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## Relative Importance of Constituting Factors of Safety Culture -Focusing on PRIVATE SECURITY in Republic of KOREA-

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### Abstract

*As complex risk factors become routinized, social safety and safety culture are gaining attention as important social issues. Emphasis on safety culture reflects the fact that the need for social control over complex risk factors keeps increasing. It is difficult, however, to quantify safety culture as it has intangible and qualitative characteristics. Although it can be managed and improved with qualitative data, it can be managed and improved even more effectively when quantitative data are added.*

*In the private security field, it is more important to understand safety culture as a profession which implements safety-related tasks and manages safety. Even though Korea has undergone various incidents and accidents on a continual basis due to its compressed economic development, understanding and efforts on safety culture have been deficient owing to lack of awareness and non-systematic activities conducted by the private sector.*

*This study found out assessment factors which constitute safety culture through DHP technique and drew out relative importance of the factors constituting the safety culture. As a result of the 1st Delphi analysis, a total of 73 factors of safety culture were drawn out and, through literature review on the preceding studies and meeting of the experts on researches, individual factors were finally classified into safety value, safety attitude, safety behavior and safety knowledge while organizational factors were classified into safety atmosphere, safety procedure, safety education and safety motivation, totaling 73 factors. Based on the results of the 2nd Delphi, 6 factors with CVR values less than 1.0 and average less than 3.0, which were 1 item of safety attitude, 1 item of safety atmosphere, 2 items of safety procedure and 2 items of safety motive, were deleted, finalizing 67 items. In the 3rd AHP analysis, paired comparison was conducted on 67 factors and weights for each factor and their priority order were drawn out.*

*Among the constituting factors of safety culture, safety value and safety motive had highest weights, followed in descending order by safety behavior, safety atmosphere, safety attitude, safety education, safety procedure and safety Knowledge.*

*Although some factors among those which were studied and drawn out by this study are relatively insignificant, even those factors need to be handled carefully as they also constitute safety culture. This study is expected to work as the basic data and to maintain a high level without compromising any one of the factors. In addition, subsequent studies by other researchers should prevent and prepare for various risks through integrated and long-term management of safety culture, not randomly and sporadically handled by industry, region and occupation. Studies on safety have been conducted through history and will also continue with the history of humanity. In the process of these studies, quantification of phenomena related to safety will work as a cornerstone for a higher level of research activities through measurement and comparison.*

**[Keywords]** Security, Safety, Safety Culture, Private Security, Republic of Korea

## 1. Introduction

As complex risk factors become routinized, social safety and safety culture are gaining attention as important social issues. Emphasis on safety culture reflects the fact that the need for social control over complex risk factors keeps increasing. It is difficult, however, to quantify safety culture as it has intangible and qualitative characteristics. Although it can be managed and improved with qualitative data, it can be managed and improved even more effectively when quantitative data are added.

In the private security field, it is more important to understand safety culture as a profession which implements safety-related tasks and manages safety. Even though Korea has undergone various incidents and accidents on a continual basis due to its compressed economic development, understanding and efforts on safety culture have been deficient owing to lack of awareness and non-systematic activities conducted by the private sector.

## 2. Theoretical Background

### 2.1. Safety culture

Safety culture means the state of consciousness and practice of safety becoming a part of daily lives of individuals or activities of members of an organization as their safety values are embedded in each individual or member of the organization[1]. Definitions of constituting factors of safety culture are as follows; safety value is the belief in which individuals strive to behave safely[2]; safety attitude is the readiness to react effectively and safely especially in situations which arouse and cause tension[3]; safety behavior, which is the opposite concept of unsafety behavior, means safety-related behaviors which enables one to avoid possible risks in the process of performing tasks assigned to him/her[4]; safety knowledge is the safety-related information such as methods to protect and prevent damages or injuries from possible causes and knowledge on practical threats to safety[5]; safety atmosphere is the percep-

tion shared by the members of an organization on safety-related policies, procedures and practices of the organization[6]; safety procedures is defined as the procedures, rules and norms to be observed by employees and includes education, guidance and instruction[7]; safety education aims to change the attitude toward risks and safety in a desirable direction by providing knowledge on safety and health and to reduce accidents by inducing safe behaviors[8]; safety motivation means a state in which individuals make efforts to behave safely and place importance on safety behaviors[6].

### 2.2. Private security

Private security means individuals, organizations and for-profit corporation which provide security and safety-related services for specific customers in order to protect their personal interests, lives and property from various risks for the compensation received from them[9]. There are five types of private security services: facility security services, personal security services, convoy security services, machinery security services and special security services.

### 2.3. Preceding studies

In Korea, after the collapse of Samping Department Store in 1995, efforts have been made for effective cooperation and countermeasures by the government by stipulating safety-related laws and regulations with the rise of public interest in safety. In line with this, studies on safety culture have been conducted in academic circles as well. The results of preceding studies on safety culture are summarized as follows; Sung Yeon Kim(2014) studied the effect of the factors of safety culture on safety behaviors[2]. Yoo Jung Kwon (2009) drew out 5 standards of assessment for safety culture in railway industry[10] and Gye Hyung Park(2011) analyzed the organic relationship among safety knowledge, safety education, safety procedures and safety behavior in the establishment of safety culture for new employees[11]. Gwan Hyung Lee et al. (2005) researched on safety management plans through safety culture[12]. Hyun Woong Cho et al. The results of preceding studies on safety culture mostly show similar

results in the constituting factors of safety culture but different results in their influences.

### 3. Study Methods

For research subjects, study used the judgment sampling method in which the researchers who are well aware of the research problems sample a specific group which is judged to effectively reflect the opinions of the overall population. The criteria for the selection of the experts were based on representativeness, adequacy and qualities, responsible participation, independence of the responses and individual differences in the competence and knowledge of each expert and, considering the return rate of the questionnaires, a group of 45 experts were selected which were composed of 15 professors, 15 field experts with over 5 years of experience in security-related works in private security and 15 police officers in related tasks.

As for study methods, this study analyzed "relative importance of constituting factors of safety culture" by using Delphi technique which is a DHP(Delphi Hierarchy process) and AHP(Analytic Hierarchy Process) which is a hierarchical decision-making process. The research process is largely composed of investigation on the constituting factors of safety culture of the private security by using Delphi technique and investigation on the relative importance of the constituting factors by using AHP(Analytic Hierarchy Process) technique, a hierarchical decision-making method.

In order to assess relative importance of the constituting factors of safety culture, study conducted questionnaire surveys 3 times. The 1st and 2nd surveys used Delphi method to explore constituting factors of safety culture while the 3rd survey drew out the significance and priority order for the factors drawn out from the 1st and 2nd surveys by using AHP questionnaires. To enhance the reliability of the questionnaires, experts examined the questionnaire of each survey for feedback, implications included in the items, questionnaire format(structure), difference in meaning for the terms used in the questionnaire and their effects.

## 4. Study Results

### 4.1. Results of the 1st delphi research

As a result of the first Delphi survey based on upper concept safety culture, a total of 73 factors were drawn out; 2 individual and organizational factors were drawn out from Level 1. 8 factors were drawn out from level 2 which include individual factors composed of safety value, safety attitude, safety behavior and safety knowledge and organizational factors composed of safety atmosphere, safety procedure, safety education and safety motivation. In the final 3rd level, 9 safety values, 9 safety attitudes, 11 safety behaviors and 8 safety knowledges were drawn from individual characteristics of safety culture while 8 safety cultures, 10 safety procedures, 9 safety educations and 9 safety motivations were drawn out from organizational characteristics of safety culture, resulting in a total of 73 factors.

### 4.2. Results of the 2nd delphi research

In the 2nd Delphi survey, the items with the Delphi CVR value of 0.4 or less or the Cronbach's  $\alpha$  value of 0.8 or less were investigated and, out of the 73 factors drawn out from the 1st survey, 67 items were finally drawn out by excluding a total of 6 items, which were 1 item of safety attitude, 1 item of safety atmosphere, 2 items of safety procedure and 2 items of safety motivation.

### 4.3. Results of AHP research

**Table 1.** Results of AHP research.



Sub	Factor	Weights	Priorities
1	Safety value	0.203	1
2	Safety attitude	0.105	5
3	Safety behavior	0.161	3
4	Safety knowledge	0.068	8
5	Safety atmosphere	0.108	4
6	Safety procedures	0.076	7
7	Safety education	0.08	6
8	Safety motivation	0.199	2

Note: CI=0.03

As a result of analyzing the assessment indexes to measure safety culture, priority order of the factors constituting the safety culture were as follows: safety value(0.203), safety motivation(0.199), safety behavior(0.161), safety atmosphere (0.108), safety attitude(0.105), safety education(0.080), safety procedures(0.076) and safety knowledge(0.068).

## 5. Conclusion

This study found out assessment factors which constitute safety culture through DHP technique and drew out relative importance of the factors constituting the safety culture. As a result of the 1st Delphi analysis, a total of 73 factors of safety culture were drawn out and, through literature review on the preceding studies and meeting of the experts on researches, individual factors were finally classified into safety value, safety attitude, safety behavior and safety knowledge while organizational factors were classified into safety atmosphere, safety procedure, safety education and safety motivation, totaling 73 factors. Based on the results of the 2nd Delphi, 6 factors with CVR values less than 1.0 and average less than 3.0, which were 1 item of safety attitude, 1 item of safety atmosphere, 2 items of safety procedure and 2 items of safety motive, were deleted, finalizing 67 items. In the 3rd AHP analysis, paired comparison was conducted on 67 factors and weights for each factor and their priority order were drawn out.

Among the constituting factors of safety culture, safety value and safety motive had highest weights, followed in descending order by safety behavior, safety atmosphere, safety attitude, safety education, safety procedure and safety Knowledge.

Although some factors among those which were studied and drawn out by this study are relatively insignificant, even those factors need to be handled carefully as they also constitute safety culture. This study is expected to work as the basic data and to maintain a high level without compromising any one of the factors. In addition, subsequent studies by other researchers should prevent and prepare for various risks through integrated and long-term management of safety culture, not randomly and sporadically handled by industry, region and occupation. Studies on safety have been conducted through history and will also continue with the history of humanity. In the process of these studies, quantification of phenomena related to safety will work as a cornerstone for a higher level of research activities through measurement and comparison.

## 6. References

### 6.1. Journal articles

- [4] Garavan TN & O'Brien F. An Investigation into the Relationship between Safety Climate and Safety Behaviours in Irish Organisations. *Irish Journal of Management*, 22(1), 141-170 (2004).
- [5] Shin HJ & Shin DJ. A Study of Children's Knowledge Behavior and Ability to Predict Risk Elements Concerning Life Safety. *Journal of Early Childhood Education*, 27(6), 273-294 (2007).
- [6] Neal A & Griffin M. A Study of the Lagged Relationships among Safety Climate Safety Motivation Safety Behaviors and Accidents at the Individual and Group Levels. *Journal of Applied Psychology*, 91(4), 946-95 (2006).
- [7] Guldenmund FW. The Use of Questionnaires in Safety Culture Research Evaluation. *Safety Science*, 45(6), 723-743 (2007).
- [10] Kwon YJ & Kim SK & Byun SN. A Study on the Identification of Assessment Criteria for

Safety Culture in Railway Industry. *The Korea Society for Railway*, 5, 1687-1690 (2009).

- [12] Lee KY & Oh JY. A Study on the Safety Culture and Effective Management System. *Journal of Korea Safety Management & Science*, 7(3), 1-15 (2005).

## 6.2. Thesis degree

- [2] Kim SY. The Influence of Safety Culture Factors in Safety Attitudes and Behavior Emphasis on Communication in Organizations Including Organizational Structure Organizational Culture and Organizational Effectiveness. Hanyang University, Doctoral Thesis (2014).
- [11] Park KH. A Study on the Factors Influencing Safety Culture Focused on Industrial Workers. Seoul National University, Master's Thesis (2011).

## 6.3. Books

- [1] Na CJ. The Study on Legal Maintenance for Safety Culture Settlement. Korea Legislation Research Institute (2014).
- [3] Hannaford E. Supervisors Guide to Human Relations. National Safety Council (1976).
- [8] Christoffel T & Gallagher S. Injury Prevention and Public Health Practical Knowledge Skills and Strategies. Jones & Bartlett Learning (2006).
- [9] Arthur J Bilk & Peter P Lejins. Private Security Standards and Goals from the Official Private Security Task Force Report. Anderson (1977).

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