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Abstract

This study was designed to identify the perception towards social minorities and the variables which influence such perception for 230 preliminary police trainees of the Central Police Academy. The data were collected through the survey questionnaires and a multiple regression analysis was performed to conduct frequency analysis, descriptive statistics, and learn about the sense of social distance. The analytical results are as follows.

The average value of the sense of social distance towards sexual minorities perceived by the police trainees was 3.65 or higher, whose average difference was not clear, yet the average value(3.07) was lower than the other questions for the questions on whether they are acceptable as members of the family.

Examining the results of the final regression analysis performed, it was shown that social minorities related training experience, stereotypes about sexual minorities, and negative emotions about sexual minorities had a significant influence on the police trainees’ sense of social distance towards sexual minorities. This indicated that those with the training experience related to social minorities had a less sense of distance, and that the more and higher the stereotypes and negative emotions towards sexual minorities, the larger the sense of social distance. This study is meaningful in that it presented the relationship between the sense of social distance and the factors of influence about the sexual minorities for the police trainees who will become the preliminary police officers.

[Keywords] Sexual Minorities, Preliminary Police Officers, Sense of Social Distance, Negative Emotions, Negative Stereotypes

1. Introduction

Article 11 Paragraph(1) of the Constitution provides that "All people are equal before the law. No one shall be discriminated against in all areas of political, economic, social and cultural life for gender, religion or social status." However, our society has to date seen an abundance of key words generated such as discrimination, hatred and conflict. In particular, discussions of diversity are taking place actively and discussions of sexual minorities are also actively being conducted.

In Seoul, the 19th Queer Culture Festival was held on July 14, 2018, and the queer culture festival for sexual minorities was held under different names in various cities throughout 2018. The city of Gwangju also hosted its first Queer Cultural Festival this year, but the police was dispatched and clashed with members of the assembly.

While the queer culture festivals for improving the rights of sexual minorities have been supported by the many, but they are also providing another cause of conflict in our society for their opponents including religious people. Despite such conflicts and differences in opinion, movements to recognize the rights and differences of sexual minorities are a trend not only in Korea but also across the entire globe. On June 26, 2015, the
United States Supreme Court ruled, in accordance with Article 14 of the amendment of the US constitution, that all states of the United States should recognize same sex marriage and that the same sex marriage permitted by another state must also be recognized. As a result, the United States became a complete state allowing same sex marriage. In Europe, Article 21 of the European Union’s Charter of Fundamental Rights promulgated on December 7, 2000 provides that discrimination for or by any reason, including sexual orientation, shall be prohibited. Thereafter, many countries have legitimized same sex marriage, and many countries such as France, Britain, Germany, Belgium, the Netherlands and Sweden are in favor of the same sex marriage. Among the Asian countries, Taiwan became the first Asian country to legitimize same sex marriage. It began as the supreme court justices interpreted on May 24, 2017, that, under No. 748, that prohibition was in violation of Article 22 of the constitution and Article 7 of the constitution which guarantee rights of equality and freedom of marriage in accordance with the current civil law in the same sex marriage freedom plan. The Canadian prime minister participated the homosexual festivals in person and announced that the government is reviewing the introduction of gender neutral identification cards in 2016.

As such, the opinions of for and against same sex marriage are only the beginning of the changes associated with sexual minorities, and there will likely be more changes in gender identity and orientation. Furthermore, there will be many changes such as rights for sexual minorities and various systems and legal amendments to guarantee human rights. Accordingly, the studies of gender identity and sexual orientation are a very crucial research topic, and many discussions will be needed especially in pertinence to law enforcement and police activities. In particular, there are such a variety of studies conducted on teachers if the previous studies related to sexual minorities are examined. The reason is that sexual minorities are the members of our society, and people need to change their perception through education from their childhood for building a harmonious and healthy society.

Likewise, how the police recognizes sexual minorities in applying the same laws and norms to all members of society and providing services and security services is an extremely crucial issue. While the multi-cultural society has become more apparent, various studies are being conducted by the police on the subject of social minorities, yet studies on sexual minorities are very limited. Furthermore, sexual minorities are almost not covered in education and training programs and academic subjects for the preliminary police trainees who will become police officers in the future.

As mentioned earlier, conflicts caused by sexual minorities will become more frequent, and the role of the police to protect and mediate them will increasingly become critical. The perception and prejudice of each individual police officer will naturally be transmitted to the citizens through words, conducts, and attitudes, which will affect the evaluation of the police and level of satisfaction.

Accordingly, the level of the police officers’ perception of a specific group and what education and training should be provided for them are determined to be the most urgent issues facing the police education and training. Accordingly, the purpose of this study is to investigate the factors influencing the preliminary police officers’ perception towards sexual minorities and their sense of social distance to sexual minorities.

2. Theoretical Background
2.1. Sexual minorities
2.1.1. Concept of sexual minorities

Minorities mean those who are discriminated against in the society because of their differences in values and standards from the groups forming the mainstream in various aspects including sex, race, ideology, economic power, and sexual orientation. Sexual minorities refer to those whose sexual identity and orientation are different from the majority of ordinary people and other sexual minorities. Sexual orientation and gender identity are the concepts introduced to define sexual minorities[1][2].
Sexual orientation is a concept which refers to whether a gender is intriguing or attractive, either sexually or emotionally. The sexual orientation based identity categories can be classified into homosexuals (gays and lesbians), heterosexuals attracted to the other gender, and bisexuals attracted to both men and women.

Gender identity refers to the individual’s own gender identified by him or herself. Gender identity is mostly consistent with biological gender, but sometimes it is not, which is also referred to as transgender.

That is, sexual minorities include people with sexual minorities other than heterosexuals, which is the majority of the society, and who are generally referred to as LGBT (lesbians, gays, bisexuals, and transgenders). Recently, the range has also expanded to include those referred to as “Questioners,” who are not certain about their gender identity and sexual orientation.

Another concept is Gender Expression, which refers to the appearances or behaviors that are considered masculine or feminine in a particular culture, such as dress, hairstyle, voice, or speech. Individuals' gender expressions may or may not match the socially defined gender roles or their own gender identity.

Recently, homosexuals have formalized themselves as queers, which meant "weird and odd" putting down homosexuals. However, it was used as a means of redefining their existence, and they turned to represent their identity for all sexual minorities and used it as a word of community for pride, acceptance, and collective[3].

2.1.2. Status and perception of sexual minorities in Korea

There are no accurate statistics and data on the studies of sexual minorities in Korea, so it is difficult to identify their status and current situation. Furthermore, they were the latest subject of attention among the socially weak and minorities, and the research data are insufficient relative to the disabled, foreign workers, married immigrant women, and Chinese of Korean descent.

While some studies carried out surveys on awareness, attitude and behaviors towards sexuality through the voluntary participations of sexual minorities, they were limited to some age groups and minorities, so it is quite difficult to accurately define their current status and situation.

In most domestic studies conducted, the studies on the perception towards sexual minorities based on the victimization and experiences of discrimination, or based on various classes and occupation groups such as youth, college students or ordinary citizens.

The studies of perception towards sexual minorities and questionnaire surveys show different results depending on age, religion and generation.

From May 30, 2017 until June 1, 2017, Gallup Korea conducted a questionnaire survey of 1,004 male and female adults of age 19 or over. While age 19 to 29 showed 66% of them favoring the legitimatization of same sex marriage, those in their 30s showed 41% those in their 40s 34%, and those in their 60s or older showed only 16%, respectively.

The Asan Institute for Policy Studies’ survey also showed that the rate of approval for same sex marriage for those in their 20s increased rapidly from 30.5% in 2010 to 60.2% in 2014, however, those in their 60s or older increased from 6.5% to 8.3% during the same period, reaching 1.8% only.

As such, the individuals’ perception towards sexual minorities can be seen through the opinions for and against same sex marriage most representatively, but it was found that it varied mainly depending on age, religion and extent of interest.

2.2. Concept of the sense of sense of social distance and previous studies

2.2.1. Concept of the sense of sense of social distance

The sense of social distance is a socio-psychological concept through which people refer to the extent of prejudice or subjective emotions for groups of various subjects[4]. According to Park’s(1924) study, the sense of social distance was defined as the distance
measured by human emotions rather than the distance of spatial concept.

Bogadus was the first person who attempted to apply this concept of the sense of social distance. According to Bogadus(1925), the sense of social distance was defined as the difference of empathic understanding which exists among individuals, and he claimed it to be a concept based on the premise that it is measurable. In addition, according to Kadushin(1962), the concept of the sense of social distance can be used as a more accurate and objective tool if it is identified as a specified indicator rather than an individual’s subjective emotions or evaluation[5][6].

As such, the scale of the sense of social distance has been verified across various fields of social science through many previous studies. Most typically, this scale was often used to measure the extent of racial discrimination and prejudice affected emotions in the United States. In Korea, it has also played a role as a tool for identifying and learning the prejudice against the socially weak and minority groups including the physically and mentally challenged.

### 2.2.2. Factors influencing the sense of social distance and previous studies

The sense of social distance varies according to demographic characteristics, and education and human rights movements are mainly known to reduce the sense of social distance[7].

According to Jung Jin-Hwan’s(2011) study, self-esteem, value orientation, and cultural diversity are influenced by variables related to the sense of social distance. As for self-esteem, Coopersmith(1967) argued that it is an individual’s self evaluation and signifies the extent to which one’s abilities are believed, meaningful, successful, and valued[8].

Value Priorities are said to be a very important factor in understanding an individual’s behavior as it is a part of the psychological characteristics and determines values and behavioral preferences under specific situations according to the value theory. In addition, value is used as an important indicator of personal tendency and influences the sense of social distance which is measured based on subjective judgments[9]. Cultural diversity recognizes that mankind living contemporaneously are faced with diverse cultures and environments, and it must be recognized that such a culture can be a creative source for the development of mankind. And only when there is an effort to understand the culture, can one discover and recognize the value of the culture itself without looking at it from its own perspective[9]. Previous studies on the sense of social distance were conducted around the disabled in the beginning, but thereafter have expanded to include North Korean refugees, foreign workers, married immigrant women, and homosexuals, among others. In addition, the sense of social distance was measured for various professionals such as youth, college and university students, nurses, teachers, as well as the citizens’ perception of the socially weak and minorities.

Triandis’(1960) study was conducted on the sense of the college and university students’ sense of social distance in the United States[10].

Through this study, racial and social groups were found to be more influential on the sense of social distance towards specific groups than religion or nationality. Hagendoorn’s(1989) study was conducted on the sense of social distance for various minority groups of middle school and college and university students in the Netherlands. The results indicated that the group with the largest sense of social distance turned out to be the Muslim group, and the group with the most receptive attitude turned out to be the European race[11].

### 3. Research Method

#### 3.1. Investigative method

A total of 300 police trainees were surveyed from October 29, 2018 until November 2, 2018. The survey method was self entry and the questionnaires with the large missing
values were excluded from the coding process, and 228 people were finally selected as the subject of the study.

3.2. Variables and measurement tools

3.2.1. Control variables

As demographic variables, gender, age, educational history, and religion (Christianity) were entered as control variables. As for gender, dummy variable of male = 1 and female = 0 were entered, and as for age, dummy variables of 1 for those in the 20s and 0 for those in the 30s were manipulated for the continuous variable measured as they are. As for educational history, it was manipulated such as 1 was entered for 4 year college or university or higher and 0 for community college or college or university drop out. As for religion, it was manipulated with 1 for Christianity and Catholicism and 0 for no religion and other religions.

3.2.2. Key variables

3.2.2.1. Sense of social distance

Bogardus, Westie, and others’ scale to measure the sense of social distance was utilized, while the criterion of "degree of acceptance of social system" was applied for reformation. In this study, the level of acceptance for 8 items such as 'I just know them', 'Joining a club', 'Participating in a club', 'Neighbors', 'Colleagues', 'Friends', 'Spouse of a family,' and ‘Family’ were measured with 1 point for 'I do not agree at all' for being very low for each level of agreement and 2 points for 'I do not agree', whereas neutral points of view were measured at 3 and 4 points, respectively. Five points were manipulated for 'Agree' and 6 points for 'Agree to a large extent' with the values measured from 1 point to 6 points were adjusted to 3 points including neutral points, after which 4 points were given to ‘Agree’ and 5 points to ‘Agree to a large extent.’ It may be interpreted that the higher the total score, the lower the sense of social distance of the police trainees towards the sexual minorities, and the lower the score, the higher the sense of social distance towards the sexual minorities[12]. In this study, the reliability of the sense of social distance scale, the value of Cronbach’s, turned out to be .958.

3.2.2.2. Presence or absence of training experience related to social minorities and presence or absence of friends / acquaintances who are sexual minorities

'Presence or absence of training experience related to social minorities' can have a positive impact on the perception towards sexual minorities. Accordingly, the presence or absence of related training experience was manipulated to be 0 for ‘No’ and 1 for ‘Yes’ to the presence of such experience.

In addition, since there may be a difference in the recognition of sexual minorities according to the ‘presence or absence of sexual minorities among the acquaintances(family, relatives, friends, or colleagues) with whom relationship is maintained on a regular basis’, the presence or absence of the acquaintances who are sexual minorities was manipulated to be 0 for ‘No’ and 1 for ‘Yes’ to the presence of such acquaintances.

3.2.2.3. Negative stereotypes

Negative stereotypes represent a belief about the subjects of the sexual minorities. This is characterized by the cognitive complexity of the subject of the attitude. In this study, the negative stereotypes for the sexual minorities were measured. The extent of agreement was measured with 1 point of ‘I agree’ to 7 points of ‘I do not agree’ for each of the items of ‘They hurt others’, ‘They expect excessive reward’, and ‘They are not reliable.’ After the measurements, they were reverse coded and the total of each variable was turned into parameters and used for analysis, so that the higher the score, the more among the negative stereotypes were manipulated. In this study, the reliability of negative stereotypes turned out to be .933 for Cronbach's.

3.2.2.4. Negative emotions

Negative emotions take on a relatively simple characteristic for the emotional aspect. The items that express negative emotions were measured as 'I want to avoid', 'I do not feel good towards them', and 'It would be
awkward to be with them’. They were asked to respond on the degree of sympathy for 1 point for ‘I sympathize’ to 7 points for ‘I do not sympathize’. Likewisely, they were reverse coded and the total of each variable was turned into parameters and used for analysis, so that the higher the score, the more among the negative emotions were manipulated. In this study, the reliability of negative stereotypes turned out to be .955 for Cronbach’s.

3.3. Analytical method

Frequency analysis and descriptive statistical analysis were conducted to review and examine the demographic characteristics of the police trainees and the extent of their perception towards sexual minorities. In addition, a multiple regression analysis was performed to analyze the effects, which are the final model of this study on the police’s sense of social distance towards the sexual minorities. SPSS 21.0 was used for the tool for the entire statistical analysis.

4. Research Results

4.1. Demographic characteristics of investigation subjects

Examining the demographic characteristics of a total of 228 police trainees who are the investigation subjects, 86.4%(197 people) were males and 13.6%(31 people) were females. Those from age 21 to 30 participated, and the average age of the respondents was 27.34. Of them, 76.3%(174 people) were in their 20s and 23.7%(54 people) were in their 30s or older. As for their level of education, 54.4%(124 people) graduated from college or university and acquired master’s degree in graduate school(4 years) and 45.6%(104 people) dropped out of college or university(4 years) including those who graduated or dropped out from community college and graduated from high school. As for religion, those having religion were found to be 34.2% (78 people) and 65.8%(150 people) did not have religion.

4.2. Police trainees’ perception towards sexual minorities

In order to learn about the perception of police trainees towards sexual minorities, simple questions were asked about gender, term, culture, and definition. In regards to sexual minorities’ terms, such as “Do you know what LGBT stands for?”, 76.3%(174 people) answered ‘I do not know(hearing for the first time)’, while 17.1%(39 people) responded with ‘I know’, ‘I have heard of it’ and 6.6%(15 people) responded with ‘I have heard of it, but forgot it.’ said ”I forgot”. Next, in response to the question of “Do you know about the queer festivals?” asking about typical details of the sexual minorities’ culture, 74.1%(169 people) said “I know” and 18.0%(14 people) said “No, I do not” (hearing for the first time), while 7.9%(18 people) said “I have heard of it, but forgot it.” In relation to the definition of sexual minorities, the questions of “Do you know the definition of sexual minorities?”, 82.9%(189 people) answered “I know”, while 12.7%(29 people) said “I have heard of it, but forgot it.”, while 4.4%(10 people) said “No, I do not know”(hearing for the first time). In addition, 12.7%(29 people) of respondents answered “Yes” to the question of ”Do you have a sexual minority among your acquaintances(family, relatives, friends, or colleagues)?” while those with training on the social minorities were 63.2%(144 people), indicating that more than half of them had experience in the social minorities related education. Overall, they had a rough understanding of the definition and culture of sexual minorities, but the conceptual understanding of terms such as LGBT may be seen to be low.

4.3. Police trainees’ sense of sense of social distance towards sexual minorities

In order to examine the status of the sense of social distance, and examining the average value for each question by assigning 5 points on a 7 point scale, ‘I will not hesitate to be an acquaintance with the sexual minorities’ turned out to be 3.68, followed by ‘I will not be reluctant to the sexual minorities joining the club to which I belong’ for 3.63, ‘I will not be reluctant to participating in the same club with the sexual minorities’ for 3.64, ‘I will not be reluctant to be a neighbor to the sexual minorities’ for 3.62, ‘I will not be reluctant to
be a personal friend to the sexual minorities' for 3.63, 'I will not be reluctant to the sexual minorities being a spouse to my family' for 3.07, and 'I will not be reluctant to the sexual minorities being a member of my family' for 3.07, respectively. While the hierarchical priority of the social distance scale was not clear, the extent of accepting them to be the members of their family showed a lower average value than the other items, thereby demonstrating a relatively lower acceptance level. In addition, the average of the total 8 questions on the sense of social distance towards the sexual minorities turned out to be 3.47.

4.4. Analysis of factors influencing the police trainees' sense of sense of social distance towards sexual minorities

A multiple regression analysis was performed to analyze the factors influencing the sense of social distance of police trainees towards the sexual minorities, whose results can be verified in <Table 1>. First, in Model 1, demographic variables such as gender, age, educational level, and religion were entered. In this study, the dependent variable of the sense of social distance is the total of the scores measured by 8 questions, and so the higher the score, the closer the sense of social distance, that is, the acceptance of the sexual minorities can be interpreted to be high.

In Model 1, the gender turned out to be β=-0.971, which was statistically significant at the significance level of p<.05. This means that in the case of men, the acceptance of sexual minorities is lower, that is, the sense of social distance is far. In addition, the explanatory power of the model with only demographic variables entered was low as it turned out to be 8.2%(Adjusted R² = .049), which was not significant at the significance level.

As for Model 2, which is a Full Model, demographic variables from Model 1 were entered as control variables, and whether training was conducted on social minorities, presence or absence of friends who are sexual minorities, negative stereotypes and negative emotions were entered. Examining the results of Model 2, it was shown that the social minorities related training experience(β=0.290 p<.1), negative stereotypes (β=-0.046 p<.1) and negative emotions(β=-0.173 p<.001) had a significant influence on the sense of social distance towards the sexual minority. That is, the more those who have been trained on social minorities, the less the sense of social distance towards the sexual minorities. In addition, the higher negative stereotypes and negative emotions towards the sexual minorities, the more difficult it is for the police trainees to accept the sexual minorities. The explanatory power of Full Model was very high as it turned out to be 71.3%(Adjusted R² = .690), which was statistically significant at the significance level of p<.001.

Table 1. Correlates of social distance towards the LGBT among South Korean newly recruited policemen(n=228).

<table>
<thead>
<tr>
<th>Variables</th>
<th>Model 1</th>
<th>Model 2</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>β</td>
<td>t</td>
</tr>
<tr>
<td>Gender</td>
<td>-0.971</td>
<td>2.363</td>
</tr>
<tr>
<td>Age</td>
<td>-0.598</td>
<td>-1.177</td>
</tr>
<tr>
<td>Education</td>
<td>0.474</td>
<td>1.045</td>
</tr>
<tr>
<td>Religion</td>
<td>-0.033</td>
<td>-0.097</td>
</tr>
<tr>
<td>Presence or absence of training experience</td>
<td>0.290</td>
<td>1.687</td>
</tr>
<tr>
<td>Presence or absence of friends who are sexual minorities</td>
<td>-0.131</td>
<td>-0.539</td>
</tr>
<tr>
<td>Negative stereotypes</td>
<td>-0.046</td>
<td>-1.729</td>
</tr>
<tr>
<td>Negative emotions</td>
<td>-0.173</td>
<td>-8.428***</td>
</tr>
<tr>
<td>Constant value</td>
<td>5.305</td>
<td>6.296</td>
</tr>
<tr>
<td>R²</td>
<td>0.082</td>
<td>0.713</td>
</tr>
<tr>
<td>Adj R²</td>
<td>0.049</td>
<td>0.690</td>
</tr>
<tr>
<td>F(sig)</td>
<td>2.427</td>
<td>32.221</td>
</tr>
</tbody>
</table>

*p<.1, **p<.05, ***p<.001
5. Conclusion and Implication

The sense of social distance did not manifest a clear hierarchical priority, but the average value of the questions about acceptability as a family member turned out to be relatively low. It may be burdensome for a sexual minority to become family, but it can be seen that there is no significant influence if that event has no direct relation to him or herself. Since most respondents are in their 20s and 30s, it can be seen that the acceptance turned out to be high. However, the respondents will be appointed officially upon the completion of the training period, will become police officers and face sexual minorities in the line of their duty. Accordingly, it is necessary to train them on how to care for them and run programs to train them on how to deliver the necessary knowledge.

As a result of the study, it was discovered that there is a difference in the sense of social distance towards sexual minorities according to gender. For the males, the distance turned out to be greater, and the sense of social distance varied according to religion. In addition, it turned out to be the higher the negative stereotypes, and the higher the negative emotions, the larger the sense of social distance towards the sexual minorities.

What is noticeable is that, approximately 76% of the respondents said that they did not know what LGBT stands for among the perceptions of the police trainees towards the sexual minorities. On the other hand, 74% and 82% of them answered that they were aware of the questions related to queer festivals or the definition of sexual minorities, demonstrating high percentages. Such conflicting results may attribute to the familiarization with the words of 'queer festival' presented in the media recently and 'sexual minorities' being a social issue. However, the training programs provided to the trainees cover very little on the human rights related matters, and there is even a greater lack of the education for the socially weak including the sexual minorities.

Accordingly, it is very likely that stereotypes and negative perceptions towards minorities will likely solidify as an unilateral image drawn from personal experiences, contacts, or colleagues when they enter the line of their duty without undergoing such training at the stage of police trainee. This may also likely lead to prejudices or distorted ideas about sexual minorities depending on the individual's learning method. In severe cases, we could deny the possibility of judging sexual minorities as inferior beings or learning them as abnormal beings.

The significance of training and education is as important as the future of a nation. As such, the preliminary police officers should not only concentrate on traditional education such as prevention of corruption and ethics education but also various types of conflicts facing our society and what will be required for service by the citizens. While there are many qualities of police officers required by the citizens today, but it must be overlooked that they also require the abilities to recognize and care for the minorities.

6. References

6.1. Journal articles


6.2. Thesis degree


6.3. Books


6.4. Additional references


<table>
<thead>
<tr>
<th>Author</th>
</tr>
</thead>
<tbody>
<tr>
<td>Park Chan-hyoek / Youngsan University Professor</td>
</tr>
<tr>
<td>B.A. Wonkwang University</td>
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<tr>
<td>M.A. Dongguk University</td>
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<td>Ph.D. Dongguk University</td>
</tr>
</tbody>
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Research field

Major career
- 2017~ present. Youngsan University, Professor
Abstract

The research analyzes relevant risk factors to crime prevention among safety elements, reducing life quality index of Jecheon-si citizens, and direct causal factors in cause-and-effect relationship, hence accordingly suggests a safe-city construction plan via joint citizen, the government and the academia network cooperation. To achieve such an objective, correlations between crime types and rates in Jecheon, in Chungcheongbuk-do province and in all cities are comparatively analyzed. Proposing effective safety measures against crimes based on the research results of Jecheon, characteristic analysis of crime occurrences in Jecheon and its tailored anti-crime safety module system should be established, through practices by joint cooperation among citizen, the government and the academia network. Then, according to regional crime types in Jecheon, various crime prevention programs will actively need to be developed and operated.

[Keywords] Crime Prevention, Jecheon-si, Regional Characteristic, Anti-Crime Safety Model, Citizen

1. Introduction

Recently, the government has actively been particularly promoting safety-related lifestyle development projects in circumstances with increasing awareness in and desire for safety by citizens due to ‘Random Crime’ or violent crimes against second-class citizens. To build such safe living environment of citizens, various business policies, including urban regeneration project, construction of safe town, and establishment of regional safe city, have been performed by the government and provincial self-government. Especially for the Jecheon-si case, the crime rate is relatively low in relation to safety against crimes, however, looking from the standard of violent crimes by each rift valley, its number has increased from 1,192 in 2012 to 1,322 in 2016 by 10.9% over the past 4 years - having thief and violence crimes are accounting for 97%(standard as of 2015) of the violent crime majorities - therefore their safety countermeasures are sincerely needed.

Hence, it is a moment for a social safety network to be established to enable reducing and eliminating crime risk factors pertaining to safety of Jecheon-si. Accordingly, the research would analyze direct cause-and-effect elements of crimes and pertaining risk factors to crime prevention related to safety area, lowering life quality index of Jecheon-si citizens, and consequently propose a safe-city construction measure through joint citizen, the government and the academia network cooperation.

Having theoretical reviews and discussions on advanced researches on designing safety from crimes, characteristics in Jecheon-si crimes would be observed through comparative analysis of official statistical conditions from judicial authorities and crime states in regions similar to Jecheon-si, to provide political countermeasures, establishing Jecheon-si...
as a safe-city from crimes and to examine crime characteristics in Jecheon-si.

2. Theoretical Discussion

2.1. Discussions on regional characteristics and crime causes

Causes of crimes are extremely complex and diversified, however they occur when environment of their occurrences and criminals with motivation and properties for crime commitment are both qualified[1]. Ecological structure and characteristics in each region affect on crimes, that is, the higher rates of decadent entertainment establishment distribution, low-income groups and divorce, the higher rate of crimes[2]. Particularly, the major reasons of differences in crime rates in downtown areas and their pragmatic occurrences vary, but may refer to urbanization, commercialization, concentration of population, a senses of deprivation from socio-economic disparity and contradiction, formations of regions for deviations and a sense of difference from values[3]. Moreover, the residence of foreigner groups with illegal immigration as temporary-stay workers has generated a new city-crime factor[1]. Looking into relevance among regional characteristics and crimes domestically, for Seoul, violent crime rate is higher in Gangnam area where business districts and buildings are concentrated, and other various crimes, including sexual assaults, intensively occur in crowded locations such as subways, department stores and decadent entertainment establishments[4]. Observing crime characteristics from crime conditions in Daejeon, murder, robbery, theft and violence crimes have tended to decrease, while rape crimes have increased where decadent entertainment establishments and shopping malls densely located - further actual theft crime increased in such places - presenting higher both crime rates than other regions[5]. In Gumi-si, theft rate was high in downtown areas, including terminals, violence crime occurred more frequently than thefts near restaurant, accommodation and decadent entertainment businesses, and traffic accidents and foreigner crimes highly occurred around industrial complex[6].

2.2. Advanced research review

Advanced researches on regional characteristics and crimes strived for disclosure of crime cause by conducting cross-sectional researches analyzing correlation in cause-and-effect and monitoring existing researches and shifting trends from official statistical data relevant to socio-economic elements. Accordingly, most advanced researches. Analyzed and insisted - there are correlations in between regional characteristics and crimes from macro-societal perspectives, such as socio-economic traits(population, population movement rate, the number of beneficiaries of national basic livelihood aid and foreigners, et al.), regional community traits(facility distributions, CCTV installments and land utilities, et al.) and social structure issues retained in each region[5]. Therefore, examination of domestic advanced researches as <Table 2>. 
Table 1. Domestic Advanced Research and Contents.

<table>
<thead>
<tr>
<th>Division</th>
<th>Variable influencing crime occurrence</th>
<th>Crime type for research</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ka (2010)</td>
<td>Demographic, economic, family structural factors, degree of exposures and accessibility to crimes, degree of target attractiveness and defense mechanism[9].</td>
<td>Robbery, theft, violence crimes</td>
</tr>
<tr>
<td>Kim &amp; Cho (2012)</td>
<td>Comparative analysis of crime statistics, population and public security conditions in Jeju area[10].</td>
<td>Criminal law, violent, special law crimes, unlicensed, drunk driving</td>
</tr>
<tr>
<td>Jeong &amp; Kang (2013)</td>
<td>The number of beneficiaries of national basic livelihood, the number of population in each household, rate of accommodation and restaurant businesses[11].</td>
<td>Murder crime</td>
</tr>
<tr>
<td>Kim (2018)</td>
<td>Population, the number of foreigners, aging population rate, employment rate in accommodation and restaurant businesses, multiplex housing rate, high-risk drinker rate[12].</td>
<td>Entire crime occurrence number</td>
</tr>
</tbody>
</table>

3. State and Analysis of Regional Characteristic and Crime in Jecheon-si

Table 2 is a comparative analysis of crime conditions in Jecheon-si, Chungcheongbuk-do and the whole nation to observe crime occurrence changes. Analytical result of Table 2 as follows. First, looking crime condition changes throughout the country, the increasing number from 2011 to 2013 presents a decrease in 130 thousands, however the incremental shift continues again in 2015 by 150 thousands (8.71%) in approximate compared to the previous year, 2014. Second, Chungcheongbuk-do shows late 2% of crime occurrence rate and the rate showed an increase from 2011 to 2013, however decrease from 2014 as the largest, 50,856, to 2015. Third, Jecheon-si showed early 9% crime rate for the past 5 years compared to the one of Chungcheongbuk-do. Based on such figures, considering that the crime rate of Chungcheongbuk-do is late 2%, the rate of Jecheon-si is relatively regarded very high.

Table 2. 2011~2015 comparisons of crime conditions.

<table>
<thead>
<tr>
<th>Division</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>Whole Nation</td>
<td>1,752,598</td>
<td>1,793,400</td>
<td>1,857,276</td>
<td>1,712,435</td>
<td>1,861,657</td>
</tr>
<tr>
<td>Chungbuk</td>
<td>48,235</td>
<td>50,477</td>
<td>52,060</td>
<td>50,856</td>
<td>53,703</td>
</tr>
<tr>
<td>Rate</td>
<td>2.75%</td>
<td>2.86%</td>
<td>2.80%</td>
<td>2.96%</td>
<td>2.88%</td>
</tr>
<tr>
<td>Jecheon-si</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Crime</td>
<td>4,066</td>
<td>4,592</td>
<td>4,862</td>
<td>4,851</td>
<td>4,572</td>
</tr>
<tr>
<td>Rate</td>
<td>8.4%</td>
<td>9.0%</td>
<td>9.3%</td>
<td>9.5%</td>
<td>8.5%</td>
</tr>
<tr>
<td>Ppl</td>
<td>137,689</td>
<td>137,521</td>
<td>137,204</td>
<td>136,805</td>
<td>136,138</td>
</tr>
<tr>
<td>Rate</td>
<td>2.95%</td>
<td>3.33%</td>
<td>3.5%</td>
<td>3.54%</td>
<td>3.35%</td>
</tr>
</tbody>
</table>

Note: Distribution ratio of Chungbuk refers to the rate-to-whole nation, and distribution ratio of Jecheon-si refers to the rate-to-Chungcheongbuk-do Province. In addition, population rate of Jecheon-si refers to the crime rate-to-population in Jecheon-si.
Monitoring the crime conditions in Jecheon-si by type, as <Table 3> illustrates, Special Act crimes accounted for the largest, while violent crime only took mid-1% proportions. From 2011 to 2015, violence, intellectual, theft and custom crimes had presented 16.2%, 13.9%, 12.6% and 0.6% respectively on average.

Observing crime condition shifts by type, violence crime have occurred the most compared to others, particularly in 2015, while other crimes decreased in number, violence and theft crimes were committed with 5.9% and 23.6% increase respectively, hence more fundamental identification of causes and countermeasures is essential.

### Table 3. 2011~2015 crime condition comparisons by crime type.

<table>
<thead>
<tr>
<th>Division</th>
<th>2011 (%)</th>
<th>2012 (%)</th>
<th>2013 (%)</th>
<th>2014 (%)</th>
<th>2015 (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Violent Crime</td>
<td>74(1.8%)</td>
<td>61(1.4%)</td>
<td>60(1.2%)</td>
<td>84(1.7%)</td>
<td>58(1.3%)</td>
</tr>
<tr>
<td>Theft Crime</td>
<td>623(15.3%)</td>
<td>526(11.5%)</td>
<td>630(13.0%)</td>
<td>583(12.0%)</td>
<td>524(11.5%)</td>
</tr>
<tr>
<td>Violence Crime</td>
<td>691(17.0%)</td>
<td>742(16.2%)</td>
<td>731(15.0%)</td>
<td>854(17.6%)</td>
<td>732(16.0%)</td>
</tr>
<tr>
<td>Intellectual Crime</td>
<td>529(13.0%)</td>
<td>670(14.5%)</td>
<td>712(14.7%)</td>
<td>653(13.5%)</td>
<td>654(14.2%)</td>
</tr>
<tr>
<td>Custom Crime</td>
<td>34(0.8%)</td>
<td>23(0.5%)</td>
<td>24(0.5%)</td>
<td>25(0.5%)</td>
<td>27(0.6%)</td>
</tr>
<tr>
<td>Other Criminal Law Crime</td>
<td>154(3.9%)</td>
<td>186(4.0%)</td>
<td>164(3.4%)</td>
<td>100(4.1%)</td>
<td>221(4.8%)</td>
</tr>
<tr>
<td>Special Act Crime</td>
<td>1,961(48.2%)</td>
<td>2,384(51.9%)</td>
<td>2,541(52.2%)</td>
<td>2,451(50.6%)</td>
<td>2,358(51.6%)</td>
</tr>
<tr>
<td>Entrie Crimes</td>
<td>4,066(100%)</td>
<td>4,592(100%)</td>
<td>4,862(100%)</td>
<td>4,850(100%)</td>
<td>4,574(100%)</td>
</tr>
</tbody>
</table>

Note: Jecheon-si police agency internal material.

Furthermore, as descriptions in <Table 4>, total number of crime commitment around 7 police substations under Jecheon-si were 1,351 - having Chungjeon substation with 35.2%, the largest rate, and Gangjeo with 27.4%, Joongang with 20.3%, Yongdoo with 7.8%, Bongyang with 5.9%, Chungpoong with 1.8% and Deoksan 1.6% in a descending order. Based on crime conditions by police substation type, violence crime had 823 cases(60.9%) and theft crime had 462 cases(34.1%) at the largest figures - more than half of such violence and theft crimes have been occurring mainly concentrated on Chungjeon, Ganjeo district and Joongang-dong in Jecheon-si. Thus, supplementation of public security activities in the areas is required.

### Table 4. 2016 crime condition comparisons by police substation type.

<table>
<thead>
<tr>
<th>Division</th>
<th>Gangjeo</th>
<th>Joongang</th>
<th>Chungjeon</th>
<th>Yongdoo</th>
<th>Bongyang</th>
<th>Chungpoong</th>
<th>Deoksan</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Murder crime</td>
<td>0</td>
<td>2</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>Rape-indcent assault crimes</td>
<td>12</td>
<td>14</td>
<td>10</td>
<td>7</td>
<td>5</td>
<td>3</td>
<td>2</td>
<td>53</td>
</tr>
<tr>
<td>Robbery crime</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Arson crime</td>
<td>4</td>
<td>0</td>
<td>4</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>8</td>
</tr>
<tr>
<td>Theft crime</td>
<td>115</td>
<td>116</td>
<td>176</td>
<td>20</td>
<td>30</td>
<td>4</td>
<td>1</td>
<td>462</td>
</tr>
<tr>
<td>Violence crime</td>
<td>239</td>
<td>142</td>
<td>283</td>
<td>79</td>
<td>45</td>
<td>17</td>
<td>18</td>
<td>823</td>
</tr>
<tr>
<td>Total</td>
<td>370</td>
<td>274</td>
<td>476</td>
<td>106</td>
<td>80</td>
<td>24</td>
<td>21</td>
<td>1,351</td>
</tr>
<tr>
<td>Ratio(%)</td>
<td>27.4</td>
<td>20.3</td>
<td>35.2</td>
<td>7.8</td>
<td>5.9</td>
<td>1.8</td>
<td>1.6</td>
<td>100</td>
</tr>
</tbody>
</table>

Note: Jecheon-si police agency internal material.
<Table 5>, as an analysis result of crime distributions by time, having violent crimes in Jecheon-si over the past 5 years focused, is to analyze which particular time slot requires intensive crime prevention activities with limited manpower and resource. Observing the analysis result, as <Table 5> depicts, crime rate during midnight(23-02) had over twice of the one in morning or noon, and even crime frequently occurred during evening(19-22). Consequently, intensive crime prevention activities such as patrols must be performed around nights and midnights.

### Table 5. 2012~2016 crime condition comparisons by time.

<table>
<thead>
<tr>
<th>Division</th>
<th>Midnight (23-02)</th>
<th>Dawn (03-06)</th>
<th>Morning (07-10)</th>
<th>Noon (11-14)</th>
<th>Afternoon (15-18)</th>
<th>Evening (19-22)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2012</td>
<td>79</td>
<td>125</td>
<td>84</td>
<td>90</td>
<td>86</td>
<td>77</td>
</tr>
<tr>
<td>2013</td>
<td>200</td>
<td>110</td>
<td>62</td>
<td>80</td>
<td>105</td>
<td>105</td>
</tr>
<tr>
<td>2014</td>
<td>168</td>
<td>57</td>
<td>50</td>
<td>68</td>
<td>92</td>
<td>179</td>
</tr>
<tr>
<td>2015</td>
<td>232</td>
<td>44</td>
<td>83</td>
<td>66</td>
<td>86</td>
<td>78</td>
</tr>
<tr>
<td>2016</td>
<td>193</td>
<td>43</td>
<td>64</td>
<td>56</td>
<td>94</td>
<td>106</td>
</tr>
<tr>
<td>Total</td>
<td>872(29.4%)</td>
<td>379(12.8%)</td>
<td>343(11.6%)</td>
<td>360(12.1%)</td>
<td>463(15.6%)</td>
<td>545(18.5%)</td>
</tr>
</tbody>
</table>

Note: Jecheon-si police agency internal material.

According to <Table 6>, analyzing crime victims by age mainly by violent crimes in Jecheon-si for the past 5 years, 50 or under(41-50) was the largest, 24.5%, then 60 or under as 21.2%, 40 or under as 17.0%, 61 or more as 13.3% and 30 or under as 10.7% in a descending order. Such result has a slight difference from crime victim conditions provided by the police statistics in 2016. That is, although the conditions by age presented 50 or under, 40 or under, 60 or under, 30 or under and 61 or more in a descending order, however number state for 30 or under crime victims was lower and for 50 or under was bigger in the cases of Jecheon-si. Especially, victims at 61 or more in Jecheon-si(13.3%) desperately requires a protective and preventive measures as the proportion rate is much higher than other elderly victims throughout the country.

### Table 6. 2012~2016 crime condition comparisons by time.

<table>
<thead>
<tr>
<th>Division</th>
<th>6 ~ 15 or Under</th>
<th>20 or Under</th>
<th>30 or Under</th>
<th>40 or Under</th>
<th>50 or Under</th>
<th>60 or Under</th>
<th>61 or More</th>
<th>Unidentified</th>
</tr>
</thead>
<tbody>
<tr>
<td>2012</td>
<td>11</td>
<td>29</td>
<td>72</td>
<td>104</td>
<td>119</td>
<td>101</td>
<td>69</td>
<td>1</td>
</tr>
<tr>
<td>2013</td>
<td>27</td>
<td>53</td>
<td>75</td>
<td>120</td>
<td>158</td>
<td>132</td>
<td>82</td>
<td>15</td>
</tr>
<tr>
<td>2014</td>
<td>12</td>
<td>42</td>
<td>66</td>
<td>125</td>
<td>157</td>
<td>156</td>
<td>75</td>
<td>21</td>
</tr>
<tr>
<td>2015</td>
<td>15</td>
<td>39</td>
<td>50</td>
<td>86</td>
<td>132</td>
<td>132</td>
<td>86</td>
<td>49</td>
</tr>
<tr>
<td>2016</td>
<td>17</td>
<td>32</td>
<td>49</td>
<td>67</td>
<td>152</td>
<td>104</td>
<td>80</td>
<td>28</td>
</tr>
<tr>
<td>Total</td>
<td>82</td>
<td>195</td>
<td>312</td>
<td>502</td>
<td>718</td>
<td>625</td>
<td>392</td>
<td>114</td>
</tr>
</tbody>
</table>

Note: Jecheon-si police agency internal material.
Looking into the state of elderly crime victims for the recent 5 years by gender, male elderly victim (66.2%) had more damages than female elderly victims (37.8%), as <Table 7>. In addition, such an elderly victim condition in 2016 is known to have had 15.9% increase in its overall damage from crimes compared to 2012. While the number of male elderly victim decreased in 2016 compared to 2012, female elderly victims have intensively become more vulnerable and are exposed to violent crimes by 56% ratio increase. Therefore, referring the circumstance of increasing crime commitments targeting elders, the second citizens, it is a condition to highly be concerned and preventive countermeasures against each crime type against elders must be prepared.

Table 7. 2012–2016 elderly crime victim comparisons by gender.

<table>
<thead>
<tr>
<th>Division</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
<td>F</td>
<td>M</td>
<td>F</td>
<td>M</td>
<td>F</td>
</tr>
<tr>
<td>Total</td>
<td>44</td>
<td>25</td>
<td>53</td>
<td>29</td>
<td>50</td>
<td>25</td>
</tr>
<tr>
<td></td>
<td>69</td>
<td>82</td>
<td>75</td>
<td>86</td>
<td>80</td>
<td>392</td>
</tr>
</tbody>
</table>

Note: Jecheon-si police agency internal material (M= Male, F= Female).

4. Safety Countermeasures of Jecheon-si against Crimes

Based on the above analytical materials, the proposal of effective crime prevention countermeasures as follows. First, reinforcing responsive strategies against crimes by characteristics in Jecheon-si. In Jecheon, for the past 5 years, the crime rate increased from 2011 to 2013, then presented a slight decrease in 2014 and 2015. However, the crime rate of Jecheon-to-Chungcheongbuk-do was high, as early 9% and was maintained as 3% on average for the rate of Jecheon-to-country however was increased by 12.4%. Furthermore, considering crime types in Jecheon-si, violent crime is occurring the most compared to others. In particular, other crimes decreased in 2015 compared to 2011, however violence and theft crimes showed 5.9% and 23.6% increase respectively, thus identification of their fundamental causes and countermeasures should be devised. For such accomplishments, establishment of anti-crime safety module tailored to characteristics of Jecheon-si must be performed in consideration of crime traits. By utilizing the model, constant monitoring and analysis on on-going crimes in Jecheon-si should be practiced and patrol officers need to be arranged and operated in advance in vulnerable areas against crimes based on the analyzed data. Second, it is to activate local community network. Crime prevention tasks are mostly managed by the police, however, in fact the tasks cannot be managed without cooperation with other institutions. Hence, establishment and development of programs promoting co-participation by related institutions, local residents and the police of the community, and setting adequate performance area for each institution - such an active attitude - are required. Such network activation should be guided to last long enough for constant performance, rather than to just be one-time idea. Third, development and operation of various programs are needed. Through cooperations of citizens, the government and the academia, appropriate and customized crime prevention program tailored to local community should be practiced and operated in reference to Jecheon-si crime analysis by type. To achieve it, customized and professional special lectures should be held for each characteristic of the second class citizens - elders, women and children - in order to various
crime prevention program operations and minimization of crime damages to victims.

5. Conclusion

The research is to build safe city from crimes for Jecheon-si citizens by analyzing crime risk factors and relevant elements. Thus, correlations in crime rate are analyzed via comparative analysis of crimes and their types, which have occurred in all cities, Chungcheongbuk-do and Jecheon-si. Based on the result, if an effective anti-crime safety countermeasures for Jecheon-si, first, tailored anti-crime safety model system must be established, then the establishment should be utilized through cooperation among local community, the police and relevant departments. In addition, various crime prevention programs should be developed and operated, customized for each characteristic of crime types occurring in Jecheon-si. At last, building such a social structural network must enable not one-time strategy, but constant activation of tasks performances, thus supports and cooperations among the government and the local community will need to be executed in advance. As the research focused on discovering regional causes of crimes in Jecheon-si, from official statistical figures, there is a limitation that insufficient number of causes for Jecheon-si crimes were considered, however still the research preserves its value in its utility as basic material to devise political measures, enabling local security enhancement.

6. References

6.1. Journal articles


6.2. Thesis degree

**Author**  
Oh Sei-youen / Semyung University Professor  
B.A. Daejeon University  
M.A. Dongguk University  
Ph.D. Dongguk University

**Research field**  

**Major career**  
- 2013~present. Korean Police Studies Association, Research Director  
- 2013~present. Semyung University, Assistant Professor
Abstract

Purpose; Internationally increasing terror risks is no longer an issue of particular states, but of all, unsafe from terrorism at any time. At a point which effective countermeasures against incrementing terrors and cyber terrors, the thesis proposes a Big-Data based Anti-terrorism system. The suggested system captures terror cells via surveillance systems, collects relevant data to the cell, terrorists and their supporters online and offline and analyzes the tremendous amount of data via Big Data, thus maintains high level of monitoring on captured terror cells in accordance with the analysis results or blocks pertaining terror networks transfer all data to the terror response center for elimination of the cells. To effective utilize the anti-terror system proposed in the thesis, cooperation for general citizens and legal supports by the government are necessary for reading and collecting private information. Specialists throughout the world have been asserting, civil and institutional cooperations are essentially required to cope with international crimes and terrors. Measures to keep balance between international security and personal information protection are needed.

[Keywords] Crime Prevention, Terror, Big Data, Data Mining, Network

1. Introduction

Use of the Internet is broadly and secretly managed by terror cells and terrorists established from various political, economic, social, historical and religious issues. Typically, the purpose of the Internet use by terrorists are fundraising for cell operations, information delivery, secured communication, political behavior, collection and spread of cyber panic, and recruitment and motivation of terror cell members[1].

Terror groups makes tracking and control by investigative and intelligence agencies through transferring messages via spam, bulk and junk mails in a form of encrypted Steganography. In fact, Al-Qaeda played a hub for 911 terror, and ordered subordinates and affiliated terrorists through unstandardized data files such as particular image messages via emails and Usenet. Terror cells have been not only ordering terror commitments via the Internet, but also conducting recruitments to cultivate potential terrorists[1][2]. For example, in Korea, once a 18 years old high school student, Kim, has been seduced by IS terrorist recruitment via SNS and his departure to Turkey, with his disappearance thereafter, he has been missing until now. Likewise, the characteristic of modern terrorism incorporates the Internet, thus, is a virtual, but organic network combination. To prevent and cope with terrors, that are combined into organic networks, first, as much data as possible relevant to offline terrors must be gathered, analyzed and processed. However, the amount of data being collected in relation to terrors is overwhelming till it cannot be managed with existing data processing method, thus new concepts for data processing and storage have become required. Big Data not only stores, but also process stored data in real time, thus is a notion of future prediction based on processed data, or refers to huge amount of data and its data processing...
technique[2]. The number of days for suspect arrest of Boston terror in the United States in April 2013 were only four days. It was possible owing to thorough investigation on 10TB-scale data, consisting of messages, collected scene screens via SNS, both inside and outside CCTV recordings, and all other materials that could have been useful for the case resolution via Big Data by investigative agencies, immediately after the terror had occurred[3].

The thesis proposes an Anti-terror system based on Big Data, the most effective method for data analysis and on data mining, a type of the Big Data analysis techniques to analyze data being accumulatively collected both online and offline.

2. Related Research

2.1. Definition and types of terrors

Terror and Terrorism are commonly used as synonyms, however have slight difference in their meanings. Terror refers to “behaviors to make an enemies or opposing parties threatened or terrified through violence[4]”, and Terrorism refers to “organized and collective violence commitment, ideology or belief for political purposes”[5]. United Nation Security Council Resolution 1373 defines Terrorism as “criminal behaviors to force specific person, the public, the government and the international organizations to act or to stop them from a particular behavior by involving deaths, serious injuries and harms, including taking hostages, against civilians, causing fear to a specific group or person and the public[6].

Categories of terrorism based on a few standards as followings. First, depending on committing agents: terrorism from the top or the bottom, second whether a certain state is involved, civilians or territories from more than one nation are associated: domestic terrorism, state terrorism, interstate terrorism and transnational terrorism, et al. Lastly, depending on methods and tools of terror, key figure assassination terror, hostage-abduction terror, suicide-bombing terror, aircraft hijacking-bombing terror, ship hijacking-bombing terror, cyber terror and weapons terror of mass destruction are classified[7].

Figure 1. Process of data mining.

Database established from collection of relevant data from various sources including the Internet based on Pinketron Global Intelligence Service Data(PGIS) is referred as Global Terrorism Database(GTD). GTD classification categorizes terror into attack, weapon and target et al. Attack is classified into 9 types – assassination, armed attack, explosive, airborne aircraft hijacking, riot-rebellion, kidnapping-hostage, infrastructure attack, unconventional attack and unidentified. Weapon is categorized into 12 types – biological weapon, chemical weapon, firearms, explosive-dynamite, fake weapon, arson-incendiary bomb, scuffle-pandemonium, vehicle, malicious mischief(equipment-device), others and unidentified. Lastly, target is divided into 22 types – business, government, police, military, abortion, air, diplomatic-transnational government, educational institution, water-food-water supply, newspaper-TV-media, non-government, others, civilian-building, religious figure-system, communication, non-militia terror, tourist, transportation, unidentified, water-electricity gas and violence[6].

2.2. Big data and data mining

Global consulting institution, Mckinsey, indicated Big Data as “huge data exceeding the collectable, storage-able, manageable and analyzable capacity with existing data processing technique, hence its definition is subjective and will consistently be changed”. In addition, Big Data defined by IDC as “various data, which next generation technology and architecture to enable extremely high speed collection, discovery and analysis of data via value extraction from data at a low cost”, while Gartner defined as data and phenomenon generating various types of Big Data at a high speed, too fast to deal with[2][8]. Big Data differentiates itself from three aspects
Volume, Velocity and Variety. Volume refers to the physical data amount being simply stored and is the most basic characteristic. Velocity refers to advanced real-time data processing, thus signifies the importance of how fast the visualization process must be executed. Lastly, Variety refers to incorporation of various data sets, thus not only standardized, but also unstandardized data such as pictures, audio, video and social media data, and log files are included[2][8].

Table 1. Data mining phases[2].

<table>
<thead>
<tr>
<th>Phases</th>
<th>Contents</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Data Selection</td>
<td>Setting a goal for knowledge to discover, create three data set for selection, collection and analysis, then extract and organize variable sets and data sample for specific analytical algorithm to be applied.</td>
</tr>
<tr>
<td>2. Pre processor</td>
<td>Phase to modify data, which revision is required, to discover inherent meaning or pattern and knowledge.</td>
</tr>
<tr>
<td>3. Data Transition</td>
<td>Transition process to increase analysis efficiency and to decrease data complexity, reducing the number of data to be considered, selecting adequate variables based on existing data for more accurate model, then new variables are generated.</td>
</tr>
<tr>
<td>4. Data Mining</td>
<td>If data has no value left via examinations and evaluations, the phase returns to Data Selection again, but if it has, the data is transferred into knowledge.</td>
</tr>
</tbody>
</table>

With 4 values – insight, responsiveness, competitiveness and creativity – and advantages, Big Data has become an appropriate mean to effectively cope with future society, often so-called as uncertainty, risk, smart and convergence[8][9].

Insight is the role of Big Data to prepare for uncertain future – pattern analysis, future outlook and scenario simulation et al. for predictable situations in future societies can be performed on the basis of social phenomena and real world data. Responsiveness plays a role of Big Data against risk of future society to analyze environmental, social and monitoring data and to rapidly capture risk or abnormal signs, thus is a notion emphasizing real-time, in that rapid decision-making and real time responsive supports become available through preliminary recognition and analysis of issues. Competitiveness is the role Big Data to cope with characteristic of future society,

Smart. Big Data performs huge data processing volume – Exabyte – thus, not only enables optimal supports such as context awareness and artificial intelligence services, but also ensures product competitiveness through trade area analysis and flexible and adequate responses to other trend shifts. Lastly, the role of Big Data is Creativity for Convergence. Big Data creates new values through integrations with other areas and utilizes of advanced statistical techniques on convergence area, which has sophisticated causality and correlation, to improve safety and to minimize trial and error[2].

Terminologies for disclosing information from data vary. Knowledge Extraction, Information Harvesting, Information Discovery, Data archaeology and Data Pattern Processing refers to a similar notion[10][11][12]. Data Mining is the most fundamental process to discover knowledge and Knowledge is generated as <Figure 1> illustrates. Data Mining phases as <Table 1> [2].

3. Anti-Terror System in the Proposal

The cyber space has much more advantages to perform various functions and tasks all over the world than closed spaces. Such a systematic disposition if terrorist characteristics are secretly dispersed, thus may develop into Homegrown Terrorism via a number of specific stages. Critical reasons for modern terrorism being active via cyber spaces on the Internet are its anonymity and secrecy. Terror cells in virtual space can access from anywhere, as anyone, with anonymity, and the agents offering terror-related information and educational materials operates through completely irrelevant homepage secretly, thus its function as Cyber Heaven may be sustained. Such stages of terrorism are operated systematically and secretly unlike the reality, and as the stages are not consistent-permanent, accessibility of institutions to control relevant crimes is getting more difficult. Furthermore,
terror cells on cyber spaces make tracking difficult from communication to recruitment ranges. Figure 2 is an phase illustration of terrorism on the Internet[1][2].

**Figure 2.** Internet terrorism progress phases[1][2].

<table>
<thead>
<tr>
<th>Communication</th>
<th>Internet</th>
<th>Chatting Room</th>
<th>Steganography</th>
</tr>
</thead>
<tbody>
<tr>
<td>Training</td>
<td>Class</td>
<td>Camp</td>
<td></td>
</tr>
<tr>
<td>Planning/Coordination</td>
<td>Haven</td>
<td>Education</td>
<td></td>
</tr>
<tr>
<td>T/T</td>
<td>Fund</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Video</td>
<td>Recruiting</td>
<td>Digital Media</td>
<td></td>
</tr>
</tbody>
</table>

The anti-terror system in the thesis largely consists of 4 phases, and is structured as Figure 3. Having terror signs captured on the Internet networks, via programs, relevant data is collected to grasp which terror cells are associated with. Analyzing the gathered data, the network is consistently monitored or is collapsed by utilizing the analysis result. The phases as followings;

1. Capturing Terror Cells: Using the surveillance program, suspicious groups or suspects are monitored. The program proceeds monitoring on frequently visited websites, blog postings, dialogue forum, search engine queries, SNS posting contents and website histories of the suspicious targets.

2. Collection of Relevant Data: Identifying terror cells, terrorists and their supporters from the analysis result, all relevant relationship and data online and offline are collected. Not only standardized data online, but also non-standardized data – pictures, audio and video, social media data and log files – CCTV recordings, phone-call recordings and even daily material are collected.

3. Big Data Analysis: A. Select data from the data collection for analysis, then extract and organize data sample for specific analytical algorithm to be applied. B. Modify data which are required for revision. C. To increase analysis efficiency and to reduce data complexity, decrease the number of data to be considered, select appropriate variable based on existing data, then generate new variable. D. If illustrations and examinations are not sufficiently significant, the process returns to data selection phase again or move on to the next phase.

4. Surveillance on / Collapse of Terror Cells: Based on the analysis result, the target is constantly monitored, and if there is sufficient probability for actual terror incidence, websites for surveillance are disconnected and the data is transferred to terror response center.

### 4. Conclusion

Terror risks increasing throughout the world are no longer problems of other countries, but ours insecure from terrors as terrors may occur at anytime. Particularly, in 2014 when Kim collected data about and went to Turkey to join IS Terror groups and became a part of the terror cell, emergence of cyber or international terror establishments has become a problem of all states, not particulars. The thesis has suggested a Big-data based Anti-terror system, at a point, which effective countermeasures against recently increasing terrors and cyber terrors. The proposed system collects relevant data both online and offline to the captured terror cells online, proceeds data-mining to analyze the related data and then, performs consistent monitoring on the cells with terror signs. Moreover,
networks for the high-risk terror cells are entirely blocked, and their associated information are transferred to terror response centers.

Efficacy of social network analysis and Big Data analysis on international crimes and terrorism were acknowledged through practical experiences by foreign institutions. However, to effectively utilize such a system, as reading and collection of personal information are prerequisites, cooperations of general citizens and legal supports by the government are needed. In states, where huge terrors had occurred, infringement of personal freedom and privacy via legislations such as Patriot Act was situationally permitted however, since the disclosure by Snowden, reading and collection of private information have become available only through a warrant. Professionals emphasizes on cooperations among the people and the government to deal with international crimes and terrorism. Measures to balance between national security and privacy protection should be devised.

5. References

5.1. Journal articles


5.2. Additional references


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Changes in Private SECURITY Industry according to the Enactment and Amendments of South KOREAN “Security Services Industry Act”

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Abstract

A country is responsible for the safety of the people. It would be ideal for the police to protect the safety of all people and, if it is possible, the private security industry, would not develop any further. However, the crime rate of South Korea has continued to rise and the safety services provided by the country are limited. It is because it is impossible to predict when, where, and how a dangerous situation may occur. The “Security Services Industry Act” was enacted to foster the private security industry sound and healthy. It was enacted in 1976 and has been revised 26 times.

The amendments of the “Security Services Industry Act” can be divided into partial amendments, amendments due to other law and full amendments. The amendments due to other law mean the changes due to other law. The name change of the Ministry of Public Administration and Security is a representative example. Additionally, it was revised due to the changes in “Criminal Act”, “Punishment of Violences, Etc. Act”, “Civil Act”, “Presidential Security Act”, and “Administrative Procedures Act”. However, these amendments mostly did not affect the purpose of the "Security Services Industry Act" much. The overall amendment trend was addition and reinforcement, rather than deletion or alleviation. Although it is one of the main subjects responsible for the security of South Korea, it has been growing quantitatively without extending the scope of the private security industry and delegating appropriate authorities. In terms of the past 26 revisions, the quantity of it has grown explosively from the enactment in 1976 to 2001, when it finally had the current business areas (i.e., facility security, escort security, personal security, machine security, and special security) and from 2002 to 2012, when the capital requirement was lowered, the responsibility principle began to be applied to the punishment provisions, and the dual task prohibition was removed. It has grown qualitatively from 2013, as regulations were strengthened: the collective civil complaint site was designated, the prohibition period of a sexual criminal was increased, and the prohibition for influencing the hiring of underqualified or unqualified personnel was introduced.

The amendments of the “Security Services Industry Act” are supposed to develop the private security to the next sound level, maintain the national order, and protect the social safety. If the private security violates laws or adversely affects the public order, it should be sanctioned and punished strongly. However, it is necessary to give righteous authority and add more tasks such as private investor service or traffic regulation to security guards, as subjects responsible for social safety, for effectively maintaining the national order and protecting social safety effectively.

Keywords | Security Services Industry Act, Private Security, Social Safety, Enactment and Amendment, South Korea
1. Introduction

South Korea has grown its economy at an amazing speed while undergoing rapid social and institutional changes since its founding. Industrialization has made the society more complex and overpopulated the urban area, yet it has enhanced personal abilities to bring about economic growth. Economic growth has presented richness to South Korea[1]. However, the dark side of the richness has increased the desire to protect social members from various harmful factors and maintain public safety and order owing to the increased, diversified, and organized crimes[2]. The actual ability and manpower of the police are not sufficient to protect all people from every danger, although the basic duty of the police is to protect the people. Private security systems have been introduced to assist or overcome these limitations.

The “Security Services Industry Act”[3] of South Korea was enacted in 1976 with the aim of contributing to the healthy operation of the security services industry by defining items necessary for fostering, developing, and managing it systematically. After the enactment of the act, the "Security Services Industry Act" was amended 26 times, the "Enforcement Decree of the Security Services Industry Act" was enacted and revised 31 times, and the "Enforcement Regulations of the Security Services Industry Act" was enacted and revised 26 times. However, there are still a variety of issues including the authority and business area of security officers, certificate system, and illegal actions. Therefore, it has been continuously asked to improve these problems. Many studies have been conducted on the “Security Services Industry Act” to improve these issues.

Until now, most studies have focused on identifying the issues and improvement measures of “Security Services Industry Act”. Some studies Seo and Park[4] and Choi[5] evaluated specific issues such as the position, responsibility, and the scope of duties. Other studies Park[6] and Lee[7] examined the macroscopic issues and their solutions. Others also compared the “Security Services Industry Act” with equivalent laws of other countries. Lee(2012)[8] and Kim(2012)[9] et al. compared laws or private security instructor system. Additionally, Park and Kim(2013)[10] studied the laws and regulations of Japan and China related to security. Another aspect was the evaluation of an amendment or amended act. Although many studies have evaluated “Security Services Industry Act” persistently, they mostly evaluated it according to the situation at the time of the amendment, suggested tasks, or compared the act with similar acts of other countries. However, since the foundation and the knowledge associated with the private security are not robust, it is necessary to evaluate the changes in the “Security Services Industry Act” from past to present, the social changes according to these changes, and future directions.

2. Theoretical Background

2.1. Definition of private security

The “Security Services Industry Act” was enacted in December 1976 for fostering the sound security industry. Thereafter, this act, the enforcement decree, and the enforcement regulation were revised 26, 31, and 26 times, respectively. Private security is opposite to public security. It was called personal security until private security became a test subject of the security instructor certificate in 1995, but it is mainly called private security afterward[11]. Private security is a series of security activities in a private autonomous area and it includes all preventative action for protecting the life, body, and property of people and maintaining the order[12]. Private security is responsible for crime prevention or order maintenance[13]. In other words, it exercises preventative measures to prevent or inhibit crimes, protect economic gains, or protect loss for a client as much as the remuneration received from the client.

2.2. Security industry status
The status of private security can be examined through the status of security companies and security guards provided by the National Police Agency. Security companies have increased steadily, reaching 4,610 as of 2017, after the act was enacted in 1976. In terms of business, there are 4,528 facility security companies, 42 escort security companies, 567 personal security companies, 149 machine security companies, and 142 special security companies. Security guards, like security companies, have been steadily increasing. It is known that, as of 2017, there are 156,066 security guards.

Table 1. Security industry status[14].

<table>
<thead>
<tr>
<th>Classification</th>
<th>Number of corporate</th>
<th>Number of corporate by licensed business</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total</td>
<td>Facility protection</td>
</tr>
<tr>
<td>14</td>
<td>4,287</td>
<td>5,040</td>
</tr>
<tr>
<td>15</td>
<td>4449</td>
<td>5,203</td>
</tr>
<tr>
<td>16</td>
<td>4570</td>
<td>5,337</td>
</tr>
<tr>
<td>17</td>
<td>4610</td>
<td>5,428</td>
</tr>
</tbody>
</table>

Table 2. Number of guards[14].

<table>
<thead>
<tr>
<th>Year</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
<th>2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Guards</td>
<td>150,030</td>
<td>151,739</td>
<td>150,543</td>
<td>153,767</td>
<td>147,049</td>
<td>156,066</td>
</tr>
</tbody>
</table>

2.3. Contents of “Security Services Industry Act” enactment and amendments

The "Security Services Industry Act", which was enacted for the healthy promotion of the security industry, was revised 26 times since its enactment in 1976. Moreover, the "Enforcement Decree of the Security Services Industry Act" was revised 31 times and the "Enforcement Regulations of the Security Services Industry Act" was revised 26 times. The history from enactment to partial amendments can be summarized as follows.

The main revisions can be summarized as follows. The "Security Services Industry Act" was enacted in 1976 for the need of a private security system and was amended to foster a healthy security industry. In terms of the macroscopic changes, the scope of the security industry has continued to increase. It was extended from facility protection (including important national facilities) and escort security to personal protection work. As it was changed from a report system to a license system, machine security and special security were added to it. The restrictions and administrative dispositions were rather added or reinforced than deleted and mitigated. A representative change is about a criminal background check. Of course, there were also deletions and mitigations. Due to changes in the social environment and aging, the age upper limit for general security guards was raised and then deleted, and that of special security guards was raised from 58 to 62 years old. However, the scope of work and authority were barely changed. Although
there are five business areas, they often overlap one another. It was also found that the authority of security guards has not been changed much even though the collective civil complaint site has become a new task along with the newly added report and permission obligations.

3. Changes in Private Security According to the Enactment and Revisions of the "Security Services Industry Act"

The main revisions can be summarized as follows. In the 1981 amendment, the age limit of the security guard was extended from 50 to 55 years old due to the increased inflow of elderly people into the security business and aging. In the 1983 amendment, the reporting obligation was alleviated and it was decided that it would be unnecessary for reporting the hiring and dismissing a security guard to the head of the district police department. The fine for running a business without a license was increased to 1 million KRW from 500 thousand KRW. The fine for a minor violation such as the report for temporary closure was reduced. The 1989 amendment prevented the infringement on the interests of a security guard due to an unfair contract and stipulated the expenditure necessary for the welfare, education, and training of security guards in order to promote the rights and interests of security guards. In addition, the upper age limit was changed from 55 to 58 years old. In the 1995 amendment, a personal security work was newly added and the security instructor system was newly enacted. The security instructor was supposed to be in charge of instruction, supervision, and training. Moreover, the age limit for the general security guard was eliminated. In the 1999 revision, the name of the “Security Industry Act” enacted in 1976 was changed to the “Security Services Industry Act”, which is currently used. Additionally, the provisions related to the guard instructor were modified reasonably. In the 2001 amendment, the machine security service was changed to a license system and instructed to take a prompt response by explaining how to use the device. The special security service was newly established, and it specified the weapon usage, obedience obligation, and the duty to prohibit the leave from the security area. Moreover, the security business license should be renewed every five years in order to secure the effectiveness of it. The 2002 amendment revised what had been limited to the entire operation of the security company suitable to the reality of the security company. In the 2005 amendment, the security guards were allowed to perform activities outside of the guard services such as displaying power or exercising physical force to others. Moreover, it prevented anyone from making the security guards conduct activities outside the scope of their services. Additionally, general security guards and special security guards performing a facility security service or a personal security work were to be notified 24 hours in advance. The 2008 amendment allowed a corporation or an individual not to be punished if the subject paid considerable care and supervision in order to prevent an offense. In the 2009 revision, the age restriction for a special security guard was extended to 60 years or older. In the revision in 2013, the collective civil complaint site field was specifically defined. Moreover, the minimum capital requirement for the security business license was increased from 50 million to 100 million KRW. Additionally, the criminal record review of a security guard was obligated, and the punishment criteria for the actions beyond the security guard duty were strengthened. The 2014 amendment increased the duration of not being able to work for the security industry from five years to ten years for a sex offender. A new regulation was created to cancel the qualification of a security guard instructor when he/she was appointed and served during the instructor suspension period. The 2015 amendment stipulated that a person who influenced the hiring of an unqualified person in the process of subcontracting a security work could be imprisoned or fined. In the 2016 amendment, it became possible for a person to receive a
general security guard new appointment training before working as a general security guard, which was only possible through a security agent. In the 2017 amendment, the security guard instructor test should be offered at least once a year. Furthermore, the previous regulation, which closed a company based on the one-year contract record, was extended the two-year record. The previous regulation stipulated that a special security guard, who disturbed the normal operation of an important national facility, was subject to receive a sentence of 7 years or less imprisonment. However, considering the balance with other administrative penalties, it was lowered to 7 years or less imprisonment.

3.1. 1976~2001(Establishment)

It was when the "Security Services Industry Act" was enacted, and it grew along with facility security and escort security. However, there were many institutional changes because several shortfalls of the institution were found. The most important changes were the addition of personal security services in 1995 to existing facility security (including important national facilities) and escort security, the change from a report system to a license system for the machine security, and the addition of special security services. It is when the current four business areas were finalized. Furthermore, the security instructor certificate, for instructing, supervising, and training security guards, was introduced in 1995 to settle down the system. “Service” was eliminated from the act to give a positive image, so the "Security Services Industry Act", current name, was established. Additionally, the security guard began to be considered as a job as the upper age limit was raised, a mutual-aid project for the liability of a security association was created, and provisions for promoting the rights of security guards were established.

3.2. 2002 ~ 2012(Development - quantitative)

During this period, the institutional system was relatively alleviated, different from other periods, so the development of the private security industry was accelerated. For example, the license requirements of the security industry were lowered by reducing the capital requirement from 100 million KRW to 50 million KRW for four security businesses excluding for the special security. The dual tasks were prohibited for the security industry but it began to be allowed from this period, except for the special security, considering the nature of the business. Therefore, the business scope of security companies was broadened. Moreover, in terms of liability, companies used to be responsible for the consequences regardless of the efforts and supervisions of the owners. However, it was determined that owners are not liable for the consequence when the owners fulfill the obligation of management, supervision, and attention according to the responsibility principle, the basic principle of South Korean laws. These changes have resulted in a massive increase in the employment of the older population. Moreover, the increase in the number of cultural, sports, and artistic gatherings has increased the volume of the private security industry.

3.3. 2013 ~ present(Development - qualitative)

It is the time when the private security industry is making a transition quantitatively. The most representative changes are the new provision regarding the collective civil complaint site in 2013, increased capital requirement, and strengthened punitive provisions. The collective civil complaint site is required to place a security guard and to appoint a security instructor where a pother or strife is anticipated after obtaining a permit in advance. The capital was raised from 50 million (previously required minimum capital except for the special security) to 100 million KRW. Moreover, the collective civil complaint site work requires a permit. Overall, the entry barrier for the security industry has been raised up. These changes have increased the professionalism of the security business and achieved qualitative
growth, rather than quantitative growth. Additionally, the punishment provisions for security guards, security companies, and security instructors were strengthened or added to help the security industry grow qualitatively.

4. Conclusion
The revision of the "Security Services Industry Act" can be divided into three periods. The first is from 1976 to 2001. It is when the current five business areas were finalized. The second is from 2002 to 2013, when it was developed on an institutional basis. The third is since 2013, when the collective civil complaint site was included as a task and criminal background check began. It was the time when the quantitative increase was slowed and it grew qualitatively.

The private security has been steadily increasing due to increased public awareness of safety and the diversification of crime and various risks since the enactment of the “Security Service Industry Act” in 1976. Therefore, the “Security Service Industry Act” has also been changed a lot in line with social changes. These changes established the foundation of the private security industry by having more works and a certification system. Moreover, “service” was removed from the regulation name to improve the image of the security industry. During the quantitative growth period, the industry finally had the current five tasks. Moreover, the security industry made a quantitative increase in earnest as violent crimes increased, safety awareness increased, elderly employment increased, and there were more culture, sports, and arts events. However, on the dark side, there were many illegal activities and many small-sized companies also increased. During the qualitative growth period, the security companies have become more professional and commercial attributes in earnest, as the collective civil complaint site regulation was newly established and various punishments and provisions have been generated.

The amendments of the “Security Services Industry Act” are supposed to develop the private security to the next sound level, maintain the national order, and protect the social safety. If the private security violates laws or adversely affects the public order, it should be sanctioned and punished strongly. However, it is necessary to give righteous authority and add more tasks such as private investor service or traffic regulation to security guards, as subjects responsible for social safety, for effectively maintaining the national order and protecting social safety effectively.

5. References
5.1. Journal articles


5.2. Thesis degree


5.3. Additional references