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Direction of DISASTER Management System Reform in Preparation for Unified KOREA

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Abstract

Various efforts are needed in preparation for the predictable Korea unification as a wind of peace blown over the Korean Peninsula brought about the long-terminated exchange between South Korea and North Korea. As bilateral relationship and exchanges are actively done, systematic and specific system needs to be established to manage highly uncertain disasters more efficiently. It is particularly important to establish the comprehensive and integrated disaster management operation system for the unified peninsula after the declaration of the end of war as bilateral relations are abruptly improved and inter-Korean exchange and cooperation continues. This study aims to elevate the tolerance in response to the unification and propose improvements of disaster safety system in the course of cooperation between the government and private institutions. Disaster management system needs to be reformed considering legalization related with research results, disaster term standardization, manual generalization, and regional characterization. It would be desirable to build up disaster management and response system starting from regions such as boundary areas, economic cooperation areas, and exchange areas not by setting a diverse range of disasters and selecting areas in hope of proper cooperation of the further inter-Korean disaster management system.

[Keywords] *Korean Peninsula, Disaster Management System, Disaster Management, Unification, Disaster Co-operation*

1. Introduction

As South Korean President Moon Jae-in proposed North Korea's participation on Pyeongchang Winter Olympics on June 24, 2017, telephone hotline between two Koreas was resumed. After making a joint entrance of South and North Korean athletes on Pyeongchang Winter Olympics on February 9, 2018 and practical meeting, the first inter-Korean summit was held on April 27, 2018[1].

The Panmunjom Declaration was finalized in the first bilateral summit and it reached a significance that both leaders affirmed the joint objective of accomplishing the Korean peninsula without nuclear through the com-plete denuclearization. Two leaders proclaimed the new peceaful era without war on the peninsula and reached an agreement that guarantees the eternal peace system such as entire and new development of bilateral relations, easing military tension, mutual non-aggression, complete denuclearization on the peninsula, and establishing the peace system[1].

Since then, the second bilateral summit was held on May 26, 2018. In the talk, both leaders confirmed the North Korea's strong will for denuclearization and discussed practical steps for promising immediate actions from 4.27 Panmunjom Declaration and regular holding of summit talks[1].

As the third inter-Korean summit was held on September 18, 2018, denuclearization, military, economy, and separated family issues reached an agreement between leaders in the 9.19 the Pyongyang Declaration[1].Various efforts are needed in preparation for the predictable Korea unification as a wind of peace blown over the Korean Peninsula brought about the long-terminated exchange between South Korea and North Korea. As various types of disasters due to climate change have been evolved and damages are annually mounting, improving the current disaster management system needs to be discussed in preparation for the upcoming unified Korea.

What do we have to do to improve disaster safety system on the peninsula if unification occurs after declaring the end of war? Although studies on unification with North Korea in preparation for rapid progress in maintaining good relations between two Koreas in support of the South Korean government focus on politics, diplomacy, security, culture, and art, methods for improving practical disaster management system for the systematic unification remain inadequate[2].

Systematic and specific system needs to be established to manage uncertain disasters more efficiently in the course of active exchanges between South Korea and North Korea. It is significant to build up the comprehensive and integrated disaster management operation system for the unified Korea after the declaration of the end of war as immediate actions for relieving relations and launching exchange and cooperation projects.

Therefore, this study aims to elevate the tolerance towards unification and propose improvements of disaster safety system in the course of collaborating the government with private institutions[2].

2. Theoretical Background Associated with Disaster Safety System for Korea

2.1. Relevant legislation

In South Korea, there is no special regulation on prevention, preparation, response, and restoration in case of disaster emergency occurring in North Korea and the response system in case of disaster emergency on the border between South Korea and North Korea in acts associated with disasters such as act on the safety and management, Disaster emergency assistance act, and act on natural disaster solution. However, response to disasters in North Korea can be construed as national obligations for protecting people by considering "Articles on territory and peaceful unification" enacted in the Constitution[3].

Although humanitarian support article is stipulated in Article 10, it cannot be said that it encompasses actions for disaster response. Therefore, efforts for amendment to reflect this are required for responding to disasters occurring in the boundary after signing an agreement for joint management[3].

Amendment is needed to put specific regulations in acts in addition to act on the Inter-Korean relation development, act on the Inter-Korean exchange and cooperation, and act on the Inter-Korean cooperation fund. Prior to this task, cooperation and agreement for joint cooperation in bilateral disaster safety system should be implemented.

2.2. Disaster term standardization

There are numerous reasons of adopting different terms in both countries. Individual standard language was defined based on regional characteristics and social system. In other words, a standard language was enacted based on a language used in Seoul, which is the capital city of South Korea; whereas, a standard language was enacted based on a language used in Pyeongyang, which is the main city of North Korea[4].

While a project of changing foreign languages or Japan-style languages into pure Korean words has been carried out, new words were created in the course of trimming words in order not to use difficult Chinese characters or foreign languages in North Korea. Furthermore, the language and vocabulary difference between two Koreas was originated

from words from different language regulations such as orthography, standard language rule, and loan-word orthography and North Korean orthography made under the socialist regime[4].

Language barrier or difficult communication can be arisen from new words created in South Korea and North Korea despite different alphabets, but same meaning or vice versa. For disaster terms, disasters could occur if communication is not properly done due to complexity, emergency, and urgency. Thus, disaster words should be standardized.

2.3. Manual generalization

Threats posed on the contemporary society is mounting due to the complication of disasters arisen from different types of disasters in South and North Koreas, the characteristics of disasters, and climate change. South Korea laws does not cover the inter-Korean cooperative disaster management system and there is no relevant manual due to insufficient legal basis.

In South Korea, standard crisis management manual, practical crisis response manual, and field response manual are enacted based on natural and social disasters such as typhoon, earthquake, fire, epidemics, and explosion.

However, the current crisis management manual in South Korea cannot be used in preparation for the upcoming unified safe Korean peninsula as response to disasters is practically limited based on the system established by different words used in crisis manuals and administrative organizations in South Korea.

Integrated and cooperative manuals according to functions and types should be developed by applying a comprehensive concept based on various types of disasters in preparation for disasters requiring bilateral joint response beyond department response to build up the safe peninsula in the future society[5].

2.4. Manual generalization

Official statistics or information is unidentified regarding disasters in North Korea. However, roles and response of internal institution can be traced from articles of North Korea Rodong Newspaper after disasters occurred.

There are various types of disasters in North Korea. Flood and drought give huge damages to North Koreans. Forest degradation due to the development is likely to raise the possibility of landslide. It leads to landslide coming from flood, agricultural land ruin, soil degradation, drought, food shortage, forest degradation, flood, and landslide[6].

Natural environment in North Korea is devastated due to various causes. Forest accounts for nearly 80% of the entire territory(nearly 60% of the peninsula). Excessive cultivation for expanding agricultural lands, rising consumption of woods as energy source, forest fire, landslide, and pest accelerate the decrease of forests, thereby ruining forests.

Although water resource is plentiful, river gap is narrow and steep geographical features serve as a barrier for efficient management. Due to old industrial facilities and shortage of sewage facilities owing to increasing population, industrial waste water is flooded and water pollution is a critical issue. On top of that, water coming out of factories and households is eutrophicated and some water quality index does not meet standards. As unprocessed waste water is flowed into streams, the quality of water is worse. Since this waster water devastates the stream and lake ecosystem, water-borne diseases are multiplying. Disease prevention environment in North Korea is closely associated with disaster occurrence and triggers various causes[7].

Furthermore, joint research and cooperation system need to be prepared given that earthquake damage in North Korea is not significant, but disasters are more frequent. In the long-term view, joint research by South Korea, North Korea, and China and responses should be made considering the fact that the possibility of volcanic eruption in Baekdu Mountain is constantly raised[8].

Tuberculosis, malaria, hepatitis B are major disasters in North Korea in association with social disasters. Due to speedy construction, buildings or facilities are destroyed and it is impossible to rule out the possibility of further accidents[8].

Therefore, prevention, preparation, response, and restoration systems need to be built up by identifying types of disasters considering regional characteristics in North Korea for the collaboration of bilateral disaster safety system.

3. Korean Peninsula Cooperation in Disaster Management System and Prospect

Yet there are limitations to continue the cooperation in the disaster safety system in wide extents of natural disasters and social disasters included in Act on the Management of Disasters and Safety we generally understand. Accordingly, types and periods should be properly established to proceed cooperations in terms of setting the extent of disasters.

It is difficult to build up the cooperation among all types of disasters considering the reality. First of all, it would be desirable to build up disaster management and response system starting from regions such as boundary areas, economic cooperation areas, and exchange areas[9].

It is no doubt that the necessity of prevention, preparation, response, and restoration on various dangers rise as inter-Korean relations and exchanges are expanded. In addition to these issues, further studies need to be conducted as there are possibilities of massive critical disasters such as fine dust, volcanic eruption in Baekdu Mountain, earthquake, and radioactive leak[9].

4. Conclusion

Ultimates reasons why both South Korea and North Korea should reform disaster management system in preparation for the unified peninsula not only lie in the necessity of human rights of North Koreans regarded as citizens of South Korea in the Constitution and developing peace in the peninsula and inter-Korean relations, but in obtaining dignity as human beings.

In particular, the natural environment in North Korea is devastated due to various causes. As the occurrence of disasters are constantly increasing, many casualties and property damages are generated. Under this circumstance, a concept of disasters remains ambiguous and its organization, law, and institutions are inadequate[10].

The basic purpose of disaster management system reform lies in protecting residents from artificial disasters going beyond disaster management capacities of both countries. Disasters pose serious threats to the infringement of basic rights, personal life, property, and day-to-day life. In particular, disasters give adverse effects on vulnerable lass with inactive response capabilities. This highlights the necessity of humanitarian aid and the improvement of disaster management system. This study proposed evidence of reforming bilateral disaster management systems based on theories and specifically examined methods and future tasks.

Disaster management system needs to be reformed by considering relevant legislation, disaster term standardization, manual generalization, and regional characterization. For proper cooperation of bilateral disaster management system, disaster management and response system should be established starting from regions such as boundary areas, economic cooperation areas, and exchange areas not by setting a wide range of disasters and selecting areas in hope of proper cooperation of the further inter-Korean disaster management system.

Both South Korea and North Korea are connected as they are located on the geopolitical basis as the peninsula and share geographical structures and show similar patterns in types of disasters and damages. If both countries

make cooperation in exchanging information on disasters and reducing damages, it will make significant contributions to recovering the ethnic similarity and easing political and military tensions[11].

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An Examination of the Effect Enhanced Comprehension of Sex Related Stories Has on Preventing SEXUAL VIOLENCE for Children of Age Five

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Abstract

Purpose; The purpose of this research is to examine the effects of the promotion of understanding sex related stories for the prevention of sexual violence on the children of age 5. The subjects were 58 children of age 5(19 children of experimental group, 20 children of comparison group, and 19 children of control group) in the city of P. The experimental group performed the music drama activity using the picture books for sex education for 36 times. The comparison group conducted the sex education picture book activities used in the experiment group. The control group did not engage in sexual violence prevention activities and instead conducted daily life subject centric activities at the national level. Data analysis was conducted by t-test and ANCOVA using the SPSS 21.0 program. The results of the research yielded that the experimental group showed a better understanding of the sex related story than the comparison group and the control group, and the comparison group also showed a statistically significant difference in understanding the sex related story than the control group. These results showed that the promotion of comprehension of sex related stories was effective in preventing sexual violence for children.

[Keywords] Sexual Violence, Music Drama, Sex Education Picture Books, Sexual Violence Prevention, Story Comprehension

1. Introduction

Sexual abuse of young children is one of the insidious forms, which tend not to demonstrate physical injuries or any definitive signs of abuse, and are quite disadvantageous because they can not accurately provide details on the damages[1]. Because the ego is not fully formed and as they lack the ability to judge and social experiences, it is impossible for them to respond effectively in an emergency situation such as sexual violence[2], in addition to the incidence being lower than other abuse along with serious after effects. In addition, young children who are hurt by sexual violence experience anxiety and fear through their daily lives, and even after reaching adulthood, they show pathological responses such as depression and sociophobia due to aftereffects and trauma[3]. They also provide negative influence to their families and society[4], and the results of early childhood sexual abuse negatively affects the self-image of the children and instill a sense of helplessness or stigmatization[5]. In this regard, prevention of young children's sexual abuse is more needed than ex post treatment, and care should be taken to avoid exposure to dangerous situations[6]. In order to help minimize the risk of sexual violence and damages to young children, it is important to provide appropriate countermeasures and educate them, while identifying the sit-

uation of sexual violence in advance and applying various activities enabling them to prevent matters in advance[7]. It is important for the sexual violence prevention activities to provide internalization opportunities for gaining indirect experiences of sexual violence situations. Accordingly, it can be said that the music drama activities allowing 5 year old children to use familiar sex picture books and understand related situations and stories to integrate with other areas are effective.

The ability to understand sex related stories is a constructive, interpretive thinking process which utilizes the existing knowledge systems on sex related contents to make the given information meaningful[8][9], which may be divided into understanding structures of the sex related stories and understanding inferences. Understanding the structure of the sex related story is about understanding sex related contents presented in the sex education picture books, background, subject, plot, episode and solutions, while understanding inferences interprets the emotions of the characters appearing in the sex education picture books or identifying causal relationship of the events implied in the stories for making connections with their ideas and their personal experiences[10].

The sex education picture books provides sex stories so as for young children can listen to and understand sex education picture books, recall details of sex stories included in the text, and understand the relationship between cause and effect, further to classifying information and extracting information categorized and implied therein[11]. Accordingly, the sex education picture books are able to empathize the characters' sex related emotions through stories and pictures that are familiar to young children about actual and practical problems that are difficult to experience directly in relation to sex.

Music drama is a most appropriate integrated approach to promote the whole development of young children centering on stories' contents[12]. In addition, it can be a factor for further clarifying the subject by conducting further activities that can provide new information to young children beyond simply reading the picture books[13]. This can be a long-term memory through the experience of repeating the contents of sex education picture books with music drama activities. According to Ebbinghaus' "Forgetting Curve," human memory is inversely proportional to the square of time, and 'repeated learning' is effective. At which time, it is effective for long-term memory(LTM) to repeat for a certain period of time rather than repeating in a bulk at one time.

As such, the music drama activities using the sex education picture books are, through a process of expressing the actions that can be expressed in the stories of the sex education picture books as an integrated form of the musical, operative, role play, artistic, and directive factors, capable of enhancing the ability to understand sex related stories. The use of sex education picture books in music drama activities is effective in directing similar situations for the young children to practice in their real lives and make them feel interested and entertained by providing indirect experiences[14].

Therefore, the purpose of this study is not only to emphasize the knowledge aspect as a measure for preventing sexual violence for children of age 5, but also to understand the situations and stories about human development, human relationship, sexual health, society and culture through picture books, and to gain experiences through activities of music drama with 3 steps on how to respond to such situations, and so this is to provide the prevention of sexual violence to young children teachers because there has been certain effect in enhancing sex related comprehension.

2. Research Method

This study was conducted using an experimental design for 58 children in 3 groups for those of age 5(19 of experimental group, 20 of comparison group, and 19 of control group). The experimental group recognized problems by listening to the sex education picture books in the first stage preparation, understanding the structural contents of the picture books, and inferring on how to act on their own in that situation. In the second stage of the integrated activities, the contents of sex education picture books in stage 1 were performed musically, motion widely, artistically, and role play activities. In stage 3, they were performed in performance and evaluation of music dramas and performed a complete music drama in accordance with the program and applied it in action in daily life. In addition, the comparison group recognized problems by listening to the sex education picture books, understanding the structural contents of picture books, and inferred on how to act on their own in that situation. On the other hand, the control group did not engage in activities related to this study, and instead participated in the activities following the subjects of daily life of the curricula.

2.1. Research tools

The testing tools of this study were about examining the facts, cause and effect relationship, and the clarification of information that appears superficially in the stories after listening to sex education picture books in the story structure's understanding with questions focusing on the background, theme, plot episode, solutions, etc., which were consisted of 1-10 items. And the inferred understanding of stories consisted of the questions(11-14 questions) which can interpret the emotions and actions of the characters in the stories and connect them with their experiences. One could gain 0 to 11 points for structure understanding, 0 to 8 points for inferred understanding. In the question of inferred understanding, if you also answer the question of "Why do you think so?", you will gain 2 points, but if you

answer the question only, you get a zero point[15]. In order to preclude the effect of the ex ante test, sex education picture books were different in the ex post test, and the ex post test was consisted of 14 scenes of "Sad Landolin" for informing the surrounding adults on the sexual abuse situation, and the ex post test used 14 scenes of 'A friendly hand' on how well known or familiar people can also commit sexual violence, which is consisted as in <Table 1>.

Table 1. Examination tools for understanding story.

Sub area			Questions	Score
Under-standing story struc-ture	Charac-ters	1.	Who is the most im-portant person in the story?	1 point (s)
		2.	Who else appears?	1 point (s)
	Back-ground	3.	Where did the story come from?	1 point (s)
	Theme of the story	4.	What problem (diffi-culty) did the story (main character) have?	1 point (s)
		5.	Has the problem been resolved?	1 point (s)
	Story's solu-tion	6.	How did you solve that problem?	1 point (s)
	Story's se-quence	7.	Can you tell the story sequence of the pic-ture book? - Correctly present Chapter 4 - Correctly present Chapter 3 - Correctly present Chapter 2	2 point (s) 1 point (s) 0 point (s)
	Epi-sodes within the story	8.-10.	Episode	3 point (s)
Inferring and under-standing stories			11. What would have happened if ooo did not happen? Why do you think so?	2 point (s)
			12. How did you feel when you met ooo case? Why do you think so?	2 point (s)
			13. Could this really happen? Why do you think so?	2 point (s)
			14. If it was you, what would you do when such an event happened?	2 point (s)

	Why do you think so?	

2.2. Research procedures

The procedures of this study are preliminary study and preliminary examination, teacher and tester training, ex ante test, experimental treatment, and ex post test. The preliminary study was conducted at the 6th hour in the group of 14 children of age 5 other than the experimen-tal group, and ex ante test and ex post test were also performed for the preliminary study group. Teachers and testers were trained through workshops, and ex ante test for the sex related story comprehension was conducted on all 5 year old children in all 3 groups before the experiment based on the "Sad Landolin" sex education picture books as in <Table 1>, after which, the experiment was performed for 12 weeks with 3 sessions per week. Four days after the end of the experimental treatment, the specially developed items were applied in the same manner as the ex ante test based on the contents of the 'A friendly hand' sex education picture book, and the ex post test conducted ex post test.

2.3. Experimental treatment

Experimental treatment was conducted by teachers who received training from re-search-ers through workshops and received all the necessary data for the implementation. The activity was composed of 1 volume of a sex education picture book, which was preparing the music drama in the first stage(listening to picture books, brainstorming and nomadization, composition of theme, analysis of characters' characteristics, sharing experiences), and in second stage, it was conducting integrated activities(linguistic factor, musical factor, move-ment factor, artistic factor, and directive factor), and in the third stage, it was performing music drama(practice, revision, supplementation, performance, and evaluation) for 36 sessions for 12 weeks. The comparison group was engaged in the sex educa-tion picture book activities(li-stening to sex education picture books, brainstorming and no-madization, composition of themes, analysis of characters' characteristics, and sharing experi-ences) for 1 week of 1 volu-me of picture book for 12 weeks. The control group did not conduct activities related to this study.

2.4. Sex education picture books

The music drama activities using sex educa-tion picture books promote story comprehen-sion while experiencing music drama activities based on the contents of sex education picture books, and the sex education picture books used in the experimental treatment are those pro-vided in <Table 2>.

Table 2. List of sex education picture books.

Content Area	Picture book title	Subject characteristics
Human development Human relation-ship (Gender role and gender equality) Sexual health	How was I born into this world?	About birth
	My sister is born	About the growth process
	Holes in our body	About body structure and function
Society and culture (Sexual violence) Human development Human relationship (Gender role and gender equality)	Mom is a pilot	About gender role by occupa-tion
	Pig book	About gender role of house chores
	Rainbow fish	About the meaning of friend and eti-quettes for friendship
Sexual health Human development	A clean princess and a clean prince	About the clean-liness of body and how to dress
	My precious body	About my pre-cious body
	Paper bag prin-cess	About the meaning of mar-riage and gen-der equality
Human relationship (Gender role and gender equality)	Sad Landolin	About sexual forced action and language of other people
	A friendly hand	About the dan-gerous situation

		of sexual vio-lence
It was good that I spoke		About the dangerous situation of sexual violence

2.5. Data processing and analysis

In order to validate the differences in the ability to understand the sex related story structure following music drama activities and inferred understanding by using sex education picture books, we have examined the differences with the Ancova Test based on the ex ante test scores for each group's score. And the 'Estima-ted Average Analytical Method' was used for a clear change analysis.

3. Research Results

Story comprehension turned out to be 17.724 for experimental group, 15.143 for comparison group and 13.495 for control group, each respectively. The difference between the experimental group and the comparison group was statistically significant(p<.01) as shown in <Table 3>, and the difference between the experimental and control groups was statistically significant(p<.001), while the difference between the comparison and control groups was statistically significant(p<.05).

Table 3. Ex ante and ex post changes for the whole story comprehension & results of inter group differences.

	Ex ante	Ex post	Inter group difference	p
Experiment		17.724	Experiment-comparison	.001
Comparison	12.017	15.143	Experiment-control	.000
Control		13.495	Comparison-control	.029

Accordingly, as in <Table 3>, in terms of the overall story comprehension, a statistically higher increase was found in the comparison group than in the control group, and the experi-

mental group showed a statistically higher increase in the story comprehension than the comparison group and the control group.

3.1. Effect of music drama activities on the ability to understand story structure using sex education picture books
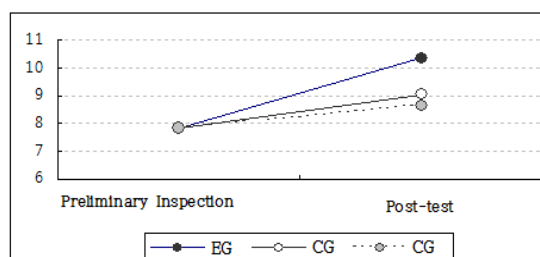
As in <Table 4>, as for the ability to understand story structure, the difference between the experimental and control groups was statistically significant(p<.05), and the difference between the experimental and control groups was statistically significant(p<.01), while the difference between the comparison and control groups was not statistically significant(p>.05). <Table 4> shows the changes in the story structure comprehension.

Table 4. Ex ante and ex post changes for understanding story structure & results of inter group differences.

	Ex Ante	Ex Post	Inter group difference	p
Experiment		10.358	Experiment-comparison	.019
Comparison	7.844	9.036	Experiment-control	.001
Control		8.657	Comparison-control	.495

As a result, while there was no difference between the comparison group and the control group, the experimental group showed a statistically significant increase in the under-standing of story structure compared to the control group and the comparison group. Such result is shown in <Figure 1>.

Figure 1. Results of understanding story structure.

3.2. Effect of music drama activities on the ability to understand stories based on inferences using sex education picture books
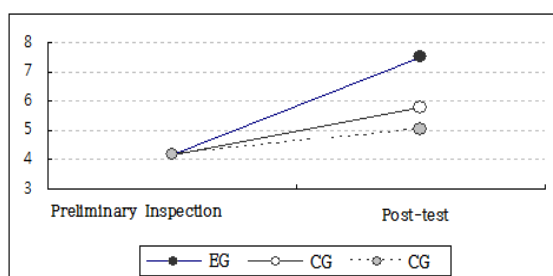
As in <Table 5>, as for the ability to understand stories based on inferences, it was 7.505 for the experimental group, 5.787 for the comparison group, and 5.036 for the control group. The difference between the experimental and comparison groups was statistically significant(p <.01), and the difference between the experimental and control groups was statistically significant(P>.001), while the difference between the comparison and control groups was not statistically significant(p>.05). <Table 5> shows the changes in the understanding of stories based on inferences.

Table 5. Ex ante and ex post changes for understanding story inferences & results of inter group differences.

	Ex Ante	Ex Post	Inter group difference	p
Experiment		7.505	Experiment-comparison	.001
Comparison	4.172	5.787	Experiment-control	.000
Control		5.036	Comparison-control	.495

As a result, there was no difference between the comparison group and the control group, but the experimental group showed a statistically significant increase in the ability to understand the story structure compared to the control group and the comparison group. The result is shown in <Figure 2>.

Figure 2. Results of knowledge on understanding story inferences.

4. Discussion and Conclusion

Based on the results of the study conducted on the effect of the music drama activities conducted by using sex education picture books on sexual violence prevention by enhancing sex related story comprehension of 5 year old young children, the conclusion is as follows. First, in the case of story structure comprehension, the experimental group which performed music drama activities using sex education picture books was higher than the control group which only performed sex education picture book activities, and the control group which experienced only the curricular daily life subjects. However, there was no effect between the comparison group and the control group. This is discernable such that, because the experiment group distinguishes between feeling good and unpleasant feeling from touching their body in the sex education picture book of "Sad Landolin" and knowing that one should inform the surrounding adults about the unpleasant feeling, while "A friendly hand" also allowed them to learn that anyone familiar can also touch their body with bad intentions. In addition, conversation oriented sex education picture books do not improve the comprehension of sex related story structure, yet in the activity oriented music drama in which the children participate voluntarily, they discovered in the sex education picture books certain sex related situations and stories, which ere helpful to improving the understanding of story structure. This is the same context as that of this study, not only in terms of the knowledge of sexual abuse, but also in the skills of dealing with other people's wrong doings, and in strengthening the ability to protect oneself from against sexual violence by talking to adults and asking for help[16].

Next, in the case of the story inference comprehension, experimental group was higher than the comparison group or the control group. However, there was no difference between the comparison group and the control group. Such

results suggest that the knowledge of sexual violence can not provide a correct and accurate knowledge of sex merely by experiencing vocabulary and behavior related scenes. However, the music drama activities using sex education picture books can help to elevate the ability to infer the contents of the sex education picture books in relation to the experiences of musical, movement wise, play, artistic, and directive factors in connection with their own experiences toward raising their perception of inappropriate situations, and the understanding of inferred understanding that can respond appropriately to the situation may be said to have improved.

Such results suggest that music drama activities using sex education picture books can be used repeatedly to help solve problems in the context of story related to sex, and they will notice the difference between good contact and bad contact, and they will recognize that they should reject bad contact even against adults. In addition, the secrets of sexual violence are not necessarily to be kept, they should know how to get proper help from adults, and also strengthen and improve the sex related story comprehension. This suggests that many preventive programs of [17] focus primarily on improving the child abuse related knowledge and skills through the group based interventions.

Accordingly, the effect of story comprehension on the dangerous situations of sexual violence was different among approaches, and the music drama activities using the sex education picture books showed high effect and was more effective than the activities engaging sex education picture books alone. This shows that for the children's cognitive characteristics belonging to the preoperative stage, it is more effective for the children to conduct self involved, direct and specific participatory activities than the method of education with an approach that is rather more passive or linguistic[1], so it may be said to be one of the sexual violence prevention activities for 5 year old children. Based on the results

of this research, the following suggestions could be made. First, as the scope of comparison for the results is quite limited and narrow, it is necessary to perform activities for a greater number of young children across various regions. Second, a longitudinal study on the duration of the sex related story comprehension ought to be conducted for comparison against follow up data, respectively.

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The Crisis of FORESTRY in South KOREA and Its Future Direction

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Abstract

In South Korean society, forestry has been on a continuous decline. Agriculture and forestry are important fields directly connected to the food security of the people. Forestry has many problems including imbalance between rising production and consumption rates, fluctuating prices by the season, poor research pool on growing and biological pest control, temporary petty cultivation facilities, and weaker price competitiveness than Chinese counterparts. Since forest products are not part of the nation's food staple, the demand for forest products is more unstable than agricultural products, which explains why the percentage of forest managers leaving the vocation is higher than that of farmers. This study set out to investigate the current forest management of forest managers and find solutions to the crisis of forest products in South Korea.

The subjects include 15 forestry households that collected, processed, and distributed wild herbs and vegetables, mushrooms, and fruits. The survey period spanned about two months from December, 2015 to February, 2017. The in-depth interview covered six major areas including the information of forestry households, information of forest products, methods of collection, methods of processing, methods of distribution, and other particulars.

Based on the results of an in-depth interview with 15 forestry households, the study made the following proposals for the development of forestry in the nation: first, they should introduce a village or farming association unit and carry out promotional and marketing strategies in an organized way; second, they should create value added with the development of processed food through talent search and education for their village or farming association organization and government-level support projects based on connections between central and local regions; and lastly, given the recent growing interest in environment-friendly food, they should make efforts to segment food consumers according to their dietary life patterns and understand their preference in order to create a market environment where both forestry businesses and consumers can survive together.

[Keywords] Forestry Disaster, Forestry Crisis, Forest Manager, Forestry Business, Forest Products

1. Introduction

In South Korean society, forestry has been on a continuous decline. Agriculture and forestry are important fields directly connected to the food security of the people. The nation's self-sufficiency rate of grain remained at 70~80% until the 1970s and has since fallen under 50%. Except for rice that receives particular attention from the government, barley, corn, and bean mostly depend on imports. On October 25, the Ministry of Agriculture, Food and Rural Affairs announced that the nation's self-sufficiency rate of grain fell to 48.9% last year, which means that South Korea imported more than half of the grain consumed in the nation. In South Korea, the self-sufficiency rate of grain recorded 100% in 1966 and gradually dropped to 50% in the 2000s. It first entered the range of 40% in 2011, showing no

sign of rebound. The situation is worse with forest products, whose production volume and yield made a decrease in 2012 except for balloon flow roots[3]. The forestry of South Korea suffers from small-sized growers, unsystematic production, and unsmooth supply of seeds and seedlings[2]. In addition, it has many problems including imbalance between rising production and consumption rates, fluctuating prices by the season, poor research pool on growing and biological pest control, temporary petty cultivation facilities, and weaker price competitiveness than Chinese counterparts[3]. Since forest products are not part of the nation's food staple, the demand for forest products is more unstable than agricultural products, which explains why the percentage of forest managers leaving the vocation is higher than that of farmers.

Finding the causes of the crisis in the food self-sufficiency in the profit and loss of practitioners in agriculture and forestry, the South Korean government is searching for solutions by increasing the value added of forest products through the Sixth Industry. That is, it helps forestry businesses crease high value added by processing their products and stabilize the distribution of their products and also their profit, thus preventing the practitioners in agriculture and forestry from leaving their vocation and contributing to the stabilization of the foundation in agriculture and forestry.

They, however, face limitations with implementing all the stages of forest products from production through processing and distribution to sales. They have a lot of problems including the complex distribution steps, high distribution costs, poor organization of the wholesale market, small shipment due to the decentralized production and collection of small businesses, poor joint shipment, difficulties with standardization due to many varieties, and poor standard packaging, standardization and commercialization.

The present study aimed to examine the current forest management of forest managers, and find solutions to the crisis of forest products in the nation.

2. Methodology

2.1. Preceding researches research ethics by regulating the various matters in relation to the journal published

The subjects include 15 forestry households that collected, processed, and distributed wild herbs and vegetables, mushrooms, and fruits <Table 1>. The survey period spanned about two months from December, 2015 to February, 2017. The in-depth interview covered six major areas including the information of forestry households, information of forest products, methods of collection, methods of processing, methods of distribution, and other particulars.

Distribution channels were examined based on those of forest products for short-term profit by the Korea Rural Economic Institute(2013). Type I represents the traditional multi-level distribution, being the most common distribution type for forest products for short-term profit. Type II is the simpler version of the traditional multi-level distribution, going through dealers and traditional markets. Type III distributes forest products for short-term profit to consumers via a large distribution company. Type IV involves the delivery of forest products to restaurants and food service providers, providing forest produces in processed forms to consumers. The last Type V involves farmers of forest products for short-term profit selling their products directly to consumers online.

Table 1. The List of Interviewees.

Name of the household visited	Date of visit	Information of forest products
Gomone loofah	2015/12/16	Loofah, balsam apple, blueberry, aronia, and tumeric
Mojeong farm	2015/12/17	Omija

Saemmal farm	2015/12/21	Cirsium setidens, fresh shoots of thorny ash tree, goats-beard, and native siberian gooseberry
Dongwonne chestnut	2015/12/23	Chestnut, green kernel black bean, and jujube
Jangheung halla farm	2016/01/12	Shiitake
Seomjin River plum farm	2016/01/12	Plum
Mt. Sudo wild grape farm	2016/01/13	Wild grape
Cheonji walnut farm	2016/01/13	Walnut, chestnut, and pine nut
Wild grape farm	2016/01/14	Wild grape
Fig farm	2016/01/21	Fig
Gamcheon plum farm	2016/01/21	Plum
Mr. Seo Chul Won's farm	2017/02/16	Cherry, shiitake
Mr. Yang Hyun Mo's farm	2017/02/16	Shiitake
Mr. Kim Jung Yang's farm	2017/02/17	Shiitake
Mr. Choi Young Soo's farm	2017/02/17	Shiitake

3. Problems of Forest Managers

The interview results with the forest managers were as follows: the study first examined the distribution channels of forest products and their processed products for short-term profit among the farmers in the field survey and found that the biggest number of them engaged in direct transaction with their old customers acquired online or via acquaintances or sold their products to consumers via distributors or restaurants. Second, they had the most prominent difficulties with distribution and sales in finding customers and paying for high-priced online advertising. They had high demand for educational support for computer skills as they lacked the skills of online sales. Third, the study examined problems with the collection and storage of forest products for short-term profit and found that the shortage of labor during the collection period was the biggest problem for all the farmers of wild herbs and vegetables, mushrooms, and fruits. Another problem was the deterioration of product value due to the shortage of storage facilities after collection.

Fourth, the study examined problems with the distribution and sales process of forest products for short-term profit and their processed products and found that they had many difficulties with keeping the old customers and attracting new ones. In addition, the value added of the products was not attributed to them because of the middlemen's margin rate. They also had complaints regarding the lower price competitiveness of their products compared with imported ones in the open market. Since customers did not realize that the quality of products could vary due to climate changes every year, they had difficulties with dealing with customer complaints about product quality.

Finally, the visited forestry households hoped that urban-rural exchanges would be activated through meetings between farmers and clients to minimize problems with the production, processing, and distribution of forest products for short-term profit and create new income. They also hoped that there would be events for them to have exchanges with buyers such as small- and medium-sized companies based on farmers with stabilized production, processing and distribution and that the government would support their product promotion and customer attraction by building a tourist town for certain forest products. In addition, they wished for the development and distribution of educational programs so that they could do promotions and marketing themselves. Some of them pointed out a need to improve agricultural machines to overcome the shortage of labor during harvest periods.

4. Conclusion and Suggestions

Based on the field survey of forestry households and interviews with the heads of farms, the study found three major problems with the distribution channels and methods of farms that were engaged in the production, processing, and distribution of forest products for short-term

profit: (1)distribution of limited direct transaction, (2)small-scale marketing by the farmer unit, and (3)low price competitiveness in the open market. Helping to solve these problems, the study made the following proposals to create new income with forest products for short-term profit: first, they should establish a village or farming association unit and implement promotions and marketing strategies in an organized way; second, they should create value added through the development of processed food products. For this, they need to identify talents and provide talent education for village or farming agriculture association organizations, and the government should carry out supportive projects by connecting the central region to the local ones.

In addition, consumers have recently increased interest in environment-friendly food. Yoo&Song(2016) investigated the consumption behavior of forest products for short-term profit according to dietary lifestyles and reported that the high involvement group of food was willing to purchase high quality products regardless of prices and could be major clients for high quality forest products. There should be efforts to segment consumers and understand their preferences in order to create a market environment in which both forestry businesses and consumers can survive.

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Depression and Stress Level according to BMI

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Abstract

The purpose of this study was to examine the experience of depression and stress level according to obesity in an effort to obtain some information on how to relieve depression and lower stress level based on the results of BMI evaluation. As for the experience of depression, the rates of depression expression were higher among the respondents who were male, who had been married yet had no spouses, who were less educated and whose income levels were lower, and stress levels were higher among the respondents who were female, who were younger, who were unmarried, who were better educated and whose income levels were higher. BMIs were higher in the respondents who were male, who were in their 50s, who had been married and had spouses, who were secondary-school graduates, who engaged in economic activity and whose income was between 2.01 and 3 million won. Regarding stress level and the experience of depression according to BMI classifi- cation, stress levels were highest in the underweight group, and the experience of depression was most common in the under-weight group as well. BMI may depend on diverse characteristics, but the finding that depression and stress were severer in the underweight group should be taken into account, and it seems necessary to improve eating habits and life habits even amid hectic life to control weight.

[Keywords] *Human & Disaster BMI, Community, Depression, Obesity, Stress*

1. Introduction

Owing to westernized eating habits, the obese adult population in our country accounted for as many as 32.8 percent in 2013, and that has tended to be on the steady rise[1]. According to data released in 2015, 12 percent of adults all over the world were obese, and it's estimated that 41 percent of the whole population died from obesity- related diseases[2]. Obesity gives rise to many problems. Specifically, the preva-lence of chronic diseases including hyperten-sion, diabetes and hyperlipidemia becomes higher, which is emerging as one of social issues, not a personal problem. In 2015, the World Health Organization(WHO) pointed out obesity as one of major causes of chronic diseases and classified it as a dangerous disease[3]. The main causes of obesity are grouped into environmen-tal factors and genetic factors, and eating habits, life pattern and stress are especially looked upon as typical environmental factors[4]. Due to obe-sity, the risk of chronic diseases becomes higher, and subsequent economic burden becomes heavier, which results in undermining not only health but the overall quality of life[5].

To prevent obesity, diverse efforts are being made to improve physical activities and socio-physical environments as well as eating hab-its[6][7][8][9][10].

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Moreover, it's reported that self-esteem and confidence become lower because of obesity, and that obese people are more prone to depression than those with normal weight, and it's found that depression is compounded when one considers himself or herself to be obese, though it also is linked to measured BMI[11][12].

To reduce the obese population, a lot of chances to play sports for all are provided by various institutions including local health organizations, and nutrition education is conducted as well to improve eating habits. However, these efforts aren't yet sufficient enough. The awareness rate of the danger of obesity is higher, and studies have mostly examined the relationship between it and chronic diseases[13]. The purpose of this study was to examine the experience of depression and stress level according to BMI in an attempt to obtain some information on how to manage obesity and lower depression and stress level.

2. Method

2.1. The subjects & method

The 2017 data of the community health survey for South Gyeongsang Province were used. General characteristics, BMI, the presence or absence of depression experience and stress level were utilized. A four-point scale was used to measure stress level, and a higher score was evaluated as indicating a higher stress level.

2.2. Data analysis

IBM SPSS Statistics 25.0 was used. To find out the presence or absence of depression experience by general characteristics and the rate of depression experience according to BMI classification, crosstabs(chi-square test) was carried out, and t-test and ANOVA were conducted to measure stress level by general characteristics and according to BMI classification.

3. Results

3.1. The rate of depression experience by general characteristics

As for the rate of depression experience by general characteristics, the rate stood at 3.2 percent in the men, and at 6.5 percent in the women. The rate of the latter was more than double that of the former(p<.001). By marital status, the respondents who had been married yet didn't have spouses had the highest rate of 8.3 percent, and the unmarried ones had the lowest rate of 4.4 percent(p<.001). By academic credential, the rate was higher in the less-educated respondents(p<.001). By economic activity, the rate stood at 4.0 percent in the respondents who replied "Yes," and at 7.6 percent in the respondents who replied "No." The rate was higher in the respondents who didn't engage in economic activity(p<.001). By household income, the rate was higher in general when household income was smaller(p<.001) <Table 1>.

3.2. BMI and self-rated stress level by general characteristics

Concerning BMI by general characteristics including gender, the men got 23.97, and the women got 22.93. BMIs were higher in the men(p<.001). By age, the respondents who were in their 50s got the highest score of 23.69, and the respondents who were in their 20s got the lowest score of 22.72(p<.001). By marital status, the respondents who had been married and had spouses scored the highest with 23.58, and the unmarried ones got the lowest score of 22.95. By academic credential, the secondary-school graduates got the highest score of 23.73, and the elementary-school graduates scored the lowest with 23.19(p<.001). By economic activity, the respondents who replied "Yes" got 23.56, and the respondents who replied "No" got 23.09. The former scored higher than the latter(p<.001). By household income level, the respondents whose

household income ranged from 2.01 to 3.00 million won scored the highest with 23.63, and the respondents whose household income was less than one million one got the lowest score of 23.09(p<.001).

As to self-rated stress level, the urban residents got 2.02, and the county residents got 1.93. The urban residents scored higher(p<.001). By gender, the men got 1.95, and the women got 2.01. The women scored higher(p<.001). By age, the respondents who were in their 30s scored the highest with 2.18, and the scores became lower with age(p<.001). By marital status, the unmarried respondents scored the highest with 2.09, and the respondents who had been married yet didn't have spouses scored the lowest with 1.87(p<.001). By academic credential, there were higher levels of stress in the better-educated respondents(p<.001). By economic activity, the respondents who replied "Yes" got 2.01, and the respondents who replied "No" got 1.90. The former scored higher(p<.001). By household income, higher levels of income led to higher levels of stress(p<.001) <Table 2>.

3.3. Stress level according to BMI classification

In regard to stress level according to BMI classification, the underweight respondents scored the highest with 2.08, followed by the obese ones with 2.01 and the ones with normal weight with 1.97(p<.001) <Table 3>.

3.4. The rate of depression experience according to BMI classification

As to the rate of depression experience according to BMI classification, the rate of the underweight respondents was highest with 8.0 percent, followed by those with normal weight with 5.1 and the obese ones with 4.9(p=.002) <Table 4>.

Table 1. The rate of depression experience by general characteristics.

Characteristic	Classification	Yes	No	X^2	p
Region	City	7703(94.9)	415(5.1)	.403	.543
	Country	6292(95.1)	323(4.9)		
Gender	Male	6595(96.8)	221(3.2)	83.212	.000
	Female	4700(93.5)	517(6.5)		
Age group	20	1420(96.3)	55(3.7)	8.331	.139
	30	1859(94.9)	99(5.1)		
	40	2734(94.6)	156(5.4)		
	50	3310(95.2)	168(4.8)		
	60	2707(94.4)	160(5.6)		
	70<	1965(95.2)	100(4.8)		
Marital status	Married(spouse)	9984(95.5)	466(4.5)	57.935	.000

	Married(spouse) X	1959(91.7)	178(8.3)		
	Single	2052(95.6)	94(4.4)		
Education	Elementary	2644(93.0)	199(7.0)	35.925	.000
	Middle	1746(94.6)	99(5.4)		
	High	4691(95.2)	236(4.8)		
	College	4914(96.0)	204(4.0)		
Economic activity	Yes	9656(96.0)	404(4.0)	65.761	.000
	No	4339(92.9)	334(7.1)		
House income	<100	2466(92.4)	203(7.6)	79.209	.000
	101-200	2365(93.6)	154(6.1)		
	201-300	2514(94.8)	139(5.2)		
	301-400	2437(96.1)	98(3.9)		
	401-500	1774(97.1)	53(2.9)		
	500<	2439(96.4)	91(3.6)		

Table 2. BMI and self-rated stress level by general characteristics.

Characteristic	Classification	BMI	Stress Level
Region	City	23.39±3.14	2.02±.68
	Country	23.44±3.05	1.93±.73
	t/p	-1.042(.296)	7.034(.000)
Gender	Male	23.97±2.98	1.95±.71
	Female	22.93±3.12	2.01±.70
	t/p	20.721(.000)	-5.095(.000)
Age group	20	22.72±3.74[a]	2.11±.68[d]
	30	23.43±3.53[b]	2.18±.67[e]
	40	23.61±3.15[bc]	2.09±.66[d]
	50	23.69±2.78[c]	1.97±.67[c]
	60	23.68±2.71[c]	1.84±.70[b]
	70<	22.79±2.95[a]	1.74±.76[a]
	F/*p*	2078.492(.000)	312.292(.000)
Marital status	Married(spouse)	23.58±2.96[b]	1.98±.70[b]
	Married(spouse) X	23.06±3.02[a]	1.87±.74[a]
	Single	22.95±3.70[a]	2.09±.68[c]
	F/*p*	53.289(.000)	52.059(.000)
Education	Elementary	23.19±3.03[a]	1.85±.76[a]
	Middle	23.73±2.82[b]	1.87±.68[a]
	High	23.62±3.07[b]	1.99±.69[b]
	College	23.22±3.24[a]	2.08±.68[c]

	F/p	25.395(.000)	81.058(.000)
Economic activity	Yes	23.56±3.01	2.01±.69
	No	23.09±3.26	1.90±.73
	t/p	8.460(.000)	8.639(.000)
House income	<100	23.09±3.14^a	1.85±.78^a
	101-200	23.45±2.94^{bc}	1.94±.71^b
	201-300	23.63±3.14^c	2.01±.66^{bc}
	301-400	23.56±3.17^{bc}	2.05±.67^c
	401-500	23.46±3.06^{bc}	2.05±.65^c
	500<	23.32±3.11^{ab}	2.05±.68^c
	F/p	10.209(.000)	32.841(.000)

Table 3. Stress level according to BMI classification.

Characteristic	Classification	Stress Level	F	p
BMI	Underweight	2.08±.72^c	12.168	.000
	Normal weight	1.97±.69^{ab}		
	Overweight	1.94±.69^a		
	Obesity	2.01±.72^b		

Table 4. The rate of depression experience according to BMI classification.

Characteristic	Classification	Yes	No	X^2	p
BMI	Underweight	49(8.0)	561(92.0)	14.488	.002
	Normal weight	319(5.1)	5884(94.9)		
	Overweight	167(4.5)	3575(95.5)		
	Obesity	186(4.9)	3646(95.1)		

4. Discussion

As society becomes increasingly complex, modern people feel stressed or depressed, which is one of psychological pressures. There are various causes for depression and stress such as personal feelings, work, interpersonal relationships and health. In terms of health, stress and depression that are attributed to health problems increase with age. Obesity is pointed out as one of major causes for diverse chronic diseases, and this study attempted to grasp the experience of depression and stress level according to BMI.

As for the rate of depression experience by general characteristics, the rate of the women was more than double that of the men, and the rates were higher in the married respondents who didn't have spouses, who were less educated, whose household income levels were lower and who didn't engage in economic activity. Yoon[14]'s study found that the rate of depression experience was higher in the female subjects than in the male ones, and that more

depression was experienced by those whose families were broken or who had one or more unemployed family member(s). His findings are similar to those of this study. To remedy the situation, a shelter should be prepared in every local community, where local residents can seek counseling or have a conversation when negative thoughts come into their minds.

Regarding stress level by general characteristics, the respondents who were urban residents, who were female, who were younger, who were unmarried, who were better educated, whose household income was larger and who engaged in economic activity were under heavier stress. Studies have mostly investigated individuals with particular occupations, senior citizens, college students or adolescents, and not many studies have yet examined adults.

Concerning BMI by general characteristics, BMIs were highest among the respondents who were male, who were in their 50s, who had been married and had spouses, who were secondary-school graduates, who engaged in economic activity and whose household income ranged from 2.01 to 3.00 million won. This corresponds with the finding of Cho[15]'s study that BMIs were higher in the male and older subjects. It seems mostly because frequent eating out and growing older result in increasing abdominal fat. More abdominal fat is accompanied by more risk factors of metabolic syndrome that raise the risk of chronic diseases. Therefore moderate exercise and dietary control are required.

In terms of BMI classification, stress levels and the rates of depression experience were higher in the underweight respondents, but Kim & Lee[16]'s study found that the overweight subjects were more stressed out and felt more depressed, which runs counter to the findings of this study. In addition, Han, et. al.[17]'s study that investigated women found that the obese women were under heavier stress and consequently felt more depressed. The reason that there were differences between their findings

and those of this study seems that the BMIs in this study were not measured but the self-perceived values of the subjects. As the community health survey starts to measure height and weight in 2018, a follow-up research should be implemented. This study found that obesity not only increases the risk of chronic diseases in adults but also is bound up with depression and stress. Therefore weight control, regular exercise and better eating habits are necessary to lead a healthy life.

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Influenza VACCIINATION Status in KOREAN Adult

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Abstract

The purpose of this study is to propose a quantitative evaluation method of landscape for urban landscape planning in urban planning for sustainable urban regeneration. The identity of the city is recognized as the competitiveness of the city, among the various elements that make up the identity of the city, the buildings that make up the city center and the landscape of the city center are important from the aspect of the space that realizes the lives of citizens. Cities will lose their vibrancy with the growth of the city and the flow of time, and there will also be where the city will disappear. By giving new functions and personality to such places, there is a possibility that urban revitalization is planned. Since the regeneration method does not regenerate only one object, urban planning for urban regeneration is necessary. Therefore, out of various fields of urban planning, we show quantitative evaluation method for urban landscape planning, analyze the results, and propose urban landscape plan making use of characteristics of landscape. For this purpose, a field survey was conducted for the characteristic districts of Nagasaki City, Japan, and at the same time, characteristic landscapes were photographed and recorded. A landscape evaluation was carried out for the same and quantification was performed. In the landscape evaluation, the SD method was applied to the subjects, and quantification theory and cluster analysis were applied to the results for quantification. Next, a characteristic urban landscape plan was proposed by analyzing the landscape evaluation with the quantification performed.

[Keywords] Quantification, Improvement Effect Simulation, Landscape Analysis, Landscape Planning, Urban Regeneration

1. Introduction

1.1. Background and purpose of study

Since the 1960s, Korea has been experiencing rapid population growth and industrialization, resulting in population concentration in big cities. This phenomenon has created regional disparities in the social, economic, cultural and environmental fields [1]. This rapid urbanization has also changed the shape of the city with the increase of the floating population. In addition, in order to absorb the increasing flow of population, cities have been building high-rise buildings such as large-scale apartment complexes and office buildings. This has resulted in various urban problems such as deterioration of urban environment, degradation of quality of life and traffic congestion, and urban landscape has become desolate[2][3].

Since the beginning of the 2000s small and medium-sized cities in some regions are facing a crisis due to urban space changes such as population decline, low growth, changes in industrial structure. Under the recognition of these problems, discussions on revitalization projects for revitalizing small and medium-sized cities have been active in academia over the past decade[4][5].

Recently, the paradigm of urban planning has changed from 'quantitative concept' to 'qualitative concept', and the importance of management and improvement of urban landscape has been emphasized along with the regeneration of existing urban areas. As the urban image formation has become recognized as the major means of strengthening city competitiveness, local governments are establishing landscape plans to enhance urban image[6][7][8].

The urban landscape planning is a new dimension of urban planning which aims identitymaking with urban aesthetics. Under the current municipality of Korea, which has been able to develop the local city planning independently, the urban landcape plan will become the means of enhancing the actual quality of life of the citizens and become an important strategic tool for expanding the unique characteristics of each city that has not been cared [8][9].

The landscape planning may overlap with other plans in urban planning, or may have contradictions in the contents, and each planning element is applied to hierarchical planning without any principle, making differentiation between plans and contents link difficult[10].

While the interest in the landscape is increasing and landscape related systems are being improved, the method which depends on the opinion of the researcher is still mainly used as the method of analyzing the actual urban landscape. Since the general landscape analysis is conducted by a few planners, the analysis is often conducted individually without consistency[11]. In addition, there are very few researches on the establishment of landscape planning index which is objective, systematic and suitable for the situation in Korea and can be considered in terms of urban planning[12]. Evaluating the urban image appropriately and seeking the planned means matching the estabishment of characteristic urban landscape mean a lot to the ordered and systematic organization of our urban space[13].

The purpose of this study is to suggest a landscape evaluation method which can be used to evaluate or analyze urban landscape to form desirable urban image. The ways to use it in landscape planning are also suggested.

1.2. Method and scope of study

In this study, Field survey was conducted in fore locations of Japan's Nagasaki city. The image intensity ranks that we established, which were applied quantification theory type 3 and cluster analysis and classified each object and sound, were based on the qualitative image intensity evaluation of objects and sounds which form the landscape and soundscape by SD method (Semantic Differential method). By using this quantitative method, the engineering image intensity evaluation of each object and sound form the landscape and soundscape is made possible. Furthermore, we consider that the association of each objects and sounds form the landscape and soundscape can be indicated quantitative evaluate impression evaluation technologically.

Urakami Cathedral in Nagasaki, Nagasaki Prefecture, which is the area to be evaluated in this study, is the site still displaying the damage caused by the atom bomb and is the site designated as the Nagasaki atomic bomb ruins in 2016. Sotome is located in the northwest of Nagasaki City, and is a place full of character, utilizing unique local resources such as unique history and culture with abundant natural resources. Mizubenomori Park was built in inner harbor facing Nagasaki Port in 2003, and a canal was built in the park and is popular between citizens as a resting place full of water and green leaves. On the canal's trail called "Walk of Water", people can enjoy playing in water or walking, while the "Water Garden" using a fountain and a stream on the hill are a place where you can hear fresh water and see children playing in summer. Nagasaki Shipyard, operated by Mitsubishi Corporation, is located in Tategami. The No. 3 Dry Dock of the shipyard is the heritage of Japan's Meiji Industrial Revolution which is included in World Heritage[14][15][16].

2. Analysis Method

2.1. Landscape evaluation and processing

The SD method used in the impression evaluation using the video data in this study is a method of analyzing the semantic contents of the concept, which was designed by

American psychologist Charles Osgood in 1959. The evaluation method is used to measure the accepted meaning of the contents coming into one's mind by a certain concept.

In the impression evaluation by the SD method performed in this study, the adjectives with the opposite meaning of 13 items were composed by 7 stages.

The method used to quantify qualitative landscape evaluation results is quantification theory. The quantification theory is a theory designed by Dr. Chikio Hayashi, the head of the Institute of Statistical Mathematics in Japan. It is widely used in social studies such as marketing, mass media, and behavioral science in Japan[17].

The quantification theory is usually divided into the case that the external standard exists and the case that the external standard does not exist. In this study, quantification theory Ⅲ which doesn't have external standard. Quantification Theory Ⅲ is a theory that is used for classification by one dimensional scale with the criterion of optimization of maximizing the correlation coefficient[17][18].

Quantification Theory Ⅲ is an evaluation method developed for the correlation analysis of categorical multivariate data. It is a very useful method to explain the relation between two element sets with the distance between points in multidimensional space. Quantification Theory Ⅲ is an effective way to quantify qualitative things such as conscious or unconscious internal information in expression of complex and diverse human emotions[17][18].

In this study, the sample scores, category scores and eigenvalues of Korean and Japanese students were calculated by applying Quantification Theory Ⅲ to the evaluation results using SD method performed on Korean and Japanese students.

2.2. Sample classification and rating

In this study, the samples used in the analysis are 40 objects, each thing forming a landscape and each sound forming a sound landscape. A cluster analysis based on eigenvalues and sample scores calculated using quantification theory is conducted, and samples that form landscape and sound landscape are classified into several groups. The cluster analysis is one of the methods of data mining analysis by analyzing characteristics of data to define data cluster and finding representative points of data cluster. The cluster analysis can identify the characteristics of the whole data by checking only the representative values of each cluster without directly checking the entire data.

<Figure 1> shows the scatter plot on axes 1 and 2 of the sample scores calculated using the quantification theory. Axis 1 is the sample score belonging to the largest eigenvalue, and axis 2 is the sample score belonging to the eigenvalue that is the second largest. The magnitude of △ indicates the samples score belonging to the third largest eigenvalue, and the number in the figure is the sample number. In addition, the five groups a to e in the scatter plot are classified into the analysis results by the cluster analysis.

Next, category classification by cluster was performed using eigenvalue and category score. The category is 7 stages for 13 items. In order to classify a category by clusters, an item of "bad - good" which directly represents an item size is set as a reference item, and for the reference item of 7 stage category, the impression evaluation score was given - -3 points for "very bad", -2 points for quite bad, -1 points for "somewhat bad", 0 points for "neither good nor bad", +1 points for "somewhat good", +2 points for "fairly good" and 3 points for "very good". Next, the Euclidean distance was calculated using the following formula, considering the attribute ratios of all the categories other than the reference item and the category of the reference item.

$$d_{rs}^2 = \sum w_i (x_{ri} - x_{si})^2$$

d_{rs}^2 : squared Euclidean distances

w_i : eigenvalue(attribute)

x_{ri} : category score other than reference item

x_{si} : category score of reference item

In addition, the impression evaluation scores of the category corresponding to 13 items were added to each sample to calculate the impression evaluation total score. The impression evaluation level(A to E) was calculated by dividing the interval between the maximum value and the minimum value of the impression evaluation total score into five intervals. The result is shown in <Figure 2>.
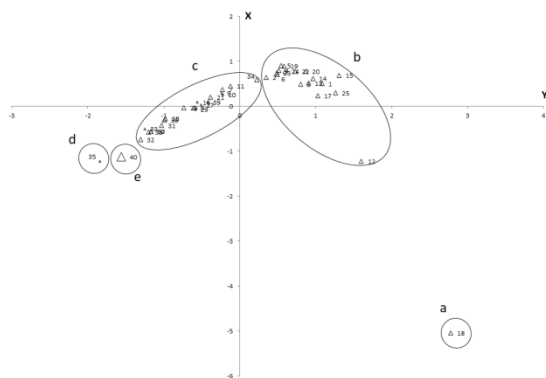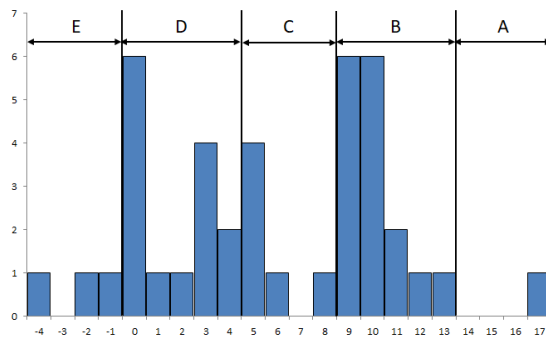
Figure 1. Distribution of whole samples.

Figure 2. Frequency table of impression score.

3. Relations between Objects and Preference Analysis

3.1. Flu vaccination by the general characteristics

<Table 1> shows sample classification results(sample groups) using sample scores. The sample numbers shown in <Table 1> correspond to the sample numbers in <Figure 1>.

<Table 2> shows that the average score of the target area is increased by 0.175 points when the samplea with minus score is hidden after simulation of the improvement effect using the impression score.

Considering details of <Table 1>, the upper group(a, b) of each sample occupies the samples in nature such as "green in park", "near tree" and "distant mountain". However, even samples that exist in nature, such as "cicada noise" and "children's play", were evaluated in lower groups(d, e) depending on the situation and relation to the surrounding landscape. Also, artificial samples such as "factory", "traffic sound", "work sound", etc. are evaluated as lowr groups(d, e). But, in the artificial samples, "Urakami Cathedral" and "Megami Bridge", which are rooted in local culture and tradition, are evaluated as upper group(a, b).

It is necessary to provide a link between areas, focusing on resting spaces and cultural spaces such as parks and green spaces, and to incorporate road elements that improve accessibility with green areas into the landscape plan. To this end, various plans of ecological audiovisual environment with the green network and surrounding major facilities through the central park located in the center of the city and an ecological plan such as enhancement of the linkage through the and the surrounding main facilities, the linkage through the inlet-type roadside trees in the city and the linkage of the environment with the green spaces should be included.

Also, as in <Table 2>, some landmarks that have historical significance may need to be improved. A three-dimensional approach is needed for this. It should be planned considering the proportions, balance, rhythm, and unity with the surrounding landscape components, and landscape harmony such as height and appearance.

In establishing such a landscape plan, the image and three-dimensional guide line for the use of the landscape composition object for the landmark of each area and the landmark of the city, the guideline for the entrance part for strengthening the boundary of each area, the connection with the green spaces centered on the central park should also be considered.

Table 1. Scores, ranks and groups of Samples.

No.	Sample	Impression Score	Rank	Group
1	Nearby tree	11	B	b
2	Play equipment	8	C	b
3	A mountain in the distance 01	9	B	b
4	Seminary school	9	B	b
5	Urakami Church	10	B	b
6	Ground	9	B	b
7	Toilet	5	C	c
8	Traffic sound	3	D	c
9	Signal sound	5	C	c
10	Child's voice	5	C	c
11	Sound of the bell	5	C	c
12	Sea 01	13	B	b
13	Green on the slope	10	B	b
14	Island	10	B	b
15	A beach	12	B	b
16	Cicada 01	3	D	c
17	Wave	10	B	b
18	Park's green	17	A	a
19	Megami Bridge	10	B	b
20	Sea 02	10	B	b
21	Residential area	4	D	c
22	Canal	9	B	b
23	Bridge of the Canal	9	B	b
24	Jetfoil	9	B	b
25	A mountain in the distance 02	11	B	b
26	Whistle	2	D	c
27	Cicada 02	3	D	c
28	Engine sound of ship	0	D	c
29	Children's voice	3	D	c
30	JIB Crane	0	D	c
31	Transfer crane	1	D	c
32	Factory	-1	E	c
33	Dock	0	D	c
34	Mountain	6	C	c
35	Material storage space	0	D	d
36	A house	0	D	c
37	Container ship	0	D	c
38	Traffic sound 02	-2	E	c
39	Cicada 03	4	D	c
40	Working sound	-4	E	e

Table 2. Total of impression point and Average of impression point of samples.

No.	Sample	Impression Score Before	After
18	Park's green	17	17
12	Sea 01	13	13
15	A beach	12	12
1	Nearby tree	11	11
25	A mountain in the distance	11	11
5	Urakami Church	10	10
13	Green on the slope	10	10
14	Island	10	10
17	Wave	10	10
19	Megami Bridge	10	10
20	Sea 02	10	10
3	A mountain in the distance	9	9
4	Seminary school	9	9
6	Ground	9	9
22	Canal	9	9
23	Bridge of the Canal	9	9
24	Jetfoil	9	9
2	Play equipment	8	8
34	Mountain	6	6
7	Toilet	5	5
9	Signal sound	5	5
10	Child's voice	5	5
11	Sound of the bell	5	5
21	Residential area	4	4
39	Cicada 03	4	4
8	Traffic sound	3	3
16	Cicada 01	3	3
27	Cicada 02	3	3
29	Children's voice	3	3
26	Whistle	2	2
31	Transfer crane	1	1
28	Engine sound of ship	0	0
30	JIB Crane	0	0
33	Dock	0	0
35	Material storage space	0	0
36	A house	0	0
37	Container ship	0	0
32	Factory	-1	0
38	Traffic sound 02	-2	0
40	Working sound	-4	0
Average of impression point		5.7	5.875

4. Conclusion

In this study, landscape evaluation was carried out by using SD method, Quantification Theory Ⅲ and cluster analysis using images recorded for Japanese traditional, environmental and cultural landscape and sound landscape in Nagasaki City.

As a result, it was found that the results of the impressions on the nature such as the green areas in the outskirtsor the urban parks are present in the upper group. However, even the samples in nature such as "cicadas noise" were evaluated as a lower group according to their relationship with the surroundings. In addition, artificial samples were evaluated as lower groups, but artificial samples that are rooted in local cultures and traditions were also evaluated as upper groups.

In addition, it was found that even the landscape listed as the World Heritage was underestimated. It is considered that this is due to the difference of values according to the culture and living environment of the target site.

The development for the city for sustainable development should prevent the unplanned development, and the landscape having the environment through sustainable development should be planned. For this purpose, it is necessary to implement the visual environment and the connection with the surroundings through the city park in an ecological approach. In addition, the planning and the aesthetic approach using roadside tree in the city will be used to plan the overall harmony of the design, such as height, rhythm, balance, unification and proportion of elements in the target area through a three-dimensional approach. A landscape plan considering the mark and landmarks suitable for each area and urban landmark will be needed.

The limitations of this study are that it presents a sustainable development with one evaluation result and that it is limited to the factors shown by the evaluator among many factors of landscape planning. As the urban landscape becomes urban competitiveness and interest in landscape planning is increasing, more researches for planning more competitive and sustainable urban landcapes should be carried out.

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