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Comparative Analysis on Safety Perception and Safety Management Service Evaluation among Korea, China, Japan, and USA

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이 논문은 한국, 중국, 일본, 미국의 시민들의 안전 인식을 분석하고 공공 안전 관리 서비스의 질을 비교하는 데 목적이 있다. 연구 목적을 달성하기 위해, 이 연구에서는 안전 인식에 대한 기초 자료를 제공하고 안전 관리 서비스 개선 방향을 제안하기 위한 시사점을 찾는데 목표를 둔다. 주요 연구 결과는 다음과 같다. 첫째, 안전 인식, 기대, 성과, 안전 관리 만족에 대한 분석 결과, 중국 시민들이 자신들의 안전 수준을 가장 높게 인식하는 것으로 나타났다. 둘째, 안전 관리 서비스에 대한 기대 인식은 한국과 일본에서는 낮았지만, 미국과 중국의 시민들은 비교적 높은 점수를 주고 있다. 셋째, 4개국 시민들은 모두 자기 국가의 안전 수준을 긍정적으로 인식하고 있다. 넷째, 4개국 국가 간에 시민들의 안전 추구 행동에는 차이가 있으나, 중국 시민들의 경우에는 안전을 위한 비용 지불을 제외한 다른 모든 영역에서 가장 높았다. 마지막으로, 대체적으로 중국 시민들은 자기 국가의 안전 관리 서비스에 대해 충분히 만족하는 것으로 나타났다. 그리고 미국, 한국, 일본의 순서로 만족 점수가 높게 나타났다.

주제어: 인식, 안전관리, 안전인식

I. Introduction

So far as safety is concerned, old dogs can learn new tricks, for older products do not necessarily have to remain as unsafe as they are. Relative safety is not static, but is rather a dynamic product of learning from error over time. By "dynamic" I mean not only that new products may be safer than their forerunners, but also that those older products may be successfully modified in certain aspects.

- Wildavsky(1988: 30) -

No activity can be undertaken without some associated risk. There exists, therefore, a background of risks associated with everyday life, including the working environment, accidents of all kinds, leisure activities, and medical conditions(Allen, *et. al.*, 1989).

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Along with the improvement of living standards and the elevation of education standards, the welfare promotion is needed. From a social, cultural, and economic point of view, safer culture is occupying a position in our society generally.

Because Social change process to knowledge-information society by information technology revolution is integrated and centralized through network, human beings turn out to be individualized, but the integration and interdependence of social systems are increased. A simple relationship between human beings and nature, human beings and technology, and human beings and society has been transformed to diversified relationship among human beings, nature, and society. It appears that features of disaster are being changed to hybrid disasters(유현정 외, 2011). Despite economic growth and technological developments, lots of various disasters to human beings' life have not been reduced. And, even in our daily lives, what threatens our living safety has not been uprooted.

Generally speaking, since the word 'safety' is regarded as contrary concept of risk, the level of risk reduction means the level of safety. Perfect risk absence, namely 100% safe condition, is impossible and clearing risk invites cost which secure the safety. We, therefore, need standards that determine the expense which consumers can pay willingly(Yoo, 2008). And because the expectation level of consumers to the safety seems to be different based on income level, lifestyle, and value in each countries, it is necessary that we have to research on the present conditions of consumers' safety perception and the difference of "acceptable risk criterion" among countries and cultures in global society(송유진·유현정, 2008; 차용진, 2012: 28-29).

Nowadays, it is a matter of great importance that we gain a better understanding of safety perception difference among countries. In this paper, the purpose of this study is to analyze the present safety perception condition of the four cities' citizens and compare the quality of public safety management service among Korea, China, Japan, and USA. For accomplishing the purpose, this article aims to explore implications for suggesting the directions of safety management service improvement and providing the basic data related with safety perception to us. To do this, we have chosen 4 global cities, Shanghai, Tokyo, New York, and Seoul, to compare the safety perception level among Korea, China, Japan, and USA.

II. Theoretical Backgrounds

1. Safety Right and Safety Management

Risk is a widely acknowledged concept, but one who's exact meaning is evolving. It now embraces both individual risks and also risks to society at large and to the environment. Further we now recognize the perception of risk as an important and variable factor. Life in modern society is becoming, statistically, less risky when measured in terms of life expectancy. Despite this, increased awareness of hazards, partly as a result of continuing scientific investigation which bring such hazards to the public notice, leads to the widely-held public belief that life is getting riskier. This indicates that, besides statistics, many other factors enter into the public's perception of risk, such as: the potential for catastrophe; lack of familiarity with the risk; the involuntary nature of the risk; scientific uncertainty; lack of personal control; risk to future generations; doubtful benefits; inequitable distribution of risks and benefits; and potentially irreversible effects. In addition, perception of risk depends on local cultural values(Allen, *et. al.*, 1989).

In common with other biological creatures, man has a powerful and deep-seated instinct for survival, both as an individual and as a species. The desire for individual survival we satisfy daily by eating and drinking, resting, seeking shelter in our homes and, as far as possible, avoiding danger. The desire for survival as a species probably finds its strongest expression in the procreative urge, but there are many other phenomena that are indirectly linked to the need to perpetrate the life and specific character of the species. The creation of societies and the development of cultures and religions are probably powerful manifestations of the need to further the life of the species. When we assess risks in society, however, we concern ourselves almost exclusively with the individual risk, that is, the risk that a certain individual will be killed or injured. This is natural enough since our assessments are often made on a statistical basis and it is not easy to produce statistics for the risk of whole cultures or the entire human race being obliterated through a single catastrophe or a series of catastrophes(Selin, 1987).

For the most part, safety and danger coexist in the same objects and practices. Under the right (or wrong) conditions, everything we need for life can also maim or kill: water can drown, food can poison, air can choke. Babies cannot be born without risks to the mother, nor can they grow to adulthood without facing innumerable dangers. The trick is to discover not how to avoid risk, for this is impossible, but how to use risk to get more of the good and less of the bad. The search for safety is a balancing act(Wildavsky, 1988). Animals don't take risks. Only human beings do. Risk is an ineluctably social construct. What counts as a risk, what weighs in the balance as a comparatively greater risk than some other, or as a risk worth taking in view of the expected benefit, or indeed, as a risk one is obliged to take despite the expected harm - all

of this depends finally on some system of values within which such assessments can come to be made(김성숙·이기춘, 1997). And value systems are socially constituted, socially learned, and socially enforced. Though animals certainly respond to dangers and may behave in ways which put them in danger, they are incapable of taking risks. Instinctive or learned responses to danger or threat among animals are, in this sense, neither risk taking nor risk avoiding. The category doesn't apply to animal life. Human beings, by contrast, are a risk taking and risk-avoiding species. For humans, the category of risk is indissolubly bound up with that of culture and with history, with the distinctive modes of cognitive praxis which are characteristic of human life. That is to say, risk is defined in relation to perceived values; and these in turn are possible only for a self-conscious creature who is capable of estimating present actions either in the light of norms or general principles, or of future outcomes. To take a risk, to avoid a risk, to be put at risk - all of these entail a recognition that there are reasons for acting in a certain way in the situation, and that an account may be given which explains one's actions. Further, such an account would also function as a way of understanding one's actions. In short, risk applies only to actions of socially conscious agents, capable of understanding an account of their own actions or of the actions of others in terms of reasons, and therefore, capable of functioning within a culture constituted by structures of norms and values(Covello, Menkes, and Mumpower, 1986). Human beings cannot help but accept risk since they are social beings ultimately. On the contrary, society should bear responsibility to the safety of human beings in the process of effort for society's survival. If the existence of national society is on the assumption of human beings' life, nation should perform duties of securing the life right and safety right of people from various risks(한동섭·김형일, 2011: 3-5).

2. Safety and Safety Management

With economic developments, education standards elevation, the needs, wants, and desires for high quality of life are now increasing. Notwithstanding this phenomena, we are always confronted with risks that threaten our living safety. Our modern life is filled with the uncertainty and the complexity of turbulent environments. Most nations in the world have been affected by numerous crises, such as earthquakes, hurricanes, floods, chemical spills, collapsing buildings, harmful food and drug, large-sized traffic accidents, and so on. Society would pay a heavy price during times of crisis and emergency if there was not an organization prepared to deal with such an event. This is why more people demand that the government, which is responsible for

protecting the life and safety of citizens, prepare to respond to crisis proactively and effectively(Kim and Lee, 2001). Public safety risks is an event, situation or status that can cause damage to public safety, threaten or potential threaten to public safety. Especially, in the case of university, due to the complicated, ultra-modern and multi-cultural changes, there are some invisible, unexperienced, and unknown risk factors that should be either regulated or eliminated for the universities to continually grow and develop(배대식, 2009: 27). For example, the issues of food safety have attracted more and more attention in China. One of the reasons is the idea that food is the first necessity of the people and more important reason is that the problem of the food safety in China is very serious(Zhan, 2007).

III. Research Method

1. Four Major Variables

Much of human behavior to safety may be viewed as a succession of choices where the choice is based on the perception. Safety ensuring behavior, therefore, is performed on the safety perception. And evaluating safety management service provided by government is also estimated. Lots of people in any countries can evaluate their government's safety management service on the ground of people's satisfaction in their safety perception. The difference between role expectation of safety management related agencies and their performance is inevitably occurring.

In this context, we are able to classify some questions into four major categories as shown in Table 1. This study makes an attempt to analyze and compare the safety management variables, especially based on the perception.

Four major variables are as follows; To analyze the present safety perception condition of the four cities' citizens and compare the quality of public safety management service, on-line surveys were conducted by M-Brain Net, Co and its each branches. We have checked survey questionnaire two times through preliminary tests for correcting questions. And respondents, 1,200 respondents(300 persons per city) has been collected by purposive quota sampling method according to gender and age. The survey was conducted from 24 December in 2007 to 21 January in 2008. To measure variables in this study, 5-point Likert-type scales ranging from "strongly disagree" to "strongly agree" and nominal scales were employed. Data analysis was conducted on all returned surveys using a computer statistical package, the Statistical Package for the Social

Sciences(SPSS) 12.0. Descriptive statistics, frequencies, reliability analysis, tests of statistical significance, analysis of variance were conducted to search findings.

Table 1. Variables

Variable	Contents
Safety perception	country's safety, region's safety, and workplace's safety
Safety ensuring behavior	traffic rules observance, participation in educational programs, individual freedom restriction to secure safety, safety management investment, and willingness to pay for the safety
Role expectation and performance	president, local government's head, regulation, military, police, fire department, NGOs, private company
Satisfaction	professionals in the government, improvements in safety management system, food safety, medications safety, school safety, school meals safety, information about the government disaster management

Multiple questions were developed in order to measure each variable. As shown in Table 2, multiple questions were asked to measure one variable. A Cronbach alpha was used to measure the unidimensionality of multiple questions. All of the variables in every countries show reliability coefficients of over 0.65 which can be acknowledged as unidimensionality.

Table 2. Reliablity Analysis(Cronbach's a)

	Korea	China	USA	Japan
Safety perception	.796	.866	.782	.814
Safety ensuring behavior	.684	.763	.665	.659
Role expectation of the safety management	.896	.913	.939	.908
Performance of the safety management	.834	.927	.879	.875
Satisfaction of the safety management	.891	.918	.837	.831

2. Findings

1) Demographic Characteristics

Detailed descriptive statistics in four countries, China, Japan, USA, and Korea, are reported in Table 3. As shown in Table 3, 50% of the respondents were male and female. Age distribution of all the respondents were same in every country. Regarding education, in every country, most

respondents have 4-year college degree and graduate degree.

Table 3. Demographic Characteristics

		Korea		China		USA		Japan	
		Fre.	Per.	Fre.	Per.	Fre.	Per.	Fre.	Per.
Gender	Male	150	50.0	150	50.0	150	50.0	150	50.0
	Female	150	50.0	150	50.0	150	50.0	150	50.0
Age	20s	100	33.3	100	33.3	100	33.3	100	33.3
	30s	100	33.3	100	33.3	100	33.3	100	33.3
	40s-	100	33.3	100	33.3	100	33.3	100	33.3
Education	No education	0	0.0	0	0.0	1	0.3	3	1.0
	Elemen. School	0	0.0	0	0.0	1	0.3	0	0.0
	Middle School	3	1.0	4	1.3	12	4.0	6	2.0
	High School	53	17.7	36	12.0	83	27.7	70	23.3
	2-year College	57	19.0	82	27.3	69	23.0	76	25.3
	4-year College	158	52.7	146	48.7	94	31.3	126	42.0
	Graduate School	29	9.7	32	10.7	40	13.3	19	6.3
Annual Income	under $20,000	11	4.4	3	2.5	57	22.7	19	7.9
	$20,000-$4,000	55	22.0	18	14.8	62	24.7	33	13.8
	$4,000-$6,000	74	29.6	30	24.6	61	24.3	91	37.9
	$60,000 - $80,000	67	26.8	36	29.5	47	18.7	60	25.0
	$80,000 - $100,000	43	17.2	35	28.7	24	9.6	37	15.4
Growth Background	Big cities	161	53.7	212	70.7	76	25.3	73	24.3
	Suburban cities	103	34.3	65	21.7	126	42.0	175	58.3
	Rural areas	36	12.0	22	7.3	88	29.3	50	16.7
	Abroad	0	0.0	0	0.0	4	1.3	1	0.3
	Other	0	0.0	1	0.3	6	2.0	1	0.3
Occupation	Professional	53	17.7	91	30.3	66	22.0	49	16.3
	Administrator	19	6.3	82	27.3	33	11.0	10	3.3
	Technician	13	4.3	7	2.3	14	4.7	15	5.0
	Sales/Service	24	8.0	19	6.3	16	5.3	45	15.0
	Office worker	56	18.7	50	16.7	41	13.7	63	21.0
	Officeholder	10	3.3	11	3.7	8	2.7	13	4.3
	Agriculture/Foresting/Fishing	1	0.3	0	0.0	1	0.3	3	1.0
	College/university student	39	13.0	17	5.7	21	7.0	22	7.3
	Homemaker	43	14.3	6	2.0	26	8.7	33	11.0
	Unemployed	10	3.3	5	1.7	25	8.3	28	9.3
	Other	32	10.7	12	4.0	49	16.3	19	6.3

In relation to annual income, more than 40% of the respondents in Korea, Japan, and USA, are earning over $40,000 annually. Finally, growth background and occupation were included in the demographic characteristics.

2) Safety perception

Findings of safety perception level in each domain of country's safety, region's safety, and workplace's safety, are as shown in Table 4. Safety perception levels were measured by three questions, "The country I live in is safe" "The region I live in is safe" "My workplace is in a safe location" comprehensively. First, as shown in Table 4, the results indicate all the country's respondents are aware of their country's safety level positively. Second, there were significant differences in the safety perception level among the countries. Third, compared to low scores, China were significantly higher in the safety perception than any other countries' score, Korea, Japan, and USA in all domain, country's safety, region's safety, and workplace's safety. Finally, relatively, all respondents of both Japan and Korea perceived their country's safety level low similarly.

Table 4. Safety perception

	Country	Mean	Tukey	Scheffe	F value	p value
Country's safety	Korea	3.07	a	a	63.475	.000
	USA	3.44	b	b		
	China	4.02	c	c		
	Japan	3.14	a	a		
Region's safety	Korea	3.23	a	a	46.382	.000
	USA	3.70	b	b		
	China	3.94	c	c		
	Japan	3.23	a	a		
Workplace's safety	Korea	3.32	a	a	57.509	.000
	USA	3.72	b	b		
	China	4.12	c	c		
	Japan	3.29	a	a		

3) Safety Ensuring Behavior

Results of the safety ensuring behavior analysis are as shown in Table 5. Safety ensuring behavior were measured by five questions, "I usually follow the traffic rules" "I would like to participate in educational programs concerning disaster and safety management" "Individual freedom can be restricted to ensure safety" "My society will become safer in proportion to the money invested in disaster and safety management" "If the citizens would like to live in a safer society, we should pay for it". First, although there were differences of safety ensuring behaviors among the 4 countries, the results indicate that safety ensuring behaviors of Chinese citizens are highest in almost domains except the domain of willingness to pay for the safety. Peculiarly, safety ensuring behaviors' mean score of USA which have a strong regulation for safety, were

lower than China and Korea. And Japan's mean score of safety ensuring behaviors were the lowest among 4 countries. By theses findings, we can guess that consumer citizens in USA and Japan perceived the uneasiness highly in everyday life and experienced similar safety accidents relatively. In China, however, in relation to their ideological and political characteristics, almost all the citizens in China believe in their government strongly. Korean citizens think that, in the ratio of investment to the safety management, we can live in safer society.

Table 5. Safety ensuring behavior

	Country	mean	Tukey	Scheffe	F-value	p-value
Traffic rules observance	Korea	4.03	a	a	48.630	.000
	USA	4.17	ab	b		
	China	4.25	b	b		
	Japan	3.53	c	c		
Participation in educational progams	Korea	3.72	a	a	79.958	.000
	USA	3.28	b	b		
	China	4.16	c	c		
	Japan	3.18	b	b		
Individual freedom restriction	Korea	3.63	a	a	44.770	.000
	USA	2.97	b	b		
	China	3.80	a	a		
	Japan	3.36	c	c		
Safety management investment	Korea	4.02	a	a	74.819	.000
	USA	3.27	b	b		
	China	3.95	a	a		
	Japan	3.16	b	b		
Willingness to pay for the safety	Korea	3.64	a	a	17.980	.000
	USA	3.19	b	b		
	China	3.67	a	a		
	Japan	3.39	c	b		

4) Role Expectation and Performance Evaluation

The independent subjects who performed important roles to secure safety management service are recognized as a safety management service provider. In this study, we classified safety providers into small groups, namely president, local government's head, regulation, military, police, fire department, NGOs, private company, and so on. The role expectation of each provider is measured by Likert-type scales ranging from "strongly disagree" to "strongly agree".

Table 6. Role expectation of the safety management service

	Country	mean	Tukey	Scheffe	F-value	p-value
President	Korea	3.56	a	a	141.304	.000
	USA	4.32	b	b		
	China	3.99	c	c		
	Japan	2.83	d	d		
Local government's head	Korea	3.35	a	a	152.046	.000
	USA	4.36	b	b		
	China	4.06	c	c		
	Japan	2.90	d	d		
Regulation	Korea	3.07	a	a	141.276	.000
	USA	4.22	b	b		
	China	3.78	c	c		
	Japan	2.81	d	d		
Military	Korea	3.68	a	a	59.279	.000
	USA	4.11	b	b		
	China	4.32	c	c		
	Japan	3.46	d	d		
Police	Korea	3.51	a	a	102.671	.000
	USA	4.28	b	b		
	China	4.06	c	c		
	Japan	3.09	d	d		
Fire department	Korea	3.99	a	a	53.518	.000
	USA	4.10	a	a		
	China	4.32	b	b		
	Japan	3.47	c	c		
NGOs	Korea	3.53	a	a	84.588	.000
	USA	4.06	b	b		
	China	3.98	b	b		
	Japan	3.05	c	c		
Private company	Korea	3.06	a	a	60.385	.000
	USA	3.87	b	b		
	China	3.47	c	c		
	Japan	2.87	a	a		
Total average	Korea	3.47	a	a	145.944	.000
	USA	4.17	b	b		
	China	4.00	c	c		
	Japan	3.06	d	d		

In considering role expectations in among four countries, USA shows the highest scores in relation to the provider's role expectation level and China, Korea, and Japan stand in a line in the order of their score. In all the countries, military, police, fire department are famous for their role expectation for safety management. Especially, in the USA, expectations to local government's head and president is the highest and in China, local government's head and police appears to perform the most important role. In Korea, lots of citizens emphasize the role of military and

president, but, in Japan, expectations to the regulations and president (prime minister) are the lowest in comparison with other domains.

Table 7. Performance evaluation of the safety management service

	Country	mean	Tukey	Scheffe	F-value	p-value
President	Korea	2.88	a	a	96.535	.000
	USA	2.52	b	b		
	China	3.63	c	c		
	Japan	2.34	b	d		
Local government's head	Korea	2.66	a	a	64.540	.000
	USA	3.03	b	b		
	China	3.48	c	c		
	Japan	2.49	a	d		
Regulation	Korea	2.55	a	a	57.607	.000
	USA	2.82	b	b		
	China	3.38	c	c		
	Japan	2.46	a	a		
Military	Korea	3.63	a	a	45.891	.000
	USA	3.45	ab	b		
	China	4.14	c	c		
	Japan	3.27	b	d		
Police	Korea	3.19	a	a	61.311	.000
	USA	3.59	b	b		
	China	3.79	b	c		
	Japan	2.85	c	d		
Fire department	Korea	3.72	a	a	44.322	.000
	USA	3.60	a	a		
	China	4.09	b	b		
	Japan	3.26	c	c		
NGOs	Korea	3.24	a	a	35.470	.000
	USA	3.38	ab	b		
	China	3.53	b	c		
	Japan	2.82	c	d		
Private company	Korea	2.72	a	a	15.838	.000
	USA	3.01	b	b		
	China	3.08	b	b		
	Japan	2.62	a	a		
Total average	Korea	3.07	a	a	80.540	.000
	USA	3.17	a	a		
	China	3.64	b	b		
	Japan	2.76	c	c		

From a performance view-point, performance evaluation to the safety management service in China seems to be the most affirmative among four countries and USA, Korea, and Japan stand in a line in the order of their positive score. Similarly as in the domain of role expectation, in the

performance evaluation, military, police, fire department which served for emergency search and rescue, emergency medical service, and so forth, are all evaluated highly. Except these agencies, the highest executive's performances in China are evaluated extremely highly. In any other countries except for China, citizens assessed NGOs' performance very positively. After all, social trust in government and its chief executives in China is the source of the affirmative evaluation to the safety management service. Accordingly, it is necessary that Chinese government give correct information related with safety to citizens and intensify safety strengthening education program for citizen's safety perception improvement.

Table 8. Difference between role expectation and performance evaluation

		Korea	China	USA	Japan
President	Expectation	3.56	3.99	4.32	2.83
	Performance	2.88	3.63	2.52	2.34
	paired t	10.777***	6.665***	20.435***	8.516***
Local government's head	Expectation	3.35	4.06	4.36	2.90
	Performance	2.66	3.48	3.03	2.49
	paired t	11.928***	10.200***	19.713***	7.884***
Regulation	Expectation	3.07	3.78	4.22	2.81
	Performance	2.55	3.38	2.82	2.46
	paired t	8.566***	8.059***	18.722***	6.712***
NGOs	Expectation	3.53	3.98	4.06	3.05
	Performance	3.24	3.53	3.38	2.82
	paired t	5.248***	9.771***	11.747***	4.817***
Private company	Expectation	3.06	3.47	3.87	2.87
	Performance	2.72	3.08	3.01	2.62
	paired t	5.987***	7.815***	12.252***	5.841***

In analyzing the difference between role expectation and performance evaluation, the results show that in all countries there were significant meaningful difference statistically in every items. Compared with role expectation level, actual performances appears to be lower than expectation(as shown in Table 8), the actors who provide the safety management service need to make every possible effort to reach the citizen's expectations.

5) Satisfaction with Safety Management Service

As a result of analyzing the satisfaction with safety management service in among four countries, on the whole, Chinese citizens have a feeling of satisfaction to their countries' safety management service sufficiently. And then USA, Korea, and Japan line up in the order of

satisfaction score. In China, because differences between expectation and performance are lower than the other countries, there is no doubt that citizens consider their safety management service provider affirmatively and satisfactorily, and so we can easily infer the high satisfaction with safety management service in China. In USA, citizens show the highest expectation of the safety management, but performance appeared to be lower. From the traditional expectancy disconfirmation theory, we may forecast the low satisfaction but, actually, satisfaction level of USA citizens was very high.

In USA, citizens have a strict standard to accept the safety through the experience and knowledge in the long time and their expectancy level is relatively high. Even if a performance cannot reach the expectation, satisfaction level of safety management service is higher than any other countries. China, however, is now experiencing the rapid economic developments and has a good trust to the government, the growth-oriented perception reduced the safety accepting level. So, Chines citizens evaluated their safety management performance highly and performance is connected with satisfaction with safety management positively.

Table 9. Satisfaction with safety management service

	Country	mean	Tukey	Scheffe	F-value	p-value
Professionals in the government	Korea	2.47	a	a	53.518	.000
	USA	2.93	b	b		
	China	3.28	c	c		
	Japan	2.48	a	a		
Improvements in safety management system	Korea	3.01	a	a	78.295	.000
	USA	3.13	a	a		
	China	4.00	b	b		
	Japan	3.04	a	a		
Food safety	Korea	2.34	a	a	18.376	.000
	USA	2.60	b	b		
	China	2.90	c	c		
	Japan	2.39	ab	ab		
Medications safety	Korea	2.59	a	a	11.900	.000
	USA	2.67	a	a		
	China	2.98	b	b		
	Japan	2.51	a	a		
School safety	Korea	2.65	a	a	53.885	.000
	USA	3.04	b	b		
	China	3.59	c	c		
	Japan	2.81	a	a		

School meals safety	Korea	2.45	a	a	39.934	.000
	USA	3.05	b	b		
	China	3.26	c	b		
	Japan	2.80	d	c		
Information about the government disaster management	Korea	2.56	a	a	41.280	.000
	USA	2.93	b	b		
	China	3.08	b	b		
	Japan	2.34	c	c		

Considering the details, all the citizens in four countries indicated that their disaster management operation system has improved in the last 10 years.

Differently from this, all the countries' citizens in this study has shown their perception of insecurity related with food safety. Chinese citizens were highly satisfied with professionals who perform the disaster management operations carried out by the government, but, on the other hand, in Korea and Japan, the satisfaction level was lower significantly. We can confirm that there is a significant difference between the two groups, one is China and the other group is composed of Korea and Japan. Especially, in Korea, satisfaction with food safety and professionals in the government is the lowest level and, in Japan, satisfaction with information about the government disaster management is also the lowest. This is why citizens did not have a trust in their government's role. Generally speaking, Chinese citizens show the highest satisfaction and USA, Korea, and Japan stand in a line in the order of satisfaction score.

IV. Conclusion

In this section, the summary and brief implications of this study will be suggested to give a necessary ideas for making our global society safer. The brief results of this study are as follows. First, results which analyze the safety perception, expectation, performance, satisfaction of safety management indicate that Chinese citizens perceived their safety level as highest. We can guess and say that normative values in China is higher than USA and Japan. So to speak, because acceptable risk criterion may be lower than any other countries, Chinese citizens may attach the high score in the domain of performance and satisfaction.

Second, expectation perception to safety management service is low in both Korea and Japan, but citizens in USA and China give relative high score to them. Because USA citizens have both experiences that threaten safety in the long time and citizens' resistance to safety threatens,

generally speaking, safety expectancy has been increased in USA. In China, also, government seems to involve and participate in the safety management during the rapid economic developments. Through this, much more involvement in the safety management brings in the high expectation of safety management.

Third, all the country's respondents are aware of their country's safety level positively. However, there were significant differences in the safety perception level among the countries. Especially, China were significantly higher in the safety perception than any other countries' score, Korea, Japan, and USA in all domain, country's safety, region's safety, and workplace's safety. And all respondents of both Japan and Korea perceived their country's safety level low similarly.

Fourth, there were differences of safety ensuring behaviors among four countries, but, according to the results, safety ensuring behaviors of Chinese citizens are highest in almost domains except the domain of willingness to pay for the safety. Peculiarly, safety ensuring behaviors' score of USA were lower than China and Korea. And Japan's score of safety ensuring behaviors were the lowest among 4 countries. By theses findings, we can guess that almost all the citizens in China believe in their government strongly.

Fifth, USA shows the highest scores in relation to the provider's role expectation level and China, Korea, and Japan stand in a line in the order of their score. In all the countries, military, police, fire department are famous for their role expectation for safety management. Especially, in the USA, expectations to local government's head and president is the highest and in China, local government's head and police appears to perform the most important role. In Korea, lots of citizens emphasize the role of military and president, but, in Japan, expectations to the regulations and president(prime minister) are the most lowest in comparison with other domains.

Sixth, from a performance view-point, performance evaluation to the safety management service in China seems to be the most affirmative among four countries and USA, Korea, and Japan stand in a line in the order of their positive score. Similarly as in the domain of role expectation, in the performance evaluation, military, police, fire department which served for emergency search and rescue, emergency medical service, and so forth, are all evaluated highly. Except these agencies, the chief executive's performances in China are evaluated extremely highly. In any other countries except for China, citizens assessed NGOs' performance very positively. In China, social trust in government and its chief executives is the source of the affirmative evaluation to the safety management service.

Seventh, in all countries there were significant statistical difference in every items. Compared

with role expectation level, actual performances appears to be lower than expectation, the actors who provide the safety management service need to make every possible effort to reach the citizen's expectations.

Finally, on the whole, Chinese citizens have a feeling of satisfaction to their countries' safety management service sufficiently. And then USA, Korea, and Japan line up in the order of satisfaction score. All the citizens in four countries indicated that their disaster management operation system has improved in the last 10 years. Differently from this, all the countries' citizens has shown their perception of insecurity related with food safety. Especially, in Korea, satisfaction with food safety and professionals in the government is the lowest level and, in Japan, satisfaction with information about the government disaster management is also the lowest. Generally speaking, Chinese citizens show the highest satisfaction and USA, Korea, and Japan stand in a line in the order of satisfaction score.

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兪炫汀: 성균관대학교에서 가정학 박사(소비자학 전공) 학위를 취득하고(논문: 인터넷 쇼핑에 대한 소비자만족모델-20, 30대 소비자를 중심으로. 2001), 현재 충북대학교 소비자학과 부교수로 재직중이다. 세부 전공분야는 소비자행동, 소비자교육 및 정책 등이며, 소비자와 생활안전(공저, 2011), 재난을 바라보는 다섯가지 시선(공저, 2009) 등의 저서와 "식품구매시 소비자의 지각된 위험이 안전의식과 안전추구행동에 미치는 영향력의 구조모형분석-서울과 상해소비자를 중심으로"(2008), "수요자 관점에서 접근한 재난관리서비스의 개선 방안"(2008)등의 연구논문이 있다(yoohj@chungbuk.ac.kr)

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