353
SDSO	0.399
CR	0.488
SDM	1.096

Table 26 Effect size in model structure of Test group after IDE program entry (Model 6)

		Independent	
Dependent	Effect	IENN	IENS
IENS	Direct Effect	0.594	0.000
	Indirect Effect	0.000	0.000
	Total Effect	0.594	0.000
SDSO	Direct Effect	0.644	-0.022
	Indirect Effect	-0.013	0.000
	Total Effect	0.631	-0.022
CR	Direct Effect	-0.501	-0.273
	Indirect Effect	-0.162	0.000
	Total Effect	-0.663	-0.273
SDM	Direct Effect	1.090	0.076
	Indirect Effect	0.045	0.000
	Total Effect	1.135	0.076

Structural Equation Model: SEM of Testing group (After IDE entry)

IENS = 0.594*** IENN; R^2 = 0.353

SDSO = 0.644*** IENN - 0.022 IENS; R^2 = 0.399

CR = -0.501 IENN - 0.273 IENS; R^2 = 0.488

SDM = 1.090*** IENN + 0.076 IENS; R^2 = 1.096

Note : *P< 0.10 **P<0.05 ***P<0.01

From table 26 Hypothesized model (6) is supported by calculation as above, it must be considered only in equation that show significant from Latent Variable X to Latent Variable Y., the Calculation result indicates that there is direct effect or (DE) in 3 line equations from IENN to IENS = 0.594 in correlation coefficient with $p < 0.01$, SDSO also influenced by IENN total effect score indicate IENN create a total effect to SDSO = 0.631 and IENN create an immense total effect to SDM = 1.135. Except in CR, there is not shown any significant.

Results state that in Model (6) which represents test group community after IDE program entry, we found relationships inside each Latent Variables, both dependent and independent variables initiated from IENN to IENS that means IDE program started from Environmental Networking. And it has capable for conveying physical environmental setting adjustment. For people's behavioral trait for conscientious was more affected by environmental program than perception from their community physical environment. The same as people's measure for their own safety was affected by environmental networking program with the highest score of total effect than their perception from their surroundings.

4) Significant descriptive statistic discussion

From table 27 according to several variable (41 variables compose of 21 exogenous and 20 endogenous variables) can be compared in order to ovoid over essentially elucidate, researcher would like to picked up some choices which have a essential points to criticized mainly related to theoretical debate from literature review in chapter 2.

All Latent variables had been categorized in details in Chapter 3 in form of computed result trajectory in tendency after IDE program had been entry. In this discussion, descriptive analysis summary input factor data shown and all data categorized as follow:

This study employs a simple technique in finding average score in each entity (arithmetic mean) of total score in each column with highlight in the bottom of each Latent variable (Table 27) as follow;

1) Improving Environmental Networking (IENN): Descriptive Analysis Summary.

From table 27 IENN total average mean in each sample group: Neutral, Selected and Test group model (1)-(6) all numbers of $\overline{X}$ (mean) carried out and divided by N then results shown:

Neutral Group /

$\overline{X}$ in Model (2) 1.61501 - $\overline{X}$ in Model (1)1.61001 =0.00500

Participation item; = 0 (Equal)

Selected Group /

$\overline{X}$ in Model (4) 3.50751 – $\overline{X}$ in Model (3) 2.26001 =.1.24750

Participation item; Increasing from 22 to 88 diff = 66

Test Group /

$\overline{X}$ in Model (6) 2 3.65105 – $\overline{X}$ in Model (5) 3.55000 = 0.10105

Participation item; Increasing from 92-98 diff = 6

Result : Total different ranking from Select Group, Test Group and Neutral Group respectively.

Interpretation: According to the highest score of IENN that means in Selected Group data showed this group has strongest degree of Environmental Networking among three groups which was synchronized with realistic.

2) Improving Physical Environmental Settings (IENS) Descriptive analysis summary

Neutral Group /

$\overline{X}$ in Model (2) 2.92655 - $\overline{X}$ in Model (1)2.46095 = 0.46560

Percentage diff = 5% (35%-30%)

Selected Group /

$\overline{X}$ in Model (4) 3.53280 – $\overline{X}$ in Model (3) 2.65623 =.0.87658

Percentage diff = 17% (41%-24%)

Test Group /

$\overline{X}$ in Model (6) 2 3.76565 – $\overline{X}$ in Model (5) 3.72918 = 0.03648

Percentage diff = 7% (44%-38%)

Result : Total different ranking from Selected Group, Test Group and Neutral Group respectively.

Interpretation: According to the highest score of IENS that means in Selected Group data showed this group has strongest degree of Environmental Settings among three groups which was synchronized with realistic, follow by Neutral group and Test group respectively.

3) Self-discipline to comply with Social Order (SDSO) Descriptive analysis summary

Neutral Group /

$\overline{X}$ in Model (2) 2.83259 - $\overline{X}$ in Model (1)2.77456 = 0.05804

Percentage diff = 1% (43%-42%)

Selected Group /

$\overline{X}$ in Model (4) 3.60269 – $\overline{X}$ in Model (3) 2.98707 =.0.61561

Percentage diff = 5% (65%-60%)

Test Group /

$\overline{X}$ in Model (6) 2 3.60416 – $\overline{X}$ in Model (5) 3.55433 = 0.04984

Percentage diff = 1% (33%-32%)

Result : Total different ranking from Selected Group, Neutral Group and Test group.

Interpretation: According to the highest score of SDSO that means in Selected Group data still showed this group has strongest degree of people's behavioral trait in Self-discipline to comply with Social Order among three groups which was synchronized with realistic, follow by Neutral group and Test group.

4) Community Relation (CR) Descriptive analysis summary

Neutral Group /

$\overline{X}$ in Model (2) 2.64163 - $\overline{X}$ in Model (1)2.64790 = -0.00627

Percentage diff = 5% (77%-72%)

Selected Group /

$\overline{X}$ in Model (4) 3.11457 – $\overline{X}$ in Model (3) 2.93543 =.0.17913

Percentage diff = 14% (79%-65%)

Test Group /

$\overline{X}$ in Model (6) 2 3.11460 – $\overline{X}$ in Model (5) 3.09377 = 0.02083

Percentage diff = 5% (58%-53%)

Result : Total different ranking from Selected Group, Test group and Neutral Group respectively

Interpretation: According to the highest score of CR that means in Selected Group data still showed this group has strongest degree of people's behavioral trait to cooperative action among three groups which was synchronized with realistic, follow by Neutral group and Test group respectively

5) Self-defense Mechanism (SDM) Descriptive analysis summary

Neutral Group /

$\overline{X}$ in Model (2) 3.01252 - $\overline{X}$ in Model (1)2.93808 = 0.07444

Percentage diff = 0% (46%-46%)

Selected Group /

$\overline{X}$ in Model (4) 3.28807 – $\overline{X}$ in Model (3) 2.90203 =.0.38605

Percentage diff = 17% (38%-21%)

Test Group /

$\bar{X}$ in Model (6) 2 3.03788 – $\bar{X}$ in Model (5) 3.04167 = 0.00379

Percentage diff = -2% (65%-67%)

Results : Total different ranking from Selected Group, Neutral Group and test group respectively

Interpretation: According to the highest score of SDM that means in Selected Group data still showed this group has strongest degree of people's behavioral trait in sense of civil security among three groups which was synchronized with realistic, follow by Neutral group and Test group respectively

6) Significant finding about crime experience

There is one item of Observed Variable that hidden behind Latent Variable of SDM is Y8.6 asked informants about their crime experience. This item can be purposively extracted and concurred with a "police self report" about crime in community which inside this variable composed sub-item inside (see appendix 1) data were indicated as follow:

In Neutral Group, informants said that they were got a lower in their crime experience from 83% to 74% reduce 9% (but it is still high because data shows approximately 75 % of people in this community have ever had facing with crime problem at least once. But anyway, they were still optimistic say that when time went by they had got a lower in crime experience.

For Selected group, main group in this study, crime experience had the lowest score among 3 communities, especially after IDE program entry their crime experience reduce from 41% to 24%. If turn back to compare in Chapter 2 page 43 62.1% have experienced in being annoyed, 32.2% in robbed, 26.2% in harmful assaulted, 25.3% as fraud victim etc,. So in this community sample group had a moderate in crime experience. But the result in Y8.6 indicated their crime experience reduce 17%

So did the same as in the last one, Test group, after IDE program had been entry their crime experience reduce quit a lot from 71% down to 52% so totally reduce 19%

This result was merged by incident between IDE program entry and Crime reduction. By seeing, in groups that had IDE program entered, all informants coincide marked in the questionnaires that they got a lower experience of crimes according to this data collection.

APPENDIX C

Table 27 Descriptive data analysis

Activities or IDE program (X) //People's perception in IDE

	IENS	Neutral group Past				Neutral group Present				Selected group Before IDE entry				Selected group After IDE entry				Test group Before IDE entry				Test group After IDE entry			
	Improving Environmental Setting (x1-3)	x	/	Mean	S.D.	x	/	Mean	S.D.	x	/	Mean	S.D.	x	/	Mean	S.D.	x	/	Mean	S.D.	x	/	Mean	S.D.
	Housing reconstruction (HSR) = X1																								
X1.1	Fixed	72	28			68	32			87	13			69	31			71	29			40	60		
X1.2	Painted	85	15			78	23			96	4			76	24			75	25			43	57		
X1.3	Elevated ground level	93	7			81	19			94	6			85	15			81	19			63	37		
X1.4	Living area readjusted	85	15			76	24			96	4			94	6			84	16			68	32		
X1.5	Cleaning	36	64			16	84			72	28			66	34			41	59			30	70		
X1.6	Grease trap tank built	93	7			93	7			99	1			98	2			72	28			65	35		
X1.7	Waste treatment tank built	86	14			86	14			99	1			98	2			84	16			87	13		
	Cleaning day campaign (CDC) = X2																								
X2.1	Frequency of campaign	53	47			53	47			51	49			13	87			53	47			46	54		
X2.2	Level of participation			2.42500	1.01281			2.53750	1.03940			2.68750	1.09422			3.47500	1.07546			3.89580	0.71788			3.96880	0.78744
X2.3	Garbage left	54	46			58	42			70	30			35	65			74	26			75	25		
X2.4	Unattended material left	22	78			26	74			32	68			17	83			77	23			97	3		
X2.5	Waste management	78	22			76	24			66	34			22	78			3	97			3	97		
X2.6	Bad odor	47	53			55	45			47	53			19	81			53	47			37	63		
X2.7	Waste sorting	63	37			63	37			62	38			28	71			31	69			30	70		
	Community physical setting order (CPS)=X3																								
X3.1	Re-community pathway	82	18			81	19			88	12			63	37			71	29			57	43		
X3.2	Planting trees	74	26			51	49			88	12			61	39			60	40			70	30		
X3.3	Flower decoration	78	22			60	40			97	3			91	9			32	68			27	73		
X3.4	Relocation	93	7			90	10			94	6			85	15			85	15			82	18		
X3.5	Cloth hanging	62	38			65	35			36	64			44	56			77	23			82	18		
X3.6	Parking management			2.60000	1.17735			3.04370	1.14016			2.80000	1.11479			3.90620	0.96997			3.86460	0.90169			3.82290	0.98403
X3.7	Clean and orderly			2.28750	0.89293			3.07500	0.99401			2.56870	0.96997			4.25630	0.77902			3.59380	0.82816			3.66670	0.84189
X3.8	Aesthetical perception			2.53130	0.82357			3.05000	0.94370			2.56870	0.86145			2.49370	0.74898			3.56250	0.86830			3.60420	0.87635
	mean in each group		30	2.46095			35	2.92655			24	2.65623			41	3.53280			38	3.72918			44.333	3.76565	
	diff						5	0.46560							17	0.87658							6.7778	0.03648	

(IENN – Increasing in environmental network) (X4-X6)

	IENN	Neutral group				Neutral group				Selected group				Selected group				Test group				Test group			
	Improving Environmental	Past				Present				Before IDE entry				After IDE entry				Before IDE entry				After IDE entry			
	Networking (x4-6)	x	/	Mean	S.D.	x	/	Mean	S.D.	x	/	Mean	S.D.	x	/	Mean	S.D.	x	/	Mean	S.D.	x	/	Mean	S.D.
	Environmental education program (EEDP)=X4																								
	Garbage bank																								
X4.1	Participation			1.48120	0.77680			1.48120	0.77680			2.17500	0.95529			3.53750	1.18633			3.56250	0.79223			3.61460	0.85063
X4.2	Knowledge			1.50630	0.80092			1.51880	0.81628			2.28750	1.03637			3.58130	1.01233			3.36460	0.74155			3.50000	0.78136
	Homemade microbe treatment tank																								
X4.3	Participation			1.48750	0.82407			1.53750	0.89645			2.32500	1.01281			3.65000	0.91253			3.40630	0.80234			3.48960	0.87051
X4.4	Knowledge			1.49370	0.82414			1.55000	0.90977			2.28750	1.01800			3.57500	0.85818			3.28120	0.93700			3.38540	0.83817
	On-site waste treatment																								
X4.5	Participation			1.53120	0.85357			1.55000	0.87452			2.15000	1.04731			2.85630	1.17010			3.36460	0.93042			3.46880	0.96194
X4.6	Knowledge			1.68130	0.93665			1.55620	0.93665			2.18130	1.04534			2.97500	1.27358			3.40620	0.76197			3.44790	0.77961
	Environmental rehab' program (EREP)=X5																								
X5.1	Participation			1.68130	0.99288			1.68130	0.99288			2.25000	1.10459			3.96880	1.28573			3.57290	0.91473			3.68750	0.73000
X5.2	Knowledge			1.80000	1.03887			1.80000	1.03887			2.24370	1.12572			3.78750	1.33359			3.57290	0.94863			3.78130	0.84857
	Social-networking Program (SONP)=X6																								
	Co-op for housing																								
X6.1	Participation			1.68130	0.86419			1.69380	0.87593			2.33130	1.14772			3.58750	1.42037			3.98960	0.88846			4.08330	0.92528
	Social network with other condense community																								
X6.2	Participation			1.75630	0.93665			1.78130	0.96916			2.36880	1.17426			3.55620	1.28243			3.97920	0.98386			4.05210	0.99863
	Intellectual Person entering for traning or/and academic purpose																								
X6.3	Participation	71	29			71	29			78	22			12	88			8	92			2	98		
	mean in each group	71	29	1.61001		71	29	1.61501		78	22	2.26001		12	88	3.50751		8	92	3.55000		2	98	3.65105	
	diff						0	0.00500							66	1.24750							6	0.10105	

Crime risk factor or CRF (Y) // People's behavioral trait in CRF

(SDSO- Self discipline to comply with social order) (Y1-Y3)

	SDSO	Neutral group				Neutral group				Selected group				Selected group				Test group				Test group			
	Self discipline to comply	Past				Present				Before IDE entry				After IDE entry				Before IDE entry				After IDE entry			
	with Social order (y1-y3)	x	/	Mean	S.D.	x	/	Mean	S.D.	x	/	Mean	S.D.	x	/	Mean	S.D.	x	/	Mean	S.D.	x	/	Mean	S.D.
	Community order in pracitce (COR)=Y1																								
Y1.1	vandalism			2.80630	1.04909			2.85000	1.03523			3.43130	1.14167			3.21250	1.16223			3.34380	0.97147			3.35420	0.96223
Y1.2	graffiti	59	41			55	45			26	74			12	88			55	45			54	46		
Y1.3	Property destroyed	51	49			51	49			22	78			5	95			39	61			39	61		
Y1.4	caring and awareness			2.67500	0.88701			2.73130	0.89528			3.05630	1.12293			3.86250	0.90065			3.72920	0.87635			3.78130	0.72842
Y1.5	Energy saving			3.18120	1.03930			3.18120	1.03930			3.39380	1.22909			4.15630	0.87987			3.80210	0.82869			3.86460	0.92457
Y1.6	Planting habit	50	50			48	52			84	16			71	29			55	45			55	45		
Y1.7	Responsibility for kids			3.28750	1.23057			3.33750	1.21773			3.41250	1.22545			3.78750	1.15136			4.16670	0.76319			4.17710	0.76770
Y1.8	Gambling	60	40			60	40			59	41			21	79			9	91			10	90		
Y1.9	Got drunk / nuisance	83	17			81	19			74	26			59	41			97	3			93	7		
Y1.10	Social responsibility			3.01880	1.06678			3.13130	1.05879			3.13750	1.16277			3.95630	0.92040			3.63540	0.82232			3.76040	0.77792
Y1.11	Self esteem			2.70630	0.90836			2.80000	0.95034			3.26880	1.07996			4.06250	0.90899			3.46880	0.78073			3.52080	0.66458
Y1.12	Natural resources awareness			3.00000	1.18693			3.03130	1.17854			3.46250	1.24833			4.33750	0.80788			3.75000	0.76777			3.80210	0.73441
Y1.13	Conscience			2.83120	1.43287			2.90620	1.41331			3.39380	1.32274			4.28120	0.87719			3.90630	0.82178			3.94790	0.85063
	Cleanliness in action (CLA) = Y2)																								
Y2.1	garbage left			2.86250	1.15735			2.58750	1.01800			2.70000	1.03887			2.98130	0.98077			3.02080	0.94009			3.07290	0.95416
Y2.2	Cleaning-day participation			2.11250	0.82407			2.45630	1.00218			2.87500	1.08593			3.54380	0.97625			3.39580	0.88828			3.44790	0.84442
Y2.3	garbage underneath house			3.26250	1.24126			3.25000	1.24385			1.96870	1.06057			2.27500	0.92451			3.05210	0.92189			3.06250	0.91551
Y2.4	garbage in canal			2.81870	1.20205			2.80620	1.20009			2.07500	1.06724			2.98750	0.99677			3.11460	1.03486			3.14580	1.00503
Y2.5	Cleanliness in clubhouse			2.03750	1.07509			2.30000	1.03280			2.80000	1.06281			3.31870	1.01170			3.57290	0.90315			3.68750	0.93260
	Obedience from community leader guidance(OLG)=Y3																								
Y3.1	community's activities	55	45			55	45			54	46			16	84			20	80			17	83		
Y3.2	Willingness			2.24380	0.88130			2.28750	0.90691			2.84380	1.09629			3.67500	1.09631			3.80210	0.78967			3.83330	0.77686
	mean in each group		40	2.77456			42	2.83259			47	2.98707			69	3.60269			54	3.55433			55.333	3.60416	
	diff						1	0.05804							23	0.61561							1.17	0.04984	

Grime risk factor of CRF (Y) // People's behavioral trait in CRF

(CR- Community relation) (Y4-Y6)

	CR	Neutral group				Neutral group				Selected group				Selected group				Test group				Test group			
	Community	Past				Present				Before IDE entry				After IDE entry				Before IDE entry				After IDE entry			
	relation (Y4-Y6)	x	/	Mean	S.D.	x	/	Mean	S.D.	x	/	Mean	S.D.	x	/	Mean	S.D.	x	/	Mean	S.D.	x	/	Mean	S.D.
	Physical Activity(PA) =Y4																								
Y4.1	space utilization			2.95000	0.82264			2.98120	0.82776			3.11880	1.04232			2.31250	0.96601			2.44790	0.91617			2.35420	0.83325
Y4.2	Time spending inside house	11	89			11	89			29	71			23	77			30	70			26	74		
Y4.3	Time spending in semi-pub spac	40	60			22	78			39	61			17	83			56	44			47	53.1		
Y4.4	Time spending in club house			2.32500	1.05538			2.30620	1.02176			2.90000	1.10003			3.68750	1.03515			3.46880	1.11405			3.58330	1.08256
	Community information																								
	flow (CIF)=Y5																								
Y5.1	face to face interaction	21	79			14	86			60	40			33	67			19	81			14	86.5		
Y5.2	Time spending for face to face	16	84			9	91			47	53			26	74			16	84			7	92.7		
Y5.3	Neighborhood details			2.66870	0.98237			2.63750	0.93491			2.78750	0.87873			3.34370	0.83964			3.36460	0.75561			3.40630	0.81535
	Community's conflict																								
	(CCF) Y=6																								
Y6.1	Family's conflict	53	47			53	47			79	21			82	18			17	83			20	80.2		
Y6.2	individual's conflict	64	36			64	36			88	12			92	8			19	81			21	79.2		
	mean in each group		66	2.64790			71	2.64163			43	2.93543			55	3.11457			74	3.09377			78	3.11460	
	diff						5	-0.00627							12	0.17913							4	0.02083	

Crime risk factor or CRF (Y) // People's behavioral trait in CRF (SDM-Self defense mechanism) (Y7-Y10)

	CR / Community relation (Y4-Y6)	Neutral group Past				Neutral group Present				Selected group Before IDE entry				Selected group After IDE entry				Test group Before IDE entry				Test group After IDE entry			
		x	/	Mean	S.D.	x	/	Mean	S.D.	x	/	Mean	S.D.	x	/	Mean	S.D.	x	/	Mean	S.D.	x	/	Mean	S.D.
	Migration (MIG) = Y7																								
Y7.1	Plan to migrate in future			3.44380	1.11449			3.4125	1.17301			3.74750	1.16817			3.8938	1.23674			3.43750	0.98208			3.39580	0.96768
Y7.2	Migrate because of crime	64	36			68	33			84	16			94	6			41	59			40	60.4		
Y7.3	Peers or Siblings' migration			3.46880	1.23330			3.3438	1.31296			3.79370	1.13324			4.0937	1.05089			3.56250	1.05444			3.58330	1.08256
Y7.4	Migrate because of crime	77	23			86	14			97	3			99	1			46	54			44	56.3		
	Crime Prevention (CP)=y8																								
Y8.1	Fear of crime / FOC			3.38750	1.05799			2.9125	1.04242			2.88130	1.19418			3.20000	1.20168			2.88540	0.85680			2.81250	0.81192
Y8.2	FOC outside daytime			3.06250	1.07392			3.1688	1.03536			2.65620	1.13296			2.67500	1.11338			2.33330	1.00175			2.31250	0.97670
Y8.3	FOC Outside nighttime			3.11870	1.03627			3.1562	1.01279			2.55620	1.14785			2.60630	1.15523			2.32290	0.98936			2.32290	0.96785
Y8.4	FOC inside daytime			2.58750	1.09537			2.9875	1.13263			3.12500	1.09745			3.60000	0.97903			2.96880	0.87603			2.97920	0.91742
Y8.5	FOC outside dn			2.91250	1.12930			2.95	1.11479			3.07500	1.12462			3.61250	0.99677			2.98960	0.82710			3.04170	0.90515
Y8.6	Crime experience	17	83			26	74			59	41			76	24			29	71			48	52.1		
Y8.7	Fear of Drugs			2.17500	0.94203			2.2688	1.02006			2.36880	1.14717			3.10000	0.92621			2.85420	0.76749			2.85420	0.75365
	Outsider detection Capability (ODC)=Y9																								
Y9.1	Detected outsider	41	59			35	65			64	36			36	64			20	80			21	79.2		
Y9.2	Detection ability			2.80630	1.07865			3.0063	0.86509			2.65620	0.96509			3.20000	1.18056			3.35420	0.95122			3.31250	0.92124
Y9.3	Detection obstacle			2.63750	1.01862			2.6188	0.91715			2.74370	1.11167			3.47500	1.23853			3.46880	0.95093			3.55210	0.96103
	Civilian self-defense (CSD) Y=10																								
Y10.1	Civilian patrol	62	38			48	53			84	16			40	60			32	68			30	69.8		
Y10.2	Civilian checkpoint	63	37			63	37			86	14			29	71			31	69			28	71.9		
Y10.3	Law enforcement relationship			2.71880	1.17720			3.3125	1.04121			2.31870	0.96721			2.71250	1.12930			3.28120	0.74978			3.25000	0.72548
	mean in each group		46	2.88751			46	2.97252			21	2.81748			38	3.22750			67	3.00209			65	3.00209	
	diff						0	0.08501							17	0.41002							-2	0.00000	

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Analysis Summary

Groups

Group number 1 (Group number 1)

Notes for Group (Group number 1)

The model is recursive.
Sample size = 160

Variable Summary (Group number 1)

Your model contains the following variables (Group number 1)

Observed, endogenous variables
X3
X2
X1
X6
X5
X4
Y1
Y2
Y3
Y8
Y9
Y10
Y4
Y5
Y6
Y7
Unobserved, endogenous variables
IENS
SDSO
SDM
CR
Unobserved, exogenous variables
eX3
eX2
eX1
IENN
eX6
eX5
eX4
eY1
eY2

eY3
eY8
eY9
eY10
eY4
eY5
eY6
eY7
eIENS
eSDSO
eCR
eSDM

Variable counts (Group number 1)

Number of variables in your model:	41
Number of observed variables:	16
Number of unobserved variables:	25
Number of exogenous variables:	21
Number of endogenous variables:	20

Parameter summary (Group number 1)

	Weights	Covariances	Variances	Means	Intercepts	Total
Fixed	25	0	0	0	0	25
Labeled	0	0	0	0	0	0
Unlabeled	18	3	21	0	0	42
Total	43	3	21	0	0	67

Models

Default model (Default model)

Notes for Model (Default model)

Computation of degrees of freedom (Default model)

Number of distinct sample moments:	136
Number of distinct parameters to be estimated:	42
Degrees of freedom (136 - 42):	94

Result (Default model)

Minimum was achieved
Chi-square = 111.862
Degrees of freedom = 94
Probability level = .101

Group number 1 (Group number 1 - Default model)

Estimates (Group number 1 - Default model)

Scalar Estimates (Group number 1 - Default model)

Maximum Likelihood Estimates

Regression Weights: (Group number 1 - Default model)

	Estimate	S.E.	C.R.	P	Label
IENS <--- IENN	.089	.057	1.557	.120	
SDSO <--- IENS	.009	.024	.366	.715	
SDSO <--- IENN	.063	.040	1.592	.111	
SDM <--- IENS	.325	.142	2.284	.022	
CR <--- IENS	.018	.053	.344	.731	
CR <--- IENN	.089	.073	1.212	.226	
SDM <--- IENN	-.181	.117	-1.549	.124	
X3 <--- IENS	1.000				
X2 <--- IENS	.166	.110	1.510	.131	
X1 <--- IENS	.799	.275	2.904	.004	
X6 <--- IENN	1.000				
X5 <--- IENN	1.006	.149	6.744	***	
X4 <--- IENN	.570	.113	5.058	***	
Y1 <--- SDSO	1.000				
Y2 <--- SDSO	-2.271	1.512	-1.502	.133	
Y3 <--- SDSO	6.553	4.110	1.594	.111	
Y8 <--- SDM	1.000				
Y9 <--- SDM	.970	.278	3.489	***	
Y10 <--- SDM	-.117	.218	-.536	.592	
Y4 <--- CR	1.000				
Y5 <--- CR	-.060	.463	-.129	.897	
Y6 <--- CR	-3.874	3.151	-1.230	.219	
Y7 <--- SDM	.743	.225	3.304	***	

Standardized Regression Weights: (Group number 1 - Default model)

	Estimate
IENS <--- IENN	.154
SDSO <--- IENS	.047
SDSO <--- IENN	.570
SDM <--- IENS	.357
CR <--- IENS	.042
CR <--- IENN	.351
SDM <--- IENN	-.344

			Estimate
X3	<---	IENS	.893
X2	<---	IENS	.142
X1	<---	IENS	.575
X6	<---	IENN	.857
X5	<---	IENN	.703
X4	<---	IENN	.463
Y1	<---	SDSO	.201
Y2	<---	SDSO	-.257
Y3	<---	SDSO	.650
Y8	<---	SDM	.459
Y9	<---	SDM	.470
Y10	<---	SDM	-.053
Y4	<---	CR	.298
Y5	<---	CR	-.013
Y6	<---	CR	-.728
Y7	<---	SDM	.418

Covariances: (Group number 1 - Default model)

	Estimate	S.E.	C.R.	P	Label
eX2 <--> eY10	.092	.027	3.429	***	
eY2 <--> eY5	.113	.037	3.039	.002	
eY8 <--> eY5	-.082	.028	-2.946	.003	

Correlations: (Group number 1 - Default model)

			Estimate
eX2	<-->	eY10	.283
eY2	<-->	eY5	.245
eY8	<-->	eY5	-.279

Variances: (Group number 1 - Default model)

	Estimate	S.E.	C.R.	P	Label
IENN	.416	.080	5.218	***	
eIENS	.136	.049	2.766	.006	
eSDSO	.003	.004	.921	.357	
eCR	.023	.021	1.115	.265	
eSDM	.082	.032	2.578	.010	
eX3	.036	.046	.777	.437	
eX2	.187	.021	8.868	***	
eX1	.180	.035	5.079	***	
eX6	.151	.054	2.801	.005	

	Estimate	S.E.	C.R.	P	Label
eX5	.432	.072	5.994	***	
eX4	.495	.060	8.294	***	
eY1	.121	.014	8.596	***	
eY2	.368	.044	8.365	***	
eY3	.297	.111	2.677	.007	
eY8	.150	.034	4.351	***	
eY9	.381	.053	7.203	***	
eY10	.568	.064	8.902	***	
eY4	.273	.037	7.302	***	
eY5	.575	.064	8.944	***	
eY6	.354	.324	1.091	.275	
eY7	.300	.039	7.677	***	

Squared Multiple Correlations: (Group number 1 - Default model)

	Estimate
IENS	.024
CR	.129
SDM	.284
SDSO	.335
Y7	.175
Y6	.530
Y5	.000
Y4	.089
Y10	.003
Y9	.221
Y8	.435
Y3	.423
Y2	.066
Y1	.040
X4	.215
X5	.494
X6	.734
X1	.330
X2	.020
X3	.797

Matrices (Group number 1 - Default model)

Total Effects (Group number 1 - Default model)

	IENN	IENS	CR	SDM	SDSO
IENS	.089	.000	.000	.000	.000
CR	.090	.018	.000	.000	.000
SDM	-.152	.325	.000	.000	.000
SDSO	.064	.009	.000	.000	.000
Y7	-.156	-.241	.000	.743	.000
Y6	-.350	-.071	-3.874	.000	.000
Y5	-.005	-.001	-.060	.000	.000
Y4	.090	.018	1.000	.000	.000
Y10	.024	.038	.000	-.117	.000
Y9	.203	.315	.000	.970	.000
Y8	-.209	-.325	.000	1.000	.000
Y3	.417	.058	.000	.000	6.553
Y2	-.145	-.020	.000	.000	-2.271
Y1	.064	.009	.000	.000	1.000
X4	.570	.000	.000	.000	.000
X5	1.006	.000	.000	.000	.000
X6	1.000	.000	.000	.000	.000
X1	.071	.799	.000	.000	.000
X2	.015	.166	.000	.000	.000
X3	.089	1.000	.000	.000	.000

Standardized Total Effects (Group number 1 - Default model)

	IENN	IENS	CR	SDM	SDSO
IENS	.154	.000	.000	.000	.000
CR	.357	.042	.000	.000	.000
SDM	-.289	.357	.000	.000	.000
SDSO	.577	.047	.000	.000	.000
Y7	-.167	-.149	.000	.418	.000
Y6	-.260	-.030	-.728	.000	.000
Y5	-.005	-.001	-.013	.000	.000
Y4	.106	.012	.298	.000	.000
Y10	.021	.019	.000	-.053	.000
Y9	.187	.168	.000	.470	.000
Y8	-.263	-.236	.000	.459	.000
Y3	.376	.030	.000	.000	.650
Y2	-.149	-.012	.000	.000	-.257
Y1	.116	.009	.000	.000	.201
X4	.463	.000	.000	.000	.000

	IENN	IENS	CR	SDM	SDSO
X5	.703	.000	.000	.000	.000
X6	.857	.000	.000	.000	.000
X1	.088	.575	.000	.000	.000
X2	.022	.142	.000	.000	.000
X3	.137	.893	.000	.000	.000

Direct Effects (Group number 1 - Default model)

	IENN	IENS	CR	SDM	SDSO
IENS	.089	.000	.000	.000	.000
CR	.089	.018	.000	.000	.000
SDM	-.181	.325	.000	.000	.000
SDSO	.063	.009	.000	.000	.000
Y7	.000	.000	.000	.743	.000
Y6	.000	.000	-3.874	.000	.000
Y5	.000	.000	-.060	.000	.000
Y4	.000	.000	1.000	.000	.000
Y10	.000	.000	.000	-.117	.000
Y9	.000	.000	.000	.970	.000
Y8	.000	.000	.000	1.000	.000
Y3	.000	.000	.000	.000	6.553
Y2	.000	.000	.000	.000	-2.271
Y1	.000	.000	.000	.000	1.000
X4	.570	.000	.000	.000	.000
X5	1.006	.000	.000	.000	.000
X6	1.000	.000	.000	.000	.000
X1	.000	.799	.000	.000	.000
X2	.000	.166	.000	.000	.000
X3	.000	1.000	.000	.000	.000

Standardized Direct Effects (Group number 1 - Default model)

	IENN	IENS	CR	SDM	SDSO
IENS	.154	.000	.000	.000	.000
CR	.351	.042	.000	.000	.000
SDM	-.344	.357	.000	.000	.000
SDSO	.570	.047	.000	.000	.000
Y7	.000	.000	.000	.418	.000
Y6	.000	.000	-.728	.000	.000
Y5	.000	.000	-.013	.000	.000
Y4	.000	.000	.298	.000	.000
Y10	.000	.000	.000	-.053	.000

	IENN	IENS	CR	SDM	SDSO
Y9	.000	.000	.000	.470	.000
Y8	.000	.000	.000	.459	.000
Y3	.000	.000	.000	.000	.650
Y2	.000	.000	.000	.000	-.257
Y1	.000	.000	.000	.000	.201
X4	.463	.000	.000	.000	.000
X5	.703	.000	.000	.000	.000
X6	.857	.000	.000	.000	.000
X1	.000	.575	.000	.000	.000
X2	.000	.142	.000	.000	.000
X3	.000	.893	.000	.000	.000

Indirect Effects (Group number 1 - Default model)

	IENN	IENS	CR	SDM	SDSO
IENS	.000	.000	.000	.000	.000
CR	.002	.000	.000	.000	.000
SDM	.029	.000	.000	.000	.000
SDSO	.001	.000	.000	.000	.000
Y7	-.156	-.241	.000	.000	.000
Y6	-.350	-.071	.000	.000	.000
Y5	-.005	-.001	.000	.000	.000
Y4	.090	.018	.000	.000	.000
Y10	.024	.038	.000	.000	.000
Y9	.203	.315	.000	.000	.000
Y8	-.209	-.325	.000	.000	.000
Y3	.417	.058	.000	.000	.000
Y2	-.145	-.020	.000	.000	.000
Y1	.064	.009	.000	.000	.000
X4	.000	.000	.000	.000	.000
X5	.000	.000	.000	.000	.000
X6	.000	.000	.000	.000	.000
X1	.071	.000	.000	.000	.000
X2	.015	.000	.000	.000	.000
X3	.089	.000	.000	.000	.000

Standardized Indirect Effects (Group number 1 - Default model)

	IENN	IENS	CR	SDM	SDSO
IENS	.000	.000	.000	.000	.000
CR	.006	.000	.000	.000	.000
SDM	.055	.000	.000	.000	.000

	IENN	IENS	CR	SDM	SDSO
SDSO	.007	.000	.000	.000	.000
Y7	-.167	-.149	.000	.000	.000
Y6	-.260	-.030	.000	.000	.000
Y5	-.005	-.001	.000	.000	.000
Y4	.106	.012	.000	.000	.000
Y10	.021	.019	.000	.000	.000
Y9	.187	.168	.000	.000	.000
Y8	-.263	-.236	.000	.000	.000
Y3	.376	.030	.000	.000	.000
Y2	-.149	-.012	.000	.000	.000
Y1	.116	.009	.000	.000	.000
X4	.000	.000	.000	.000	.000
X5	.000	.000	.000	.000	.000
X6	.000	.000	.000	.000	.000
X1	.088	.000	.000	.000	.000
X2	.022	.000	.000	.000	.000
X3	.137	.000	.000	.000	.000

Model Fit Summary

CMIN

Model	NPAR	CMIN	DF	P	CMIN/DF
Default model	42	111.862	94	.101	1.190
Saturated model	136	.000	0		
Independence model	16	395.666	120	.000	3.297

RMR, GFI

Model	RMR	GFI	AGFI	PGFI
Default model	.026	.922	.887	.637
Saturated model	.000	1.000		
Independence model	.071	.743	.709	.656

Baseline Comparisons

Model	NFI Delta1	RFI rho1	IFI Delta2	TLI rho2	CFI
Default model	.717	.639	.941	.917	.935
Saturated model	1.000		1.000		1.000
Independence model	.000	.000	.000	.000	.000

Parsimony-Adjusted Measures

Model	PRATIO	PNFI	PCFI
Default model	.783	.562	.733
Saturated model	.000	.000	.000
Independence model	1.000	.000	.000

NCP

Model	NCP	LO 90	HI 90
Default model	17.862	.000	48.527
Saturated model	.000	.000	.000
Independence model	275.666	219.154	339.783

FMIN

Model	FMIN	F0	LO 90	HI 90
Default model	.704	.112	.000	.305
Saturated model	.000	.000	.000	.000
Independence model	2.488	1.734	1.378	2.137

RMSEA

Model	RMSEA	LO 90	HI 90	PCLOSE
Default model	.035	.000	.057	.858
Independence model	.120	.107	.133	.000

AIC

Model	AIC	BCC	BIC	CAIC
Default model	195.862	205.918	325.019	367.019
Saturated model	272.000	304.563	690.224	826.224
Independence model	427.666	431.497	476.869	492.869

ECVI

Model	ECVI	LO 90	HI 90	MECVI
Default model	1.232	1.119	1.425	1.295
Saturated model	1.711	1.711	1.711	1.915
Independence model	2.690	2.334	3.093	2.714

HOELTER

Model	HOELTER .05	HOELTER .01
Default model	168	184
Independence model	59	64

Execution time summary

Minimization:	.032
Miscellaneous:	.061
Bootstrap:	.000
Total:	.093

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Analysis Summary

Groups

Group number 1 (Group number 1)

Notes for Group (Group number 1)

The model is recursive.
Sample size = 160

Variable Summary (Group number 1)

Your model contains the following variables (Group number 1)

Observed, endogenous variables
X3
X2
X1
X6
X5
X4
Y1
Y2
Y3
Y8
Y9
Y10
Y4
Y5
Y6
Y7
Unobserved, endogenous variables
IENS
SDSO
SDM
CR
Unobserved, exogenous variables
eX3
eX2
eX1
IENN
eX6
eX5
eX4
eY1
eY2

eY3
eY8
eY9
eY10
eY4
eY5
eY6
eY7
eIENS
eSDSO
eCR
eSDM

Variable counts (Group number 1)

Number of variables in your model:	41
Number of observed variables:	16
Number of unobserved variables:	25
Number of exogenous variables:	21
Number of endogenous variables:	20

Parameter summary (Group number 1)

	Weights	Covariances	Variances	Means	Intercepts	Total
Fixed	25	0	0	0	0	25
Labeled	0	0	0	0	0	0
Unlabeled	18	4	21	0	0	43
Total	43	4	21	0	0	68

Models

Default model (Default model)

Notes for Model (Default model)

Computation of degrees of freedom (Default model)

Number of distinct sample moments:	136
Number of distinct parameters to be estimated:	43
Degrees of freedom (136 - 43):	93

Result (Default model)

Minimum was achieved
Chi-square = 110.412
Degrees of freedom = 93
Probability level = .105

Group number 1 (Group number 1 - Default model)

Estimates (Group number 1 - Default model)

Scalar Estimates (Group number 1 - Default model)

Maximum Likelihood Estimates

Regression Weights: (Group number 1 - Default model)

	Estimate	S.E.	C.R.	P	Label
IENS <--- IENN	.217	.078	2.763	.006	
SDSO <--- IENS	.009	.026	.343	.732	
SDSO <--- IENN	.008	.025	.347	.729	
SDM <--- IENS	.246	.114	2.163	.031	
CR <--- IENS	.009	.065	.131	.896	
CR <--- IENN	.117	.072	1.613	.107	
SDM <--- IENN	-.078	.057	-1.354	.176	
X3 <--- IENS	1.000				
X2 <--- IENS	.215	.111	1.944	.052	
X1 <--- IENS	.747	.212	3.520	***	
X6 <--- IENN	1.000				
X5 <--- IENN	1.002	.159	6.293	***	
X4 <--- IENN	.571	.119	4.785	***	
Y1 <--- SDSO	1.000				
Y2 <--- SDSO	-1.798	1.790	-1.004	.315	
Y3 <--- SDSO	42.845	122.186	.351	.726	
Y8 <--- SDM	1.000				
Y9 <--- SDM	1.480	.406	3.645	***	
Y10 <--- SDM	-.365	.261	-1.399	.162	
Y4 <--- CR	1.000				
Y5 <--- CR	.286	.442	.648	.517	
Y6 <--- CR	-3.157	1.930	-1.635	.102	
Y7 <--- SDM	.900	.278	3.234	.001	

Standardized Regression Weights: (Group number 1 - Default model)

	Estimate
IENS <--- IENN	.332
SDSO <--- IENS	.146
SDSO <--- IENN	.216
SDM <--- IENS	.371
CR <--- IENS	.020
CR <--- IENN	.414
SDM <--- IENN	-.179

			Estimate
X3	<---	IENS	.725
X2	<---	IENS	.201
X1	<---	IENS	.567
X6	<---	IENN	.833
X5	<---	IENN	.691
X4	<---	IENN	.451
Y1	<---	SDSO	.067
Y2	<---	SDSO	-.080
Y3	<---	SDSO	1.462
Y8	<---	SDM	.535
Y9	<---	SDM	.626
Y10	<---	SDM	-.145
Y4	<---	CR	.343
Y5	<---	CR	.071
Y6	<---	CR	-.649
Y7	<---	SDM	.407

Covariances: (Group number 1 - Default model)

	Estimate	S.E.	C.R.	P	Label
eY2 <--> eY4	.083	.023	3.525	***	
eY1 <--> eY6	-.080	.025	-3.164	.002	
eY5 <--> eSDM	-.051	.022	-2.295	.022	
eX2 <--> eY10	.054	.024	2.227	.026	

Correlations: (Group number 1 - Default model)

			Estimate
eY2	<-->	eY4	.300
eY1	<-->	eY6	-.322
eY5	<-->	eSDM	-.291
eX2	<-->	eY10	.182

Variances: (Group number 1 - Default model)

	Estimate	S.E.	C.R.	P	Label
IENN	.406	.083	4.901	***	
eIENS	.154	.053	2.890	.004	
eSDSO	.001	.002	.330	.741	
eCR	.027	.019	1.396	.163	
eSDM	.060	.024	2.453	.014	
eX3	.156	.050	3.136	.002	
eX2	.190	.022	8.713	***	

	Estimate	S.E.	C.R.	P	Label
eX1	.204	.035	5.843	***	
eX6	.178	.058	3.076	.002	
eX5	.446	.075	5.928	***	
eX4	.518	.063	8.261	***	
eY1	.138	.016	8.882	***	
eY2	.315	.036	8.834	***	
eY3	-.615	3.028	-.203	.839	
eY8	.191	.030	6.396	***	
eY9	.260	.052	4.975	***	
eY10	.471	.054	8.793	***	
eY4	.242	.034	7.196	***	
eY5	.520	.059	8.876	***	
eY6	.442	.201	2.194	.028	
eY7	.311	.040	7.724	***	

Squared Multiple Correlations: (Group number 1 - Default model)

	Estimate
IENS	.110
CR	.177
SDM	.214
SDSO	.089
Y7	.166
Y6	.421
Y5	.005
Y4	.118
Y10	.021
Y9	.391
Y8	.286
Y3	2.139
Y2	.006
Y1	.005
X4	.203
X5	.477
X6	.695
X1	.321
X2	.041
X3	.526

Matrices (Group number 1 - Default model)

Total Effects (Group number 1 - Default model)

	IENN	IENS	CR	SDM	SDSO
IENS	.217	.000	.000	.000	.000
CR	.119	.009	.000	.000	.000
SDM	-.025	.246	.000	.000	.000
SDSO	.010	.009	.000	.000	.000
Y7	-.118	-.221	.000	.900	.000
Y6	-.374	-.027	-3.157	.000	.000
Y5	.034	.002	.286	.000	.000
Y4	.119	.009	1.000	.000	.000
Y10	.048	.090	.000	-.365	.000
Y9	.194	.364	.000	1.480	.000
Y8	-.131	-.246	.000	1.000	.000
Y3	.445	.376	.000	.000	42.845
Y2	-.019	-.016	.000	.000	-1.798
Y1	.010	.009	.000	.000	1.000
X4	.571	.000	.000	.000	.000
X5	1.002	.000	.000	.000	.000
X6	1.000	.000	.000	.000	.000
X1	.162	.747	.000	.000	.000
X2	.047	.215	.000	.000	.000
X3	.217	1.000	.000	.000	.000

Standardized Total Effects (Group number 1 - Default model)

	IENN	IENS	CR	SDM	SDSO
IENS	.332	.000	.000	.000	.000
CR	.421	.020	.000	.000	.000
SDM	-.051	.371	.000	.000	.000
SDSO	.264	.146	.000	.000	.000
Y7	-.123	-.151	.000	.407	.000
Y6	-.273	-.013	-.649	.000	.000
Y5	.030	.001	.071	.000	.000
Y4	.144	.007	.343	.000	.000
Y10	.044	.054	.000	-.145	.000
Y9	.189	.232	.000	.626	.000
Y8	-.162	-.198	.000	.535	.000
Y3	.386	.213	.000	.000	1.462
Y2	-.021	-.012	.000	.000	-.080
Y1	.018	.010	.000	.000	.067
X4	.451	.000	.000	.000	.000

	IENN	IENS	CR	SDM	SDSO
X5	.691	.000	.000	.000	.000
X6	.833	.000	.000	.000	.000
X1	.188	.567	.000	.000	.000
X2	.067	.201	.000	.000	.000
X3	.241	.725	.000	.000	.000

Direct Effects (Group number 1 - Default model)

	IENN	IENS	CR	SDM	SDSO
IENS	.217	.000	.000	.000	.000
CR	.117	.009	.000	.000	.000
SDM	-.078	.246	.000	.000	.000
SDSO	.008	.009	.000	.000	.000
Y7	.000	.000	.000	.900	.000
Y6	.000	.000	-3.157	.000	.000
Y5	.000	.000	.286	.000	.000
Y4	.000	.000	1.000	.000	.000
Y10	.000	.000	.000	-.365	.000
Y9	.000	.000	.000	1.480	.000
Y8	.000	.000	.000	1.000	.000
Y3	.000	.000	.000	.000	42.845
Y2	.000	.000	.000	.000	-1.798
Y1	.000	.000	.000	.000	1.000
X4	.571	.000	.000	.000	.000
X5	1.002	.000	.000	.000	.000
X6	1.000	.000	.000	.000	.000
X1	.000	.747	.000	.000	.000
X2	.000	.215	.000	.000	.000
X3	.000	1.000	.000	.000	.000

Standardized Direct Effects (Group number 1 - Default model)

	IENN	IENS	CR	SDM	SDSO
IENS	.332	.000	.000	.000	.000
CR	.414	.020	.000	.000	.000
SDM	-.179	.371	.000	.000	.000
SDSO	.216	.146	.000	.000	.000
Y7	.000	.000	.000	.407	.000
Y6	.000	.000	-.649	.000	.000
Y5	.000	.000	.071	.000	.000
Y4	.000	.000	.343	.000	.000
Y10	.000	.000	.000	-.145	.000

	IENN	IENS	CR	SDM	SDSO
Y9	.000	.000	.000	.626	.000
Y8	.000	.000	.000	.535	.000
Y3	.000	.000	.000	.000	1.462
Y2	.000	.000	.000	.000	-.080
Y1	.000	.000	.000	.000	.067
X4	.451	.000	.000	.000	.000
X5	.691	.000	.000	.000	.000
X6	.833	.000	.000	.000	.000
X1	.000	.567	.000	.000	.000
X2	.000	.201	.000	.000	.000
X3	.000	.725	.000	.000	.000

Indirect Effects (Group number 1 - Default model)

	IENN	IENS	CR	SDM	SDSO
IENS	.000	.000	.000	.000	.000
CR	.002	.000	.000	.000	.000
SDM	.053	.000	.000	.000	.000
SDSO	.002	.000	.000	.000	.000
Y7	-.118	-.221	.000	.000	.000
Y6	-.374	-.027	.000	.000	.000
Y5	.034	.002	.000	.000	.000
Y4	.119	.009	.000	.000	.000
Y10	.048	.090	.000	.000	.000
Y9	.194	.364	.000	.000	.000
Y8	-.131	-.246	.000	.000	.000
Y3	.445	.376	.000	.000	.000
Y2	-.019	-.016	.000	.000	.000
Y1	.010	.009	.000	.000	.000
X4	.000	.000	.000	.000	.000
X5	.000	.000	.000	.000	.000
X6	.000	.000	.000	.000	.000
X1	.162	.000	.000	.000	.000
X2	.047	.000	.000	.000	.000
X3	.217	.000	.000	.000	.000

Standardized Indirect Effects (Group number 1 - Default model)

	IENN	IENS	CR	SDM	SDSO
IENS	.000	.000	.000	.000	.000
CR	.007	.000	.000	.000	.000
SDM	-.123	.000	.000	.000	.000
SDSO	.048	.000	.000	.000	.000
Y7	.123	-.151	.000	.000	.000
Y6	-.273	-.013	.000	.000	.000
Y5	.030	.001	.000	.000	.000
Y4	.144	.007	.000	.000	.000
Y10	.044	.054	.000	.000	.000
Y9	.189	.232	.000	.000	.000
Y8	-.162	-.198	.000	.000	.000
Y3	.386	.213	.000	.000	.000
Y2	-.021	-.012	.000	.000	.000
Y1	.018	.010	.000	.000	.000
X4	.000	.000	.000	.000	.000
X5	.000	.000	.000	.000	.000
X6	.000	.000	.000	.000	.000
X1	.188	.000	.000	.000	.000
X2	.067	.000	.000	.000	.000
X3	.241	.000	.000	.000	.000

Model Fit Summary

CMIN

Model	NPAR	CMIN	DF	P	CMIN/DF
Default model	43	110.412	93	.105	1.187
Saturated model	136	.000	0		
Independence model	16	379.991	120	.000	3.167

RMR, GFI

Model	RMR	GFI	AGFI	PGFI
Default model	.026	.921	.884	.630
Saturated model	.000	1.000		
Independence model	.072	.744	.710	.657

Baseline Comparisons

Model	NFI Delta1	RFI rho1	IFI Delta2	TLI rho2	CFI
Default model	.709	.625	.939	.914	.933
Saturated model	1.000		1.000		1.000
Independence model	.000	.000	.000	.000	.000

Parsimony-Adjusted Measures

Model	PRATIO	PNFI	PCFI
Default model	.775	.550	.723
Saturated model	.000	.000	.000
Independence model	1.000	.000	.000

NCP

Model	NCP	LO 90	HI 90
Default model	17.412	.000	47.884
Saturated model	.000	.000	.000
Independence model	259.991	204.908	322.690

FMIN

Model	FMIN	F0	LO 90	HI 90
Default model	.694	.110	.000	.301
Saturated model	.000	.000	.000	.000
Independence model	2.390	1.635	1.289	2.029

RMSEA

Model	RMSEA	LO 90	HI 90	PCLOSE
Default model	.034	.000	.057	.860
Independence model	.117	.104	.130	.000

AIC

Model	AIC	BCC	BIC	CAIC
Default model	196.412	206.708	328.644	371.644
Saturated model	272.000	304.563	690.224	826.224
Independence model	411.991	415.822	461.194	477.194

ECVI

Model	ECVI	LO 90	HI 90	MECVI
Default model	1.235	1.126	1.427	1.300
Saturated model	1.711	1.711	1.711	1.915
Independence model	2.591	2.245	2.985	2.615

HOELTER

Model	HOELTER .05	HOELTER .01
Default model	168	184
Independence model	62	67

Execution time summary

Minimization:	.078
Miscellaneous:	.093
Bootstrap:	.000
Total:	.171

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Analysis Summary

Groups

Group number 1 (Group number 1)

Notes for Group (Group number 1)

The model is recursive.
Sample size = 160

Variable Summary (Group number 1)

Your model contains the following variables (Group number 1)

Observed, endogenous variables
X3
X2
X1
X6
X5
X4
Y1
Y2
Y3
Y8
Y9
Y10
Y4
Y5
Y6
Y7
Unobserved, endogenous variables
IENS
SDSO
SDM
CR
Unobserved, exogenous variables
eX3
eX2
eX1
IENN
eX6
eX5
eX4
eY1

eY2
eY3
eY8
eY9
eY10
eY4
eY5
eY6
eY7
eIENS
eSDSO
eCR
eSDM

Variable counts (Group number 1)

Number of variables in your model:	41
Number of observed variables:	16
Number of unobserved variables:	25
Number of exogenous variables:	21
Number of endogenous variables:	20

Parameter summary (Group number 1)

	Weights	Covariances	Variances	Means	Intercepts	Total
Fixed	25	0	0	0	0	25
Labeled	0	0	0	0	0	0
Unlabeled	18	24	21	0	0	63
Total	43	24	21	0	0	88

Models [c]

Default model (Default model)

Notes for Model (Default model)

Computation of degrees of freedom (Default model)

Number of distinct sample moments:	136
Number of distinct parameters to be estimated:	63
Degrees of freedom (136 - 63):	73

Result (Default model)

Minimum was achieved
Chi-square = 86.380
Degrees of freedom = 73
Probability level = .136

Group number 1 (Group number 1 - Default model)

Estimates (Group number 1 - Default model)

Scalar Estimates (Group number 1 - Default model)

Maximum Likelihood Estimates

Regression Weights: (Group number 1 - Default model)

	Estimate	S.E.	C.R.	P	Label
IENS <--- IENN	.244	.038	6.440	***	
SDSO <--- IENS	2.132	.282	7.565	***	
SDSO <--- IENN	-.175	.090	-1.950	.051	
SDM <--- IENS	-.271	.176	-1.546	.122	
CR <--- IENS	-.031	.016	-1.959	.050	
CR <--- IENN	.177	.065	2.720	.007	
SDM <--- IENN	-.036	.028	-1.297	.195	
X3 <--- IENS	1.000				
X2 <--- IENS	.355	.117	3.035	.002	
X1 <--- IENS	.157	.055	2.852	.004	
X6 <--- IENN	1.000				
X5 <--- IENN	1.678	.097	17.214	***	
X4 <--- IENN	1.201	.073	16.564	***	
Y1 <--- SDSO	1.000				
Y2 <--- SDSO	.699	.114	6.113	***	
Y3 <--- SDSO	.784	.111	7.088	***	
Y8 <--- SDM	1.000				
Y9 <--- SDM	-6.371	4.058	-1.570	.116	
Y10 <--- SDM	-2.967	1.900	-1.561	.118	
Y4 <--- CR	1.000				
Y5 <--- CR	4.979	1.797	2.771	.006	
Y6 <--- CR	.294	.224	1.309	.191	
Y7 <--- SDM	2.187	1.277	1.713	.087	

Standardized Regression Weights: (Group number 1 - Default model)

	Estimate
IENS <--- IENN	.649
SDSO <--- IENS	.901
SDSO <--- IENN	-.232
SDM <--- IENS	-.648
CR <--- IENS	-.066
CR <--- IENN	1.010
SDM <--- IENN	-.227
X3 <--- IENS	.707
X2 <--- IENS	.286
X1 <--- IENS	.246
X6 <--- IENN	.809
X5 <--- IENN	.985
X4 <--- IENN	.860
Y1 <--- SDSO	.922
Y2 <--- SDSO	.481
Y3 <--- SDSO	.545
Y8 <--- SDM	.331
Y9 <--- SDM	-.839
Y10 <--- SDM	-.671
Y4 <--- CR	.322
Y5 <--- CR	1.030
Y6 <--- CR	.301
Y7 <--- SDM	.394

Covariances: (Group number 1 - Default model)

	Estimate	S.E.	C.R.	P	Label
eY4 <--> eIENS	.048	.010	5.022	***	
eY8 <--> eY7	.151	.031	4.878	***	
eX6 <--> eX4	.064	.015	4.351	***	
eX1 <--> eY7	-.019	.005	-3.609	***	
eY2 <--> eY9	-.090	.025	-3.614	***	
eY10 <--> eY6	.041	.009	4.389	***	
eX1 <--> eX6	.014	.005	3.057	.002	
eY2 <--> eY8	.135	.036	3.732	***	
eY10 <--> eY7	.045	.013	3.560	***	
eY2 <--> eY7	.079	.024	3.332	***	
eX1 <--> eY6	.006	.003	2.001	.045	
eX4 <--> eY9	.085	.018	4.594	***	
eX2 <--> eY6	.019	.006	3.131	.002	

	Estimate	S.E.	C.R.	P	Label
eX3 <--> eY2	-.036	.012	-3.103	.002	
eX3 <--> eX1	-.008	.003	-3.005	.003	
eX6 <--> eY3	.043	.020	2.174	.030	
eX3 <--> eY8	-.033	.013	-2.481	.013	
eX2 <--> eIENS	.015	.005	3.170	.002	
eY2 <--> eY6	-.030	.014	-2.185	.029	
eX3 <--> eX4	.032	.008	4.064	***	
eX4 <--> eY4	.050	.014	3.634	***	
eX4 <--> eY10	.038	.012	3.252	.001	
eX4 <--> eY6	.030	.010	3.083	.002	
eY9 <--> eY6	.036	.014	2.682	.007	

Correlations: (Group number 1 - Default model)

	Estimate
eY4 <--> eIENS	.551
eY8 <--> eY7	.401
eX6 <--> eX4	.315
eX1 <--> eY7	-.259
eY2 <--> eY9	-.364
eY10 <--> eY6	.397
eX1 <--> eX6	.218
eY2 <--> eY8	.299
eY10 <--> eY7	.274
eY2 <--> eY7	.260
eX1 <--> eY6	.133
eX4 <--> eY9	.464
eX2 <--> eY6	.227
eX3 <--> eY2	-.255
eX3 <--> eX1	-.230
eX6 <--> eY3	.163
eX3 <--> eY8	-.185
eX2 <--> eIENS	.321
eY2 <--> eY6	-.153
eX3 <--> eX4	.303
eX4 <--> eY4	.228
eX4 <--> eY10	.265
eX4 <--> eY6	.212
eY9 <--> eY6	.279

Variances: (Group number 1 - Default model)

	Estimate	S.E.	C.R.	P	Label
IENN	.394	.063	6.282	***	
eIENS	.032	.008	4.136	***	
eSDSO	.033	.022	1.515	.130	
eCR	.001	.001	1.104	.270	
eSDM	.003	.004	.786	.432	
eX3	.056	.007	7.714	***	
eX2	.068	.008	8.051	***	
eX1	.021	.002	8.933	***	
eX6	.208	.023	8.909	***	
eX5	.034	.009	3.614	***	
eX4	.201	.022	9.146	***	
eY1	.040	.017	2.281	.023	
eY2	.367	.043	8.609	***	
eY3	.329	.039	8.473	***	
eY8	.561	.063	8.952	***	
eY9	.166	.037	4.507	***	
eY10	.105	.014	7.402	***	
eY4	.236	.026	9.039	***	
eY5	-.017	.018	-.965	.334	
eY6	.101	.011	9.080	***	
eY7	.254	.029	8.747	***	

Squared Multiple Correlations: (Group number 1 - Default model)

	Estimate
IENS	.422
CR	.939
SDM	.663
SDSO	.855
Y7	.155
Y6	.091
Y5	1.061
Y4	.104
Y10	.450
Y9	.704
Y8	.110
Y3	.297
Y2	.231
Y1	.850
X4	.739

	Estimate
X5	.970
X6	.655
X1	.061
X2	.206
X3	.499

Matrices (Group number 1 - Default model)

Total Effects (Group number 1 - Default model)

	IENN	IENS	CR	SDM	SDSO
IENS	.244	.000	.000	.000	.000
CR	.169	-.031	.000	.000	.000
SDM	-.102	-.271	.000	.000	.000
SDSO	.345	2.132	.000	.000	.000
Y7	-.223	-.594	.000	2.187	.000
Y6	.050	-.009	.294	.000	.000
Y5	.842	-.153	4.979	.000	.000
Y4	.169	-.031	1.000	.000	.000
Y10	.302	.805	.000	-2.967	.000
Y9	.649	1.729	.000	-6.371	.000
Y8	-.102	-.271	.000	1.000	.000
Y3	.270	1.670	.000	.000	.784
Y2	.241	1.489	.000	.000	.699
Y1	.345	2.132	.000	.000	1.000
X4	1.201	.000	.000	.000	.000
X5	1.678	.000	.000	.000	.000
X6	1.000	.000	.000	.000	.000
X1	.038	.157	.000	.000	.000
X2	.087	.355	.000	.000	.000
X3	.244	1.000	.000	.000	.000

Standardized Total Effects (Group number 1 - Default model)

	IENN	IENS	CR	SDM	SDSO
IENS	.649	.000	.000	.000	.000
CR	.967	-.066	.000	.000	.000
SDM	-.648	-.648	.000	.000	.000
SDSO	.455	0.908	.000	.000	.000
Y7	-.255	-.255	.000	.394	.000
Y6	.097	-.007	.301	.000	.000
Y5	.997	-.068	1.030	.000	.000
Y4	.214	-.015	.322	.000	.000

	IENN	IENS	CR	SDM	SDSO
Y10	.435	.435	.000	-.671	.000
Y9	.544	.544	.000	-.839	.000
Y8	-.085	-.085	.000	.331	.000
Y3	.248	.576	.000	.000	.545
Y2	.219	.509	.000	.000	.481
Y1	.420	.976	.000	.000	.922
X4	.860	.000	.000	.000	.000
X5	.985	.000	.000	.000	.000
X6	.809	.000	.000	.000	.000
X1	.160	.246	.000	.000	.000
X2	.185	.286	.000	.000	.000
X3	.459	.707	.000	.000	.000

Direct Effects (Group number 1 - Default model)

	IENN	IENS	CR	SDM	SDSO
IENS	.244	.000	.000	.000	.000
CR	.177	-.031	.000	.000	.000
SDM	-.036	-.271	.000	.000	.000
SDSO	-.175	2.132	.000	.000	.000
Y7	.000	.000	.000	2.187	.000
Y6	.000	.000	.294	.000	.000
Y5	.000	.000	4.979	.000	.000
Y4	.000	.000	1.000	.000	.000
Y10	.000	.000	.000	-2.967	.000
Y9	.000	.000	.000	-6.371	.000
Y8	.000	.000	.000	1.000	.000
Y3	.000	.000	.000	.000	.784
Y2	.000	.000	.000	.000	.699
Y1	.000	.000	.000	.000	1.000
X4	1.201	.000	.000	.000	.000
X5	1.678	.000	.000	.000	.000
X6	1.000	.000	.000	.000	.000
X1	.000	.157	.000	.000	.000
X2	.000	.355	.000	.000	.000
X3	.000	1.000	.000	.000	.000

Standardized Direct Effects (Group number 1 - Default model)

	IENN	IENS	CR	SDM	SDSO
IENS	.649	.000	.000	.000	.000
CR	1.010	-.066	.000	.000	.000
SDM	-.227	-.648	.000	.000	.000
SDSO	-.232	.901	.000	.000	.000
Y7	.000	.000	.000	.394	.000
Y6	.000	.000	.301	.000	.000
Y5	.000	.000	1.030	.000	.000
Y4	.000	.000	.322	.000	.000
Y10	.000	.000	.000	-.671	.000
Y9	.000	.000	.000	-.839	.000
Y8	.000	.000	.000	.331	.000
Y3	.000	.000	.000	.000	.545
Y2	.000	.000	.000	.000	.481
Y1	.000	.000	.000	.000	.922
X4	.860	.000	.000	.000	.000
X5	.985	.000	.000	.000	.000
X6	.809	.000	.000	.000	.000
X1	.000	.246	.000	.000	.000
X2	.000	.286	.000	.000	.000
X3	.000	.707	.000	.000	.000

Indirect Effects (Group number 1 - Default model)

	IENN	IENS	CR	SDM	SDSO
IENS	.000	.000	.000	.000	.000
CR	-.007	.000	.000	.000	.000
SDM	-.066	.000	.000	.000	.000
SDSO	.520	.000	.000	.000	.000
Y7	-.223	-.594	.000	.000	.000
Y6	.050	-.009	.000	.000	.000
Y5	.842	-.153	.000	.000	.000
Y4	.169	-.031	.000	.000	.000
Y10	.302	.805	.000	.000	.000
Y9	.649	1.729	.000	.000	.000
Y8	-.102	-.271	.000	.000	.000
Y3	.270	1.670	.000	.000	.000
Y2	.241	1.489	.000	.000	.000
Y1	.345	2.132	.000	.000	.000
X4	.000	.000	.000	.000	.000
X5	.000	.000	.000	.000	.000

	IENN	IENS	CR	SDM	SDSO
X6	.000	.000	.000	.000	.000
X1	.038	.000	.000	.000	.000
X2	.087	.000	.000	.000	.000
X3	.244	.000	.000	.000	.000

Standardized Indirect Effects (Group number 1 - Default model)

	IENN	IENS	CR	SDM	SDSO
IENS	.000	.000	.000	.000	.000
CR	-.043	.000	.000	.000	.000
SDM	-.421	.000	.000	.000	.000
SDSO	.687	.000	.000	.000	.000
Y7	-.255	-.255	.000	.000	.000
Y6	.097	-.007	.000	.000	.000
Y5	.997	-.068	.000	.000	.000
Y4	.214	-.015	.000	.000	.000
Y10	.435	.435	.000	.000	.000
Y9	.544	.544	.000	.000	.000
Y8	-.085	-.085	.000	.000	.000
Y3	.248	.576	.000	.000	.000
Y2	.219	.509	.000	.000	.000
Y1	.420	.976	.000	.000	.000
X4	.000	.000	.000	.000	.000
X5	.000	.000	.000	.000	.000
X6	.000	.000	.000	.000	.000
X1	.160	.000	.000	.000	.000
X2	.185	.000	.000	.000	.000
X3	.459	.000	.000	.000	.000

Model Fit Summary

CMIN

Model	NPAR	CMIN	DF	P	CMIN/DF
Default model	63	86.380	73	.136	1.183
Saturated model	136	.000	0		
Independence model	16	1694.836	120	.000	14.124

RMR, GFI

Model	RMR	GFI	AGFI	PGFI
Default model	.022	.939	.887	.504
Saturated model	.000	1.000		
Independence model	.158	.364	.279	.321

Baseline Comparisons

Model	NFI Delta1	RFI rho1	IFI Delta2	TLI rho2	CFI
Default model	.949	.916	.992	.986	.992
Saturated model	1.000		1.000		1.000
Independence model	.000	.000	.000	.000	.000

Parsimony-Adjusted Measures

Model	PRATIO	PNFI	PCFI
Default model	.608	.577	.603
Saturated model	.000	.000	.000
Independence model	1.000	.000	.000

NCP

Model	NCP	LO 90	HI 90
Default model	13.380	.000	40.796
Saturated model	.000	.000	.000
Independence model	1574.836	1445.478	1711.592

FMIN

Model	FMIN	F0	LO 90	HI 90
Default model	.543	.084	.000	.257
Saturated model	.000	.000	.000	.000
Independence model	10.659	9.905	9.091	10.765

RMSEA

Model	RMSEA	LO 90	HI 90	PCLOSE
Default model	.034	.000	.059	.833
Independence model	.287	.275	.300	.000

AIC

Model	AIC	BCC	BIC	CAIC
Default model	212.380	227.465	406.116	469.116
Saturated model	272.000	304.563	690.224	826.224
Independence model	1726.836	1730.667	1776.039	1792.039

ECVI

Model	ECVI	LO 90	HI 90	MECVI
Default model	1.336	1.252	1.508	1.431
Saturated model	1.711	1.711	1.711	1.915
Independence model	10.861	10.047	11.721	10.885

HOELTER

Model	HOELTER .05	HOELTER .01
Default model	173	192
Independence model	14	15

Execution time summary

Minimization:	.094
Miscellaneous:	.094
Bootstrap:	.000
Total:	.188

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Analysis Summary

Groups

Group number 1 (Group number 1)

Notes for Group (Group number 1)

The model is recursive.
Sample size = 160

Variable Summary (Group number 1)

Your model contains the following variables (Group number 1)

Observed, endogenous variables
X3
X2
X1
X6
X5
X4
Y1
Y2
Y3
Y8
Y9
Y10
Y4
Y5
Y6
Y7
Unobserved, endogenous variables
IENS
SDSO
SDM
CR
Unobserved, exogenous variables
eX3
eX2
eX1
IENN
eX6
eX5
eX4

eY1
eY2
eY3
eY8
eY9
eY10
eY4
eY5
eY6
eY7
eIENS
eSDSO
eCR
eSDM

Variable counts (Group number 1)

Number of variables in your model:	41
Number of observed variables:	16
Number of unobserved variables:	25
Number of exogenous variables:	21
Number of endogenous variables:	20

Parameter summary (Group number 1)

	Weights	Covariances	Variances	Means	Intercepts	Total
Fixed	25	0	0	0	0	25
Labeled	0	0	0	0	0	0
Unlabeled	18	21	21	0	0	60
Total	43	21	21	0	0	85

Models

Default model (Default model)

Notes for Model (Default model)

Computation of degrees of freedom (Default model)

Number of distinct sample moments:	136
Number of distinct parameters to be estimated:	60
Degrees of freedom (136 - 60):	76

Result (Default model)

Minimum was achieved
Chi-square = 77.734
Degrees of freedom = 76
Probability level = .423

Group number 1 (Group number 1 - Default model)

Estimates (Group number 1 - Default model)

Scalar Estimates (Group number 1 - Default model)

Maximum Likelihood Estimates

Regression Weights: (Group number 1 - Default model)

	Estimate	S.E.	C.R.	P	Label
IENS <--- IENN	.166	.027	6.114	***	
SDSO <--- IENS	1.734	.346	5.019	***	
SDSO <--- IENN	.051	.063	.819	.413	
SDM <--- IENS	.742	.356	2.084	.037	
CR <--- IENS	-.005	.015	-.332	.740	
CR <--- IENN	.092	.030	3.062	.002	
SDM <--- IENN	-.022	.029	-.761	.447	
X3 <--- IENS	1.000				
X2 <--- IENS	.819	.139	5.876	***	
X1 <--- IENS	.291	.123	2.374	.018	
X6 <--- IENN	1.000				
X5 <--- IENN	1.843	.145	12.742	***	
X4 <--- IENN	.313	.075	4.187	***	
Y1 <--- SDSO	1.000				
Y2 <--- SDSO	1.121	.165	6.792	***	
Y3 <--- SDSO	1.403	.164	8.539	***	
Y8 <--- SDM	1.000				
Y9 <--- SDM	5.925	2.640	2.245	.025	
Y10 <--- SDM	3.986	1.704	2.339	.019	
Y4 <--- CR	1.000				
Y5 <--- CR	7.818	2.488	3.142	.002	
Y6 <--- CR	.896	.507	1.769	.077	
Y7 <--- SDM	1.636	.707	2.316	.021	

Standardized Regression Weights: (Group number 1 - Default model)

	Estimate
IENS <--- IENN	.681
SDSO <--- IENS	.915
SDSO <--- IENN	.111
SDM <--- IENS	.978
CR <--- IENS	-.015
CR <--- IENN	1.093
SDM <--- IENN	-.121
X3 <--- IENS	.586
X2 <--- IENS	.545
X1 <--- IENS	.199
X6 <--- IENN	.725
X5 <--- IENN	.977
X4 <--- IENN	.292
Y1 <--- SDSO	.785
Y2 <--- SDSO	.533
Y3 <--- SDSO	.663
Y8 <--- SDM	.193
Y9 <--- SDM	.832
Y10 <--- SDM	.853
Y4 <--- CR	.225
Y5 <--- CR	.920
Y6 <--- CR	.185
Y7 <--- SDM	.392

Covariances: (Group number 1 - Default model)

	Estimate	S.E.	C.R.	P	Label
eX6 <--> eX4	.176	.036	4.847	***	
eX6 <--> eIENS	.037	.009	3.946	***	
eX4 <--> eIENS	.029	.009	3.363	***	
eX1 <--> eY7	-.025	.008	-2.989	.003	
eY8 <--> eY7	.086	.022	3.982	***	
eX2 <--> eY8	.038	.009	4.163	***	
eY1 <--> eY4	.017	.005	3.221	.001	
eY8 <--> eY10	.064	.018	3.575	***	
eX3 <--> eY5	-.004	.002	-2.285	.022	
eY8 <--> eY6	.032	.012	2.731	.006	
eY1 <--> eSDM	-.011	.006	-2.030	.042	
eX2 <--> eY3	.023	.008	2.861	.004	
eX3 <--> eY4	.013	.004	2.901	.004	

	Estimate	S.E.	C.R.	P	Label
eX4 <--> eY4	.023	.011	2.078	.038	
eY9 <--> eSDSO	.037	.012	3.085	.002	
eX4 <--> eY9	.060	.027	2.222	.026	
eX2 <--> eX1	.008	.003	2.218	.027	
eX1 <--> eY2	-.024	.010	-2.555	.011	
eX3 <--> eY2	-.027	.010	-2.655	.008	
eX5 <--> eY2	-.035	.012	-2.920	.003	
eX5 <--> eY6	-.018	.009	-1.994	.046	

Correlations: (Group number 1 - Default model)

	Estimate
eX6 <--> eX4	.411
eX6 <--> eIENS	.491
eX4 <--> eIENS	.355
eX1 <--> eY7	-.228
eY8 <--> eY7	.293
eX2 <--> eY8	.301
eY1 <--> eY4	.294
eY8 <--> eY10	.345
eX3 <--> eY5	-.108
eY8 <--> eY6	.191
eY1 <--> eSDM	-.876
eX2 <--> eY3	.234
eX3 <--> eY4	.233
eX4 <--> eY4	.141
eY9 <--> eSDSO	2.185
eX4 <--> eY9	.182
eX2 <--> eX1	.163
eX1 <--> eY2	-.192
eX3 <--> eY2	-.218
eX5 <--> eY2	-.242
eX5 <--> eY6	-.249

Variances: (Group number 1 - Default model)

	Estimate	S.E.	C.R.	P	Label
IENN	.439	.083	5.304	***	
eIENS	.014	.004	3.203	.001	
eSDSO	.001	.009	.137	.891	
eCR	-.001	.000	-1.591	.112	
eSDM	.003	.003	1.026	.305	

	Estimate	S.E.	C.R.	P	Label
eX3	.050	.006	8.330	***	
eX2	.042	.005	8.590	***	
eX1	.054	.006	8.916	***	
eX6	.395	.045	8.784	***	
eX5	.072	.035	2.018	.044	
eX4	.463	.052	8.978	***	
eY1	.059	.010	6.096	***	
eY2	.298	.034	8.752	***	
eY3	.236	.028	8.339	***	
eY8	.390	.043	9.124	***	
eY9	.235	.041	5.688	***	
eY10	.089	.018	4.947	***	
eY4	.058	.006	8.957	***	
eY5	.034	.016	2.102	.036	
eY6	.070	.008	8.880	***	
eY7	.222	.026	8.702	***	

Squared Multiple Correlations: (Group number 1 - Default model)

	Estimate
IENS	.463
CR	1.174
SDM	.810
SDSO	.987
Y7	.154
Y6	.034
Y5	.847
Y4	.051
Y10	.728
Y9	.692
Y8	.037
Y3	.440
Y2	.284
Y1	.616
X4	.085
X5	.954
X6	.526
X1	.040
X2	.297
X3	.343

Matrices (Group number 1 - Default model)

Total Effects (Group number 1 - Default model)

	IENN	IENS	CR	SDM	SDSO
IENS	.166	.000	.000	.000	.000
CR	.091	-.005	.000	.000	.000
SDM	.101	.742	.000	.000	.000
SDSO	.339	1.734	.000	.000	.000
Y7	.165	1.214	.000	1.636	.000
Y6	.082	-.005	.896	.000	.000
Y5	.712	-.040	7.818	.000	.000
Y4	.091	-.005	1.000	.000	.000
Y10	.403	2.958	.000	3.986	.000
Y9	.598	4.398	.000	5.925	.000
Y8	.101	.742	.000	1.000	.000
Y3	.476	2.434	.000	.000	1.403
Y2	.381	1.945	.000	.000	1.121
Y1	.339	1.734	.000	.000	1.000
X4	.313	.000	.000	.000	.000
X5	1.843	.000	.000	.000	.000
X6	1.000	.000	.000	.000	.000
X1	.048	.291	.000	.000	.000
X2	.136	.819	.000	.000	.000
X3	.166	1.000	.000	.000	.000

Standardized Total Effects (Group number 1 - Default model)

	IENN	IENS	CR	SDM	SDSO
IENS	.681	.000	.000	.000	.000
CR	1.083	-.015	.000	.000	.000
SDM	.545	.978	.000	.000	.000
SDSO	.734	.915	.000	.000	.000
Y7	.214	.383	.000	.392	.000
Y6	.200	-.003	.185	.000	.000
Y5	.997	-.014	.920	.000	.000
Y4	.244	-.003	.225	.000	.000
Y10	.465	.834	.000	.853	.000
Y9	.454	.814	.000	.832	.000
Y8	.105	.189	.000	.193	.000
Y3	.486	.607	.000	.000	.663
Y2	.391	.488	.000	.000	.533
Y1	.576	.718	.000	.000	.785
X4	.292	.000	.000	.000	.000

	IENN	IENS	CR	SDM	SDSO
X5	.977	.000	.000	.000	.000
X6	.725	.000	.000	.000	.000
X1	.136	.199	.000	.000	.000
X2	.371	.545	.000	.000	.000
X3	.399	.586	.000	.000	.000

Direct Effects (Group number 1 - Default model)

	IENN	IENS	CR	SDM	SDSO
IENS	.166	.000	.000	.000	.000
CR	.092	-.005	.000	.000	.000
SDM	-.022	.742	.000	.000	.000
SDSO	.051	1.734	.000	.000	.000
Y7	.000	.000	.000	1.636	.000
Y6	.000	.000	.896	.000	.000
Y5	.000	.000	7.818	.000	.000
Y4	.000	.000	1.000	.000	.000
Y10	.000	.000	.000	3.986	.000
Y9	.000	.000	.000	5.925	.000
Y8	.000	.000	.000	1.000	.000
Y3	.000	.000	.000	.000	1.403
Y2	.000	.000	.000	.000	1.121
Y1	.000	.000	.000	.000	1.000
X4	.313	.000	.000	.000	.000
X5	1.843	.000	.000	.000	.000
X6	1.000	.000	.000	.000	.000
X1	.000	.291	.000	.000	.000
X2	.000	.819	.000	.000	.000
X3	.000	1.000	.000	.000	.000

Standardized Direct Effects (Group number 1 - Default model)

	IENN	IENS	CR	SDM	SDSO
IENS	.681	.000	.000	.000	.000
CR	1.093	-.015	.000	.000	.000
SDM	-.121	.978	.000	.000	.000
SDSO	.111	.915	.000	.000	.000
Y7	.000	.000	.000	.392	.000
Y6	.000	.000	.185	.000	.000
Y5	.000	.000	.920	.000	.000
Y4	.000	.000	.225	.000	.000
Y10	.000	.000	.000	.853	.000

	IENN	IENS	CR	SDM	SDSO
Y9	.000	.000	.000	.832	.000
Y8	.000	.000	.000	.193	.000
Y3	.000	.000	.000	.000	.663
Y2	.000	.000	.000	.000	.533
Y1	.000	.000	.000	.000	.785
X4	.292	.000	.000	.000	.000
X5	.977	.000	.000	.000	.000
X6	.725	.000	.000	.000	.000
X1	.000	.199	.000	.000	.000
X2	.000	.545	.000	.000	.000
X3	.000	.586	.000	.000	.000

Indirect Effects (Group number 1 - Default model)

	IENN	IENS	CR	SDM	SDSO
IENS	.000	.000	.000	.000	.000
CR	-.001	.000	.000	.000	.000
SDM	.123	.000	.000	.000	.000
SDSO	.288	.000	.000	.000	.000
Y7	.165	1.214	.000	.000	.000
Y6	.082	-.005	.000	.000	.000
Y5	.712	-.040	.000	.000	.000
Y4	.091	-.005	.000	.000	.000
Y10	.403	2.958	.000	.000	.000
Y9	.598	4.398	.000	.000	.000
Y8	.101	.742	.000	.000	.000
Y3	.476	2.434	.000	.000	.000
Y2	.381	1.945	.000	.000	.000
Y1	.339	1.734	.000	.000	.000
X4	.000	.000	.000	.000	.000
X5	.000	.000	.000	.000	.000
X6	.000	.000	.000	.000	.000
X1	.048	.000	.000	.000	.000
X2	.136	.000	.000	.000	.000
X3	.166	.000	.000	.000	.000

Standardized Indirect Effects (Group number 1 - Default model)

	IENN	IENS	CR	SDM	SDSO
IENS	.000	.000	.000	.000	.000
CR	-.010	.000	.000	.000	.000
SDM	.666	.000	.000	.000	.000
SDSO	.623	.000	.000	.000	.000
Y7	.214	.383	.000	.000	.000
Y6	.200	-.003	.000	.000	.000
Y5	.997	-.014	.000	.000	.000
Y4	.244	-.003	.000	.000	.000
Y10	.465	.834	.000	.000	.000
Y9	.454	.814	.000	.000	.000
Y8	.105	.189	.000	.000	.000
Y3	.486	.607	.000	.000	.000
Y2	.391	.488	.000	.000	.000
Y1	.576	.718	.000	.000	.000
X4	.000	.000	.000	.000	.000
X5	.000	.000	.000	.000	.000
X6	.000	.000	.000	.000	.000
X1	.136	.000	.000	.000	.000
X2	.371	.000	.000	.000	.000
X3	.399	.000	.000	.000	.000

Model Fit Summary

CMIN

Model	NPAR	CMIN	DF	P	CMIN/DF
Default model	60	77.734	76	.423	1.023
Saturated model	136	.000	0		
Independence model	16	1426.876	120	.000	11.891

RMR, GFI

Model	RMR	GFI	AGFI	PGFI
Default model	.017	.945	.902	.528
Saturated model	.000	1.000		
Independence model	.156	.367	.283	.324

Baseline Comparisons

Model	NFI Delta1	RFI rho1	IFI Delta2	TLI rho2	CFI
Default model	.946	.914	.999	.998	.999
Saturated model	1.000		1.000		1.000
Independence model	.000	.000	.000	.000	.000

Parsimony-Adjusted Measures

Model	PRATIO	PNFI	PCFI
Default model	.633	.599	.632
Saturated model	.000	.000	.000
Independence model	1.000	.000	.000

NCP

Model	NCP	LO 90	HI 90
Default model	1.734	.000	26.767
Saturated model	.000	.000	.000
Independence model	1306.876	1188.919	1432.250

FMIN

Model	FMIN	F0	LO 90	HI 90
Default model	.489	.011	.000	.168
Saturated model	.000	.000	.000	.000
Independence model	8.974	8.219	7.477	9.008

RMSEA

Model	RMSEA	LO 90	HI 90	PCLOSE
Default model	.012	.000	.047	.968
Independence model	.262	.250	.274	.000

AIC

Model	AIC	BCC	BIC	CAIC
Default model	197.734	212.100	382.244	442.244
Saturated model	272.000	304.563	690.224	826.224
Independence model	1458.876	1462.707	1508.079	1524.079

ECVI

Model	ECVI	LO 90	HI 90	MECVI
Default model	1.244	1.233	1.401	1.334
Saturated model	1.711	1.711	1.711	1.915
Independence model	9.175	8.433	9.964	9.199

HOELTER

Model	HOELTER .05	HOELTER .01
Default model	200	221
Independence model	17	18

Execution time summary

Minimization:	.078
Miscellaneous:	.078
Bootstrap:	.000
Total:	.156

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Analysis Summary

Groups

Group number 1 (Group number 1)

Notes for Group (Group number 1)

The model is recursive.
Sample size = 96

Variable Summary (Group number 1)

Your model contains the following variables (Group number 1)

Observed, endogenous variables
X3
X2
X1
X6
X5
X4
Y1
Y2
Y3
Y8
Y9
Y10
Y4
Y5
Y6
Y7
Unobserved, endogenous variables
IENS
SDSO
SDM
CR
Unobserved, exogenous variables
eX3
eX2
eX1
IENN
eX6
eX5
eX4
eY1
eY2

eY3
eY8
eY9
eY10
eY4
eY5
eY6
eY7
eIENS
eSDSO
eCR
eSDM

Variable counts (Group number 1)

Number of variables in your model:	41
Number of observed variables:	16
Number of unobserved variables:	25
Number of exogenous variables:	21
Number of endogenous variables:	20

Parameter summary (Group number 1)

	Weights	Covariances	Variances	Means	Intercepts	Total
Fixed	25	0	0	0	0	25
Labeled	0	0	0	0	0	0
Unlabeled	18	18	21	0	0	57
Total	43	18	21	0	0	82

Models

Default model (Default model)

Notes for Model (Default model)

Computation of degrees of freedom (Default model)

Number of distinct sample moments:	136
Number of distinct parameters to be estimated:	57
Degrees of freedom (136 - 57):	79

Result (Default model)

Minimum was achieved
Chi-square = 78.109
Degrees of freedom = 79
Probability level = .507

Group number 1 (Group number 1 - Default model)

Estimates (Group number 1 - Default model)

Scalar Estimates (Group number 1 - Default model)

Maximum Likelihood Estimates

Regression Weights: (Group number 1 - Default model)

	Estimate	S.E.	C.R.	P	Label
IENS <--- IENN	1.098	.176	6.236	***	
SDSO <--- IENS	-.104	.111	-.939	.348	
SDSO <--- IENN	.405	.237	1.710	.087	
SDM <--- IENS	.100	.102	.981	.327	
CR <--- IENS	-.001	.003	-.443	.658	
CR <--- IENN	.095	.069	1.369	.171	
SDM <--- IENN	1.106	.236	4.691	***	
X3 <--- IENS	1.000				
X2 <--- IENS	-.081	.083	-.980	.327	
X1 <--- IENS	.158	.133	1.187	.235	
X6 <--- IENN	1.000				
X5 <--- IENN	1.128	.194	5.820	***	
X4 <--- IENN	1.098	.167	6.590	***	
Y1 <--- SDSO	1.000				
Y2 <--- SDSO	.360	.103	3.502	***	
Y3 <--- SDSO	.432	.108	4.003	***	
Y8 <--- SDM	1.000				
Y9 <--- SDM	-.954	.176	-5.434	***	
Y10 <--- SDM	-1.100	.167	-6.572	***	
Y4 <--- CR	1.000				
Y5 <--- CR	9.924	7.482	1.326	.185	
Y6 <--- CR	-13.918	10.430	-1.334	.182	
Y7 <--- SDM	.340	.111	3.055	.002	

Standardized Regression Weights: (Group number 1 - Default model)

	Estimate
IENS <--- IENN	.509
SDSO <--- IENS	-.217
SDSO <--- IENN	.393
SDM <--- IENS	.198
CR <--- IENS	-.026
CR <--- IENN	.789
SDM <--- IENN	1.019

			Estimate
X3	<---	IENS	1.717
X2	<---	IENS	-.198
X1	<---	IENS	.253
X6	<---	IENN	.642
X5	<---	IENN	.563
X4	<---	IENN	.648
Y1	<---	SDSO	.507
Y2	<---	SDSO	.499
Y3	<---	SDSO	.626
Y8	<---	SDM	.748
Y9	<---	SDM	-.728
Y10	<---	SDM	-.714
Y4	<---	CR	.127
Y5	<---	CR	.687
Y6	<---	CR	-.832
Y7	<---	SDM	.320

Covariances: (Group number 1 - Default model)

			Estimate	S.E.	C.R.	P	Label
eSDSO	<-->	eSDM	.174	.049	3.558	***	
eX5	<-->	eY5	.228	.053	4.258	***	
eX1	<-->	eY9	-.098	.028	-3.459	***	
eX1	<-->	eY4	-.068	.022	-3.091	.002	
eX5	<-->	eX4	.237	.050	4.776	***	
eY6	<-->	eSDSO	.241	.067	3.616	***	
eY8	<-->	eY9	.119	.029	4.132	***	
eX5	<-->	eY7	-.068	.031	-2.175	.030	
eY3	<-->	eY7	.039	.015	2.644	.008	
eX1	<-->	eY7	-.056	.025	-2.267	.023	
eX2	<-->	IENN	.101	.034	2.924	.003	
eX2	<-->	eSDM	.074	.019	3.820	***	
eX2	<-->	eY2	.024	.012	1.920	.055	
eX6	<-->	eY4	.064	.023	2.796	.005	
eX4	<-->	eY5	.112	.039	2.879	.004	
eX4	<-->	eY1	.128	.050	2.542	.011	
eX1	<-->	eY10	-.069	.031	-2.266	.023	
eY5	<-->	eSDSO	-.109	.044	-2.461	.014	

Correlations: (Group number 1 - Default model)

			Estimate
eSDSO	<-->	eSDM	2.120
eX5	<-->	eY5	.501
eX1	<-->	eY9	-.356
eX1	<-->	eY4	-.256
eX5	<-->	eX4	.510
eY6	<-->	eSDSO	1.022
eY8	<-->	eY9	.585
eX5	<-->	eY7	-.172
eY3	<-->	eY7	.296
eX1	<-->	eY7	-.179
eX2	<-->	IENN	.507
eX2	<-->	eSDM	.954
eX2	<-->	eY2	.185
eX6	<-->	eY4	.261
eX4	<-->	eY5	.316
eX4	<-->	eY1	.259
eX1	<-->	eY10	-.208
eY5	<-->	eSDSO	-.409

Variances: (Group number 1 - Default model)

	Estimate	S.E.	C.R.	P	Label
IENN	.218	.061	3.544	***	
eIENS	.751	.719	1.044	.296	
eSDSO	.205	.086	2.377	.017	
eCR	.001	.002	.666	.505	
eSDM	.033	.032	1.041	.298	
eX3	-.670	.711	-.942	.346	
eX2	.181	.030	5.942	***	
eX1	.370	.054	6.910	***	
eX6	.310	.044	6.986	***	
eX5	.596	.081	7.331	***	
eX4	.362	.051	7.150	***	
eY1	.669	.111	6.045	***	
eY2	.090	.015	6.125	***	
eY3	.067	.013	5.185	***	
eY8	.202	.039	5.129	***	
eY9	.207	.039	5.325	***	
eY10	.298	.049	6.111	***	
eY4	.191	.028	6.932	***	

	Estimate	S.E.	C.R.	P	Label
eY5	.347	.062	5.569	***	
eY6	.271	.078	3.490	***	
eY7	.261	.038	6.903	***	

Squared Multiple Correlations: (Group number 1 - Default model)

	Estimate
IENS	.259
CR	.602
SDM	.872
SDSO	.115
Y7	.102
Y6	.692
Y5	.472
Y4	.016
Y10	.510
Y9	.531
Y8	.560
Y3	.392
Y2	.249
Y1	.257
X4	.420
X5	.317
X6	.412
X1	.064
X2	-.066
X3	2.948

Matrices (Group number 1 - Default model)

Total Effects (Group number 1 - Default model)

	IENN	IENS	CR	SDM	SDSO
IENS	1.098	.000	.000	.000	.000
CR	.093	-.001	.000	.000	.000
SDM	1.215	.100	.000	.000	.000
SDSO	.291	-.104	.000	.000	.000
Y7	-.339	.034	.000	.340	.000
Y6	-1.296	.020	-13.918	.000	.000
Y5	.924	-.015	9.924	.000	.000
Y4	.093	-.001	1.000	.000	.000
Y10	1.097	-.110	.000	-1.100	.000
Y9	.951	-.095	.000	-.954	.000

	IENN	IENS	CR	SDM	SDSO
Y8	-.997	.100	.000	1.000	.000
Y3	.126	-.045	.000	.000	.432
Y2	.105	-.037	.000	.000	.360
Y1	.291	-.104	.000	.000	1.000
X4	1.098	.000	.000	.000	.000
X5	1.128	.000	.000	.000	.000
X6	1.000	.000	.000	.000	.000
X1	.174	.158	.000	.000	.000
X2	-.089	-.081	.000	.000	.000
X3	1.098	1.000	.000	.000	.000

Standardized Total Effects (Group number 1 - Default model)

	IENN	IENS	CR	SDM	SDSO
IENS	.509	.000	.000	.000	.000
CR	.775	-.026	.000	.000	.000
SDM	1.120	.198	.000	.000	.000
SDSO	.283	-.217	.000	.000	.000
Y7	-.294	.063	.000	.320	.000
Y6	-.645	.022	-.832	.000	.000
Y5	.532	-.018	.687	.000	.000
Y4	.099	-.003	.127	.000	.000
Y10	.656	-.141	.000	-.714	.000
Y9	.669	-.144	.000	-.728	.000
Y8	-.687	.148	.000	.748	.000
Y3	.177	-.136	.000	.000	.626
Y2	.141	-.108	.000	.000	.499
Y1	.143	-.110	.000	.000	.507
X4	.648	.000	.000	.000	.000
X5	.563	.000	.000	.000	.000
X6	.642	.000	.000	.000	.000
X1	.129	.253	.000	.000	.000
X2	-.101	-.198	.000	.000	.000
X3	.874	1.717	.000	.000	.000

Direct Effects (Group number 1 - Default model)

	IENN	IENS	CR	SDM	SDSO
IENS	1.098	.000	.000	.000	.000
CR	.095	-.001	.000	.000	.000
SDM	1.106	.100	.000	.000	.000
SDSO	.405	-.104	.000	.000	.000

	IENN	IENS	CR	SDM	SDSO
Y7	.000	.000	.000	.340	.000
Y6	.000	.000	-13.918	.000	.000
Y5	.000	.000	9.924	.000	.000
Y4	.000	.000	1.000	.000	.000
Y10	.000	.000	.000	-1.100	.000
Y9	.000	.000	.000	-.954	.000
Y8	.000	.000	.000	1.000	.000
Y3	.000	.000	.000	.000	.432
Y2	.000	.000	.000	.000	.360
Y1	.000	.000	.000	.000	1.000
X4	1.098	.000	.000	.000	.000
X5	1.128	.000	.000	.000	.000
X6	1.000	.000	.000	.000	.000
X1	.000	.158	.000	.000	.000
X2	.000	-.081	.000	.000	.000
X3	.000	1.000	.000	.000	.000

Standardized Direct Effects (Group number 1 - Default model)

	IENN	IENS	CR	SDM	SDSO
IENS	.509	.000	.000	.000	.000
CR	.789	-.026	.000	.000	.000
SDM	1.019	.198	.000	.000	.000
SDSO	.393	-.217	.000	.000	.000
Y7	.000	.000	.000	.320	.000
Y6	.000	.000	-.832	.000	.000
Y5	.000	.000	.687	.000	.000
Y4	.000	.000	.127	.000	.000
Y10	.000	.000	.000	-.714	.000
Y9	.000	.000	.000	-.728	.000
Y8	.000	.000	.000	.748	.000
Y3	.000	.000	.000	.000	.626
Y2	.000	.000	.000	.000	.499
Y1	.000	.000	.000	.000	.507
X4	.648	.000	.000	.000	.000
X5	.563	.000	.000	.000	.000
X6	.642	.000	.000	.000	.000
X1	.000	.253	.000	.000	.000
X2	.000	-.198	.000	.000	.000
X3	.000	1.717	.000	.000	.000

Indirect Effects (Group number 1 - Default model)

	IENN	IENS	CR	SDM	SDSO
IENS	.000	.000	.000	.000	.000
CR	-.002	.000	.000	.000	.000
SDM	.109	.000	.000	.000	.000
SDSO	-.114	.000	.000	.000	.000
Y7	-.339	.034	.000	.000	.000
Y6	-1.296	.020	.000	.000	.000
Y5	.924	-.015	.000	.000	.000
Y4	.093	-.001	.000	.000	.000
Y10	1.097	-.110	.000	.000	.000
Y9	.951	-.095	.000	.000	.000
Y8	-.997	.100	.000	.000	.000
Y3	.126	-.045	.000	.000	.000
Y2	.105	-.037	.000	.000	.000
Y1	.291	-.104	.000	.000	.000
X4	.000	.000	.000	.000	.000
X5	.000	.000	.000	.000	.000
X6	.000	.000	.000	.000	.000
X1	.174	.000	.000	.000	.000
X2	-.089	.000	.000	.000	.000
X3	1.098	.000	.000	.000	.000

Standardized Indirect Effects (Group number 1 - Default model)

	IENN	IENS	CR	SDM	SDSO
IENS	.000	.000	.000	.000	.000
CR	-.013	.000	.000	.000	.000
SDM	.101	.000	.000	.000	.000
SDSO	-.111	.000	.000	.000	.000
Y7	-.294	.063	.000	.000	.000
Y6	-.645	.022	.000	.000	.000
Y5	.532	-.018	.000	.000	.000
Y4	.099	-.003	.000	.000	.000
Y10	.656	-.141	.000	.000	.000
Y9	.669	-.144	.000	.000	.000
Y8	-.687	.148	.000	.000	.000
Y3	.177	-.136	.000	.000	.000
Y2	.141	-.108	.000	.000	.000
Y1	.143	-.110	.000	.000	.000
X4	.000	.000	.000	.000	.000
X5	.000	.000	.000	.000	.000

	IENN	IENS	CR	SDM	SDSO
X6	.000	.000	.000	.000	.000
X1	.129	.000	.000	.000	.000
X2	-.101	.000	.000	.000	.000
X3	.874	.000	.000	.000	.000

Model Fit Summary

CMIN

Model	NPAR	CMIN	DF	P	CMIN/DF
Default model	57	78.109	79	.507	.989
Saturated model	136	.000	0		
Independence model	16	677.799	120	.000	5.648

RMR, GFI

Model	RMR	GFI	AGFI	PGFI
Default model	.033	.911	.847	.529
Saturated model	.000	1.000		
Independence model	.154	.434	.358	.383

Baseline Comparisons

Model	NFI Delta1	RFI rho1	IFI Delta2	TLI rho2	CFI
Default model	.885	.825	1.001	1.002	1.000
Saturated model	1.000		1.000		1.000
Independence model	.000	.000	.000	.000	.000

Parsimony-Adjusted Measures

Model	PRATIO	PNFI	PCFI
Default model	.658	.582	.658
Saturated model	.000	.000	.000
Independence model	1.000	.000	.000

NCP

Model	NCP	LO 90	HI 90
Default model	.000	.000	23.879
Saturated model	.000	.000	.000
Independence model	557.799	479.743	643.357

FMIN

Model	FMIN	F0	LO 90	HI 90
Default model	.822	.000	.000	.251
Saturated model	.000	.000	.000	.000
Independence model	7.135	5.872	5.050	6.772

RMSEA

Model	RMSEA	LO 90	HI 90	PCLOSE
Default model	.000	.000	.056	.908
Independence model	.221	.205	.238	.000

AIC

Model	AIC	BCC	BIC	CAIC
Default model	192.109	216.955	338.277	395.277
Saturated model	272.000	331.282	620.751	756.751
Independence model	709.799	716.773	750.828	766.828

ECVI

Model	ECVI	LO 90	HI 90	MECVI
Default model	2.022	2.032	2.283	2.284
Saturated model	2.863	2.863	2.863	3.487
Independence model	7.472	6.650	8.372	7.545

HOELTER

Model	HOELTER .05	HOELTER .01
Default model	123	136
Independence model	21	23

Execution time summary

Minimization:	.047
Miscellaneous:	.078
Bootstrap:	.000
Total:	.125

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Analysis Summary

Groups

Group number 1 (Group number 1)

Notes for Group (Group number 1)

The model is recursive.
Sample size = 96

Variable Summary (Group number 1)

Your model contains the following variables (Group number 1)

Observed, endogenous variables
X3
X2
X1
X6
X5
X4
Y1
Y2
Y3
Y8
Y9
Y10
Y4
Y5
Y6
Y7
Unobserved, endogenous variables
IENS
SDSO
SDM
CR
Unobserved, exogenous variables
eX3
eX2
eX1
IENN
eX6
eX5
eX4
eY1
eY2

eY3
eY8
eY9
eY10
eY4
eY5
eY6
eY7
eIENS
eSDSO
eCR
eSDM

Variable counts (Group number 1)

Number of variables in your model:	41
Number of observed variables:	16
Number of unobserved variables:	25
Number of exogenous variables:	21
Number of endogenous variables:	20

Parameter summary (Group number 1)

	Weights	Covariances	Variances	Means	Intercepts	Total
Fixed	25	0	0	0	0	25
Labeled	0	0	0	0	0	0
Unlabeled	18	16	21	0	0	55
Total	43	16	21	0	0	80

Models

Default model (Default model)

Notes for Model (Default model)

Computation of degrees of freedom (Default model)

Number of distinct sample moments:	136
Number of distinct parameters to be estimated:	55
Degrees of freedom (136 - 55):	81

Result (Default model)

Minimum was achieved
Chi-square = 99.215
Degrees of freedom = 81
Probability level = .083

Group number 1 (Group number 1 - Default model)

Estimates (Group number 1 - Default model)

Scalar Estimates (Group number 1 - Default model)

Maximum Likelihood Estimates

Regression Weights: (Group number 1 - Default model)

	Estimate	S.E.	C.R.	P	Label
IENS <--- IENN	.801	.139	5.768	***	
SDSO <--- IENS	-.016	.059	-.278	.781	
SDSO <--- IENN	.666	.100	6.632	***	
SDM <--- IENS	.050	.071	.702	.482	
CR <--- IENS	-.008	.020	-.395	.693	
CR <--- IENN	-.020	.049	-.398	.691	
SDM <--- IENN	.955	.173	5.530	***	
X3 <--- IENS	1.000				
X2 <--- IENS	-.040	.065	-.616	.538	
X1 <--- IENS	.592	.111	5.340	***	
X6 <--- IENN	1.000				
X5 <--- IENN	1.457	.208	7.004	***	
X4 <--- IENN	1.301	.185	7.025	***	
Y1 <--- SDSO	1.000				
Y2 <--- SDSO	.006	.080	.078	.938	
Y3 <--- SDSO	.666	.223	2.988	.003	
Y8 <--- SDM	1.000				
Y9 <--- SDM	-.989	.206	-4.806	***	
Y10 <--- SDM	-1.234	.211	-5.844	***	
Y4 <--- CR	1.000				
Y5 <--- CR	-21.169	52.955	-.400	.689	
Y6 <--- CR	48.330	120.905	.400	.689	
Y7 <--- SDM	.354	.120	2.955	.003	

Standardized Regression Weights: (Group number 1 - Default model)

	Estimate
IENS <--- IENN	.594
SDSO <--- IENS	-.022
SDSO <--- IENN	.644
SDM <--- IENS	.076
CR <--- IENS	-.273
CR <--- IENN	-.501
SDM <--- IENN	1.090

			Estimate
X3	<---	IENS	1.077
X2	<---	IENS	-.063
X1	<---	IENS	.604
X6	<---	IENN	.687
X5	<---	IENN	.746
X4	<---	IENN	.798
Y1	<---	SDSO	1.046
Y2	<---	SDSO	.007
Y3	<---	SDSO	.451
Y8	<---	SDM	.631
Y9	<---	SDM	-.610
Y10	<---	SDM	-.666
Y4	<---	CR	.040
Y5	<---	CR	-.598
Y6	<---	CR	.984
Y7	<---	SDM	.275

Covariances: (Group number 1 - Default model)

	Estimate	S.E.	C.R.	P	Label
eX6 <--> eY3	.201	.039	5.132	***	
eY9 <--> eY10	.108	.051	2.108	.035	
eY2 <--> eSDM	.048	.016	2.956	.003	
eX2 <--> IENN	.084	.028	3.065	.002	
eX4 <--> eY3	.128	.034	3.730	***	
eX2 <--> eY8	.064	.020	3.196	.001	
eX4 <--> eY10	-.149	.037	-3.971	***	
eX4 <--> eY6	.113	.033	3.364	***	
eX6 <--> eY1	.060	.021	2.847	.004	
eY2 <--> eY3	.056	.024	2.326	.020	
eY7 <--> eIENS	.063	.024	2.647	.008	
eY8 <--> eY7	.063	.026	2.402	.016	
eY4 <--> eY7	.060	.024	2.488	.013	
eX4 <--> eY9	-.119	.034	-3.512	***	
eY8 <--> eY9	.077	.030	2.561	.010	
eY2 <--> eCR	.002	.005	.396	.692	

Correlations: (Group number 1 - Default model)

		Estimate
eX6	<--> eY3	.602
eY9	<--> eY10	.342
eX2	<--> IENN	.416
eX4	<--> eY3	.411
eX2	<--> eY8	.295
eX4	<--> eY10	-.538
eX4	<--> eY6	1.439
eY2	<--> eY3	.194
eY7	<--> eIENS	.232
eY8	<--> eY7	.234
eY4	<--> eY7	.245
eX4	<--> eY9	-.467
eY8	<--> eY9	.275
eY2	<--> eCR	.307

Variances: (Group number 1 - Default model)

	Estimate	S.E.	C.R.	P	Label
IENN	.232	.062	3.760	***	
eIENS	.273	.066	4.145	***	
eSDSO	.149	.066	2.263	.024	
eCR	.000	.001	.200	.841	
eSDM	-.017	.030	-.571	.568	
eX3	-.058	.054	-1.082	.279	
eX2	.177	.027	6.494	***	
eX1	.257	.042	6.180	***	
eX6	.260	.039	6.590	***	
eX5	.393	.059	6.599	***	
eX4	.224	.044	5.065	***	
eY1	-.021	.064	-.332	.740	
eY2	.191	.027	6.953	***	
eY3	.431	.065	6.591	***	
eY8	.269	.044	6.137	***	
eY9	.293	.053	5.498	***	
eY10	.341	.062	5.491	***	
eY4	.225	.033	6.892	***	
eY5	.287	.046	6.252	***	
eY6	.027	.114	.240	.810	
eY7	.271	.039	6.983	***	

Squared Multiple Correlations: (Group number 1 - Default model)

	Estimate
IENS	.353
CR	.488
SDM	1.096
SDSO	.399
Y7	.083
Y6	.968
Y5	.358
Y4	.002
Y10	.443
Y9	.373
Y8	.399
Y3	.203
Y2	.000
Y1	1.094
X4	.637
X5	.556
X6	.471
X1	.365
X2	-.027
X3	1.160

Matrices (Group number 1 - Default model)

Total Effects (Group number 1 - Default model)

	IENN	IENS	CR	SDM	SDSO
IENS	.801	.000	.000	.000	.000
CR	-.026	-.008	.000	.000	.000
SDM	.995	.050	.000	.000	.000
SDSO	.652	-.016	.000	.000	.000
Y7	-.324	.018	.000	.354	.000
Y6	-1.256	-.384	48.330	.000	.000
Y5	.550	.168	-21.169	.000	.000
Y4	-.026	-.008	1.000	.000	.000
Y10	1.130	-.061	.000	-1.234	.000
Y9	.905	-.049	.000	-.989	.000
Y8	-.916	.050	.000	1.000	.000
Y3	.435	-.011	.000	.000	.666
Y2	.004	.000	.000	.000	.006
Y1	.652	-.016	.000	.000	1.000
X4	1.301	.000	.000	.000	.000

	IENN	IENS	CR	SDM	SDSO
X5	1.457	.000	.000	.000	.000
X6	1.000	.000	.000	.000	.000
X1	.474	.592	.000	.000	.000
X2	-.032	-.040	.000	.000	.000
X3	.801	1.000	.000	.000	.000

Standardized Total Effects (Group number 1 - Default model)

	IENN	IENS	CR	SDM	SDSO
IENS	.594	.000	.000	.000	.000
CR	-.663	-.273	.000	.000	.000
SDM	1.135	.076	.000	.000	.000
SDSO	.631	-.022	.000	.000	.000
Y7	-.287	.021	.000	.275	.000
Y6	-.652	-.269	.984	.000	.000
Y5	.396	.163	-.598	.000	.000
Y4	-.026	-.011	.040	.000	.000
Y10	.696	-.051	.000	-.666	.000
Y9	.638	-.047	.000	-.610	.000
Y8	-.660	.048	.000	.631	.000
Y3	.285	-.010	.000	.000	.451
Y2	.004	.000	.000	.000	.007
Y1	.660	-.023	.000	.000	1.046
X4	.798	.000	.000	.000	.000
X5	.746	.000	.000	.000	.000
X6	.687	.000	.000	.000	.000
X1	.359	.604	.000	.000	.000
X2	-.037	-.063	.000	.000	.000
X3	.639	1.077	.000	.000	.000

Direct Effects (Group number 1 - Default model)

	IENN	IENS	CR	SDM	SDSO
IENS	.801	.000	.000	.000	.000
CR	-.020	-.008	.000	.000	.000
SDM	.955	.050	.000	.000	.000
SDSO	.666	-.016	.000	.000	.000
Y7	.000	.000	.000	.354	.000
Y6	.000	.000	48.330	.000	.000
Y5	.000	.000	-21.169	.000	.000
Y4	.000	.000	1.000	.000	.000
Y10	.000	.000	.000	-1.234	.000

	IENN	IENS	CR	SDM	SDSO
Y9	.000	.000	.000	-.989	.000
Y8	.000	.000	.000	1.000	.000
Y3	.000	.000	.000	.000	.666
Y2	.000	.000	.000	.000	.006
Y1	.000	.000	.000	.000	1.000
X4	1.301	.000	.000	.000	.000
X5	1.457	.000	.000	.000	.000
X6	1.000	.000	.000	.000	.000
X1	.000	.592	.000	.000	.000
X2	.000	-.040	.000	.000	.000
X3	.000	1.000	.000	.000	.000

Standardized Direct Effects (Group number 1 - Default model)

	IENN	IENS	CR	SDM	SDSO
IENS	.594	.000	.000	.000	.000
CR	-.501	-.273	.000	.000	.000
SDM	1.090	.076	.000	.000	.000
SDSO	.644	-.022	.000	.000	.000
Y7	.000	.000	.000	.275	.000
Y6	.000	.000	.984	.000	.000
Y5	.000	.000	-.598	.000	.000
Y4	.000	.000	.040	.000	.000
Y10	.000	.000	.000	-.666	.000
Y9	.000	.000	.000	-.610	.000
Y8	.000	.000	.000	.631	.000
Y3	.000	.000	.000	.000	.451
Y2	.000	.000	.000	.000	.007
Y1	.000	.000	.000	.000	1.046
X4	.798	.000	.000	.000	.000
X5	.746	.000	.000	.000	.000
X6	.687	.000	.000	.000	.000
X1	.000	.604	.000	.000	.000
X2	.000	-.063	.000	.000	.000
X3	.000	1.077	.000	.000	.000

Indirect Effects (Group number 1 - Default model)

	IENN	IENS	CR	SDM	SDSO
IENS	.000	.000	.000	.000	.000
CR	-.006	.000	.000	.000	.000
SDM	.040	.000	.000	.000	.000
SDSO	-.013	.000	.000	.000	.000
Y7	-.324	.018	.000	.000	.000
Y6	-1.256	-.384	.000	.000	.000
Y5	.550	.168	.000	.000	.000
Y4	-.026	-.008	.000	.000	.000
Y10	1.130	-.061	.000	.000	.000
Y9	.905	-.049	.000	.000	.000
Y8	-.916	.050	.000	.000	.000
Y3	.435	-.011	.000	.000	.000
Y2	.004	.000	.000	.000	.000
Y1	.652	-.016	.000	.000	.000
X4	.000	.000	.000	.000	.000
X5	.000	.000	.000	.000	.000
X6	.000	.000	.000	.000	.000
X1	.474	.000	.000	.000	.000
X2	-.032	.000	.000	.000	.000
X3	.801	.000	.000	.000	.000

Standardized Indirect Effects (Group number 1 - Default model)

	IENN	IENS	CR	SDM	SDSO
IENS	.000	.000	.000	.000	.000
CR	-.162	.000	.000	.000	.000
SDM	.045	.000	.000	.000	.000
SDSO	-.013	.000	.000	.000	.000
Y7	-.287	.021	.000	.000	.000
Y6	-.652	-.269	.000	.000	.000
Y5	.396	.163	.000	.000	.000
Y4	-.026	-.011	.000	.000	.000
Y10	.696	-.051	.000	.000	.000
Y9	.638	-.047	.000	.000	.000
Y8	-.660	.048	.000	.000	.000
Y3	.285	-.010	.000	.000	.000
Y2	.004	.000	.000	.000	.000
Y1	.660	-.023	.000	.000	.000
X4	.000	.000	.000	.000	.000
X5	.000	.000	.000	.000	.000

	IENN	IENS	CR	SDM	SDSO
X6	.000	.000	.000	.000	.000
Xi	.359	.000	.000	.000	.000
X2	-.037	.000	.000	.000	.000
X3	.639	.000	.000	.000	.000

Model Fit Summary

CMIN

Model	NPAR	CMIN	DF	P	CMIN/DF
Default model	55	99.215	81	.083	1.225
Saturated model	136	.000	0		
Independence model	16	724.071	120	.000	6.034

RMR, GFI

Model	RMR	GFI	AGFI	PGFI
Default model	.028	.894	.822	.533
Saturated model	.000	1.000		
Independence model	.160	.384	.301	.339

Baseline Comparisons

Model	NFI Delta1	RFI rho1	IFI Delta2	TLI rho2	CFI
Default model	.863	.797	.972	.955	.970
Saturated model	1.000		1.000		1.000
Independence model	.000	.000	.000	.000	.000

Parsimony-Adjusted Measures

Model	PRATIO	PNFI	PCFI
Default model	.675	.583	.655
Saturated model	.000	.000	.000
Independence model	1.000	.000	.000

NCP

Model	NCP	LO 90	HI 90
Default model	18.215	.000	47.579
Saturated model	.000	.000	.000
Independence model	604.071	523.004	692.631

FMIN

Model	FMIN	F0	LO 90	HI 90
Default model	1.044	.192	.000	.501
Saturated model	.000	.000	.000	.000
Independence model	7.622	6.359	5.505	7.291

RMSEA

Model	RMSEA	LO 90	HI 90	PCLOSE
Default model	.049	.000	.079	.506
Independence model	.230	.214	.246	.000

AIC

Model	AIC	BCC	BIC	CAIC
Default model	209.215	233.189	350.254	405.254
Saturated model	272.000	331.282	620.751	756.751
Independence model	756.071	763.045	797.100	813.100

ECVI

Model	ECVI	LO 90	HI 90	MECVI
Default model	2.202	2.011	2.511	2.455
Saturated model	2.863	2.863	2.863	3.487
Independence model	7.959	7.105	8.891	8.032

HOELTER

Model	HOELTER .05	HOELTER .01
Default model	99	109
Independence model	20	21

Execution time summary

Minimization:	.094
Miscellaneous:	.046
Bootstrap:	.000
Total:	.140

BIOGRAPHY

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