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Study on the Usefulness of Applying TOEIC for POLICE Recruitment English Test

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Abstract

Purpose; English, an internationally recognized language, is often used as a Lingua Franca for dealing with the business environment of each country or international affairs. In addition, police officers in each country are increasingly using English to carry out civil affairs and crime-related tasks related to foreigners. As the number of foreigners visiting or residing in Korea gradually increases, police officers are increasingly required to use English in their daily working environment. Due to the nature of the work, the police require high professional ethics and professionalism. For this reason, careful and strict standards and procedures are required for recruiting police officers. This study aims to examine the supplementary point of the situation in which the TOEIC test, the new standard for the adoption of the written test for police recruitment, is used as a universal indicator of the recruitment standard for police officers. It is necessary to examine whether the TOEIC test developed to evaluate English proficiency used in a general everyday business situation is appropriate as a test necessary to recruit talented persons in the police work environment, which has some special purpose. There seems to be a need to discuss a test configuration that can develop into a test that examines the complementary points of the deficiency and devises an alternative that has a role as a better police officer recruitment test, thereby verifying the ability as a potential police officer. This can be seen as a preliminary step to apply the intrinsic characteristics of special-purpose English to universal employment tests. To this end, it can be said to be a necessary discussion to develop a variety of learning curriculum and develop a pinpoint learning strategy to develop a police officer exam with reliability and validity. Therefore, this study intends to suggest ways to improve the English test item designs conducted in the recruitment process of police officers.

[Keywords] Police English Fluency, Test Validity and Reliability, TOEIC Score, ESP, English as a Lingua Franca

1. Introduction

In the 21st century, which entered the era of internationalization in earnest, various fields of society demand excellent language skills for the purpose of strengthening international competitiveness. Among the languages, English, one of the most world's common language, is very widely used in terms of global communication, and the necessity is also desperate. For those who are in preparation for advancing into the society in Korea, improving one's English proficiency is an important factor which is directly related to their employment. In Korea, the TOEIC(Test Of English for International Communication) test organized by ETS can be said to be the most commonly used test type as a measure of English proficiency evaluation. TOEIC is an English proficiency test for non-native English speakers and is used as a tool to evaluate English proficiency in more than 14,000 companies and institutes in over 150 countries. TOEIC basically plays a role in measuring daily listening and reading skills in a workplace with an international

working environment. TOEIC scores show how well candidates use English to communicate and do not require background knowledge or vocabulary of English beyond the daily work environment. In other words, TOEIC is not a test that evaluates comprehensive knowledge of English, but a test type that focuses on practicality and functionality of English use[1].

Currently, in the police employment test in Korea, the self-produced English test questions are presented and tested. In March 2020, the National Police Agency announced the new standard for drafting the employment test for police employment. According to the reorganization plan, from 2022, English test for police officers will be changed to submit transcripts of 550 or higher scores on the TOEIC test. The TOEIC score of 550 to 700 can be said to be the area specified as 'the level at which basic communication is possible in travel'. However, there seems to be a need for further discussion as to whether or not the police officers are in sufficient condition to perform their duties with English proficiency level of 'basic level of communication in travel'. Therefore, careful research needs to be conducted on establishing new standards for the pros and cons of replacing the English test type of police officers with TOEIC and the need to develop additional English proficiency improvement programs for successful candidates of police officers. To date, studies related to TOEIC basically include factors affecting TOEIC score improvement, the relationship between TOEIC scores and English proficiency, and teaching methods for improving TOEIC scores. This is a situation where there is a lack of research or discussion on the effect of TOEIC scores on the performance of police officers or the appropriateness of the recruitment standards of police officers. In order to compensate for these shortcomings, this study intends to look at the supplementary points of the situation in which the TOEIC test is used as a universal indicator of the recruitment standard for police officers.

2. TOEIC Test Design Analysis

Among the internationally recognized English communication skills tests, the TOEIC test, which is the most commonly used test in Asia, especially Japan, has been steadily increasing since it was administered in Korea in 1982. This test was developed to evaluate English proficiency required in everyday life or business environment. It is largely divided into Listening Comprehension and Reading Comprehension sections, each consisting of 100 multiple choice questions(MCQ) making up to total of 200 questions[2]. The TOEIC test composition for each part is shown in the following <Table 1> and <Table 2>.

Table 1. TOEIC listening and reading test design: listening section[3].

	Test design		Question format	Number of questions
Listening comprehension	Part 1	Stand-alone questions	Photographs:	6 multiple choice questions
	Part 2	Stand-alone questions	Question-response:	25 multiple choice questions
	Part 3	Set-based questions	Short conversations:	39 questions 13 conversations: each with three multiple choice questions
	Part 4	Set-based questions	Short talks:	30 questions 10 talks: each with three multiple choice questions

Note: Total number of items in listening section is 100.

Table 2. TOEIC listening and reading test design: reading section[3].

	Test design		Question format	Number of questions
Reading Comprehension	Part 5	Stand-alone questions	Incomplete sentences completion:	30 questions: each with multiple choice questions
	Part 6	Set-based questions	Text completion:	4 texts: each with four multiple choice questions
	Part 7	Set-based questions	Single passage:	29 questions 10 single passages: each with 2-4 multiple choice questions
		Set-based questions	Multiple passages:	25 questions 2 set-based double passages 3 set-based triple passages: each with five multiple choice questions

Note: Total number of items in Reading section is 100.

The results suggest that multilevel growth modeling analysis can be used to evaluate test performance across administrations by exploring repeaters' score change patterns over time. Furthermore, the results of growth modeling serve as a support for the reliability and validity of TOEIC scores[4]. These results indicate that TOEIC scores can be utilized to assess progress in learning or training in English. The extension of the actual type of real-world tasks expressed in the test swells the likelihood of positive test washback. This means that test takers who are preparing to take the target test are developing skills helpful in the real working environment.

The main purpose of the TOEIC test is to measure the ability to communicate in English working environment. In the TOEIC listening section and the reading section, there are five evaluation criteria to measure each candidate's English proficiency as shown in <Table 3>, < Table 4>, < Table 5>.

Table 3. English proficiency evaluation criteria for listening section[2].

Listening section	
1	Can infer gist, purpose, and basic context based on information that is explicitly stated in short spoken texts
2	Can infer gist, purpose, and basic context based on information that is explicitly stated in extended spoken texts
3	Can understand details in short spoken texts
4	Can understand details in short spoken texts
5	Can understand details in extended spoken texts

Table 4. English proficiency evaluation criteria for reading section[2].

Reading section	
1	Can locate and understand specific information in tables and passages
2	Can connect information across multiple sentences in a single text and across text
3	Can make inferences based on information in written texts
4	Can understand vocabulary in workplace texts
5	Can understand grammar in workplace texts

Table 5. TOEIC items field and scope.

Questions field	Scope/range
Professional business	Agreement, negotiation, marketing, sales, business planning, meeting
Manufacture	Factory management, assembly line, quality control
Finance and budget	Bank, investment, tax, accounting, billing
Development	Research, product development
Office	Executive meetings, committee meetings, letters, memos, telephone, fax, e-mail, office equipment and furniture
Human resources	Job offer, recruitment, retirement, salary, promotion, employment support and self-introduction
Housing / corporate real estate	Architecture, design, purchase and rental, electricity and gas services
Travel	Train, plane, taxi, bus, ship, cruise ship, ticket, schedule, station and airport information, car rental, hotel, reservation, delay and cancellation

As discussed, TOEIC is designed mainly for test questions to evaluate English proficiency used in a universal work environment, so it can be said that an additional evaluation system and education system considering the specificity of police work are needed.

3. Necessity of English for Specific Purposes in Law Enforcement

As such, the TOEIC test is an optimized test for evaluating English communication skills commonly used in international everyday business environments. For example, it can be considered that the process of handling contents, such as guidance on security services for foreign residents in Korea or handling civil service, is not significantly different from ordinary English proficiency, so it can be regarded as having similarity. However, there is one area to pay attention to in the police officer's environment of English usage. Currently, the number of foreigners residing in Korea or visiting for the purpose of short-term stay is steadily increasing, and the duties of police officers to provide civil service and security services related to foreigners are also increasing. Unlike English used in everyday life, English used in these environments is divided into English for special purposes(ESP)[5][6]. In other words, in the case of using English required in the process of handling crimes related to foreigners, vocabularies corresponding to special-purpose English that are specialized in a specific field must be used, and there are many cases where the use of related legal terms is also necessary. Nor can it be concluded that both foreigners who speak English as their first language and foreigners who speak English as a second foreign language contain the use of legal terminology and background knowledge to understand those terms. Therefore, when police officers use English for foreign crime matters, they must also have the ability to explain special-purpose English expressions into simpler and easier ordinary English expressions. In order to explain difficult legal terms by converting them into easy everyday languages, sometimes the police officer's English proficiency needs to be more advanced, and a training course to make

police officers to be ready for converting special-purpose English expressions into universal vocabulary is also essential[7]. If the police English required for the police work environment cannot be acquired through additional learning, it can be assumed that there will be restrictions on smooth communication in the special situation of the police work environment[8]. Those who have passed or preparing for the police officer exams have the explicit task of carrying out police affairs consistent with the era of internationalization as a police officer in Korea. Therefore, the ability to speak or understand English fluently in the police work environment to successful candidates can be said to be a very important factor in their fidelity. In result, the evaluation system specialized for police English, which is a special purpose English, should be strengthened, and personnel management through personnel management such as granting incentives to excellent police English should not be neglected[9]. It should be used as a means of strengthening work capability through education and evaluation of police English proficiency for police officers who passed the police appointment test.

To this end, a special-purpose English question pool using a corpus should be constructed to select systematic difficulty adjustment and importance level, and design an appropriate learning curriculum based on the results[10][11][12]. In addition, an institutional system should be provided to educate and learn English literacy optimized for the police work environment through research on teaching methods to improve special purpose English proficiency of police officers[13].

4. TOEIC Reliability Assessment

In Korea, the test score, which is evaluated as the TOEIC score required for employment, is considered to be 700 to 800 points out of 990 points. Many Korean TOEIC test takers have a strong desire to obtain a high TOEIC score, which is related to the direction of the TOEIC textbook publisher and related industries. Although the basic purpose of the TOEIC test is to measure communication ability, there is no communication or interactive education at institutions or courses that teach TOEIC. Instead of strengthening communication skills, Korean test takers and related education practitioners and institutions are encouraging test takers to memorize item structure and frequent vocabulary, and educate how to find the correct answer to the problem by memorizing grammar rules[14]. This is not just limited to reading comprehension, but in the Listening part, education is being conducted in such a way that only the parts necessary for selecting the correct answer are important, and the parts not related to the correct answer can be ignored. In addition, TOEIC textbooks and courses intensively teach strategies for improving TOEIC scores, not strategies for improving English proficiency.

Reliability and validity are very important factors in judging the effectiveness of the test[15]. One of the evidences that can support the reliability problem of the TOEIC test is that the average TOEIC score of those who retake the test 2 to 4 times constantly increases[16]. This phenomenon can be said to be attributed to the improvement of the candidate's English proficiency. On the other hand, there are contradictory opinions given the special circumstances of Korea. The Korean test taker's TOEIC Language Proficiency Interview(LPI) estimate is significantly higher than the non-Korean TOEIC LPI estimate, but the actual English proficiency is relatively low[17]. If candidates take the TOEIC test numerous times and take enough test preparation courses focused on the test score improvement strategy, they will become familiar with the test designs. As a result, it can be assumed that they can expect to improve TOEIC scores without improving their overall English proficiency[18]. In other words, it can be said that the overestimated LPI score of Koreans is not due to their lack of speaking ability, but rather because of the inaccuracy of the score-rating structure of the TOEIC test that lacks filter process on the candidates who try only improve the score through grasping the test type strategy.

The reason for this tendency in Korea is probably because Korean test takers think that improving their scores through tricks is the best way to achieve good scores. In addition, publishers and industry

officials also understand the candidate's thoughts, and it is expected that Korea's TOEIC score will be overestimated for the time being.

5. Conclusion

The police organization is a necessary group for a nation's social well-being, order, and individual freedom. Providing a recruitment system to help select excellent police officers who are potential members of these police organizations is a very important factor in enhancing the development potential of police organizations. Senior police officers need to pay much attention to improving the recruitment process so that excellent police officers can be recruited from the police recruitment process by finding qualified and competent applicants and filtering out ineligible candidates to recruit good police officers. This study listed some of the practical ways of improving English test field of the police recruitment process.

In conclusion, in securing the safety of the people and hiring police officers for high-quality security services, improving the matters presented in this study and select police officers progressively, it will be possible to hire excellent police officers for improving the overall image of the police organization.

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7. Contribution

7.1. Authors contribution

	Initial name	Contribution
Author	YJI	<ul style="list-style-type: none"> -Set of concepts <input checked="" type="checkbox"/> -Design <input checked="" type="checkbox"/> -Getting results <input checked="" type="checkbox"/> -Analysis <input checked="" type="checkbox"/> -Make a significant contribution to collection <input checked="" type="checkbox"/> -Final approval of the paper <input checked="" type="checkbox"/> -Corresponding <input checked="" type="checkbox"/> -Play a decisive role in modification <input checked="" type="checkbox"/> -Significant contributions to concepts, designs, practices, analysis and interpretation of data <input checked="" type="checkbox"/> -Participants in Drafting and Revising Papers <input checked="" type="checkbox"/> -Someone who can explain all aspects of the paper <input checked="" type="checkbox"/>

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A Proposal of Webhard Monitoring System against CYBER SEXUAL VIOLENCE

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Abstract

Purpose; Cyber sexual violence is a sexual crime deriving from information and communication technology such as the Internet and digital devices including camera and has become a serious social issue. The government has enacted various legislations and eradicated measures, yet the spread of cyber sexual crime images and its re-distribution are not eliminated, but constantly increasing. Hence, this study would propose a Webhard Monitoring System.

The proposal Webhard Monitoring system stores extracted features from cyber sexual violence images in database, utilize the stored data for various techniques such as Text-based, Content-based and Semantic-based retrievals. When any image with high index of similarity with the crime image is retrieved, the image is downloaded and checked, and then notify the webhard. The webhard with the retrieval result reception blocks any access to the crime image and transfer the personal information of the image uploader to identification information monitoring system. The system stores and manages the original crime piece and uploader personal information received from the webhard and characteristics of the image for further monitoring processes.

This proposes a monitoring system to rapidly and accurately monitor webhards. The proposal webhard monitoring system retrieves and deletes cyber sexual crime image to prevent re-distribution, and even allows tracking the first distributor of the crime image in the webhards. Considering the characteristics of cyber sexual violence – unavailability of victims to recognize their damage and time-consuming cost to recognize the damage – immediate blocking and deleting the cyber sexual violence image is urgently necessary regardless of the request by victims.

[Keywords] *Cyber Sexual Violence, Monitoring, Webhard, Text Based, Content Based, Semantic Based*

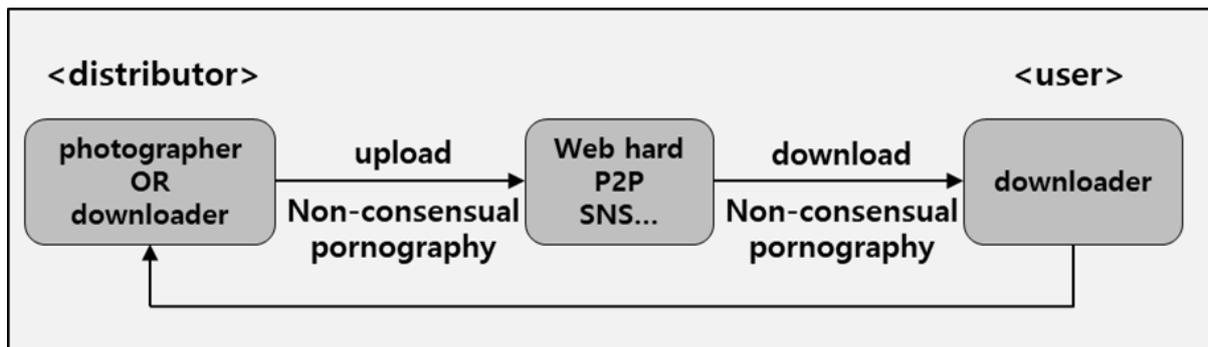
1. Introduction

Cyber-crime refers to illegal commitments and various crimes such as hacking, illegal use of information and spread of malignant programs in the process of information acquisition within cyberspace[1]. Untact, Expertise, Technology, Unrestricted Time and Space, Anonymity, Repeatability, Continuity and Rapid Dissemination of cyber-crimes characterize high degrees of damage and hidden crimes[2]. Cyber sexual violence, the most severe crime among cyber-crimes, is a crime infringing on sexual self-determination without any direct relationship, face-to-face and physical contact. Moreover, expropriating and manipulating sexual images of a random person and threatening, sexual harassment, forceful solicit for prostitution and other derivative crimes via using sexual images are commonly called cyber sexual violence[3].

Recent technology development has allowed the release of hidden cameras in forms of daily necessities with high smartphone camera performance and capacities of high-resolution images and images. Using these filming equipment, cyber sexual violence, spreading various sexual crime images, which sneaked women bodies in public places such as subway stations and terminals via hidden cameras in toilets and fitting rooms and filmed sexual relations, in webhard, chatting and SNS, has become a serious issue[4].

Cyber sexual violence images have not often resulted in a complete prevention of further spread even after the suspect arrests. According to private data deletion companies, the number of cyber sexual crime images being spread in general on the Internet is assumed approximately 100 thousand cases, and the actual number of cyber sexual crime images requesting webhards for its deletion and block has reached 300 thousand cases[3]. The cause of such circumstance is due to the existence of the market tempting trades of cyber sexual violence images, the illegal commodity. The businesspersons of telecommunication such as webhards, being the instrument for spread, have the responsibility to block illegal images, however the webhard cartel between uploader-webhard company-filtering company-and private information deletion company is aggravating the damages[5].

Figure 1. Spread and recirculation of cyber sexual violence.



Thus, this thesis would propose a monitoring system rapidly retrieving and deleting crime images to prevent revictimization through re-circulation and spread of cyber sexual violence images. The thesis consists of followings. Chapter 2, Relevant Studies, looks into definition, types and features of Cyber Sexual Violence. Chapter 3 observes Multi-media Retrieval methods and suggests a webhard monitoring system. Chapter 4 draws a conclusion.

2. Related Research

2.1. Definition of cyber sexual violence

The term, Cyber Sexual Violence, is generally described as “Acts imposing senses of displeasure and threatening from personal information postings in relation to erotic message communication, sexual communication requests and sexual issues by means of undesired words or images which are not agreed by the other in cyberspace such as the Internet”[6].

Korean Response Center against Cyber Sexual Violence insists “the term includes not only online sexual harassment, online-based prostitution, manipulation/exploitation of sexual images, online/Internet-based sexual violence, digital sexual violence and gender-based violence causing sexual harassment on cyberspace, media and SNS by spreading, threatening, storing and posting body images of another via media such as camera without any agreement or consent, but also the spatial and technical meanings for behavioral mediation. This refers a need of enlarging the previous cyber space from the linkage between computers and virtual space

connected through the Internet to the linkages between digital devices including mobile phones and the virtual space”[7].

2.2. Sexual violence crime

The handbook for cyber sexual crime damages categorized the crime traits into 6 sections for descriptions[8]. First feature of cyber sexual violence is spatial characteristic. It is difficult to punish the assailant if the assailant or the business server is located overseas. Moreover, the victim may not acknowledge the damage or take long time to acknowledge, and even mentally suffer from the uncertainty, whether the person in the image/video is the person-self or not. Second feature, which derives from the assailants is, - due to many anonymous sympathizers, awareness and the sense of guilt to crime is low, age and social positions of assailants are not constant, accessibility to the crime images is high at all age groups through online media such as mobile phones, and high chances of dating abuse and sexual violence are anticipated if the assailant is the ex. Third feature derives from victims. As the victims of unconsent sexual images cannot assure whether they are filmed in the images and the images are distributed, psychological damages such as anxiety to further distribution follows. Furthermore, due to stalking and threats by assailants through crime images, difficulties in isolating assailants and victims, in finding who the assailants are and in social lives may be caused.

Table 1. Cyber sexual violence by behavioral types and sorts[8].

Types		Features	Examples
Sexual violence by images	Filming	-Install/direct filming -Filming against the will of the self or of others. High probability of further spread	-Illegal filming(so-called hidden camera) -(Part of body) upskirt, back, entire body, face and naked body -(Behavior) relieving oneself, sexual relations
	Spread / re-circulation	-Spread/Re-circulation of sexual relation images -Including images with the consent of the person(the person as the first distributor) -Regardless of the consent for filming and of the consent for distribution, spread/ re-circulate via telecommunication networks -Spreading manipulated images or composite of face and sexual images	-Uploader(heavy uploader incl.) -Spread via group cat, SNS, porn websites, communities -Vindictive spread -Spreading via SNS accounts to insult acquaintances
	Spread threatening	-Threats to spread images of sexual relations -Threats to spread sexual images to fulfill purposes such as harassment	-Threats to spread to family members and acquaintances -Threats for the hope of meeting again after breaking up -Conciliating not to spread the image if they meet again -Threats to spread the images for money
	Distribution / consumption	-Abetting and Cooperating spreads of cyber sexual violence images for profit -Consuming the sexual images without a consent via watching, sharing and saving them	-Platform licensee of webhards and porn websites -Platform users of webhards and porn websites -Re-spreaders aggravating the damage
Sexual harassments in cyberspace		-Behaviors of Defamation and Insults through sexual contents in cyberspace -Occurs in cyberspace such as SNS, text messages, e-mails, open communities, game chats and mobile websites	-Posting insulting sexual contents against the victim with the victim images -Posting undesired sexual images or videos(links) -Sexual harassments in cyberspace

Even if the victims request for supports to organizations for women and investigative agencies, active response is hardly expected due to the fear of image re-distribution and disclosure of personal information. If the scene of cyber sexual violence is accommodations or public places, anyone can be the victim on occasion, and there is an anxiety of not being recognized as victims of the sexual violence. Fourth, cyber sexual violence and its relevant crimes are highly related to actual sexual violence such as compensated dating, quasi-rape, stalking, house/public place breaking and dating abuse, and can be linked to illegal promotions to illegal drugs such as aphrodisiac, gambling and prostitutions. Fifth, professional techniques to delete cyber sexual violence images and collect relevant evidence are required. Lastly, as the cyber sexual crimes are connected to distribution and capital markets such as webhard companies, considering the social structures, punishment would not be sufficient mean to eliminate the crime, and as the information deleting companies, digital/cyber undertakers, are being more commercialized, financial and psychological damages to victims often occur. In addition, unlike sexual crimes such as rape or sexual molestation, the crimes are depicted through insignificant languages such as 'hidden camera' and 'curiosity', disclosure and accusation against the assailants from the dimension of social movement is difficult to be conducted due to the fear of re-distribution, and professional support facilities are insufficiently provided as the cyber sexual crime is personalized.

Crime images distributed online is spread rapidly through SNS, P2P sites, communities, illegal websites and webhards which ensures a complete anonymity. Once an image is distributed, the image is re-distributed consistently regardless of the persons directly involved, and the damage is aggravated. If anyone downloads the crime image and stores it into one's hard-drive, the image is likely to be stuffed as potential crime image. Hence, cyber sexual violence present more severe and unrecoverable damage to victims compared to other sexual crime types[3][9].

3. Webhard Monitoring System

3.1. Retrieval methods

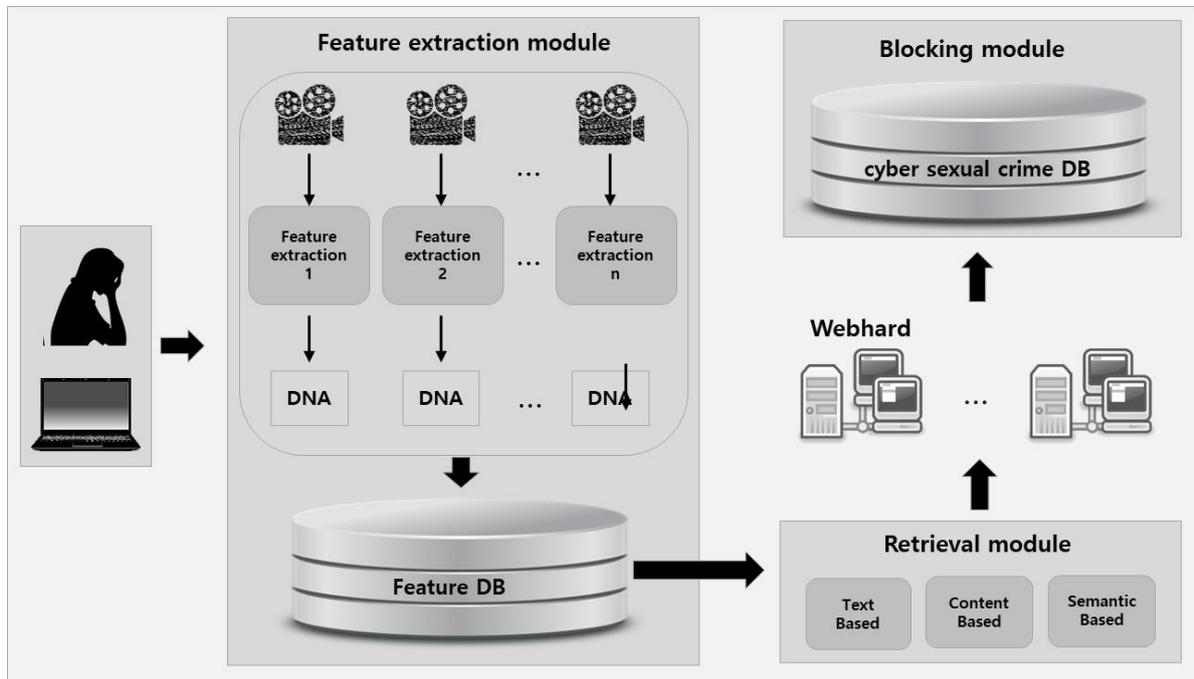
Image Retrievals incorporates the method to search the original. The techniques can be segmented to Text-Based Image Retrieval(TBIR), Content-Based Image Retrieval(CBIR), and Semantic-Based Image Retrieval(SBIR).

TBIR is a technique to manually comment on images, having users retrieving images to utilize queries to request all images appropriate to criteria based on the comments[10].TBIR is time-consuming as its large task amount, image comments, is manually performed. CBIR is often referred to Material-based Image Retrieval. Image features such as color, shape and texture are registered into Feature database, then appropriate images are retrieved based on the data stored in it[11].CBIR is performed via 2 phases – first phase is to extract image traits and store them into database. Second phase, a phase for online searching, is to retrieve any uploaded image on the Internet by using retrieval robots, compare the traits newly posed from the images and the ones stored, and then to transfers images with the highest level of similarity to users[12][13].

SBIR is a technique which integrated the TBIR and the CBIR – supplementing the existing drawbacks and improving retrieval accuracy[14].SBIR detects features of each objects and interest areas by using similarities in color, shape and texture. The detected fields and traits acquire semantic description of images stored in database through the SBIR. From the stage of queries for image retrieval, semantic features are extracted via semantic characteristic translators and the most adequate notion to describe separate and group area or object is selected via semantic mapping. This mapping procedure employs machine learning technique, and its result is output in Textural Word format after having Image Annotation processing[5].

3.2. Proposal monitoring system

Figure 2. Proposed webhard monitoring system.



The proposal webhard monitoring system prevents re-distribution of the crime image by retrieving and deleting the cyber sexual violence images and enables tracking the person who spread the image on a webhard.

The proposal monitoring system consists of three modules – Features extraction, Retrieval and Blocking. Each module functions as followings.

Image Feature Extraction Module extracts features of cyber sexual violence images and store them into database. The module extracts features from the reported image by victims, filtered illegal pornographic images and other reported sexual crime images in the past. The feature of the images in extraction includes text information(image title, file name, et al.), image hash value, and image DNA(color, shape, texture and sound). Traits of Retrieval Module is to utilize the stored data in Feature database and to perform image retrieval on webhards. Blocking Module examines similarities in retrieved images, download the image for identification, and send the result to webhards. The personal information of spreaders of crime images, original crime image, and the database storing cyber sexual crime images are managed by the module.

Once the victim of cyber sexual violence acknowledges the damage and report, following procedures are performed.

1. Features are extracted from the crime image reported by the victim.
2. Using the extracted feature, retrievals are performed on webhards.
3. Once any image with high similarity index with crime image is retrieved, downloading is performed.
4. Downloaded image is checked, and if the image is relevant, the result is reported to the webhards.

5. Webhards blocks any access to the crime image, check the personal information of the distributor. Moreover, all crime images existing on the webhards are to be deleted.
6. Webhards transfers entire processing result and personal information of the distributor to Blocking Module.
7. Blocking Module stores the data received from the webhards into cyber sexual crime database and utilize them.

4. Conclusion

As distributed cyber sexual crime images online are rapidly spread via SNS, communities, illegal websites and webhards and the image may be stuffed by a random person downloading it, hence the severity of cyber sexual crime is unimaginably huge. Moreover, any crime image filmed and distributed to harm victims socially and morally, the crime image even contains personal information of the victims, therefore the victims face a critical damage and their daily life cannot easily be sustained. Cyber sexual crime image should rapidly be deleted through reports by the police and Korea Communications Standards Commission yet has not been effectively performed. Victims are charged at high financial cost to private cyber undertakers, however, immoral cybers undertakers, created cartel with webhards, re-distributed and often threatened the victims with the image.

Hence, this thesis proposes a monitoring system to rapidly and accurately monitor webhards. The proposal webhard monitoring system retrieves and deletes cyber sexual crime image to prevent re-distribution, and even allows tracking the first distributor of the crime image in the webhards. Considering the characteristics of cyber sexual violence – unavailability of victims to recognize their damage and time-consuming cost to recognize the damage – immediate blocking and deleting the cyber sexual violence image is urgently necessary regardless of the request by victims.

Cyber sexual violence images rapidly and easily being distributed on the Internet cause a constant suffering to the victims. The academia, government and private organizations should cooperate to find more systematic relief support measures for victims from cyber sexual violence.

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6. Contribution

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A Study on Criminal Injury Types of Marriage Migrant Women in Multicultural Families and the POLICE's Responses

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Abstract

The purpose of this study is to suggest a plan which can minimize and solve criminal injuries of domestic violence that marriage migrant women in multicultural families who live in Korea experience in Korean society. For this, it concretely analyzed the domestic status of marriage migrant women in multicultural families, types and causes of criminal injuries of domestic violence that marriage migrant women in multicultural families who live in Korea experience in Korean society and examined the police's responses to solve criminal injuries of domestic violence against them. It examined the criminal injury types of domestic violence that marriage migrant women in multicultural families experience by classifying them into physical violence, psychological violence, economic violence, and sexual violence. And the causes of criminal injuries of domestic violence against them were analyzed to be caused by a false sense of ownership of women, the phenomena that domestic violence which is rampant in society is connived, and rapidly changing social environment. And in order to solve these problems, it examined the police's responses by classifying them into the institutional level, cooperation with other agencies, and the educational level. For the police's responses at the institutional level, it suggested improvement of the police's responsive ways, the vitalization of police activities, and the vitalization of various social and cultural programs for marriage migrant women in multicultural families. For the police's responses through cooperation with other agencies, it discussed the creation of institutional devices for participating in crime prevention activities of domestic violence by connecting them to multicultural families, the immigration office, cities, counties, borough offices, multicultural centers, educational institutions, civic organizations, social welfare centers, etc. and active police-centered activities for preventing crimes of domestic violence. For the police's responses at the educational level, it examined the necessity of requiring the operation and expansion of professional and effective multicultural educational programs targeting police officers.

[Keywords] *Criminal Injury, Domestic Violence, Crime Prevention, Social Adjustment, Physical Violence, Psychological Violence, Economic Violence, Sexual Violence*

1. Introduction

Now, questions of human rights, social adjustment, criminal injuries of marriage migrant women in multicultural families with a rapid increase in them are an issue of growing importance in Korean society[1].

Therefore, this study tries to examine the status of the marriage migrant women in multicultural families who live in Korea and the difficulties that they encounter in Korean society focusing on criminal injuries of domestic violence. And it tries to seek for a plan to make marriage migrant women in multicultural families adjust to Korean society well and feel a sense of belonging and identity to it by examining the police's responses to solve criminal injuries of domestic violence that they experience

based on this by classifying them into the institutional level, cooperation with other agencies, and the educational level.

2. The Domestic Status of the Marriage Migrant Women in Multicultural Families

According to national research on multicultural families in 2015, 304,516 marriage immigrants and naturalized Korean citizens were anticipated to reside in Korea, with a 7.5% increase from the year, '12. By gender, females are accounting for 81.5%, the significant majorities, and males for the rest, 18.5%. Moreover, 84% of female marriage immigrants has over 5 years experiences living in the nation.

By nationality, 30.8%, 22.4%, 20.8%, 6.0% and 4.5% are Korean-Chinese, Chinese, Vietnamese, Filipino, and Japanese, et al., having those from China and South-East Asian countries at relatively high percentage. In addition, while Japanese women were the majorities by 1990, entering via religious organizations, the increases marriage immigrants from China and Philippines were exceptionally noted from the early 2000s, and the nationalities have become more diversified with Vietnam, Cambodia, Mongol and Thai-land et al. recently[2].

Even inclinations of female marriage immigration via own efforts and brokers by friends, colleagues, families and relatives are evenly observed and their entrance channels has also been diversified.

3. Types and Causes of Criminal Injuries of Domestic Violence of Marriage Migrant Women in Multicultural Families

The marriage migrant women in multicultural families in Korea have lived as the members of Korean society having communication difficulties due to lack of Korean language ability and linguistic difference, difficulties due to cultural difference and domestic violence, and economic difficulties[3]. Among them, especially for domestic violence that they experience, it is very serious in the aspect that it leads to social crimes. Therefore, this chapter examines types and causes of criminal injuries of domestic violence that marriage migrant women in multicultural families experience.

3.1. Criminal injury types of domestic violence of marriage migrant women in multicultural families

This section examines criminal injury types of domestic violence of marriage migrant women in multicultural families by classifying them into physical violence, psychological violence, economic violence, and sexual violence.

3.1.1. Physical violence

The type that most often appear in the aspects of domestic violence of marriage migrant women in multicultural families is physical violence to inflict bodily harm on the other party[4].

The marriage migrant women in multicultural families experience culture and psychological shock as they encounter patriarchal husbands and their closed families in Korean families.

There are frequent arguments due to the shock from these in the families and they are subject to physical violence from their husbands in this process. Generally, because there are many cases that these people came to Korea alone, they cannot rely on or easily ask others for help so that they are exposed to implicit violence. This physical violence even destroys their families and lives[5].

3.1.2. Psychological violence

Among the criminal injury types of domestic violence, psychological violence causes victims damage for a long time and give traumatic experience to them. Usually, they are subject to psychological violence from their husbands or their families. The marriage migrant women in multicultural families are

variously persecuted and ignored and live in spiritual isolation on the grounds that they “cannot speak Korean”, “cannot make Korean dishes”, “look like exotic”, “do not assist their husbands well”, etc. For example, the cases of not giving living expenses because they are not sure about Korean life or continuing to ignore them without saying a word are the typical examples[6].

3.1.3. Economic violence

There is economic violence among another criminal injuries that marriage migrant women in multicultural families experience. For the acts that husbands who are economic superiors do not give financial support to their wives holding the purse strings, the damage to the marriage migrant women in multicultural families is as considerable as physical and psychological violence[7]. The marriage migrant women in Korean society who came from other countries are severely damaged by economic violence because there are many cases that they mostly create economic dependency on their husbands and they possess the purse strings exclusively without giving them to them as they simply regard them as the concept of ownership and do not have complete faith in them.

3.1.4. Sexual violence

Sexual violence problems of marriage migrant women in multicultural families are one of the most common criminal types as violent crime. Usually, it matters husbands unilaterally force marriage migrant women in multicultural families to have sex without considering their intentions. Generally, for the men who choose multicultural families in Korea, there are many cases that men in rural areas are past the best age to marry. Because the husbands have lived by themselves for a long time, they show a tendency to have sex with their wives by force by disguising it as the legality of marriage. It is hard for marriage migrant women in multicultural families to accept to be forced to have sex with Korean husbands by from them and they feel burden or shame about it[8].

3.2. Causes of criminal injuries of domestic violence of marriage migrant women in multicultural families

The causes of criminal injuries of marriage migrant women in multicultural families are examined as follows:

First, it's a false sense of ownership of women. The men who use domestic violence generally are patriarchal thinking and men of patriarchal position. Because of this, they try to own and control women as they perceive that men have to do economic activities and women have to take full charge of childrearing and housework. Second, it's the phenomena that domestic violence which is rampant in society is connived. Because neighbors perceive domestic violence as the internal issues in families and fear that unnecessary involvement in it leads to social disapproval, it is difficult for victims to inform them of their damage and ask for help[9]. Third, it's prevalence of individualism, family feud due to lack of communication between couples, lack of understanding spouses, and change of life environment which is different from that before forming families as modern society rapidly changes

4. The Police's Responses to Criminal Injuries of Domestic Violence of Marriage Migrant Women in Multicultural Families

This chapter examines the police's responses to criminal injuries of violence of marriage migrant women in multicultural families by classifying them into the institutional level, cooperation with other agencies, and the educational level.

4.1. The police's responses at the institutional level

In order to reduce and solve criminal injuries of domestic violence that marriage migrant women in multicultural families experience, crimes must in advance be prevented by building a 24-hour counseling, translation, and application system for marriage migrant women in multicultural families and

responding to reports from multicultural families and foreigners thoroughly. And the operation of regular meetings such as public safety meetings among the police and marriage migrant women in multicultural families or the systematic operation of the departments and police teams which take full charge of multicultural families including marriage migrant women will be effective[10].

4.2. The police's responses through cooperation with other agencies

In order to respond to criminal injuries of domestic violence that marriage migrant women in multicultural families experience, the activities for preventing crimes of domestic violence which are connected to multicultural families, the immigration office, cities, counties, borough offices, multicultural centers, educational institutions, civic organizations, social welfare centers, etc. must be done[11].

The existing activities for preventing crimes of domestic violence have separately been done by agency. Therefore, methods of communicating with each agencies and connecting them to each other actively must be devised with the police which plays a central role in the activities to prevent crimes related to multicultural.

4.3. The police's responses at the educational level

In order to solve criminal injuries of domestic violence that marriage migrant women in multicultural families experience, the operation and expansion of professional and effective multicultural educational programs targeting police officers are required. And when the multicultural educational programs are operated, awareness related to multicultural need to be expanded by including education related to multicultural in the compulsory learning process[12].

In addition, the combination and operation of the contents of domestic violence can be combined and operated can positively be effective for responding to the difficulties that marriage migrant women in multicultural families encounter. For the educational contents related to multicultural implemented by the police, the contents to include support of victims as well as responses to crimes such as cultural background, how to communicate, support of injuries, etc. should be composed.

5. Conclusion

Marriage migrant women in multicultural families who live together in Korean society are very much exposed to crimes due to domestic violence and there are many cases that their human rights have been infringed due to this(Jeong, Giseon and Han, Jieun at. Al., 2009). In order to solve criminal injuries due to domestic violence that they experience, make these people establish their identity as the members of Korean society, adapt to Korean society, and feel a sense of belonging, it is thought that the police's active responses for marriage migrant women in multicultural families at the institutional and educational level and by cooperation with other agencies are urgently needed as suggested in this study.

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7. Contribution

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Author	KHS	-Set of concepts <input checked="" type="checkbox"/> -Design <input checked="" type="checkbox"/> -Getting results <input checked="" type="checkbox"/> -Analysis <input checked="" type="checkbox"/> -Make a significant contribution to collection <input checked="" type="checkbox"/> -Final approval of the paper <input checked="" type="checkbox"/> -Corresponding <input checked="" type="checkbox"/> -Play a decisive role in modification <input checked="" type="checkbox"/> -Significant contributions to concepts, designs, practices, analysis and interpretation of data <input checked="" type="checkbox"/> -Participants in Drafting and Revising Papers <input checked="" type="checkbox"/> -Someone who can explain all aspects of the paper <input checked="" type="checkbox"/>

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A Study on the Improvement of the Education for Newly Recruited POLICE Officers

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Abstract

Police must always remain resilient and changeable to respond to environmental changes. The acquisition of new knowledge and skills is inevitable, and furthermore, it is very important to induce changes in the perception, values, attitudes and behavior of individual police officers in order to cope with environmental changes and execute necessary tasks through education and training.

Recently, police have been called on to deal effectively and actively with the situation of limiting material and human resources along with increasing quantity and quality of crime, increasing the people's desire for safety and improving the expected level of police activities. At this point, the police should secure and train new police officers with professional and professional views to meet the expectations of the people.

More than 95 percent of the nation's police officers are educated, trained at National Central Police Academy and assigned to practice. Most police officers working at the front line are being deployed through the education of the National Central Police Academy. Given this, we can see that the direction of education and its role of the National Central Police Academy are very important.

However, the current National Central Police Academy is operated on the basis of regulation on education and training of police officials, which poses a major problem in securing legal stability. In addition, despite the importance of education for newly recruited police officers and the aforementioned problems, the reality is that there is a lack of prior research related to this.

Therefore, prior studies were reviewed in this study to derive ways to improve the education system for Newly Recruited Police officers. Through prior research review, the enactment of National Central Police Academy establishment act and the improvement of the police education system were proposed. First, the National Central Police Academy establishment act will have to be enacted. Second, the expert professor system will have to be established. Finally, field-oriented education should be activated.

[Keywords] *Police, Education, Newly Recruited Police Officers, National Central Police Academy, Expert Professor System*

1. Introduction

Along with the recent rise in security demand, it has called for the safety of the people and high-quality services. At this point, it is important for our police to secure and train new police officials who meet expectations. Accordingly, the government is announcing policies to secure social safety through the increase of police personnel[1].

Human resource management is one of the most important factors in modern organizations that determine success or failure. In other words, improvement in the physical environment of an organization, legal, institutional, and financial improvements and support may also be

important factors in the organization's success or failure, but in fact, it is up to people to decide whether an organization will ultimately succeed or not[2].

Against this backdrop, discussions have emerged that individual police officers should strengthen their capabilities and expertise as one of the ways to enhance and enhance the effectiveness of various policing carried out by the police. To that end, the most fundamental step is to strengthen the capabilities of new police officers at the stage prior to the actual deployment of police officers, so the role of the National Central Police Academy, which is in charge of the education of new police officers, is more important than ever, and the education for newly recruited police officers at National Central Police Academy is directly related to the development of police organizations[1]. Therefore, many prior studies are discussing the importance of education for newly recruited police officers[3][4].

Police's patrol officer rank is in a face-to-face relationship that directly affects the lives of ordinary people as it is in a key position as a provider of front-line security services. Therefore, the role of a patrol officer in terms of how people feel in real life is very important[5].

More than 95 percent of the nation's police officers are educated, trained at National Central Police Academy and assigned to practice. Most police officers working at the front line are being deployed through the education of the National Central Police Academy. Given this, we can see that the direction of education and its role of the National Central Police Academy are very important[6].

However, the current National Central Police Academy is operated on the basis of regulation on education and training of police officials, which poses a major problem in securing legal stability. In addition, despite the importance of education for newly recruited police officers and the aforementioned problems, the reality is that there is a lack of prior research related to this.

Therefore, in this study, I will review prior studies to come up with ways to improve the education system for Newly Recruited Police officers. Through the prior research review, I will propose the enactment of an independent law on the establishment of a National Central Police Academy and the improvement of the police education system.

2. Current Education for Newly Recruited Police Officers

2.1. Importance of education for newly recruited police officers

The term "police education and training" means training to develop and improve police officers' abilities so that they can contribute democratically and efficiently to achieving police purposes by acquiring knowledge and skills necessary for performing their duties. Education and training here also include activities to promote a developmental change in the attitude of police officers. In other words, education and training of police officers refers to the process of acquiring knowledge and skills necessary for their job performance, and of developing and supplementing their attitudes and values[7].

In particular, the police's performance of their duties is unpredictable and various tasks are combined together, requiring a relatively large discretion and high level of expertise from field managers compared to the performance of their duties in other public sectors, so the need for new education and training is greater. Not only are the duties of police officers quantitatively large, but they also require professional knowledge and experience in the field, and this knowledge is impossible to transfer and acquire in a short period of time, and will naturally be acquired through new education courses for a long period of time[8]. In other words, the importance of new education and training can be found in the cultivation of the quality as a

desirable police official, the main factors of police socialization, the securing of excellent police personnel, and the redefinition of the role of police as a provider of safety services[9].

In order for effective education and training to be possible, it is necessary to secure excellent instructors and to have sufficient educational equipment and practical equipment needed directly for education. Even if police officers want to receive education and training voluntarily and have motivation for education, effective education and training are impossible if the educational environment is not properly established[8]. In this regard, the National Central Police Academy dedicated to the education of new police officers is a basic educational institution for new appointment, which primarily educates new police officers in the process and principles of successfully performing their duties on the spot, and necessary knowledge and skills, so it must be a very important educational institution for the efficient performance of duties of police officers[2].

2.2. Current state of education for newly recruited police officers

Article 17 of Police Officials Act[10] and article 21 of regulation on education and training of police officials[11] stipulate education for newly recruited police officers. And as a result, a National Central Police Academy has been set up and operated. Established in 1987 in Suanbo-myeon, Chungju, the National Central Police Academy is in charge of training new police officers. The concept of education is stated as follows. The National Central Police Academy was established to provide education and training for those who would be appointed as police officers under Article 17 of the Police Officials Act for the purpose of fostering on-site police officers in police organizations. Field police officers are the people's safety guards who should carry out the honorable police mission at the forefront to protect the freedom and rights of the people as the basis of the police organization and to maintain the well-being and order of society so that all citizens can enjoy a comfortable and happy life. In response, the National Central Police Academy has the concept of fostering police officers who are equipped with the skills and ability to fulfill police missions and devote themselves to the police spirit of patriotism, service, and justice[12].

In particular, from 2013, the government declared its educational vision of fostering on-site SMART police officers in order to foster new police officers who fulfill their responsibilities to the people. SMART police means a police officer who has a strong mentality with a sense of moral character and mission, has practical ability to handle various tasks well, and has information service ability and serves the people[2].

Also, Article 21 of the regulation on education and training of police officials stipulates the qualifications of instructors. The instructor shall be one of the following persons: First, a person who has more than three years of experience in working, research, or teaching related to the field to be handled as a police officer with more than an inspector. Second, a police officer above Inspector, or a person with a master's degree related to the area to be handled as a public officers in general services of Grade 6 or higher, or as a public officers in general services belonging to Senior Executive Service. Third, in the case of an instructor in charge of shooting, martial arts training, or life guidance, a person who has experience in practical affairs, research, or lectures related to the field to be handled as a police official[11].

2.3. Analysis of previous studies

Previous research on the National Central Police Academy generally points to problems such as the current curriculum and claims to improve it. First, Lee SY(2009) presented expansion period of education, reorganization of curriculum and improvement of public welfare material. In particular, he argued that there should be national interest in new students and support for the budget, and he saw securing the budget as a top priority among other things for extending

the education period, eliminating overcrowded classes, welfare for students and boosting morale[5].

And Min HK & Jung BS & Jung ER(2020) argued for a full review of Article 21 of the regulations on education and training for police officials, which stipulated the qualification criteria for instructors at the National Central Police Academy in connection with the development plan of the National Central Police Academy. The review suggested that the instructor qualification be modified to suit the current situation. It also proposed to have instructors at the National Central Police Academy as expert professor system and to transform them into intuitive educational facilities that can be linked to the site, along with strengthening human resources [2].

In addition, Park CH(2020) identified the pros and cons of the changed working-level education and proposed measures to enhance efficient working-level education. To that end, a survey and interview was conducted on trainees who have completed on-site training at the National Central Police Academy, internal and external professors, and working-level officials at police stations. Based on the data collected, the following results and suggestions were made. First, they argued for the introduction of the field training officer. The second proposed measures to improve the quality of instructors and to expand the assessment of lectures. Third, he decided that it would be desirable to provide a variety of education suitable for the recruitment methods. Fourth, they argued for a desirable direction for human rights education. Fifth, he insisted on providing disciplinary education to ensure the morality, ethics, and integrity that police officers should possess[6].

Lee JK(2018) also studied effective new police education methods for increasing the number of police officers. He argued that when returning to the previous normal curriculum after the police manpower increase, it is necessary to present a detailed action plan for the curriculum before the manpower increase, as it can be seen that there is a great direction to be improved to apply it to the current situation. Specifically, it proposed the improvement of the education system of the National Central Police Academy[1]. Finally, Park SJ(2019) claimed the following in terms of the analysis and implications of the school life of the trainees of the National Central Police Academy. First, he analyzed the awareness of the curriculum of the trainees of the National Central Police Academy, the awareness of the period of education of the trainees of the National Central Police Academy, and the awareness of the educational environment of the trainees of the National Central Police Academy. Based on this, he presented a policy direction for curriculum and educational environment that could be trained as professional police officers along with a professional career view of new police officers[8].

2.4. Problems of education for newly recruited police officers

As such, prior studies point to problems in the education system of the National Central Police Academy, suggesting various ways of improvement. Common problems presented by these prior studies are as follows.

2.4.1. Curriculum problems

First of all, the nonconformity of the curriculum and the educational period is problematic. The short training period for new education is not enough to learn all the knowledge and skills required in practice, and on the other hand, there are relatively too many educational contents to digest during the training period, so the effectiveness of education and training cannot be secured. In addition, such a short period of education, among other things, does not provide adequate physical time for hands-on education that should be harmonized with theoretical education, leading to the inability to train field-ready police personnel[5].

In addition, there is a problem that the quality curriculum cannot be operated in the event of an increase in manpower due to the lack of a model for the curriculum according to the

manpower supply plan. In addition, there is no systematic process throughout education by education experts, so there is a lack of curriculum that can efficiently handle both theory and practice.

2.4.2. Problem of status guarantee

It is characterized by a lack of consideration for instructors, who can be called actual producers of education and training. Lack of instructors inevitably adds to the burden of classes that instructors are in charge of. In addition, the absence of expert professor whose status is guaranteed leads to the absence of people who can concentrate on research other than education, slowing the development of new police education.

In addition, it can also be pointed out that students have poor legal grounds in education and training. The lack of a guarantee of status for trainees may act as a factor hindering the inflow of outstanding personnel into the police in connection with the position of police.

The above problems can be solved through various improvement directions. But most importantly, it could be done not through the operation of the education system under administrative rules but through the guarantee of the status of law-guaranteed educational organizations and professors. In other words, the operation of education for newly recruited police officers under administrative rules will be difficult to promote the stability of educational administration.

3. The Direction of Improvement of Education for Newly Recruited Police Officers

3.1. Enactment of independent national central police academy establishment act

It is thought that the ultimate measure is to improve the new police education system by enacting new police education-related laws. The above-mentioned discussions should be reflected in this legislation. The legal basis for the current operation of the National Central Police Academy is administrative rules. As a result, legal stability is not guaranteed in the curriculum and status. Therefore, it is proposed to enact the National Central Police Academy establishment act similar to Korea National Police University Establishment Act. The law should clarify the basis for installation under the law through the purpose regulations and specify the qualifications and curriculum of teachers. If it is difficult to enact such an independent law, the same purpose may be achieved through the revision of the current Police Officials Act.

3.2. Establishment of expert professor system

In order to solve the aforementioned problems, it is proposed to operate the expert professor system to guarantee the status of instructors. This expert professor system shall be stipulated in the National Central Police Academy establishment act to be enacted, and it shall be stated that the Presidential Decree shall prescribe matters concerning the qualification standards and qualification of teachers or persons who may become assistant teachers by applying Article 16 of the Higher Education Act.

In addition, matters concerning the National Central Police Academy will have to be added to Article 17-2 of the Police Officials Act. In addition, voluntary law should be changed to the form of imperative provision to enable stable operation of the National Central Police Academy. The new regulations will be as follows. The Commissioner General of the Korean National Police Agency or the Commissioner General of the Korea Coast Guard shall establish and operate the National Central Police Academy for the education and training of police officials.

Through this, the expert professor system that guarantees status, training and tenure will be operated. It will be able to attract people who can focus on research for the development of police education, and will also make it easier to secure excellent teachers.

3.3. Field-oriented education

Such legislation and securing excellent teachers will enable field-oriented education. Currently, on-site training at police stations after four months of training at the National Central Police Academy requires more preparation. In fact, clear education and training guidelines and managers are not specified separately in practice, causing various management problems. In addition, the sudden deployment of trainees without dedicated personnel or departments could lead to a lack of efficiency as the task must be managed and supervised and distributed to personnel managers. To overcome this, it is necessary to introduce a Field Training Officer(FTO) system for field-oriented education. Establishing a legal basis for these FTOs will enable more efficient and stable on-site practical training.

4. Conclusion

Police are a state-run agency that conducts the most basic and important tasks of protecting the lives, bodies and property of the people and maintaining the public peace. Police must always remain resilient and changeable to respond to environmental changes. The acquisition of new knowledge and skills is inevitable, and furthermore, it is very important to induce changes in the perception, values, attitudes and behavior of individual police officers in order to cope with environmental changes and execute necessary tasks through education and training[6].

More than 95 percent of the nation's police officers are educated, trained at National Central Police Academy and assigned to practice. Most police officers working at the front line are being deployed through the education of the National Central Police Academy. Given this, we can see that the direction of education and its role of the National Central Police Academy are very important.

However, the current National Central Police Academy is operated on the basis of regulation on education and training of police officials, which poses a major problem in securing legal stability. In addition, despite the importance of education for newly recruited police officers and the aforementioned problems, the reality is that there is a lack of prior research related to this.

Therefore, prior studies were reviewed in this study to derive ways to improve the education system for Newly Recruited Police officers. Through prior research review, the enactment of National Central Police Academy establishment act and the improvement of the police education system were proposed.

First, the National Central Police Academy establishment act will have to be enacted. The law should clarify the basis for installation under the law through the purpose regulations and specify the qualifications and curriculum of teachers. If it is difficult to enact such an independent law, the same purpose may be achieved through the revision of the current Police Officials Act.

Second, the expert professor system will have to be established. This expert professor system shall be stipulated in the National Central Police Academy establishment act to be enacted, and it shall be stated that the Presidential Decree shall prescribe matters concerning the qualification standards and qualification of teachers or persons who may become assistant teachers by applying Article 16 of the Higher Education Act. It will be able to attract people who can focus on research for the development of police education, and will also make it easier to secure excellent teachers.

Finally, field-oriented education should be activated. Such legislation and securing excellent teachers will enable field-oriented education. Field training instructor FTO for field-oriented education needs to be introduced. Establishing a statutory basis for this FTO will enable more efficient and reliable on-site practical. Resultingly, if the overall improvement of education system for Newly Recruited Police officers of National Central Police Academy is realized, it will be able to increase the efficient operation of police administration. The efficient operation of police administration could lead to an increase in the benefit of people. I hope that detailed measures will be made through follow-up research.

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6. Contribution

6.1. Authors contribution

	Initial name	Contribution
Author	KHB	<ul style="list-style-type: none">-Set of concepts <input checked="" type="checkbox"/>-Design <input checked="" type="checkbox"/>-Getting results <input checked="" type="checkbox"/>-Analysis <input checked="" type="checkbox"/>-Make a significant contribution to collection <input checked="" type="checkbox"/>-Final approval of the paper <input checked="" type="checkbox"/>-Corresponding <input checked="" type="checkbox"/>-Play a decisive role in modification <input checked="" type="checkbox"/>-Significant contributions to concepts, designs, practices, analysis and interpretation of data <input checked="" type="checkbox"/>-Participants in Drafting and Revising Papers <input checked="" type="checkbox"/>-Someone who can explain all aspects of the paper <input checked="" type="checkbox"/>

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A Study on Response System against Sexual Violence CRIME Via IOT-Based Smart Devices

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Abstract

Background/Objectives; Indiscriminate and brutal crimes have occurred in our recently society. Among the crimes, recidivism of sexual crimes by sex offenders even with their electronic anklets increases, hence an improvement plan is urgently required in such a condition, which the effectiveness of the anklets, in effect, is being questioned and challenged. This study recognizes the severity of the recidivistic and retaliatory crimes and proposes a sexual violence response system, an upgraded variation, via IOT-based smart devices, resolving problems in the existing model and enabling responses against sexual violence.

Methods/Statistical analysis; The proposal model of sexual crime response system with IOT-based smart devices consists of 5 parts – Data collection and comparative analysis module, crime response module-sex offender response module/crime victim response module, Integrated D/B and posterior utility D/B. This system has the phased crime response mode activated to practice sex offender response when a sign of criminal recidivism is captured and a crime sign is detected via attachment of Smart Electronic monitoring Anklets with various IOT-based sensors mounted, on ankles of the sex offenders. Simultaneously, to prevent recidivism by the sex offenders, the sexual violence victims are instructed to wear Smart Electronic Bracelet thereby, the states of the offenders are analyzed, and any recidivistic and criminal injury on the sexual violence victims is minimized via operations of the phased crime victim response module when an injury occurrence is detected.

Findings; While the existing model only collected the sex offender data, the proposal model collects not only the offender data but also the sexual violence victim data through Smart Electronic monitoring Ankle and Smart Electronic Bracelet, thus more accurate prediction against crimes is enabled via the more expanded data collection. The proposal model, involving Smart Electronic monitoring Ankle and Smart Electronic Bracelet, allowed a preventive sexual violence victim response mode, as well as the crime response mode coping with recidivism by sex offenders, by analyzing the data from both the offenders and the victims. In manners of crime response patterns, the existing model only comparatively analyze the collected offender data and gradually operate the phased crime response module against the offender, while the proposed model distinguishes itself by operating response modules of both sex offenders and sexual violence victims, having data of the both collected and analyzed.

Improvements/Applications; Sexual violence response system with IOT-based smart devices, the proposal model, allows more accurate crime prediction via diversified data collection through Smart Electronic monitoring Anklets and Smart Electronic Bracelets, unlike the existing model and the current Electronic Ankle system being run by the Ministry of Justice. Moreover, by operating crime response modes – one allowing rapid response against recidivism to sexual crime victims and the other preventing recidivism based on analysis, the proposal has a difference in the extent of probable crime injury from sexual violence.

[Keywords] IOT, Smart Device, Smart Electronic Monitoring Ankle, Smart Electronic Bracelet, Sexual Violence

1. Introduction

In the recent society, indiscriminate and brutal crimes – violent crimes including murder and robbery – frequently occur. Sexual violence, in particular, has a higher risk of recidivism than other general crimes thus, efficient monitoring and surveillance are necessarily required for the victims. Recognizing the severity of sexual violence, Electronic monitoring Anklets are introduced and have been utilized for over 10 years, yet recidivism rate by sex offenders is keep increasing. The existing Smart Electronic monitoring Anklet model responding by phase to the state of criminals based on the all-in-one Electronic monitoring Anklet and sensors established to collect data from external environment run by the Ministry of Justice has limitation in efficiency of recidivistic and retaliatory crime management and monitoring. Therefore, for efficient management and monitoring of the increasing sexual violence crimes, a preliminarily preventive sexual violence crime response system would be suggested, which utilizes an upgraded IOT-based smart devices from the existing monitoring system via Electronic monitoring Anklets.

Hence, the IOT-based sexual violence crime response system suggested in this study allows various data collection thanks to the uses of Smart Electronic monitoring Anklet and Electronic Bracelets. Such data collection enables more precise crime state and relevant actions, compared to the existing, and even brings preventions of recidivism by sex offenders and retaliatory crimes upon the sexual violence crime victims. As the proposal model brings more rapid and phased response measures, compared to the existing, upon recidivistic and retaliatory crimes by sex offenders, their injuries may be minimized.

2. Related Research

2.1. IOT-based smart devices

IOT is defined as ‘a global infrastructure offering intellectually integrated services on situational recognition and communication capabilities between human and thing, and among things, having intelligent things connected’[1]. Key technologies of IOT are sensing technology, communication and network technology and interface technology. Among them, the most critical technical element for successful IOT services is sensing technology adequately working in different situations and purposes, is composed of input, processing and output devices, and creates new value by organizing a service producing data from the reality via sensors[2].

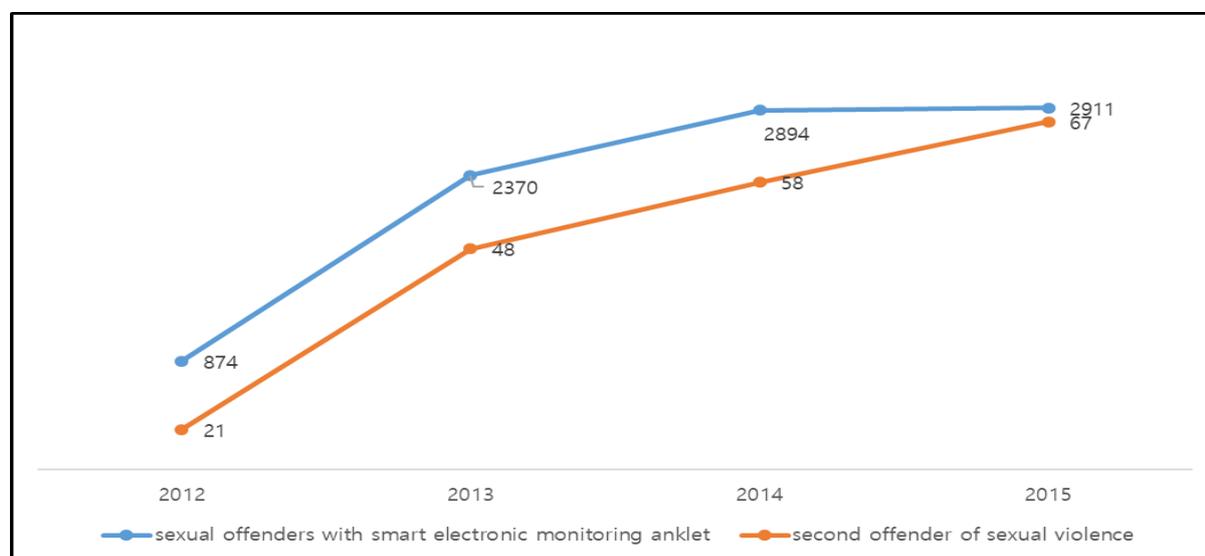
Smart devices refers to products which their functions are not restricted, but considerably changeable or expandable by using application programs[3]. Such smart devices are being more widely applied in various areas such as health, education, beauty, social welfare and disaster management, as many sensor network technology has been developed with IOT-basis. Particularly, in recent, application of IOT-based smart devices is widely increasing to establish safe society from crimes.

2.2. Sexual violence crime

Sexual violence crime comprehensively refers to physical, verbal and emotional violence infringing on one’s sexual self-determination[4]. As sex offenders have higher recidivism risk, hence are required to wear Electronic monitoring Anklets since September 2008. The anklets are required to be worn when the target has committed 2 or more imprisonments due to sexual violence crimes and the total prison term prior to the second conviction is within 5 years, and a criminal with a past conviction of an Electronic monitoring Anklet commits a sexual violence again or recidivism and intentionality in sexual violence are recognized[5]. According to the investigation by Ministry of Justice, as shown in following <Figure 1>, the number of sex offenders with Electronic monitoring Anklets has increased as 874 in 2012, 2,370 in 2014, 2,894 in 2016

and 2,911 in 2018, and if second offenders of sexual violence has increased as 21 in 2012, 48 in 2014, 58 in 2016 and 67 in 2018 – hence a constant increases[6].

Figure 1. Status of second conviction of sexual offenders with smart electronic monitoring anklet.



2.3. Applications

Kwack & Kim & Cha & Hong(2014) suggested a necessity of an intellectual Electronic monitoring Anklet that allows prediction of criminal actions held by criminals, via installing sensors, collecting data from external environments, including degrees of pulse, temperature, drunk driving, acceleration and impact[7].

Kim & Yoon(2015) suggests the public restrooms in crime-ridden districts such as parks as highly probable places where fire and crimes may occur due to improper management due to limitations in human resource and costs. To resolve such issues, commercial sensor is connected to wireless sensor node in the middle of each public restroom or toilet, thus enabling monitoring the restroom conditions and appropriate and rapid responses in different situations by sending signals to an integrated management server[8][9].

Lee et al.(2017) insists the existing CCTV system, monitoring CCTV videos from a fixed position, has blind spots, hence faces difficulties in detecting and arresting intruders. Establishing an IOT-based security CCTV system with smart devices allows flexible responses to different crime situations by ensuring more reliable monitoring[10].

To improve the problem in all-in-one Electronic monitoring Anklets, merely offering simple location information, currently being provided – limitations in precautionary crime prevention - Oh & Lee(2018) suggested a precautionary crime prevention model by detecting crime signs from sex offenders in advance through Smart Electronic monitoring Anklets with various sensors[11]. Furthermore, Oh(2018) suggested a preventive system model against retaliatory crimes by using IOT-based smart watches to easily identify the preliminary risk and cope with situations to minimize criminal injuries to retaliatory crime victims[12].

3. Proposal of Sexual Violence Response System Using IOT-Based Smart Devices

3.1. System design

3.1.1. System configuration

(1)Data Collection

: Via the smart devices attached, data about victims and assailants, police record, history of mental illness, recidivism risk assessment of criminals is collected. The smart device with various sensors attached is Smart Electronic monitoring Anklet and Smart Electronic Bracelet. Smart Electronic monitoring Anklet is attached to ankles of sex offenders to prevent their second conviction and is Smart Electronic Bracelet is to be attached to wrists to prevent any secondary damage from retaliatory crimes by criminals.

(2)Data Comparative Analysis Modules

: Comparatively analyzing data transmitted from various sensors, data comparative analysis modules operate situationally adequate crime response modules in different conditions. That is, based on the data analyzed through Smart Electronic monitoring Anklet, a smart device, crime response modules are operated against sex offenders to prevent their recidivism and, by using Smart Electronic Bracelet, victim response modules to prevent retaliatory crimes of sexual violence with high second conviction risk are operated.

(3)Crime Response Module

: Crime Response Module is a phased crime response module to rapidly and precisely deal with sex offenders by allowing prediction of crimes – recidivism by sex offenders and retaliatory crimes by them with high recidivistic risk – based on comparatively analyzed data from Data comparative analysis Modules.

(4)Posterior Utility D/B

: Posterior utility D/B is a D/B for the uses to prevent second conviction of sex offenders by storing processed data from crime response module and to minimize crime injuries by preventing any future retaliatory crimes of sex offenders.

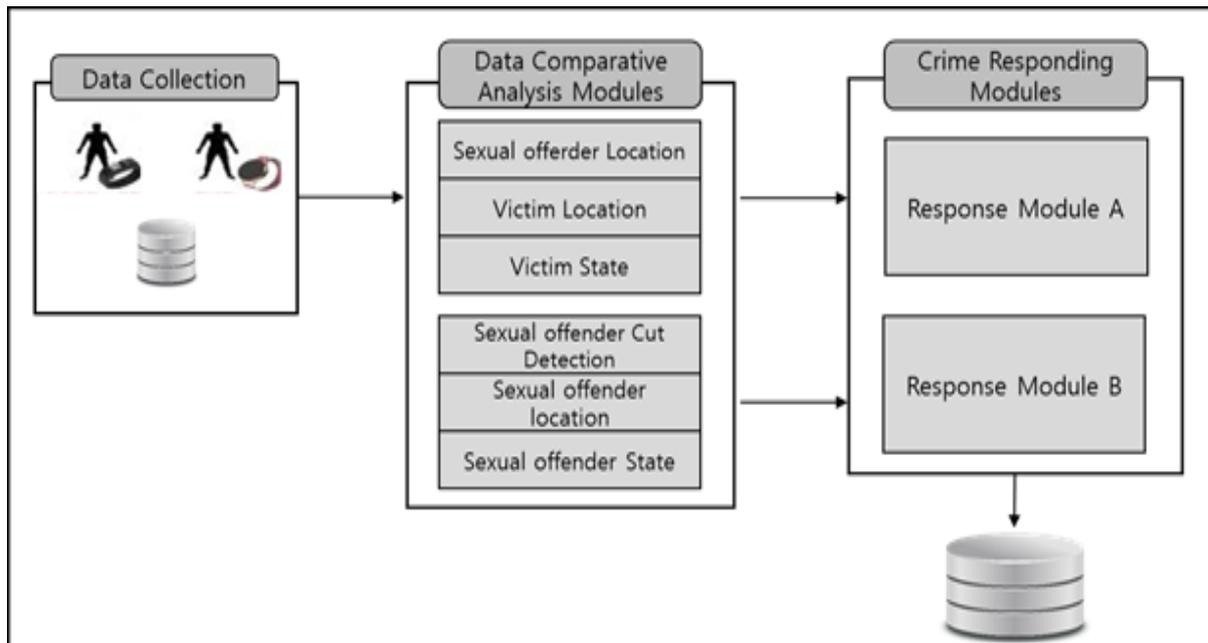
(5)Integrated D/B

: Integrated D/B is a storage of comprehensive data including judgment records, crime methods, current addresses, mental illness and retaliatory risk on criminals by official judicial authorities such as the prosecution, the police and the Commissioner of the Bureau of Reclamation, and allows comparative analysis with data generated from Smart Electronic monitoring Anklet and Smart Electronic Bracelet, and hence, more accurate prediction and responses against crimes.

3.1.2. System proposal

This system based on IOT utilizes Smart Electronic monitoring Anklet and Smart Electronic Bracelet to collect crime related data from sex offenders and victims, to transmit the collected data to data comparative analysis module for an analysis, and then to operate crime response modules depending on the data comparatively analyzed. Thus, sexual violence crime response system with IOT-based Smart Device as following <Figure 2>.

Figure 2. Proposed model.



Step 1: Through Smart Electronic monitoring Anklet on ankles of sex offenders and Smart Electronic Bracelet on wrists of sexual crime victims, location data and body condition of both offenders and victims as well as data regarding criminal records, addresses and mental illnesses stored in judicial authorities, including the prosecution and the police.

Step 2: Various data collected from Smart Electronic monitoring Anklet, Smart Electronic Bracelet and Integrated D/B is sent to Data Comparative Analysis Module.

Step 3: In the data comparative analysis module, data sent from Smart Electronic monitoring Anklet and Smart Electronic Bracelet is comparatively analyzed to prevent any recidivistic and retaliatory crimes by sex offenders and to operate response modules for both offenders and victims.

The data comparative analysis module comparatively analyze data transferred from Smart Electronic Bracelet attached on wrists of crime victims for initiation of response module for victims, and the operation sequence as followings.

- ① Identify the current location of sex offenders.
- ② If the current position of sex offenders is out of designated area or is close to the preliminarily registered addresses of sexual violence victims, the victim response mode A is initiated. If the current location of sex offenders is not in pre-registered position, victim response mode is not operated, but only the location of the offender is saved.
- ③ Comparatively analyzing the data transmitted from Smart Electronic Bracelet equipped with a body information detection sensor for sexual violence victims, status of the victims is identified, and victim response mode A is initiated when a crime risk is detected from body information such as pulse, temperature and body movements.

Data comparative analysis module for sex offenders comparatively analyze data collected from Smart Anklet monitor attached on ankles of sex offenders to prevent any second convictions by the offenders and initiate response module against sex offenders, and the operation sequence as followings.

① When cutting sensor on Smart Electronic monitoring Ankle on sex offenders, their locations are identified.

② If Smart Electronic monitoring Ankle is cut, the current location of the sex offender is confirmed and crime response mode B against the offender is initiated.

③ If Smart Electronic monitoring Ankle is not cut, the current location of the sex offender is confirmed and if the offender is not in designated area of pre-registered address, crime response mode B against the offender is immediately initiated. However, if the location is identified and the offender is located in designated area, the status of the sex offender is analyzed via body information detection sensor attached on the offender, then if any risk of crime sign is detected crime response mode B is operated and if no risk of crime sign is detected, the analyzed data is saved and the crime response mode B against the offender is not initiated.

Step 4: Crime response module is operated based on transferred analysis data from data comparative analysis module as crime victim response module and sex offender response module simultaneously by phase.

Crime victim response mode A is initiated and the operation sequence as followings.

- ① Generate a warning message and an alarm sound to crime victims
- ② Notification of Real-time location of sex offenders
- ③ Mobilize the police

Crime response mode B against sex offenders is operated and the operation sequence as followings.

- ① Generate a warning alarm to surrounding people within 1km from the Smart Electronic monitoring Ankle position of the sex offender
- ② Induce the surrounding people who produced an alarm to disclose personal information of and to report the sex offender via SNS
- ③ Expand the warning alarm range if no significant SNS results are notified in 30 minutes
- ④ Mobilize the police

Step 5: Transmit the process data from sexual violence crime response module and crime victim response module to D/B for storage, hence utilize the data for responses and prediction of future probable sexual violence crimes.

4. Evaluation of the Proposed Model

In this chapter, as shown via <Table 1>, the existing model, A Study of Prevention System against Second-Convictions of Sexual Violence Offenders by Using Smart Electronic Monitoring[12] and the proposal in this study, Response System against Sexual Violence via Smart Devices are examined in efficiencies and differences in operational functions compared to the existing model.

First, the existing model only collected data relevant to sex offenders through Smart Electronic monitoring Anklets, Integrated D/B and Body Information Detection Sensor. However, such a model is insufficient in its effectiveness to prevent crimes for victims who suffer from retaliatory crimes by the offenders who are likely to commit second convictions, as only data focused on recidivism prevention is collected. Hence, while the existing model only collects data

related to sex offenders and focused on a system for second conviction prevention, the proposal model in this study allowed simultaneous data collection through Smart Electronic monitoring Anklet to prevent second conviction by sex offenders and Smart Electronic Bracelet being attached to wrists of sexual violence victims, and hence injuries from retaliatory crimes by sex offenders may be minimized.

Table 1. Evaluation of the difference between two models.

	Category	Existing system	Proposed system
Data collection	Smart electronic monitoring anklet	0	0
	Smart electronic bracelet	X	0
	Integrated D/B	0	0
	Body information detection sensor	0	0
	Cutting sensor	X	0
Data analysis	Phased analysis method	0	0
	Smart electronic monitoring anklet and integrated D/B	0	0
	Smart electronic bracelet	X	0
	Status analysis	X	0
D/B	Integrated D/B	0	0
	Posterior utility D/B	X	0
Crime response operation and application	Utility of SNS	X	0
	Dual crime response module	X	0
	Electronic shock machine	0	X

Second, in terms of data analysis methods, the existing model only performed data analysis to prevent second conviction by sex offenders through Smart Electronic monitoring Anklets, Integrated D/B and Body Information Detection Sensor. Such an existing model has limitations in preventing secondary damages on sexual violence victims from retaliatory crimes by sex offenders with high recidivistic risks as it only entails data analysis upon the offenders. Therefore, to resolve the limitations, the proposal model brings analysis of data not only of sex offenders but also from Smart Electronic monitoring Anklet on sexual violence victims and Body Information Detection Sensor, hence dual data comparative analysis to cope with both recidivistic and retaliatory crimes by sex offenders has become available.

Third, in terms of D/B, the existing model only utilized Integrated D/B to collect data of sex offenders. As the model did not store and analyze the result data from crime response module, hence a definite time was required to analyze data and respond when every sexual violence crime occurs thus, faces difficulties in rapid responses. However, the proposal model additionally used Posterior Utility D/B as well as Integrated D/B to collect data of sex offenders. Such a Posterior Utility D/B may lead to more rapid and accurate response against future emergent sexual violence crimes by storing and analyzing result data from crime response module activated to cope with crimes via data analysis of both sex offenders and victims.

Fourth, while the existing model comparatively analyze the data collected from sex offenders to proceed the phased crime response module, the proposal model involves analysis of data gathered from sexual violence victims and sex offenders, hence allows operation methods to deal with not only second conviction, but also retaliatory crimes to victims by sex offenders. Moreover, the dual crime response mode operations in proposal model, employing SNS, inducing citizens to respond to and report the crimes and using cutting detection sensor has differences from the existing crime response methods against sexual violence crimes.

5. Conclusion

The number of domestic sexual violence crimes for the previous year, according to National Statistical Office, has been over 32,800 cases. Even with Electronic monitoring Anklets, number of sex offenders committing a second conviction has constantly increased from 21 in 2012 to 67 in 2018. Such an above investigation result suggests a question upon the effectiveness of the currently introduced Electronic monitoring Anklets to prevent recidivism by sex offenders. Hence, in a circumstance, suffering from increasing recidivism by sex offenders with Electronic monitoring Anklets, efficient and practical measures to prevent sexual violence crimes are more required than ever. Accordingly, this study suggested a system model to deal with sexual violence crimes by phase, supplementing the limitations in the existing model, the preventive system against second conviction by sex offenders through using Smart Electronic monitoring Anklets, in order to prevent retaliatory crimes to the victims by the offenders, particularly who are likely to commit a second conviction.

This system consists of 5 components – Data Collection, Data comparative analysis Modules, Crime Response Module and Posterior Utility D/B to deal with sexual violence crimes. Various data is collected from Smart Electronic monitoring Anklets on sex offenders, Smart Watches on sexual violence victims and Integrated D/B, and the collected data is sent to Data comparative analysis Modules. Then, the transmitted data of the offenders and the victims is analyzed, and is used to simultaneously operate response modules on both, hence probable injuries from sexual violence crimes are minimized. In particular, the proposal model in this study, having Smart Devices – Electronic monitoring Anklets and Electronic Bracelets – can collect more diverse data than the currently operating model with Electronic monitoring Ankle system, and can prevent not only second convictions by sex offenders, but also retaliatory crimes to the victims. Therefore, proposing such a response system has a significance in its utility as a basic material for future crime response system models against sexual crimes.

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7. Contribution

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	Initial name	Contribution
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CPTED Cases and Policy Proposals for Safe Cities

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Abstract

The strategy to control and minimize the possibility of potential crimes in advance physically in terms of urban planning and architectural design according to social changes is "Crime Prevention Through Environmental Design(CPTED)."

CPTED began to be applied in the United States in the 1970s and is widely considered in Japan in terms of residential environment planning. And recently, as interest in safe cities or crime prevention cities has increased in Korea, CPTED is being integrated in earnest. However, although the physical environment or components of urban and residential areas in Korea are seemingly similar to those of the West, differences exist in the components. Therefore, it is difficult to incorporate CPTED, which has been studied and developed abroad, into Korean cities. In order to find a more efficient way to create a safe residential environment in reality, we need to understand the characteristics of Korean cities and proceed with the study based on them.

The CPTED strategy is more effective if applied when initially planning the residential complex than in improving the existing co-residential complex. But this is limited to redevelopment areas such as newly developed towns and cities. In the case of existing co-residential complexes, which may be vulnerable to crime, improvements such as installing additional CCTVs or introducing unmanned crime prevention systems in the complex can have considerable effects. In addition, visibility of the space should be high in order to enable natural surveillance, and above all, it should be bright by light and lighting fixture and should not be obscured from facilities and landscaping. And we should find ways to limit crime by using security measures and lighting to dampen the criminals' psychology before they commit a crime. This cannot be done with the environmental design alone, so physical means such as professional personnel, unmanned security systems, etc. should be combined.

However, simple changes in the physical environment have limitations in reducing crime or the fear of crime. The effect of crime prevention is maximized only when the organic solidarity of the community and the community consciousness of the local residents are preceded. An approach that activates the interaction of local communities through the expansion of active participation of residents in local autonomous administration and the vitalization of youth and women's activities should be pursued simultaneously with CPTED. In this regard, it is important to cooperate with local residents, police, local governments, local councils, and civic groups.

[Keywords] CPTED, Cooperative Security, CCTV, Urban Planning, Architectural Design

1. Introduction

Today, the Korean society is rapidly developing through high economic growth, and the social structure is also changing in complex, various ways. This change in social structure is increasing crimes in the society both qualitatively and quantitatively, and many social problems are occurring as a result of the side effects. Moreover, new characteristics are also emerging in the crime scene, and new types of crimes are rapidly increasing[1].

Following this social change, the strategy to control and minimize the possibility of potential crimes in advance physically in terms of urban planning and architectural design is "Crime Prevention Through Environmental Design (CPTED)." This, for example, includes setting up a security office in a place where the traffic of people can easily be checked, installing high-performance CCTVs and emergency bells in underground parking lots, replacing streetlight with bright LED lights, and removing trees or obstacles to ensure maximum visibility around parks and playgrounds.

CPTED began to be applied in the United States in the 1970s and is widely considered in Japan in terms of residential environment planning. And recently, as interest in safe cities or crime prevention cities has increased in Korea, CPTED is being integrated in earnest. However, although the physical environment or components of urban and residential areas in Korea are seemingly similar to those of the West, differences exist in the components. Therefore, it is difficult to incorporate CPTED, which has been studied and developed abroad, into Korean cities. In order to find a more efficient way to create a safe residential environment in reality, we need to understand the characteristics of Korean cities and proceed with the study based on them. To this end, the research used a descriptive approach to research using secondary data such as various books, related research papers, and Internet data.

2. Basic Discussion: Environmental Planning and CPTED

2.1. Environmental planning and crime prevention

The types, motives, damages, and methods of crimes occurring around us are very complex and diverse. Therefore, it is virtually impossible to prevent all crimes just by improving the urban environment. Crimes affected by the urban structure or environment are usually opportunistic crimes committed on impulse. Therefore, opportunistic crimes can be prevented to some extent through the improvement of the urban environment.

In general, a typical feature of opportunistic crime is that they are accidental. The creation of an environment in which crime can occur increases the likelihood of accidental crime. Due to the nature of these opportunistic crimes, environmental conditions have become more important than the social conditions around them, and various movements to create an urban environment for crime prevention have been initiated[2].

Creating a safe urban environment is an effort to prevent crime by eliminating the causes of crime in the urban planning stage. In other words, it is a way to minimize opportunistic crime by reducing the environment or situation in which crimes can occur. The focus is mainly on strengthening potential targets or securing visibility to ensure natural surveillance. From the planning stage, crime preventive environmental factors are considered, so the best environmental improvements can be achieved at the minimum cost.

In general, safe and good city in terms of crime prevention means a city where one can walk alone at night, where one can raise children with peace of mind, and where the elderly can live relaxed.

2.2. The elements of CPTED

In the past, traditional criminology defined crime as "illegal acts by criminals" and focused on the causes of crime. However, there is a difference in so-called modern environmental criminology, which includes CPTED, in that it defines crime as a 'dynamic event held at a specific place simultaneously by the criminal and victim' and focuses on the environmental factors in which crime occurs[3].

CPTED is a crime prevention strategy that aims to reduce the chances of crime occurring in cities through appropriate environmental design or urban planning and ultimately improve the

quality of life by reducing residents' fear of crime[4]. Although there is no academic consensus on the factors that make up this, its components are generally thought to be natural surveillance, natural access control, territoriality, increased usability, and maintenance. It intends, based on these five principles, to design urban spaces to fundamentally reduce the likelihood of the occurrence of crime.

The CPTED strategy has proven its effectiveness in major developed countries such as the United Kingdom and the United States, and Korea has recently begun to apply the CPTED strategy to the planning stage of residential complexes. In 2011, the Seoul Metropolitan Government publicly announced the 'CPTED Guidelines for Redevelopment Promotion(New Town) Project' [5]. In these guidelines, natural surveillance, access control, territoriality, and location image were included as the four basic principles of CPTED.

The basic principles of CPTED are as follows. First, the principle of natural surveillance is to strengthen natural surveillance activities by placing buildings, facilities, and plants so that people can have maximum visibility at any location and creating an environment where residents can mingle together.

Second, access control is a principle to reduce and prevent the occurrence of crimes by making it difficult for potential criminals to access the space that should be protected. Restricting access is the most common way for access control. In addition to restricting access, giving certain area territoriality is another common way to control access.

Third, territoriality refers to the classification of certain areas into public and private areas through walkways, fences, landscaping, etc. This territoriality grants residents a sense of belonging, thereby raising awareness in crime, while at the same time making it difficult for potential criminals to gain access to a particular space. The territoriality principle is also highly relevant to the principle of location image.

Fourth, the principle of location image is to increase the territoriality of the space by creating an impression that the surrounding facilities or landscaping are kept clean and well managed, thereby minimizing the occurrence of crime[6].

Table 1. CPTED guidelines for redevelopment promotion(new town) project by Seoul metropolitan government[7].

Basic principles		Implementation strategies	
1	Natural surveillance	1	Securing a clear line of sight using suitable lighting improving isolated area
		2	
		3	
2	Access control	4	Eliminating blind spots promoting combined use of land
		5	
3	Territoriality	6	Increasing activity factors enhancing territoriality
		7	
4	Location image	8	Providing information with accurate indicators

3. The Limitations of CPTED

So, is CPTED a panacea for all types of crime? It is not. CPTED has the following limitations.

3.1. Limitations of planning effect

CPTED is a strategy to prevent and reduce crimes that are likely to occur in cities through environmental design plans and is not a direct solution to the problem of crime. As a way to find a fundamental solution, it seeks to reduce crime by finding environmental factors that may lead to crime.

3.2. Different effectiveness according to the timing of plans

CPTED is more effective and less costly when applied in the planning stage than improving and supplementing existing complexes. Residential complexes completed in the 1980s and 1990s have recently installed additional CCTVs and establish crime prevention services in connection with private security services to enhance safety in the area. These improvements can also increase the safety of the complex in terms of crime prevention, but applying CPTED strategies from the stage of planning the complex has greater cost-effectiveness.

3.3. Regional differences

The generally recommended CPTED design guidelines ignore situational characteristics. Therefore, the application of CPTED to a specific region requires that CPTED standards be established and reflected in a flexible manner in accordance with the local circumstances in which they wish to be applied. In other words, it is important to design crime prevention to suit local characteristics. Daejeon City and Sejong City are different, and Gongju City and Nonsan City are different too. Each should analyze the industrial structure, population distribution, and geographical characteristics of the region and then implement a suitable CPTED strategy for the region.

3.4. Conflicts among planning elements

CPTED should not be a sole consideration for crime prevention when planning residential complexes. There will be a duality between the recommended methods for CPTED and for sustainable development.

CPTED promotes designs to gain visibility in any direction for natural surveillance, but this can cause problems such as invasion of privacy. Also, it is basic to ensure that the traffic inside the complex is minimized in the normal design plan for a residential complex, while the reduction in traffic due to the minimization of transit traffic does not ensure natural surveillance[8].

4. Cases of CPTED Application: Domestic and Overseas

4.1. Overseas cases

Major advanced countries such as the United States have been paying attention to CPTED ahead of Korea and have applied CPTED policies to urban planning. In the United States, design

guidelines were continuously developed from the 1960s to ensure that matters related to crime prevention were reflected from the design stage when building local residential complexes or constructing roads[9].

The U.S. city of Gainesville, Florida, has banned postings covering windows at convenience stores. The checkout counter shall also be installed in a location that is easily visible from the outside, and CCTVs and bright lights shall be installed in parking lots. These efforts reduced property crime of 6,441 cases per 100,000 people by 39% to 3,974 cases per 100,000 people in 2005[10].

The United Kingdom has established the Secure By Design(SBD) under the initiative of the central government, granting certification to areas that meet standardized experimental standards and requirements meet standards related to building materials, buildings, or crime prevention that have passed police screening since 1992[11]. Also, in the late 1980s, London's three areas of Edmonton, Tower Hamlets, and Hammersmith raised the lighting of streetlight from an average of five lux to ten lux, reducing the fear of disorder and crime in all three areas, and increasing the rate of pedestrian road use by more than 50 percent[10].

In the Netherlands, the Police Label Secure Housing system was introduced in 1994 and has been expanded nationwide since 1996 to give certification to building materials or structures that meet standards. As a result of implementing these policies, housing complexes with SBD have had a lower incidence of theft, vehicle-related crime, and damage compared to non-SBD housing complexes, and annual home invasion theft decreased from 120,000 cases in 1997 to 86,000 cases in 2000.

4.2. Domestic cases

Starting with the 'Guidelines for Crime Prevention Design' devised by the Ministry of Construction and Transportation in 1992, Korea began to conduct a policy level CPTED research. In 2005, when the National Police Agency announced its plans for crime prevention and public policy development, the environmental design for crime prevention began to be reflected in the policy. The actual cases applied to residential complexes were expanded to the development of Pangyo New Town development project after Bucheon City applied the crime prevention environment design on a trial basis and are currently applied to the New Town projects in Seoul. As interest in CPTED has increased in Korea, and the number of cases applied to actual residential complex plans has increased, researches on the institutionalization and standardization of CPTED are actively carried out in related academia and research institutes. To standardize CPTED, the Seoul Metropolitan Government enacted 'CPTED Guidelines for Redevelopment Promotion(New Town) Project' and published these CPTED design guidelines in 2009. The CPTED design guidelines established by the Seoul Metropolitan Government range from road planning to landscape facilities and tinting of building windows. However, as the application of CPTED was not as active as expected, the Seoul Metropolitan Government released the CPTED design guidelines in 2011 to make it easier for related companies to use them.

In 2010, the Korea CPTED Association was established and has actively conducted research in connection with the study of architecture, environment, and crime, and a 'crime prevention design certification system' is implemented to examine and give certificates to construction companies when they create residential complexes. The number of complexes that have been

certified as CPTED designs has been expanding to include Gangseo Hillstate in Seoul and Centreville in Gyeyang, Incheon.

As such, Korea is also doing a lot of research and making efforts to create safe cities through CPTED strategic design.

5. Improving CPTED for Safe Cities

5.1. Improving existing residential complexes

The CPTED strategy is more effective if applied when initially planning the residential complex than in improving the existing co-residential complex. But this is limited to redevelopment areas such as newly developed towns and cities. In the case of existing co-residential complexes, which may be vulnerable to crime, improvements such as installing additional CCTVs or introducing unmanned crime prevention systems in the complex can have considerable effects.

If CCTVs and emergency bells are installed to prevent the victimization, control the access of outsiders with unmanned crime prevention systems or vehicle barriers, and manage them with affection, existing complexes that were vulnerable to crime can be reborn as safer ones.

5.2. Elements that need improvement

In order to prevent crime and reduce user anxiety, the following guidelines are presented around CPTED theory, eliminating the factors causing crime.

5.2.1. Natural surveillance

In order for natural surveillance to be possible, visibility of the area must be high, and above all, it must be bright by light and lighting and must not be obscured by facilities and landscaping. Therefore, one can suggest a solution by finding ways to prevent potential criminals from committing crime easily and eliminate places to hide.

5.2.2. Natural access control

Recently built residential apartment complexes have relatively tight access control against unauthorized people, making it difficult to access potential criminal targets. However, if the area is relatively old and commercial areas are nearby, it is difficult to control and block people due to the large floating population. In this case, there is no restriction on access, so it is difficult to figure out the route of escape after committing a crime. Therefore, it is necessary to find ways to prevent crime by using security measures and lighting to dampen the criminal's psychology before committing a crime. This cannot be done with the environmental design alone, so physical means such as professional personnel, unmanned security systems, etc. should be combined.

5.2.3. Territoriality

A clear distinction between the territoriality of public land and private land can increase the sense of ownership of the space, and, furthermore, can make potential criminals reluctant to trespass. Therefore, complementary areas should be identified between residents in the area and visitors with specific purposes by creating actual or supposed boundaries.

5.2.4. Location image

The location image refers to the impression of an area and the surrounding environment that is consistently highlighted by people. Wilson and Kelling published the 'broken window theory' in 1982, which said that leaving a broken window alone will start to spread crime around the spot. Likewise, the location image is related to the idea that neglecting minor disorder increases the likelihood of leading to a major social problem and the perception that disorder and illegality are easily permitted in that area.

In the case of residential areas in modern society, there are many housing complexes that have not yet been properly managed, although the custodian, or the residents themselves, should consider them their own territory and maintain them well. Therefore, it is necessary to have a custodian who can manage and supervise the residential area, and the appropriate direction should be established accordingly.

However, simple changes in the physical environment have limitations in reducing crime or the fear of crime. The effect of crime prevention is maximized only when the organic solidarity of the community and the community consciousness of the local residents are preceded. An approach that activates the interaction of local communities through the expansion of active participation of residents in local autonomous administration and the vitalization of youth and women's activities should be pursued simultaneously with CPTED. In this regard, it is important to establish a cooperative security system involving local residents, police, local governments, local councils, and civic groups.

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7. Contribution

7.1. Authors contribution

	Initial name	Contribution
Lead Author	PDK	<ul style="list-style-type: none"> -Set of concepts <input checked="" type="checkbox"/> -Design <input checked="" type="checkbox"/> -Getting results <input checked="" type="checkbox"/> -Analysis <input checked="" type="checkbox"/> -Make a significant contribution to collection <input checked="" type="checkbox"/> -Final approval of the paper <input checked="" type="checkbox"/> -Corresponding <input checked="" type="checkbox"/> -Play a decisive role in modification <input checked="" type="checkbox"/>
Corresponding Author*	JSG	<ul style="list-style-type: none"> -Significant contributions to concepts, designs, practices, analysis and interpretation of data <input checked="" type="checkbox"/> -Participants in Drafting and Revising Papers <input checked="" type="checkbox"/> -Someone who can explain all aspects of the paper <input checked="" type="checkbox"/>

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The Effects of Organizational Justice on Organizational Citizenship Behavior of the KOREAN POLICE Officers: Mediating Effect of Supervisor Trust Investigation

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Abstract

Purpose; The Korean police are tasked with maintaining the order of security, focusing on the local police, who are both national and closest to residents. It was necessary to systematically identify and take countermeasures against the preventive police, whose psychological status of police officers' psychological contract violations based on organizational changes and employment relations, based on the assumption that the relationship to the organized civic action was negative, and to investigate the organizational Justice of local police officials in Korea and the psychological contract violation factors that were closely related to their work. The Korean police system, which has changed its organization, suggests that the local police-centered autonomous police system, which is scheduled to be implemented soon, is ideal for local police officers at the level of metropolitan and provincial governments. This should be a discussion on the introduction of a local police-centered autonomous police system based on the will of residents-friendly local residents rather than the introduction of a self-governing police system suitable for the government's policies. This is due to the effective functioning of local police to effectively operate crime prevention and investigation functions of local police to improve the quality of life of residents. Therefore, If the government identifies the organizational fairness of Korean police officers who have a significant impact on organizational civic action and the factors influencing psychological contract violations after the contract, and sets the goal for improvement, it will improve the quality of security services by enhancing the level of organized civic action of Korean police officials. There has been a lot of discussion about autonomous police, but there has been no active discussion among local police officers trying to restructure the Korean police-oriented organization in line with the realization of investigative rights. This led to the need for research. The results of this study suggest that the psychological contract violation and organizational Justice of the Korean police can have a significant impact on organizational civic behavior, and that the quality of the security service is expected to be improved by the quality of the police activities of senior officers, police officers, and police officers.

[Keywords] *Korean Police Officials, Autonomous Police System, Psychological Contract Violations, Organizational Justice, Organizational Citizenship Behavior*

1. Introduction

The Korean police have been struggling to make the police work democratic and efficient while experiencing unprecedented changes in recent years. The patrol system is by far the most concern among Korean police. This is because the debate over whether the patrol system will be a national police or self-governing police. Psychological contracts are beliefs in mutual obligations between an organization and its members[1]. Therefore, when predicting each other between the organization and its members and trying to perceive what is the appropriate row between each other, it is possible to perceive each other through a psychological contract from the perspective of the contractor.

Changes, often driven by an organization's unilateral initiative, cause the organization to perceive the organization as violating the contract in the light of the organization's psychological contracts. This perception of breach of contract not only causes resistance to change, but also creates a negative attitude toward the organization[2]. In this context, if the organization of the police is reorganized as part of the administrative reform, the employment performance and psychological contracts between the National Police Agency and the police officers are weakened and the anxiety about the police officers is disturbed. Can be inhibited. Accordingly, it became necessary to observe the behavior of organized citizens based on the voluntary behavior of Korean police officers In particular, research was needed under the assumption that two variables, psychological contract violation and organizational fairness, which would affect Organizational Citizenship Behavior(OCB), would affect organizational citizenship behavior. Although many previous studies have demonstrated that voluntary performance of police officers in Korea improves organizational effectiveness, it is difficult to find a study that psychological contract violations and organizational justice affect organizational citizenship behavior(OCB). On the other hand, interest in key variables that affect organizational citizenship behavior continues. In the meantime, organizational citizenship behavior and related studies not only defined the concept, but also organized organizational behavior[3][4][5][6][7][8]. Psychological Contract Violation[9][10][11][12][13]. It has been studied through various preceding variables such as organizational justice [14] [15]. In Korea, the Organizational Citizenship Behavior(OCB) related to the Korean Police regarding psychological contracts and organizational justice has not been reported, but many organizational citizenship behaviors related to police officers have been found[16][17][18][19][20][21][22][23][24][25]. Therefore, the goal of this study is to establish a research task on what factors affect the organizational citizenship behavior of Korean police officers a parameter.

2. Theoretical Discussion of Research

2.1. Organizational citizenship concept

Organized Citizenship Behavior(Organic Citizenship Behavior, 1988) refers to the Organizational Citizenship Behavior(OCB), which is "individual behavior at the discretion, not directly or explicitly recognized by the formal compensation system, and the individual's behavior to collectively promote the effective functioning of the organization." The concept is defined[26]. The recent OCB is considered to be a virtue of the organization's value in differentiating an organization's assessment. In the field of police science, various types of organization members are living together, raising interest in OCB, being researched and reported.

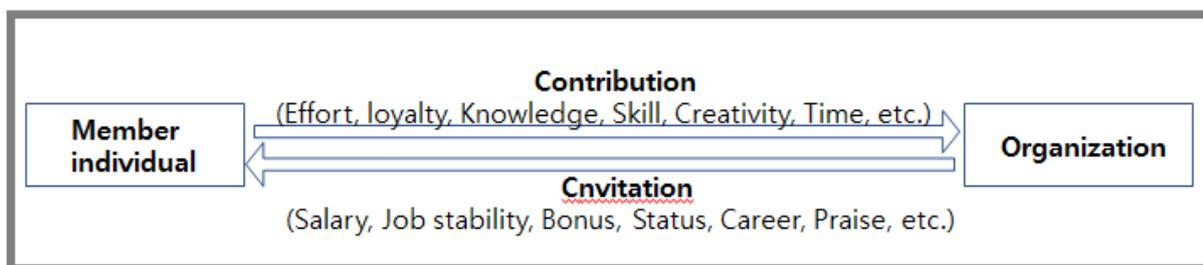
2.2. Definition of the concept of psychological contract violation

The types of psychological contracts are generally seen as transactional contracts and relational contracts[27][28][29]. MacNeil(1985) borrowed Blau's(1964) concept of social and economic exchange, and according to the nature of the contract, it can be classified into a continuous line of both extremes of a transactional contract and a relational contract. Psychological contract violations occur when an organization member perceives that an organization has failed to fulfill many of its obligations to achieve a psychological contract. Psychological contract violations were first introduced by scholars in the 1960s, but it has only recently received wide attention. The employment relationship has experienced dramatic changes in the West since the 1990s, and the fact that psychological contract violations are becoming more common is raising interest in research on this. In the past, there have been frequent theoretical discussions about psychological contract violations, but empirical studies have been actively conducted in recent years. Rousseau & Parks(1993) explains the implementation of psychological contracts in three levels: compliance, supra-contracting, and violation. First, compliance with the contract means that the contracting parties fulfill the terms of the contract. The judgment of contract compliance is based on the interpretation of the contracting parties, so the

subjective aspect is strong. Excessive performance of a contract is a case that is not included in the terms of the original contract but shows a behavior that is helpful to the other party. It belongs here Organized Citizenship Behavior, etc.

Accordingly, the psychological contract consists of four expectations. First, from the position of a member, what they want to receive from the organization, what they want to provide to the organization, and from the position of the organization, what they want to receive from the organization and what they want to provide to the members[30]. In other words, it can be said that the contracts between the two parties are maintained by providing members with contributions such as time, effort, skills, and loyalty to the organization and incentives such as salary, employment security, and training in return.

Figure1. Contribution-invitation exchange from the point of view of psychological contracts.



Note: Sehermerhorn, Hunt & Osborn(1998), *Managing Organizational Behavior*, New York: John Wiley& Sons.

2.3. Concept and type of organizational justice

In the aspect that organizational justice precedes the positive emotions, attitudes, and behaviors of the organization, research on outcome variables related to organizational justice is emerging in various areas of the organization.

Beugrě(1998) suggests that the study of organizational justice is important because the study of organizational justice is so important that justice is a phenomenon of society and penetrates into every life, society, or organization. Distribute justice is based on exchange relations and involves organizing members receiving compensation proportional to their input. Distribution justice is based on Adams's(1963) theory of equity, which means recognizing justice in relation to distributions allocated to others to which comparison is based[31]. Therefore, this implies the relative concept of the criterion of comparison with others in the organization. Procedural justice refers to the justice of the rules and procedures in which compensation is distributed, and it is a concept composed of recognizing the importance of the process, and means that members feel about overall organizational decision making. Greenberg(1990) identified three formal characteristics of procedures, a description of procedures and decision-making, and interpersonal management as components of process fairness. Based on these components, procedural justice is closely related to the recognition of key objects in relation to the formality of decision making and rationality of decision making. There is also a view that interaction justice is viewed as a part of procedural justice, with the emphasis on procedural justice in terms of the legality of information or the sensitivity of personal relations in an interpersonal relationship[32]. Disagreements exist among scholars[33].

The regional police in Korea were the opportunity to use the concept of substation-and-police Box wider by introducing the Police district on September 1, 2003. Obviously, the compensation system is relatively inadequate as it handles more district-to-person and district-to-zone workloads. In addition, because the organizational structure for smooth communication related to the procedures of the compensation system is often hierarchical by the guidelines of the central government or the guidelines of the Police agency and District Police Agency, distribution Justice and process Justice are general organizations operated by performance pay or team system. It may have a special aspect different from. In this study, the distributional justice, which is the justice of employees regarding the result of

distribution, and the justice, which is fairness perceived in the distribution process, and the perceived interactional justice of whether the organization's courtesy, interest, and effort are treated fairly among providers. We will focus on the side.

2.4. Prior research on police-related organizational citizenship behavior

The following are the preliminary studies surveyed and researched on the topic of organizational citizenship behavior of the Korean local police. In addition, no papers have been reported on the organizational citizenship behavior of local police officers, but organizational citizenship behavior related to police science has been reported. Lim Jae-gang(1997) published a paper entitled "The Effect of Police Officer's Genuine Leadership on Organizational Citizenship Behavior and Organization Silence." As a result of this study, it was found that the theoretical significance was the first to strengthen the police officer's true leadership capability.

In the paper, Hwang Young-ho(2006) presented in the paper "Psychological Contract Violation on Job Satisfaction, Organizational Commitment, Organizational Citizenship Behavior and Turnover Intention in Public Sector Organizations" in the public sector. It has been found to be a useful variable for explaining attitude variables such as behavior and turnover intentions. Soon-Seok Kim(2008) targets important attitude variables of organizational members for police officers under the police By creating a model that has emerged, parameters have been used for the effect on organizational citizenship behavior, and the indirect effects of organizational commitment, trust in communication, and communication. It was meaningful.

In a study on "community police activity and police officer job satisfaction", Lim Chang-ho(2012) revealed that this is to create a practical exchange for internal and external police activities through citizen-centered patrol activities. Joo Jae-jin(2007; 2012; 2014; 2015; 2016) reported various papers related to organizational citizenship behavior in academic journals at various levels. Min-Seok Park (2016) found the results of the regression analysis in "The Impact Analysis and Improvement Plan of Organizational Fairness of Police Organization on Organizational Citizenship Behavior," distribution justice and interaction justice was significant at 0.01, and procedure justice was significant at organizational behavior at 0.05. It has been found to have a significant impact, so this study reveals the relationship that the organizational justice of police officers has on organizational citizenship behavior.

Sangmi Kim(2017) found that the decision coefficients R², F value, and probability of significance of the regression model were statistically significant in "The Effect of Police Organization Awareness on Organizational Citizenship Behavior". Accordingly, it is reported that the organization's awareness of organizational support has a profound effect on organizational citizenship behavior. Hyo-young Lee(2018) found that the effect of community police officers 'organizational support awareness on organizational citizenship behavior was found to be influenced by police officers' organizational awareness on organizational behavior.

3. The Research Design

3.1. Collecting data

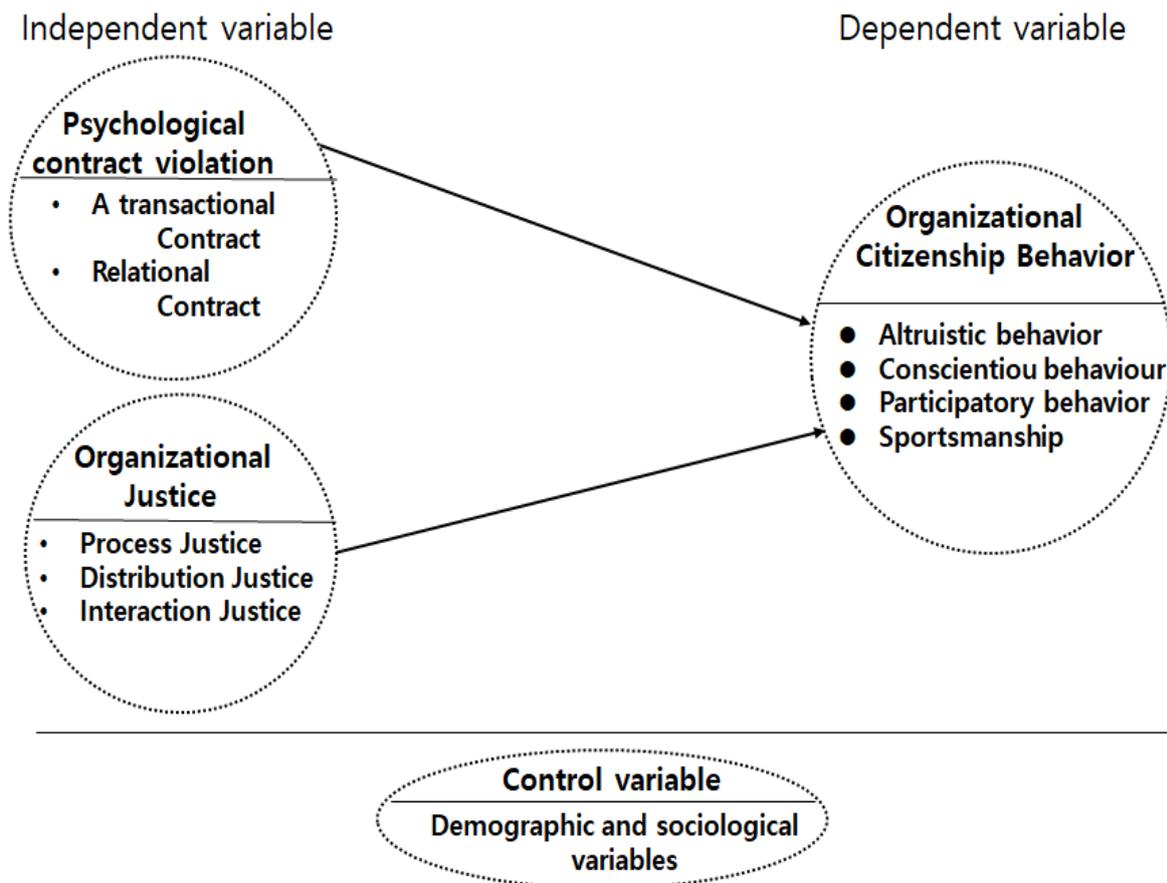
A total of 540 copies of 15 questionnaire samples of 15 police officers and 15 police stations of 20 questionnaires were distributed to local police officers working under 31 police departments under the Seoul Metropolitan Police Agency. I studied using 500 sheets. The independent variable was set for the dependent variable of organizational citizenship behavior based on the theoretical background of psychological contract violation and organizational justice, and SPSS Ver22.0 was used to descriptive statistics, factor analysis, reliability analysis, correlation analysis, multiplexing of variables. Regression analysis was performed to verify the impact.

3.2. Research design and research hypothesis

3.2.1. Research model

In this study, the independent variables of regional police were set as the variables for psychological contract violation (transactional contract, relational contract) and organizational justice (distributed justice, procedural justice, interaction justice) as variables, and the organization of the regional police officers as dependent variables. The purpose of this study is to study the effect of citizenship behavior (altruistic, conscientious, participatory, sportsmanship). The research model is shown in <Figure 2>.

Figure 2. Research model.



3.2.2. Research hypothesis and measurement tools

In this study, based on the <Figure 2> research model, a hypothesis was established under the assumption that the factors affecting Korean police's psychological contract violations and organizational fairness will affect the Korean police's organizational citizenship behavior. The research hypothesis is shown in <Table 1>. First, research hypothesis 1, psychological contract violations (transactional contracts, relational contracts) that directly affect the Korean police will affect organizational citizenship behavior (selfless, conscientious, participatory, sportsmanship). This hypothesis established two hypotheses using sub-variables. As for research hypothesis 2, the organizational fairness (distribution justice, procedural justice, and interaction justice) of Korean police officers will affect organizational citizenship behavior (selflessness, conscientiousness, participation, sportsmanship). This hypothesis sets three hypotheses using sub-variables. Dependent variables were classified as homogeneous questions, the 'Cronbach's α test' was performed to confirm reliability, a "technical analysis" was

performed to present average scores and standard deviation for each of the questions constituting each variable, and a "correlation analysis" and "multiple regression analysis" were performed among respective variables.

Table 1. Research hypothesis.

	Research hypothesis
Hypothesis 1	The violation of psychological contracts by the Korean police officers will have an impact on the organizational citizenship behavior.
1-1	The organizational citizenship behavior of Korean police officers will have a positive(+) impact on the transactional contract.
1-2	The organizational citizenship behavior of Korean police officers will have a positive(+) impact on relational contracts.
Hypothesis 2	The organizational Justice of the Korean police officers will influence the organizational citizenship behavior.
2-1	The organizational citizenship behavior of Korean police officers will have a positive(+) relationship with the distribution Justice.
2-2	The organizational citizenship behavior of the Korean police officer will have a positive(+) effect on the process Justice.
2-3	The organizational citizenship behavior of the Korean police officer will have a positive(+) relationship with the interaction Justice.

3.3. Operational definition of variables

3.3.1. Measurement of 7 items of psychological contract violation of the Korean police

The psychological contract, an independent variable of this study, consists of the beliefs that organizational members have about agreeing to informal exchanges between themselves and the organization. This study defines psychological contract violations as the perceptions of the organization's failure to fulfill many of its obligations in relation to the organization. Psychological contract violations are measured by the multiplicative method used in the study of Turnley et al. (W. H. Turnley & D. C. Feldman 1999b). After dividing the 7 organizational obligations into transactional contracts and relational contracts, how important it is to them for each contract is measured on a Recurt 5-point scale. In addition, the degree to which the organization is performing on the same item is measured on a 4-point scale (from 2 to 2 points: "very Default" to "very Well done"). In addition, this is represented by a reverse code, and the higher the score, the higher the perceived level of psychological contract violation. Transactional contract violations are measured in terms of wage level violations, welfare level violations, promotion level violations, and relational contract violations. It is measured by the degree and the degree of violation of the organization's support. In this study, first, in order to measure the transactional contract, the 4 items of the transactional contract [4][5][6][7] were confirmed to be 0.4 or less as the result of Varimax, and the final 3 items were used. Second, in order to measure relational contracts, 6 items of relational contracts [5][6][7][8][9][10] were confirmed to be less than 0.4 as Varimax results, and the final 4 items were used.

3.3.2. Measurement of the organizational justice factor of the Korean police

Organizational fairness means that all systems and decisions.

It refers to the perception of organizational members about how fair it is, and it can be divided into two characteristics: distribution process and process fairness. In this study, 10 items were measured

by analyzing influence factors in the previous study on independent variables of 4 items of distribution Justice, 3 items of process Justice, and 3 items of interaction Justice for local police officers who can experience the security felt by residents. Did.

3.3.3. Measurement of the four factors of distribution justice of the Korean police

The distribution Justice in this study was used to measure the variables with reference to the studies of Alexander & Rudman(1987), Robins, Rotnitzky & Scharfstein(2000), So-yeon Choi(2005), Lim Se-geon(2016), Lim Chang-ho; With reference to the questions in(2017), four items were selected and measured: first, appropriate compensation for responsibility, second, appropriate compensation for effort, third, appropriate compensation for career, and fourth, appropriate compensation for working environment.

3.3.4. Measurement of the three factors of procedural justice of the Korean police

In this study, the process Justice was first and fairly promoted by referring to the questions of Folger & Konovsky(1989) and Schaffer(1998). Second, fair wage increase process, third, fair performance evaluation process, fourth, fair achievement result notification process, etc. Four main items were selected and measured. To measure the process fairness of this study, three components of the sub-variables of the process Justice were selected.

3.3.5. Measurement of the three factors in the interaction justice of the Korean police

This study assumes that this perception of organizational Justice will affect the perception of exchange relations within the local police organization, and under the assumption that the results will nourish organizational citizenship behavior, Hong Hong-sul(2002), Choi Min-yeon(2005), and Se-geon Lim(2016) cited a study by Lind and Tyler(1988), referring to questions about interaction fairness, firstly, the contribution of idea interaction to the objectives of the sergeant of the district, second, the interaction fairness of the police station district performance, and third, the police station The three questions were set and measured, such as the fairness of the bonus and bonus received depending on the performance of the work. Three components were selected to measure the Justice of the interaction in this study.

3.3.6. Korea police organizational citizenship behavior measures of 9 factors

As a component of organizational citizenship behavior, 'citizen consciousness' and 'courteous behavior' among all six components are excluded from organizational citizenship behavior due to ambiguity in the distinction from 'participatory behavior', but this study is altruistic. Four components were selected: behavior, conscientious behavior, participatory behavior, and sports-manship. First, two items were measured to measure altruistic behavior. Second, two items were measured to measure conscientious behavior. Third, in order to measure participatory behavior, three questions were measured. Fourth, in order to measure sportsmanship, two items were measured. All of the above items were measured on the Likert 5-point scale(1 = not at all, 2 = not at all, 3 = normal at all, 4 = yes, 5 = very at least).

4. Research Analysis Results and Discussion

4.1. Demographic characteristics of the subjects

The result of presenting the demographic characteristics by age, age, education, work function, work organization, number of years of work, employment path, progress, and position by frequency analysis by percentage. <Table 2> shows the demographic characteristics of the survey subjects.

Table 2. Factor analysis and reliability analysis results of dependent OCB.

Concept	Variable name	Factor discretion				
		Participatory	Sportsmanship	Altruistic	Conscientious	Commonality
Organizational citizenship behavior	Participatory2	.866				.770
	Participatory1	.813				.692
	Participatory3	.632				.687
	Sportsmanship1		.874			.803
	Sportsmanship2		.828			.725
	Altruistic1			.916		.854
	Altruistic2			.909		.847
	Conscientious2				.893	.806
	Conscientious1				.883	.802
Eigen value		1.866	1.762	1.728	1.631	
Variance(%)		20.736	19.579	19.200	18.117	
Cumulative variance(%)		20.736	40.315	59.515	77.632	
Cronbach' a		.728	.715	.826	.759	

Note: 3 Items of Citizen-Conscious Citizen Behavior and 2 Items of Participatory Organizational Citizenship Behavior were Identified and Removed as 0.4 or Less as a Result of the Varimax Rotation.

In the case of gender, male police officers(364 persons, 72.9%), female police officers(135 persons, 27.1%), age groups in their 20s(45 persons, 9.0%), 30s(123 persons, 24.6%), 40s(186 persons, 37.3%) Over 50(145, 29.1%), and undergraduate education(72, 14.4%), College graduate(110, 22.0%), college graduate(302, 60.5%), graduate graduate(15 People, 3.0%), and 91% of the police officers and district police officers and police officers working outside the organization in the study of organized citizen behavior of local police officers. The following are life safety(187 persons, 37.5%) investigation and criminal(96 persons, 19.2%) security and(187 persons, 37.5%) investigation and criminal(96 persons, 19.2%) security and transportation(61 persons, 12.2%) information and security(119 persons, 23.8%) foreign affairs police(9 persons, 1.8%) Others(27 people, 5.4%), in the order of life safety, mainly the

Korea police, who are mostly in contact with local residents, have a high frequency(92.7%). The total number of persons surveyed was less than 5 years(56 persons, 11.2%) 5 to 10 years(63 persons, 12.6%) 10 to 20 years(155 persons, 31.1%) 20 years(225 persons, 45.1%). Among them, it was nearly half as 45.1% over 20 years, and it was possible to glimpse the progress of aging police officers. In the case of the job search route of the entire district, the phenomenon that occupied a large number of members of the police administration department(65, 13.0%) was prominent.

4.2. Final reliability analysis result after factor analysis

As shown in <Table 3>, the dependent variable, Organizational Citizenship Behavior, was conducted with a total of nine questions, including three participant questions, two sportsmanship questions, two altruistic questions, and two questions of conscientious questions by using the varimax rotation method. Reliability analysis was performed on the variables. Also, it was composed of a 5-point scale(1 = not at all, 2 = not, 3 = normal, 4 = yes, 5 = very so). The results of exploratory factor analysis on organizational citizenship behavior are shown in <Table 4-2> same as.

Table 3. Organizational justice analysis and reliability analysis results.

Concept	Variable name	Factor discretion			
		Dispensing	Procedural	Interactional	Commonality
Organizational justice	Dispensing justice3	.914			.872
	Dispensing justice2	.906			.847
	Dispensing justice1	.815			.698
	Dispensing justice4	.810			.740
	Procedural justice2		.909		.852
	Procedural justice1		.795		.709
	Procedural justice3		.741		.603
	Interactional justice2			.867	.797
	Interactional justice1			.702	.621

	Interactional justice3			.687	.570
Eigen value		3.148	2.248	1.913	
Variance(%)		31.484	22.479	19.127	
Cumulative variance(%)		31.484	53.963	73.090	
Cronbach'a		.907	.803	.718	

Note: Question 2 of Distribution Justice was Confirmed and Removed as 0.4 or Less as a Result of Varimax Rotation.

Of the 16 items, which are the sub-factors of organizational citizenship behavior, altruistic 2, civic consciousness 3, conscientiousness 2, courteous 3, participatory 3, sportsmanship 3 to 9, all have a factor loading value ranging from .632 to .916. In my opinion, it was confirmed to be above 0.4, the factor placement standard. The average reliability for organizational citizenship behavior, that is, Cronbach'a value was .719, which confirmed the reliability.

4.3. Independent variable organizational justice factor analysis and reliability results

As shown in <Table 4>, the organizational Justice, which is an independent variable, is a total of 12 items, 6 items for distribution Justice, 3 items for process Justice, and 3 items for interaction fairness. Reliability analysis was performed. And it was composed of 5 points scale(1 = not at all, 2 = not at all, 3 = normal, 4 = yes, 5 = very so).

4.4. Independent variables psychological contract violation factor loading

As shown in <Table 4-4>, for the psychological contract violation, a total of 16 items of 10 items of transactional contracts and 6 items of relational contracts were executed by using the varimax rotation method and reliability analysis was performed on the extracted variables. And it was composed of 5 points scale(1 = not at all, 2 = not at all, 3 = normal, 4 = yes, 5 = very so).

Table 4. Psychological contract violation factor analysis and reliability analysis results.

Concept	Variable name	Factor discretion		
		Transactional	Relational	Commonality
Psychological contract violation	Transactional 7	.879		.788
	Transactional 6	.846		.739
	Transactional 8	.773		.605
	Transactional 5	.708		.562
	Relational 2		.927	.875
	Relational 1		.888	.802

	Relational 3		.777	.660
Eigen value		.2671	2.359	
Variance(%)		38.159	33.697	
Cumulative variance(%)		38.159	71.586	
Cronbach'α		.834	.856	

Note: The items of Transactional Trust 6 and Relational Trust were Checked and Removed Below 0.4 as a Result of Varimax.

The results of exploratory factor analysis for the transactional contract are as follows. The reliability of the transactional contract, that is, Cronbach's α value was .834, which confirmed the reliability. The results of exploratory factor analysis for relational contracts are as follows. Reliability for relational contracts, that is, Cronbach's α value was .856, which confirmed the reliability. <Table 4> shows the results of the analysis.

4.5. Descriptive statistics for independent and dependent variables

The skewness and kurtosis are presented through technical statistical analysis to check whether the statistical and normal distribution of the independent variables' psychological contract violation, organizational Justice, and dependent variables, organizational citizenship behavior variables, are shown in <Table 4-4>.

Table 5. Descriptive statistics of independent and dependent variables(N = 500).

Variable name	Question	Mini value	Maxi-value	Skewness	Kurtosis	Average	StandDevi	
In Va	Organizational justice	A Dispensing justice1	1	5	-.244	-.248	3.398	.853
		A Dispensing justice2	1	5				
		A Dispensing justice3	1	5				
		A Dispensing justice4	1	5				
	Procedural justice	Procedural justice1	1	5	.045	-.697	3.153	.966
		Procedural justice2	1	5				
		Procedural justice3	1	5				
	Interactional justice	Interactional justice1	1	5	-.148	-.388	3.331	.856
		Interactional justice2	1	5				
		Interactional justice3	1	5				
Psychological contract violation	Transactional contract	Transactional contract1	1	5	-.341	-.510	3.490	.889
		Transactional contract2	1	5				
		Transactional contract3	1	5				
	Relational contract	Relational contract1	1	5	-.067	-.276	3.339	.781
		Relational contract2	1	5				
		Relational contract3	1	5				
		Relational contract4	1	5				

De Va	Organi- zational cizen- ship be- havior	Altruistic behavior1	1	5	-.414	-.069	3.813	.822
		Altruistic behavior2	1	5				
		Altruistic behavior1	1	5	-.166	-.391	3.500	.809
		Altruistic behavior2	1	5				
		Participatory B1	1	5	-.302	-.256	3.671	.748
		Participatory B2	1	5				
		Participatory B3	1	5				
		Sports manship1	1	5	-.138	-.425	3.584	.821
		Sports manship2	1	5				

In the case of distribution Justice, which is a sub-variable of organizational Justice, a range was found from 1.00 to 5.00, and the average was found to be 3.398(standard deviation 0.85). In the case of procedural Justice, a range of 1.00 to 5.00 appeared, and the average was found to be 3.15(standard deviation 0.966). Interaction Justice ranged from 1.00 to 5.00, and the average was found to be 3.33(standard deviation 0.86). Among the 16 items related to organizational citizenship, which are dependent variables, excluded from the Verimax rotation. In the case of action, it was confirmed that the range appeared from 1.00 to 5.00.

4.6. Discussed the results of analysis on the impact factors of Korean police officers

4.6.1. Analysis of correlation between key variables

Correlation analysis was conducted to check the correlation between the main variables, and the analysis results are shown in <Table 6>.

Table 6. Correlation analysis between major variables.

Variable		A	B	C	D	E	F	G	H	I
A	Dispensing justice	1								
B	Procedural justice	.295 ***	1							
C	Interactional justice	.405 ***	.465 ***	1						
D	Transactional contract	.352 ***	.314 ***	.436 ***	1					
E	Relational contract	.251 ***	.408 ***	.354 ***	.349 ***	1				
F	Altruistic behavior	.329 ***	.288 ***	.327 ***	.364 ***	.317 ***	1			
G	Conscientious Behavior	.203 ***	.298 ***	.249 ***	.325 ***	.334 ***	.312 ***	1		
H	Participatory behavior	.341 ***	.376 ***	.410 ***	.300 ***	.344 ***	.262 ***	.185 ***	1	
I	Sportsmanship	.332 ***	.292 ***	.357 ***	.231 ***	.304 ***	.248 ***	.068	.547 ***	1

Note: *p<.05, **p<.01< ***p<.001.

Looking at <Table 6>, correlation was analyzed for psychological contract, organizational Justice, and organizational citizenship behavior. As a result of analysis, it was found that all variables, such as sportsmanship and participatory organizational citizenship behavior, had a significant correlation with

all variables except conscientious organizational citizenship behavior. This shows that both correlations between all variables are significant at the 0.01 level. To analyze the hypothesis, multiple regression analysis was performed by setting psychological contracts, organizational Justice as independent variables, and organizational citizenship behavior as dependent variables.

4.6.2. Hypothesis verification between major variables

A multiple regression analysis was conducted as shown in <Table 7> to verify whether the organizational fairness and the confidence of the superiors affect the organizational behavior of police officers. Looking at the value of Durbin-Watson for each model according to each dependent variable, Model 1 is 1.843, Model 2 is 1.898, Model 3 is 1.916, and Model 4 is 1.943, which is close to 2. That is, it can be seen that the error terms of each model are independent of each other. Let's look at the results of regression analysis according to the sub-variables of organizational citizenship behavior in detail. Model 1 is the result of confirming whether organizational fairness and superiority's trust affects altruistic behavior, and the model explanatory power is 23.1%. $B = .063, p < .05$ was found to have a significant effect on altruistic behavior. In the boss's trust, both emotional trust ($B = .112, p < .001$) and cognitive trust ($B = .072, p < .01$) were found to have an influence on altruistic behavior. Interaction fairness, a sub-variable of organizational fairness, was found to have no significant effect on.

Table 7. Analysis of impact factors of civil citizenship behavior of police officials.

Assortment		Altruistic behavior			Conscientious behavior			Participatory behavior			Sportsmanship		
		Model 1			Model 2			Model 3			Model 4		
		B	(SE)	t	B	(SE)	t	B	(SE)	t	B	(SE)	t
C V	Gender	-.361	.163	-2.217*	.021	.158	.130	.187	.249	.751	-.148	.215	-.689
	Age	.401	.124	3.237**	.318	.120	2.638**	-.593	.190	-3.128**	-.097	.163	-.593
	Education	.289	.182	1.589	.145	.177	.822	.286	.278	1.028	.075	.240	.313
	Rank	-.209	.192	-1.084	.253	.187	1.353	.281	.294	.955	.197	.254	.775
	Employment period	-.144	.128	-1.127	-.145	.124	-1.164	.540	.196	2.759**	.172	.169	1.016
P C V	Transactional contract	.112	.028	4.051***	.125	.027	4.661**	.050	.042	1.184	.002	.036	.063
	Relational contract	.072	.023	3.131**	.080	.022	3.551**	.120	.035	3.399**	.100	.030	3.268**
O J	Dispensing justice	.068	.021	3.283**	.016	.020	.783	.117	.032	3.685***	.111	.027	4.055***
	Procedural justice	.063	.029	2.158*	.079	.028	2.808**	.144	.044	3.243**	.071	.038	1.853
	Interactional justice	.025	.032	.800	.020	.031	.641	.203	.049	4.166***	.129	.042	3.079**
R2 (adj R2)		.251 (.231)			.225 (.204)			.291 (.272)			.212 (.191)		
F(p)		12.483***			10.820***			15.273***			10.040***		
Durbin-Watson		1.843			1.889			1.916			1.943		

Note: Reference Group: Gender(Female=0), Education(0=High school), Marriage(0=Married), Class(0=Less than slope), Working Period(0=Other)
* $p < .05$, ** $p < .01$, *** $p < .001$.

As a result of examining the relationship between control variables and organizational citizenship behavior, it was found that gender influences altruistic behavior ($B = -.361, p < .05$). It has been shown that women have more selfless behavior than men, and age is altruistic behavior ($B = .401, p < .01$),

conscientious behavior ($B = .318, p < .01$), participatory It was found to have a significant effect on behavior ($B = -.598, p < .01$), and the higher the age, the more altruistic and conscientious the behavior was. The lower it was, the more it appeared to act. The duration of the work was found to influence participatory behavior, and the more police officers worked, the more they participated ($B = .540, p < .01$). The employment path was found to have a significant effect on conscientious behavior, and in the case of recruitment, it was found that more conscientious behavior was performed than the employment path of other employment ($B = .430, p < .05$).

4.6.3. Discussion of analysis results

The results of the multiple regression analysis of this study verified the process fairness, distribution fairness, and interaction fairness of organizational fairness to test hypothesis 1 and hypothesis 2, and verified the transactional contract and relational contract in the psychological contract violation according to the hypothesis. As a result of analyzing the correlation to verify hypotheses 1-1 and 1-2, the transactional contract violation and organizational citizenship behavior were found to have a statistically significant negative correlation except for the degree of welfare violation. It was found that relational breach of contract and behavior of organizational citizenship had a statistically significant negative correlation except for the degree of self-development violation. Therefore, Hypothesis 1-1 and 1-2 were partially adopted. These findings are generally in agreement with the existing findings related to psychological contract violations and organizational citizenship behavior [34][35][36]. Based on this, it can be seen that the organizational members of the Korean police organization perceived the level of violations of transactional contracts and relational contracts. Among the factors of transactional contract violation, it is possible in some respects that the violation of welfare benefits is not related to organizational citizenship behavior, which is an unselfish and prosocial behavior that exceeds the organization's job demands. It is considered as an unexpected result that the violation factor is not related to organizational citizenship behavior. Psychological contract violations by an organization can be caused by the unrealistic expectations of organizational members for the organization, which can be considered to be caused by the fact that the organization makes more promises than it actually is. Next is the discussion of Hypothesis 2. First, in Hypothesis 2-1, the results of the multiple regression analysis showed that interaction fairness among organizational fairness had a significant effect on altruistic behavior(+), so local police resolved complaints with 112 reporting events rather than cognitive events. Have a fetters. Therefore, the current outside work, the district work, is operated in three sub-divisions, one day work team and one night work team, and one work day team. Public security services are provided for the residents of about 100,000 people in their area. Therefore, among 112 workers of 112 patrol cars in 3 sets of 2 workers per duty, 2 cases of 112 patrol operation teams, except for the police officers, 112 police cases sent to the first action site when the report incident occurs Must be equipped with. In addition, during the 112 patrols, which is the preventive police, the police officers who reported to the site and sent them to the scene were stealing, group violence, robbery, rape, voice phishing, cheating, gambling, illegal business conduct, and bond debt relations. Since 112 people from the civil servants in various forms, such as the site, traffic guidance enforcement site, and traffic cleanup site, enter the scene of the incident, an immediate enforcement force is imposed on the police when the dispatched police officer hits the body directly. Local police officers, who work mostly outside, are also human beings, so it is important to have a strong attitude to the police officers who are involved in unselfish acts that hesitate when entering a complex site and fearing after the treatment. Local police officers are also used as evidence in court wearing police camps for evidence collection during the 112 cases of field operation. In addition, whistle, handcuffs, police rods, 3.8 pistols, taser-guns, 112 command rooms, radios capable of receiving rapid radio waves from colleagues at all levels, etc. are expected to go to the field. In addition, in Hypothesis 2-2, as a result of multiple regression analysis, procedural fairness among organizational fairness has a significant effect on the conscientious behavior of organizational citizenship, so it is among the security services of residents in the jurisdiction of local police officers. The most important activity is 112 crime

prevention activities. The local police patrol around the base point, which is a vulnerable place, along with the base duty, so the effect of crime caused by crime reporting promotes preventive crime prevention activities that suppress the occurrence of crime from criminals and reduce the fear of crime from ordinary citizens. Vulnerable places arrest arrested criminals, including those who are prosecuted for prosecution through neck placement and linked patrols. Patrol car's and foot patrols are also important to the outlying local police. Of these 112 patrols, you must be ready to go out immediately and have a mind-free attitude to respond to the field. Even after leaving the office, the first step in organizing citizens' actions of the local police officer's mission, they should always be ready to help actively deal with complaints. In addition, in Hypothesis 2-3, the results of multiple regression analysis showed that distribution fairness among organizational fairness had a significant effect(+) on participatory action of organizational citizenship, so local policemen, police stations, districts, and police stations In addition, 112 police patrols, foot patrols, motorcycle patrols, or themes, etc., of neck patrols working at the security center usually maintain 2 hours. As it is known to be the most efficient, most of the work types are operated in 2-hour units, so it is necessary to solve the incidents at the incident site to minimize the damage to other workers or workers, and also to set the working hours well. For the researcher's perception, the material investigation is conducted before and after the spring or autumn holidays, but the prosecution stoppage period of the local police officers' prosecution stops is almost abolished, and only the extent to which the court initiates the investigation is conducted. Regional police are issued once per two years to reduce adhesions to business establishments or local maintenance, but they must be able to focus on work without fear, such as grasping the inside of the building, even after being issued as local police officers. Finally, the results of the multiple regression analysis showed that the trust of the bosses at each level had a significant(+) effect on sportsmanship behavior, so regional police are generally the general contact department, including walking patrol, 112 patrol, and linked patrol. . As such, it is impossible to neglect civil affairs.

Also, if you think about and reflect on your own wrongs and well-being in the 112 reporting incidents that worked yesterday at home after work by showing sportsmanship to the organizational behavior of the local police, you will be impressed by the health and strength of the local police. In addition, if the local police are actively prepared to respond as local police officers at the 112 incident sites, regardless of whether they are senior, successive, or female or male, they will not have any shortages in responding to highly detailed civil affairs. As a result of this study, the factors that need to be improved are as follows: First, the distribution fairness is paid in accordance with the government employees' compensation regulations, but at the end of each year, the performance pay according to work performance is differentially paid. These performance payments tend to yield to their seniors their assigned work ratings according to their ranks rather than fair pay based on the ranks of excessive police officers whose seniority is determined according to the characteristics of the district or police box. Second, it is a matter of process fairness. The results of the local police case resolution are irrelevant to the work rating, so there is a risk of procedural unfairness. Since most of the types of local police work are in the form of 112 patrols in accordance with the organization of duties between the new and senior police, there is a natural tendency for the senior police officers to solve the case, so it is necessary to discuss the solution to the problem in-depth. Third, due to the nature of the local police, the risk of interactional fairness is always exposed to the risks of physical pain of late night, night shifts, and the like. However, as a result, it must be pointed out that many local police officers are relatively damaged by the factors that interfere with the interaction fairness of local police.

As explained above in the discussion of the analysis results above, among the factors affecting the Korean police officer's psychological contract violation and organizational justice, it can be seen that it is the most important factor to have a significant effect on all four sub-variants of organizational citizenship behavior.

5. Conclusion

The results of this study will contribute to strengthening the theory or confirming its adequacy by empirically verifying the psychological contract theory for the first time in the organizational behavioral section of the Korean Police, and I think it will be a trigger for many subsequent studies. There are aspects that many police officers and police officers who live in an organization do not fully understand the subtle nature of the psychological contract, and are making a lot of misunderstandings, conflicts and distrust as they go over it. The National Police Agency hopes to do so to the police officers in fact, and even though it has been treated accordingly, it breaks the psychological contract that has been formed during the decisive moment because it has not officially happened. Despite sending countless signals that it has been decided, police officials do not follow it, which may disappoint the organization. The more serious problem is that the organization's explicit agreement with the agreement does not actually match what is desired, or what the police chief says and what his colleagues are saying. Police officers are puzzled by which rhythm to dance and who to sign a psychological contract. And because the concepts of lifelong employment and lifelong work have basically collapsed, the story of trying to solve problems by entering the organization and living together is not working anymore. It is necessary to create a new organizational culture that specifies as much as possible what the National Police Agency and police officers demand from each other, and if there is a problem, corrects through dialogue with each other. In this regard, in order to conclude a healthy psychological contract, it is necessary to make efforts to increase job satisfaction and lower the turnover rate due to the violation of psychological contracts by introducing realistic job preview, which is one of the American-style personnel management.

However, it is compelling to point out that this study has the following problems and limitations. As a necessity for the problem to supplement this, first, it is necessary to redefine the ambiguous role of local police as a factor of organizational fairness, so it is necessary to analyze it by including more various variables such as the identity of civil affairs, and secondly, to evaluate regional police eligibility. It is necessary to develop measures to improve local police in the form of a citizen ombudsman system in which local residents participate in the hearing and surveillance system for non-regional police officers in order to reform the structure. The need to develop a scale that reflects the characteristics of the Korean police's job is necessary to measure the standards of the transactional and relational contracts of the Korean police officer's psychological contract violation.

Also, as a limitation of this study, first, this study did not overcome the problem of self-reporting by distributing and answering questionnaires. Second, as it relates to the method of collecting data, it is often insufficient to say that the contents of the data collected through the survey sufficiently reflected the actual organizational practices or violations of psychological contracts. Fourth, it was related to the research area and was limited to a part of the Seoul Metropolitan Police Agency. Therefore, it will be said that in the future, the problems and limitations of this study will be supplemented, and the improved theories and various analytical methods will be proved.

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7. Contribution

7.1. Authors contribution

	Initial name	Contribution
Author	HJT	<ul style="list-style-type: none"> -Set of concepts <input checked="" type="checkbox"/> -Design <input checked="" type="checkbox"/> -Getting results <input checked="" type="checkbox"/> -Analysis <input checked="" type="checkbox"/> -Make a significant contribution to collection <input checked="" type="checkbox"/> -Final approval of the paper <input checked="" type="checkbox"/> -Corresponding <input checked="" type="checkbox"/> -Play a decisive role in modification <input checked="" type="checkbox"/> -Significant contributions to concepts, designs, practices, analysis and interpretation of data <input checked="" type="checkbox"/> -Participants in Drafting and Revising Papers <input checked="" type="checkbox"/> -Someone who can explain all aspects of the paper <input checked="" type="checkbox"/>

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