CHAPTER 3

RESEARCH METHODOLOGY

This study used quantitative analysis from structural equations model (SEM) through LISREL program to analyze influence of each factor on juvenile violent crimes in today society. Questionnaires were distributed to juveniles detained in various Juvenile Observation and Protection Centers. In addition, qualitative analysis was used by collecting data from two groups of concerned officials - judges of Juvenile and Family Courts, and probation officials, through in-depth interviews. Data was analyzed from the beginning of conversation with judges of Juvenile and Family Courts, and probation officers, both administrative and operative levels, until the end of research. Thus, this research used mixed alternative methodology.

3.1 Research Design

Target population of this research is juveniles detained in Juvenile Observation and Protection Centers who have committed criminal offences, in the category of violent crimes. In addition, studies were conducted using relevant academic documents including dissertations, Thai and English research reports, textbooks, academic articles and journals, related Thai and English documents, as well as in-depth interviews of persons involved with criminal justice process namely judges of Juvenile and Family Courts and probation officials.

3.1.1 Quantitative Research

The researcher collected data from juveniles detained in Juvenile Observation and Protection Centers, Department of Juvenile Observation and Protection, who was detained according to court order for committing violent crimes and judgment was made by the Court of First Instance, through the use of questionnaires and secondary data analysis collected by Juvenile Observation and Protection Centers.

3.1.2 Qualitative research

The researcher collected data from interviews with judges of Juvenile and Family Court, and probation officials, both administrative and operative levels, only the sections that involve juvenile violent crimes, as well as families of those juveniles. Research was conducted through documentary research and in-depth interviews which choose methods to suit each target population in order to obtain the most correct data. In addition, in case interviewees gave further information which was related to the research conducted, the researcher would take a separate note in order to use the information for other relevant parts.

3.2 Data Collection

The researcher collected data only from juveniles who had committed severe violence by considering from accused offences. Punishment of such accusation must be above 10 years of imprisonment, which is called “violent crime” in this study. (Data was not collected from juveniles committing other delinquencies which were not violent crimes such as fighting, libel, and car accident by negligence, etc.)

Juveniles selected for the study must have committed violent crimes which have been classified into five types and 14 offences.

1) Assets
   (1) Robbery
   (2) Gang-robbery
   (3) Blackmail
2) Life and Body
   (1) Murder/Malicious killing
   (2) Manslaughter
   (3) Attempt murder
3) Sexuality
   (1) Indecent act
   (2) Attempt rape
   (3) Rape

(4) Ravish

4) Against Public Peace, Liberty, Reputation and Public Administration

(1) Set Fire

(2) Damage of freedom (cause to get more than danger for body)

5) Firearm and Explosive

(1) Carry war arms

(2) Carry Explosive

Questionnaires distributed to juveniles comprise ten parts of 108 numbers. Of 108 numbers, 11 are general data, four are offence data, ten are family data, 14 are family relationship data, ten are family violence data, ten are teaching and nurture data, 12 are habitation environment data, 25 are social environment and risk factor data, seven are type of offence data, and five are severity of offence.

As for qualitative data collection, the researcher made interviews based on prepared issues. In case judges of Juvenile and Family Courts, and probation officials gave additional opinions or suggestions which were related to the research conducted, the researcher would take a separate note in order to use the information for other relevant parts. Interview was divided into two parts - six questions for opinions and another six questions for general data.

3.3 Population and Sample

According to the law, a person not convicted by the court of committing offence is regarded as alleged offender who is innocent, and cannot be treated as the convicted. Thus, in this study, the researcher collected data from juveniles committing violent crimes who had received final judgment by Juvenile and Family Court and been under detention. As a result, population in the study was juveniles of each home namely Ubekkha, Muthita, Karuna, Kanchana, Sirindhorn (Homes to male juveniles) and Pranee (Home to female juveniles). Based on the final survey, there were 865 juveniles under detention of Juvenile Observation and Protection Centers. The researcher collected data from the population using sampling and Taro Yamane’s

method, which specify size of sample in case of knowing finite population (Yamane, 1973: 1088-1089)

$$\text{Formula: } n = \frac{N}{1 + Ne^2}$$

when n = sample size

N = population size

e = deviation of random sampling level of confidence at 95.00%

This research sampling allowed deviation of 5.00% with the probability of 95.00%. Thus, sample size for this study included 543 out of 865 juveniles convicted of committing violent crimes.

Table 3.1 Number of juveniles that were imprisoned at Juvenile Observation and Protection Centers that use for study (Unit: Person)

Place that Juvenile were Imprisoned	Population Size (N)	Sample Size (n)
Ban-Ubekkha	110	86
Ban-Muthita	122	93
Ban-Karuna	448	211
Ban-Kanchana	92	75
Ban-Sirindhorn	85	70
Ban-Pranee	8	8
Total	**865**	**543**

Source: Department of Juvenile Observation and Protection, Data on March 23, 2007: 3-5.

The researcher contacted with officials of each Juvenile Observation and Protection Center, and explained the details and methods set by the researcher. Officials of each center would distribute questionnaires to juveniles with long remaining detention period (not close to a parole). However, questionnaires were not distributed to the disabled who could not answer the questionnaires, as well as juveniles with mental problems in all cases. Officials of each center could use their own consideration on distribution of remaining questionnaires. In other words, it was accidental or voluntary distribution based on offences and number set by the researcher.

Before giving questionnaires to detention officers, the researcher had provided detention officers with instructions and given them a chance to ask questions. Moreover, the researcher assigned detention officers the responsibility to answers questions raised by detained juveniles. In other words, questionnaires were distributed to any related juveniles, and officials of each center could take proper actions. The period was set at one week from the time of questionnaire distribution until questionnaire collection.

The researcher separated juvenile justice officials into two groups namely Juvenile and Family Court judges and probation officials. The questionnaires distributed to these officials consisted of questions concerning general data, work specialty in terms of reasoning and explaining Juvenile and Family Court judges' punishment for juveniles committing violent crimes, problem solutions, suggestions, and reasons and methods used for monitoring juveniles committing violent crimes by probation officials.

The researcher collected data from Juvenile and Family Court judges and probation officials, both from administrative and operative levels. During the time of data collection, there were 28 Juvenile and Family Court judges, of which five were administrative officials and 23 operative officials. In addition, there were 42 probation officials, of which three were administrative officials and 39 operative officials.

Then, researcher distributed questionnaires to Juvenile and Family Court judges and probation officials without using random sampling due to small number of

respondents and the need of in-depth details. Open-ended questions were used to allow both judges and probation officials to freely express their opinions.

3.4 Data Collection Result

The researcher could collect 533 questionnaires back from 543 target population. Meanwhile, all and complete questionnaires could be collected back from 28 administrative and operative Juvenile and Family Court judges, and 42 administrative and operative probation officials

3.5 Qualifications of Target Population

According to data collected from juveniles in Juvenile Observation and Protection Centers, administrative and operative Juvenile and Family Court judges, and administrative and operative probation officials, it was found that the target population possessed the following demographical and social qualifications:

Table 3.2 Demographical and Social Qualifications of Juvenile and Family Court Judge and Probation Official

Characteristic of Population	**Percentage**	
	Juvenile and Family Court Judge (n = 518)	**Probation Official (n = 518)**
Sex		
Male	53.57	42.86
Female	46.43	57.14
Age		
20 - 30 years	-	42.85
31 - 40 years	-	14.30

Table 3.2 (Continued)

Characteristic of Population	Percentage	
	Juvenile and Family Court Judge (n = 518)	**Probation Official (n = 518)**
41 - 50 years	39.28	42.85
51 - 60 years	35.72	-
≥ 60 years	25.00	-
Level of duty		
Executive	17.86	7.14
Worker	82.14	92.86
Level of highest education		
Bachelor's degree and/or Barrister-at-Law or be equal to	57.15	92.86
Master's degree and/or Barrister-at-Law or be equal to	42.85	7.14
The sum period of time to serve under the crown		
1 - 10 years	10.71	64.29
11 - 20 years	14.28	21.43
21 - 30 years	39.29	14.28
≥ 31 years	35.72	-
The sum period of time to serve under in the rank		
1 - 10 years	67.86	64.29
11 - 20 years	25.00	21.43
21 - 30 years	7.14	14.28

Table 3.2 shows demographical and social qualifications of Juvenile and Family Court judges and probation officials. It was found that most of Juvenile and Family Court judges were male (53.57%) aged between 40-50 (39.28%), being operative officials (82.14%), holding a bachelor's degree and/or law degree or

equivalent (57.15%), been in service as judges for 21-30 years (39.29%) been in service as Juvenile and Family Court judges for 1-10 years (67.86%).

Meanwhile, most of probation officials were female (57.14%), aged between 20-30 and 40-50 (42.85%), being operative officials (92.86%), holding a bachelor' degree and/or law degree or equivalent (92.86%), and had been in service as probation officials for 1-10 years (64.29%).

The researcher found that qualifications of juvenile detained in Juvenile Observation and Protection Centers are as follows:

Table 3.3 Demographical and Social Qualifications of Juveniles Detained in Juvenile Observation and Protection Centers Involved in Study

Characteristic of Population	**Percentage (n = 518)**
Sex	
Male	99.10
Female	0.90
Age	
10 - 13 years	1.10
14 - 17 years	38.20
18 - 21 years	56.60
22 - 25 years	3.90
26 - 29 years	0.20
Level of highest education	
Not study	1.93
Elementary education	39.18
Secondary education	44.20
High school education	8.49
Vocational certificate	6.20

Table 3.3 (Continued)

Characteristic of Population	Percentage (n = 518)
Chance to get more education	
Not study more	64.10
Study more	35.90
Juvenile's occupation	
No have occupation	66.80
Have occupation	33.20
Marriage status of juvenile	
No marry / no get married	90.60
Marry / get married	9.40
The amount to imprison	
One time	63.40
Two times	21.80
Three times	10.00
Four times	2.40
Five times	2.40
Period of time to imprison	
Not more than one year	28.50
One to three years	50.20
Four to six years	18.90
Seven to nine years	2.40
Type of guilt that juvenile was judged to imprison	
Assets	48.60
Life and Body	25.60
Sexuality	20.70
Against Public Peace, Liberty, Reputation and Public Administration	0.40

Table 3.3 (Continued)

Characteristic of Population	Percentage (n = 518)
Firearm and Explosive	2.10
Others	2.60
Assets:	
Robbery	54.40
Gang-robbery	40.20
Blackmail	1.20
Others	4.20
Life and Body:	
Murder / Malicious killing	41.20
Manslaughter	15.40
Attempt murder	32.40
Others	11.00
Sexuality:	
Indecent Act	7.30
Attempt Rape	8.20
Rape	10.00
Ravish	72.70
Others	1.80
Against Public Peace, Liberty, Reputation and Public Administration:	
Set Fire	50.00
Others	50.00
Firearm and Explosive:	
Carry war arms	76.90
Carry explosive	7.70
Others	15.40

Table 3.3 (Continued)

Characteristic of Population	Percentage (n = 518)
Father's occupation	
No have occupation	2.50
Have occupation	97.50
Mother's occupation	
No have occupation	7.30
Have occupation	92.70
Status of parents / ruler	
Stay together	49.30
Separate for some time	6.40
Separate permanently	44.30

Table 3.3 shows demographical and social qualifications of juveniles detained in Juvenile Observation and Protection Centers involved in this study. It was found that most of the juveniles were male (99.10%) aged between 18-21 (56.60%), highest education of secondary school (44.20%), with no opportunity to further their studies (64.10%) but had committed violent crimes and were prosecuted. Most of these juveniles were not working (66.80%) means that some of them were not working while some were studying but committed crimes and arrested, so they could not finish their education. Most of the juveniles were single (90.60%) and some were married and had families (9.40%).

The researcher studied criminal records of those juveniles which could trace the last five records. It was found that most of the juveniles were imprisoned from their first time of committed crime (63.40%) and 48.60% of imprisoned juveniles committed offences of assets the most followed by offences of life and body (25.60%), and offences relating to sexuality (20.70%). Most of juveniles had to serve 1-3 years imprisonment (50.20%).

The researcher further studied number of offences committed in each type of violent crime. The findings show the following figures: offences of assets: robbery (54.40%) followed by gang - robbery (40.20%); offences of life and body: murder (41.20%) followed by attempt murder (32.40%), and manslaughter (15.40%); offences relating to sexuality: ravish (72.70%), followed by rape (10.00%), attempt rape (8.20%), and indecent act (7.30%); offences against public peace, liberty, reputation and public administration: set fire (50.00%); offences of firearm and explosive: carry war arms (76.90%).

Additionally, it was found that 97.50% of juveniles' fathers and 92.70% of juveniles' mothers were working. It was also found that 49.30% of juveniles' parents were still living together while 44.30% were permanently separated and 6.40% were temporarily separated.

Table 3.4 Mean, Standard Deviation, Minimum and Maximum of some Characteristic of Juveniles

Variable	Mean ($\bar{x}$)	Standard Deviation (S.D.)	Minimum (Min.)	Maximum (Max.)
Age (year)	18.11	1.963	10	27
Period of time to imprison (month)	28.75	18.62	1	108
The amount to imprison	1.58	0.93	1	5
Income of juvenile (Baht/month)	5,405	4,250	98	30,000
The sum of parent's Income (Baht/month)	12,560	7,778	2,000	40,000

Table 3.4 shows that imprisoned juveniles' ages ranged between 10 and 27, with an average age of 18 years. Period of imprisonment ranged from one month to nine years. Most juveniles had to serve two years and five months imprisonment.

Moreover, the statistics showed one to five times imprisonment, but most juveniles were serving first and second time imprisonment.

Total income of juveniles ranged between 98 and 30,000 Baht/month, with an average income of 5,405 Baht/month. Meanwhile, total income of the juveniles' parents ranged between 2,000 and 40,000 Baht/month, with an average income of 12,560 Baht/month.

3.6 Measurement

Measurement of variables in the study was based on content validity, construct validity, reliability and practicality.

Content validity: It was considered from lists, messages and questions used for collecting variable data previously used for research.

Construct validity: Measurement units for questionnaires were different from the beginning as some questions had a range between 0 to 1 and some parts needed to show frequency, which was ratio measurement. As a result, the researcher adjusted raw score to standard score before making calculation or conducting statistical test for further analysis.

In this study, two types of measurement were used, namely objective measurement and subjective measurement. Objective measurement used numbers, frequency and times, having "0" and "1" as codes. "0" represents rejection and "1" represents acceptance.

The researcher used the same strategy for subjective measurement. That is, respondents had to give their opinions by scoring "0" or "1". In this case, respondents could choose "0" if they thought the question was not true or not quite true. In addition, as some were negative questions, the researcher had to recode by reversing "0" to "1" to "1" to "0" before using the scores for calculation or statistical analysis.

Table 3.5 Mean, Standard Deviation, Minimum and Maximum of measurement

Variable	Mean ($\bar{x}$)	Standard Deviation (S.D.)	Minimum (Min.)	Maximum (Max.)
Relationship in the family	0.8191	0.1828	0.00	1.00
Violence in the family	0.7593	0.2248	0.10	1.00
Teaching and nurture	0.7208	0.2199	0.00	1.00
Environment and habitation	0.6603	0.1651	0.08	0.92
Social environment and risks	0.5275	0.2205	0.02	1.00
Type of offence	0.4599	0.2014	0.00	1.00
Offence severity	0.7478	0.2225	0.00	1.00

For reliability, the researcher used internal consistency criteria to calculate reliability coefficient of each item. This study used Cronbach's alpha coefficient which ranged between 0.00 and 1.00. The higher the Cronbach's alpha coefficient, the more reliable the measurement as items used for measurement were related. Due to close relationship, alpha was high, ranging between 0.500 and 0.650 with moderate reliability. If the alpha was 0.700 up, the reliability was high. Meanwhile, alpha of lower than 0.500 had low reliability.

To test questionnaire measurement, the researcher used pre-test with 30 juveniles detained in specially controlled detention room of Juvenile and Family Court in Juvenile and Family Court Detention Building. After that, measurement reliability was tested using a single measurement of data collection to find out internal consistency and results. Questionnaires used in the study included 78 questions, with alpha ranging between 0.703 and 0.876. This implied that the measurement for this study was of high reliability.

After that, the researcher collected data from juveniles who were target population from above mentioned Juvenile Observation and Protection Centers. The result of data collection showed questions used for descriptive measurement and reliability coefficient as in the following table.

Table 3.6 Reliability Coefficient and the Amount of Measurement's Questions Classified by Variable

Variable Measurement	The Amount of Catalogue/questions	Reliability Coefficient
Relationship in the family	14	0.7680
Violence in the family	10	0.7346
Teaching and nurture	10	0.6822
Environment and habitation	12	0.5895
Social environment and risk	25	0.8466
Type of offence	7	0.3225
Offence severity	5	0.4912

3.7 Operational Definition

Operational definitions or list of questions used for collecting data of each measurement were derived from literature review, using academic articles, documents, textbooks and relevant research. Measurements have been created and tested with experimental group. It was found that reliability coefficient was reliable. Questions for each measurement created by the researcher are as follows:

3.7.1 Family Relationship Measurement

Family relationship measurement in this study was created based on relationship within families including relationship between juveniles and parents, family warmness, family conflicts, family conversations and acceptance of one another.

As for operational definition of family relationship measurement, the researcher created 14 messages and asked juveniles to express their feelings whether the messages were true to them. If "True" or "quite true", the code would be "1".

However, if “quite not true” or “untrue”, the code would be “0”. Measurement result showed that reliability coefficient was at 0.7680.

3.7.2 Family Violence Measurement

Family violence measurement in this study was created based on family violence found from academic findings, what happened in reality, researcher’s own observation, and data collected from various kinds of media. Family violence was studied using various kinds of media such as newspaper, academic articles, documents and journals.

The researcher defined “Family violence” as having high conflicts which may be solved through the use of violence among parents and juveniles, which also includes physical abuse within the family and severe punishment to juveniles. Measurement was made on anti-feeling and disagreement with family members, violence committed by parents and juveniles as a way to solve problem, and both reasonable and unreasonable punishment made to juveniles.

As for operational definition of family violence measurement, the researcher created 10 messages and asked juveniles to express their feelings whether the messages were true to them. If “True” or “quite true”, the code would be “1”. However, if “quite not true” or “untrue”, the code would be “0”. Measurement result showed that reliability coefficient was at 0.7346.

3.7.3 Teaching and Nurture Measurement

Teaching and nurture measurement in this study was created based on what happened in reality, ability to raise juveniles, counseling, teaching how to differentiate right from wrong, instructing juveniles to follow others reasonably, and family activity participation. The researcher studied from research results, what happened in reality, the researcher’s own observation, and data collected from various kinds of media such as news about raising children to become productive force of the society. The researcher aimed to study various aspects of juvenile upbringing.

The researcher defined “Upbringing” as parents’ guidance for their children. What could be measured included listening to each other’s opinion, ability to make decision, freedom to think creatively, expressiveness, parents’ care for their children, and concept embedding, etc. Questions involved literature review such as consistency of parents and juveniles joining meals, spending time together on holidays, and reasonable punishment given to juveniles.

As for operational definition of teaching and nurture measurement, the researcher created 10 messages and asked juveniles to express their feelings whether the messages were true to them. If “True” or “quite true”, the code would be “1”. However, if “quite not true” or “untrue”, the code would be “0”. Measurement result showed that reliability coefficient was at 0.6822.

3.7.4 Habitation Environment Measurement

Habitation environment measurement in this study was created based on what really happed with juveniles’ habitation environment, including living location, living comfort and privacy. The researcher studied from research findings, what really happened, researcher’s own observation, and data collected from various kinds of media, such as news that juveniles living in slums are likely to commit crimes more that juveniles in general. The researcher defined “habitation environment” as location of juveniles’ residences, such as slums, close to factories, entertainment venues, small house, limited house area, house decoration, tidiness and organization of houses, etc. Questions involved with literature review were used including residence location, residence’s narrow space, privacy, happiness and tidiness.

As for operational definition of habitation environment measurement, the researcher created 12 messages and asked juveniles to express their feelings whether the messages were true to them. If “Yes”, the code would be “1”. However, if “No”, the code would be “0”. Measurement result showed that reliability coefficient was at 0.5895.

3.7.5 Social Environment and Risk Factor Measurement

Social environment and risk factor measurement in this study was created based on what really happened to social environment and risk factor, which could be seen in today society, researcher's own observation, and data collected from various kinds of media such as juveniles' surrounding factors and risk factors causing delinquencies among juveniles. The researcher studied from research finding such as ability to search for and buy drugs, gangster, having bad friends, drinking alcohol, and carrying weapons, etc. In this study, social environment and risk factor was separated into community environment, risk factors causing delinquent acts among juveniles, network/gangster, and carrying of weapons.

The researcher defined "community environment" as environment under which juveniles perform daily activities and activities with others such as participating in social activities like joining community cleaning, playing sports with friends, and traveling, etc. Meanwhile, "risk factors" means stimulus and factors leading to delinquencies among juveniles such as having bad friends, taking drugs, carrying weapons, gambling and being lured by bad friends.

Furthermore, the researcher defined "network / gang" as juveniles' gatherings, with group symbol such as group of friends, qualifications of persons to join the group, participation in group activities, persuasion to join the group/gang and behavior imitation in the group.

The researcher defined "weapon carrying" as carrying of war arms and other non-weapon instruments which are used like war arms for committing illegal acts.

The researcher used questions involved with literature review such as convenience in traveling to entertainment venues, access to buying obscene material and other drugs, gambling house in the community, choosing friends and carrying weapons.

As for operational definition of social environment and risk factor measurement, the researcher created 25 messages and asked juveniles to express their feelings whether the messages were true to them. If "Yes", the code would be "1". However, if "No", the code would be "0". Measurement result showed that reliability coefficient was at 0.8466.

3.7.6 Type of Offence Measurement

Type of offence measurement in this study was created based on what really happened about type of offence, which could be seen in today society, researcher's own observation, and data collected from various kinds of media involving juvenile delinquencies. The researcher studied from relevant research findings such as necessity to commit delinquencies, factors forcing juveniles to commit delinquencies, preparation to commit delinquencies, and imitating delinquent acts. The researcher defined "Type of offence" as specific pattern of violent crime committing, such as delinquencies by necessity (source of family income or finding money to pay off debts), delinquencies by impetuousness, unplanned delinquencies, plan delinquencies, delinquencies from imitative behaviors, and delinquencies by conspiracy with other juveniles, children or adults.

As for operational definition of "Juvenile offence", the researcher created 7 messages and asked juveniles to express their feelings whether the messages were true to them. If "Yes", the code would be "1". However, if "No", the code would be "0". Measurement result showed that reliability coefficient was at 0.3225.

3.7.7 Offence Severity Measurement

Offence severity measurement in this study was created based on what really happened about violence used for committing delinquencies. According to the literature review, juveniles are more likely to use violence for committing delinquencies. In addition, the researcher used her own observation and collected data from various kinds of media involving offence severity. It was found that offence severity affected victims both physically and mentally. The researcher studied from academic findings and research relating with offence severity and found that "offence severity" means delinquencies using violence or force and/or using weapons to commit delinquencies including delinquencies without violence (no physical abuse and/or weapons), delinquencies using violence but cause no one injuries or death, delinquencies using violence, causing others injuries, delinquencies using violence, causing others severely injured, and delinquencies using violence, causing others death.

As for operational definition of “offence severity measurement”, the researcher created 5 messages and asked juveniles to express their feelings whether the messages were true to them. If “Yes”, the code would be “1”. However, if “No”, the code would be “0”. Measurement result showed that reliability coefficient was at 0.4912.

3.8 Data Analysis

3.8.1 Descriptive Statistics

Descriptive statistics was used for analysis of data involving demographical and social qualifications such as gender, age, occupation, level of education, social and family environment, type of offence, and offence severity, etc. of juveniles, Juvenile and Family Court judges and probation officials. In addition, analysis of correlation coefficient between variables used in this study.

3.8.2 Structural Equations Model

Structural equations model was used through LISREL to analyze influences of each variable on violent crimes. There were ten stages as follows:

3.8.2.1 Set up goals and variables to be used in the research.

3.8.2.2 Review literature in order to find operational definition of each variable used for creating measurement model.

3.8.2.3 Use knowledge from literature review to create model conceptualization.

3.8.2.4 Use knowledge about relationship between main variables obtained from literature review for path diagram construction.

3.8.2.5 Formally specify model.

3.8.2.6 Identify model which best suit the data.

3.8.2.7 During model identification process, parameter was estimated (Parameter estimation).

3.8.2.8 After obtaining values, model assessment of fit was conducted.

3.8.2.9 If the model is inappropriate, it would be modified (model modification).

3.8.2.10 After modifying model, it will be compared with other models (model cross validation) (Suchart Prasith - rathsint, Kanikar Sookasame, Sopit Pongsaree and Thanomrut Prasithmet, 2006: 14-15).

3.8.3 Qualitative Data Analysis

Qualitative data analysis was conducted by collecting data from in-depth interviews with Juvenile and Family Court judges, and probation officials, both from administrative and operative levels. The analysis started from the first interview until the end of research.

3.9 Relationship between Variables Used for Study based on Measurement Model Equations

The researcher set economy and person as exogenous latent variables, and family, society, type of offence, and offence severity as endogenous latent variables. The first line of analysis result of relationship between variables based on measurement equations shows relationship between manifest variables and latent variables with both endogenous and exogenous latent variables. Ry is indicator which explains variation of exogenous latent variables and manifest variables of each group, as wells as explains variation of endogenous latent variables and exogenous latent variables in percentage. The second line of equation is the result of free parameter analysis. Error from estimation is in the parentheses. The third line of equation is t value. If t is between -1.96 and 1.96, that equation has no statistical significance (Suchart Prasith - rathsint et al., 2006: 155-165). Measurement of relationship between variables can be displayed in the form of measurement equations, which suggests that manifest variables are correlated with latent variables.

3.9.1 Relationship between Exogenous Latent Variables and Manifest Variables

The researcher had studied relationship between manifest variables of each set of exogenous latent variables, including basic personal and economic factors. Analysis result can be explained through the following equations:

PAGE = 1.96*PERSON, Errorvar.= 4.21 , Ry = 0.37 .....(1)
(0.36) (0.60)
5.46 6.98

PHIEDU = 1.00*PERSON, Ry = 1.00 …..…….....(2)

PSTATUS = 0.098*PERSON, Errorvar.= 1.99 , Ry = 0.0031 .....(3)
(0.041) (0.12)
2.38 16.29

Note: Value in parentheses is error from estimation
Value in the third line is t-value

According to equation (2), coefficient 1.00 of basic personal factor shows that manifest variable of highest education is reference variable whose variation is fixed at 1.00. From equation (1) and (3), manifest variable "Age" and "Marital status" are correlated with latent variable "basic personal factor" with statistical significance (t = 5.46 and 2.38) and equation indicator shows that manifest variables of each equation can be used to explain variation of latent variable "basic personal factor" of 37.00% and 0.31% respectively.

Thus, it can be concluded that all manifest variables in the group of latent variable "basic personal factor" are related with "basic personal factor" with statistical significance.

EOCCSELF = 1.00*ECONOMY, Ry = 1.00 ……..……..(4)

EOCCFATH = 0.37*ECONOMY, Errorvar.= 1.73 , Ry = 0.14 ……....(5)

(0.12) (0.14)

3.09 12.54

EOCCMOTH = 0.10*ECONOMY, Errorvar.= 1.98 , Ry = 0.011 ……(6)

(0.043) (0.12)

2.41 16.32

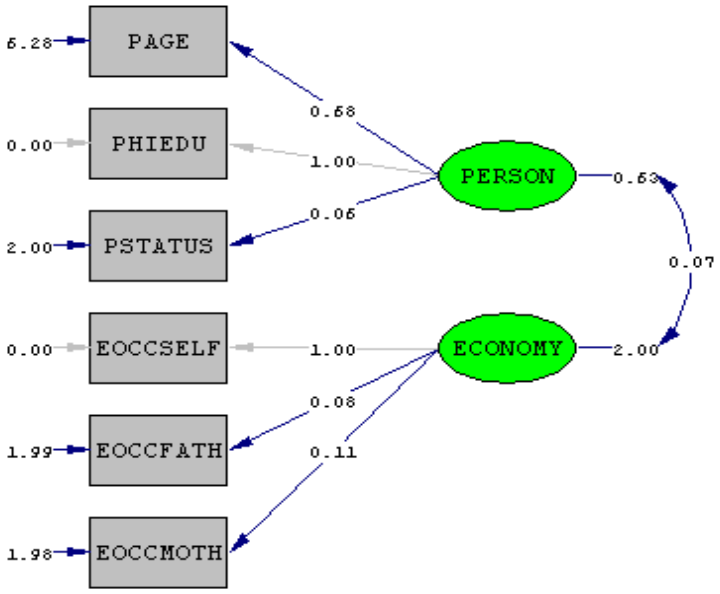
Note: Value in parentheses is error from estimation

Value in the third line is t-value

According to equation (4) coefficient 1.00 of economic factor shows that manifest variable "Juvenile occupation" is reference variable whose variation is fixed at 1.00. According to equation (5) and (6), manifest variable "father's occupation" and manifest variable "mother's occupation" are correlated with latent variable "economic factor" with statistical significance (t = 3.09 and 2.41). Equation indicator suggests that manifest variables of each equation can be used to explain variation of latent variable "economic factor" for 14.00% and 1.10% respectively.

Thus, it can be concluded that all manifest variables in the group of latent variable "economic factor" are related with "economic factor" with statistical significance.

According to data analysis based on measurement equations, the researcher had used LISREL program to display relationship between exogenous latent variables and manifest variables of equation (1) to (6) based on LAMDA - X ,which shows relationship between exogenous latent variables and indicators as illustrated in the below figure.



Chi-Square = 456.78, df = 255, P-value = 0.00000, RMSEA = 0.039

Figure 3.1 Path Diagram between Manifest Variables and Exogenous Latent Variables

3.9.2 Relationship between Endogenous Latent Variables and Manifest Variables

The researcher had studied the relationship between manifest variables of each set of latent variables including family status and relationship, social environment and risk factor, type of offence, and offence severity. Result of data analysis based on measurement equations can be viewed in each equation. As for endogenous latent variable "family status and relationship", the researcher had analyzed data based on measurement equations and found the result as show in the following equations.

FRELA = 1.00*FAMILY, Ry = 1.00 ……(7)

FHARM = 0.38*FAMILY, Errorvar.= 3.41 , Ry = 0.62 ……..(8)

(0.053) (1.01)

7.13 3.36

FTEACH = 0.53*FAMILY, Errorvar.= 8.97 , Ry = 0.55 ……....…….(9)
(0.066) (1.98)
8.02 4.54

FENV = 0.29*FAMILY, Errorvar.= 4.37 , Ry = 0.43 ……(10)
(0.043) (0.68)
6.80 6.46

Note: Value in parentheses is error from estimation
Value in the third line is t-value

According to equation (7), coefficient 1.00 of "family status and relationship" suggests that manifest variable "family relationship" is reference variable whose variation is fixed at 1.00. According to equation (8), (9) and (10), it was found that manifest variable "family violence", "Teaching and nurture" and "living and family environment" are correlated with latent variable "family status and relationship with statistical significance (t = 7.03, 8.02 and 6.80). Equation indicators suggest that manifest variables in each equation can be used to explain variation of latent variables (family status and relationship) 62.00%, 55.00% and 43.00% respectively.

Thus, it can be concluded that all manifest variables in the group of latent variable "family status and relationship" are related with "family status and relationship" with statistical significance.

SOCGROUP = 1.00*SOCIETY, Ry = 1.00……..……..…….....(11)

SOCWEAP = 0.73*SOCIETY, Errorvar.= 4.87 , Ry = 0.16…….....(12)
(0.24) (0.51)
3.09 9.50

SOCBUY = 0.58*SOCIETY, Errorvar.= 3.92 , Ry = 0.13…….(13)
(0.20) (0.37)
2.90 10.49

SOCDRINK = 1.25*SOCIETY, Errorvar.= 4.15 , Ry = 0.40.……(14)
(0.26) (0.69)
4.79 5.98

SOCSPORT = 0.23*SOCIETY, Errorvar.= 4.30 , Ry = 0.022……...(15)
(0.13) (0.28)
1.76 15.56

Note: Value in parentheses is error from estimation
Value in the third line is t-value

According to equation (11), coefficient 1.00 of "social environment and risk factor" suggests that manifest variables "network/gang" is reference variable whose variation is fixed at 1.00. According to equation (12), (13) and (14), it was found that manifest variables "owning weapons", "purchase/take drugs and obscene materials" and "drinking alcohol" are correlated with latent variable "social environment and risk factor" with statistical significance (t = 3.09, 2.90 and 4.79). Equation indicators suggest that manifest variables in each equation can be used to explain variations of latent variable "social environment and risk factor"16.00%, 13.00% and 40.00% respectively.

According to equation (15), it was found that manifest variable "social activity participation/playing sports" is not correlated with social environment and risk factor, with statistical significance (t = 1.76) and the ability to explain variations of latent variable "social environment and risk factor was only 2.20%.

Thus, it can be concluded that all manifest variables in the group of latent variable "social environment and risk factor" is correlated with "social environment and risk factor" with statistical significance, except for manifest variable "social activity participation/playing sports.

TYPEOFF1 = 0.17*TYPEOFF, Errorvar.= 1.94 , Ry = 0.028 ……..(16)
(0.038) (0.12)
4.37 16.53

TYPEOFF2 = 0.17*TYPEOFF, Errorvar.= 1.94 , Ry = 0.029 ..…….(17)
(0.040) (0.12)
4.23 16.34

TYPEOFF3 = 0.29*TYPEOFF, Errorvar.= 1.82 , Ry = 0.084 ……..(18)
(0.11) (0.12)
2.56 14.80

TYPEOFF4 = 0.032*TYPEOFF, Errorvar.= 2.00 , Ry = 0.0010 …..(19)
(0.037) (0.12)
0.87 16.32

TYPEOFF5 = 0.30*TYPEOFF, Errorvar.= 1.81 , Ry = 0.090 ……...(20)
(0.12) (0.13)
2.43 13.87

TYPEOFF6 = -0.084*TYPEOFF, Errorvar.= 1.98 , Ry = 0.0071 …...(21)
(0.040) (0.12)
-2.08 16.26

TYPEOFF7 = 1.00*TYPEOFF, Ry = 1.00 …….(22)

Note: Value in parentheses is error from estimation

Value in the third line is t-value

According to equation (22), coefficient 1.00 of "type of offence" suggests that manifest variable "delinquencies by other's order" is reference variable whose variation is fixed at 1.00. According to equation (16), (17), (18), (20) and (21), it was found that manifest variable "delinquencies by necessity", "delinquencies by impetuousness", "unplanned delinquencies", "delinquencies by conspiracy with friends in the group or gang" and "single handed delinquencies" are correlated with latent variable "type of offence" with statistical significance (t = 4.37, 4.23, 2.56, 2.43 and -2.08). Equation indicators suggest that manifest variables in each equation can be used to explain variation of latent variable "type of offence" by 2.80%, 2.90%, 8.40%, 9.00% and 0.71% respectively.

As for equation (19), it was found that manifest variable "delinquencies by imitating from media" is not correlated with "type of offence" with statistical significance (t = 0.87) and has the ability to explain variations of latent variable "type of offence" by only 0.10%.

Thus, it can be concluded that all manifest variables in the group of latent variable “type of offence” is correlated with “type of offence” with statistical significance, except for manifest variable “delinquencies by imitating from media.”

OFFSEVE1 = -0.086*OFFSEVE, Errorvar.= 1.99 , Ry = 0.0075……(23)
(0.073) (0.11)
-1.18 17.53

OFFSEVE3 = 0.62*OFFSEVE, Errorvar.= 1.23 , Ry = 0.39……(24)
(0.10) (0.19)
5.96 6.46

OFFSEVE4 = 0.54*OFFSEVE, Errorvar.= 1.42 , Ry = 0.30……..(25)
(0.11) (0.19)
5.07 7.30

OFFSEVE5 = 1.00*OFFSEVE, Ry = 1.00……..(26)

Note: Value in parentheses is error from estimation

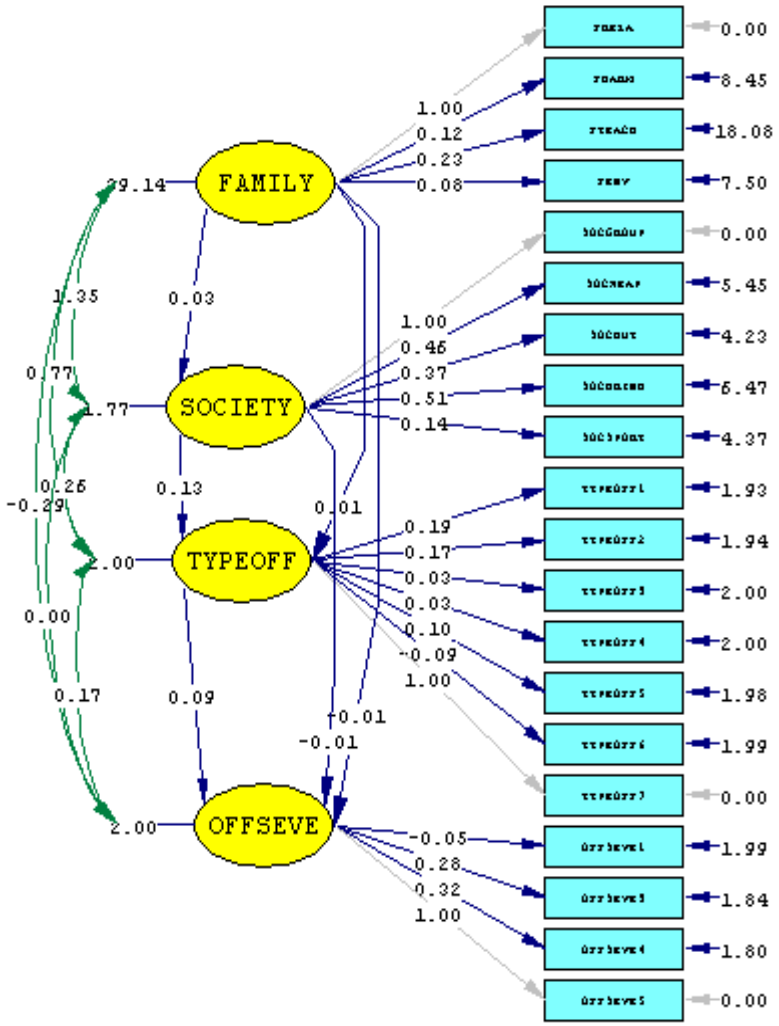
Value in the third line is t-value

According to equation (26), coefficient 1.00 of “offence severity” suggests that manifest variable “Violence causing others death” is reference variable whose variation is fixed at 1.00. According to equation (24) and (25), it was found that manifest variable “violence causing others injuries” and “violence causing others severe injuries” are correlated with latent variable “using violence” with statistical significance (t = 5.96 and 5.07). Equation indicators suggest that manifest variables in each equation can be used to explain variation of latent variable “offence severity” by 39.00% and 30.00% respectively.

According to equation (23) it was found that manifest variable “offence without violence (no force or weapons)” is not correlated with latent variable “offence severity” with statistical significance (t = -1.18) and has the ability to explain variation of latent variable “offence severity” by 0.75%.

Thus, it can be concluded that all manifest variables in the group of latent variable “offence severity” is correlated with “offence severity” with statistical significance, except for manifest variable “offence without violence.”

According data analysis based on the measurement equations, the researcher had used LISREL to display the relationship between endogenous latent variables and manifest variables from equation (7) to (26) according to LAMDA - Y, which shows relationship between endogenous latent variables and indicators as illustrated in the below figure.



Chi-Square = 456.78, df = 255, P-value = 0.00000, RMSEA = 0.039

Figure 3.2 Path Diagram between Manifest Variables and Endogenous Latent Variables

3.10 Assessment of Overall Structural Model

According to statistical data analysis of all latent and manifest variables in the equations, the researcher had adjusted path diagram to maintain the consistent relationship, with statistical significance which makes it possible for model specification and path diagram. This is a result of model conceptual framework, which can display path diagram of variables leading to violent crimes among juveniles. It addition, it shows relationship of manifest variables used in the study, correlations and directional relationship. This directional relationship can be used to create equations in order to specify structural equations model in order (1) Structural equations (2) endogenous latent variables measurement equations and (3) exogenous latent variables measurement equations.

RMSEA, RMR and GFI were used for measuring goodness of fit statistics of studied model.

According to the findings, root mean square error of approximation (RMSEA) was found at 90.00% confidence interval for RMSEA. From data analysis of this study, RMSEA = 0.086 (0.082 - 0.090) which suggests mediocre between the model and covariance matrix of population used in the study. LISREL program was used to test goodness of fit rate of the model, under the hypothesis that RMSEA < 0.05 (Suchart Prasith - rathsint et al., 2006: 207-209).

According to the assessment, root mean square residual (RMR) was found in the model. This value shows the capacity to make use of residuals from difference between variance matrix and covariance matrix of samples, and variance matrix and covariance matrix of model significance. According to analysis, RMR = 0.36 with standardized residuals and standardized RMR = 0.087)

In addition, the researcher had measured goodness of fit index (GFI) by measuring variance and covariance, which makes it possible for the explanation of the model. This also implies that the model can better produce covariance matrix. According to the analysis, adjusted goodness of fit index (AGFI) has GFI = 0.81 and AGFI = 0.78, both values range between 0 - 1. In addition, parsimony goodness of fit index (PGFI) = 0.68. Statistically, if PGFI is 0.50 up, it can be concluded that the model fits with the data.

Goodness of fit index in such model suggests the mediocre between structural equations model and covariance matrix of population used for this study as RMSEA is as high as 0.086 (0.082 - 0.090). Goodness of fit is quite satisfactory and is accepted to a certain degree. However, standardized RMR is as high as 0.087 while structural equations models should have standardized RMR lower than 0.05 in order to indicate the acceptance. Moreover, GFI and AGFI obtained from data analysis are 0.81 and 0.78. Although the values range between 0 and 1, if they are higher than 0.90, that means this model fit with the data (Suchart Prasith - rathsint et al., 2006: 212-217). The analysis found that both values are lower than 0.90, so it can be concluded that this model does not suit the data used in this study.

3.11 Model Modification

When entering LISREL program to analyze data based on structural equations after evaluating goodness of fit index, researcher found disadvantages of the model. As a result, researcher adjusted goodness of fit index of Structural Equation Model to suit the data. Researcher cut manifest variables “sex”(PSEX) which is latent variable “basic personal factor” measurement and cut manifest variable “use violence to break the law but no have someone gotten be injured”(OFFSEVE2) which is latent variable “offence severity”.

After getting rid of these two manifest variables, it was found that the model can be interpreted better in terms of content and is clearer. Moreover, more reasons can be sought for explanation than the old Structural Equation Model. The analysis of adjusted model suggests that Structural Equation Model can better explain research result. The assessment of overall model obtained from data analysis and result of data analysis for goodness of fit statistic found that RMSEA = 0.039 (0.033 - 0.044) which suggests that the model best fit with the data since RMSEA is lower than 0.05 at the confidence level of 90.00% and root mean square residual (RMR) = 0.19, and the rest of values have been adjusted to standardized residuals. The analysis suggests that standardized RMR = 0.050 with goodness of fit index (GFI). There were measurement of variance and covariance which make it possible for the model to be

explain and indicate that the model can create better and clearer covariance matrix obtained from observation.

As for adjusted goodness of fit index (AGFI), the analysis found that GFI = 0.94 and AGFI = 0.91. The two values range between 0 - 1. Generally, reliable GFI must be more than 0.90. In this case GFI = 0.94. Thus, adjusted Structural Equation Model has fit measure (Suchart Prasith - rathsint et al., 2006: 239-282) and have parsimony goodness of fit index (PGFI) = 0.68.

Thus, it can be concluded that adjusted Structural Equation Model studied in this research fits data. As a result, the result of this study is both effective and efficient.