

# A Study on the Perception of Safety Education and General Safety of Some High School Students by Grade in Chungcheongnam-do Province

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충남지역 일부 고등학생의 학년별 안전교육과 일반안전인식에 대한 연구

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## Abstract

The purpose of this study was to provide basic data on safety education by investigating the actual status of safety education and general safety awareness of some high school students by grade in Chungcheongnam-do. A total of 1214 copies collected from July 16 to October 15, 2015 were analyzed using SPSS ver 23.0 for 16 high school students in Chungnam area. As a result of self-diagnosis of safety education recognition, the first graders responded the highest in average comparison, followed by the second and third graders, and showed significant differences in SE-1,3,4,5,6,7. In the safety education recognition section, the first graders responded, 'being more provided safety education in school', 'Safety education time is enough to live a safe life', 'Safety education is helpful for safety in life', and "Safety education in school is being conducted faithfully', 'being fully engaged in education during safety education time' and "Safety education in schools has a greater impact on the formation of safety awareness." than third graders. As for whether education of unfamiliar content will cause less interest, the second graders responded significantly higher than the third graders, and the third graders' safety education-related responses were low in all questions that showed significant results. There was no difference between graders, but not many responses that were interested in the content of education covered during safety education. In response to "I am well aware of the safety rules," students responded that the p value of 0.071 showed significant differences between graders, and that the first and second graders knew significantly better than the third graders. Self-diagnosis of general safety recognition by grade showed significant differences in two of the six questions (GS-1,2). In response to the belief that there are many safety-threatening factors around us, the variance by grade differed significantly at the p value of 0.061, and the third graders(3.44) responded significantly higher than the first graders(3.29). In response to "I am well aware of the safety rules," students responded that the p value of 0.071 showed significant differences between graders, and that the first(3.66) and second graders(3.65) knew significantly better than the third graders(3.54). As a result of this study, there is a significant difference between the safety education recognition and the general safety recognition of high school students by grade, so it is suggested that differentiated safety education is needed considering these differences.

## 1. Introduction

Safety refers to a state in which there is no fear of accidents or risks, consciousness is the recognition of oneself or things, and perception is knowing things by judging them [1]. Safety awareness is the degree to which the will or feelings of the group to prevent accidents or risks from occurring, or the interest that workers potentially have in safety, appear as specific actions or practices. Safety awareness is acquired through experience and education and can be improved through continuous education [2]. Safety education is necessary[1] to prevent accidents that may

occur due to insufficient or careless safety education in factories or construction sites, and to prepare for safety in the event of a fire, storm and flood disaster [3]. Although the purpose of education is not to make the subject of education knowledgeable but to act as intellectual thinking[4], due to excessive competition for entrance exams, safety education is not properly conducted due to excessive memorization and employment-oriented laboratory practices.[2,4,5]. Despite the need for a fact-finding survey on safety education and safety awareness among those subject to education, research on the actual condition of safety recognition by grade is minimal for high school students, Therefore, this study aims to provide basic data necessary for the

development of safety education programs by investigating the safety education and general safety awareness of some high school students in Chungcheongnam-do by grade.

## 2. Research method

### 2.1 Subjects and periods of study

The subjects of this study were students from 16 high schools in Chungcheongnam-do, and questionnaires were distributed to 30 students per grade. After excluding non-recovered and insufficient questionnaires, 1,214 questionnaires were used in the analysis, and the survey period was from July 16 to October 15, 2015.

### 2.2 Data analysis method

The questionnaire on safety education and general safety recognition was constructed on a five-point scale of Likert, referring to the preceding study [2, 6-9]. The statistical analysis tool of this study used SPSS 23.0, and after reliability analysis and ANOVA analysis, post-analysis used Duncan method.

## 3. Research Results

### 3.1 General characteristics of subjects

While 39.0% (473) were general high school students, 61.0% (741) were specialized high school students, and 50.9% (619) male students, 49.1% (596) female students were surveyed. 34.5% (419) of the survey subjects were 1st graders, 39.5% (479) 2nd graders, and 26.0% (316) were 3<sup>rd</sup> graders. The students' residential areas were city 91.8% (1,114), gun 6.1% (74), special city 1.2% (15), and metropolitan city 0.9% (11).

### 3.2 Verification of reliability

The Cronbach's  $\alpha$  value, a reliability coefficient that gives a consistent measurement of the measurement item, is acceptable if 0.6-0.7, and is desirable if it is 0.8-0.9, and the Cronbach's  $\alpha$  values for the safety education and general safety awareness questionnaire used in this study were 0.884 and 0.695, respectively, so those are reliable.

### 3.3 Recognition of safety education for students by grade

As a result of self-diagnosis of safety education recognition by grade, 7 out of 12 questions (SE-1, 3, 4, 5, 6, 7, 12) showed significant means' differences among graders. SE-1,3,4,5,6,7 were answered the highest questions in the first graders, followed by

the second and third graders, and the first graders answered significantly higher than the third graders. Regarding SE-12 questions "If you are educated something unfamiliar, you will lose a lot of interest.", the second graders (3.05) was significantly higher than the third graders (2.87). "I think that school gives students a lot of safety education", 1st graders (3.50) and 2nd graders (3.46) responded significantly higher than 3rd graders (3.22), "Safety education time in schools is sufficient for safe living", 1st graders' mean responses(3.46) is significantly better than 3rd graders (3.40),

1st graders (3.58) and 2nd graders (3.53) responded significantly higher than 3rd graders (3.40) for "Safety education contents are helpful for safety in life". The first graders (3.58) and second graders (3.46) responded significantly higher than the third graders (3.3.2) to "Safety education in schools is proceeding faithfully." The first graders (3.67) also responded significantly higher than the second graders (3.53) and third graders (3.48) to "I am faithfully engaged in education during safety education." "The first graders (3.53) responded significantly higher than the third graders (3.35) to "safety education in schools greatly affects the formation of safety awareness." As for "education of unfamiliar content reduces interest a lot," the second graders (3.05) responded significantly higher than the third graders (2.87).

### 3.4 General safety awareness of students by grade

Self-diagnosis of general safety recognition by grade showed significant differences in two of the six questions (GS-1,2). In response to the belief that there are many safety-threatening factors around us, the variance by grade differed significantly at the p value of 0.061, and the third graders(3.44) responded significantly higher than the first graders(3.29). In response to "I am well aware of the safety rules," students responded that the p value of 0.071 showed significant differences between graders, and that the first(3.66) and second graders(3.65) knew significantly better than the third graders(3.54). "I'm good at following safety rules," "Safety-related signs or posts affect my behavior for safety." "I know how to take first aid in the event of a safety accident." "I act according to my own beliefs rather than knowledge about safety." , There was no graders' difference on those. Regarding "I am well aware of safety-related rules," the respondents said that the first and second graders were significantly better informed than the third graders, showing significant differences in the p value of 0.071. "I'm good at following safety rules," "Safety-related signs or posts affect my

behavior for safety." "I know how to take first aid in the event of a safety accident." "I act according to my own beliefs rather than knowledge about safety." , There was no graders' difference on those.

#### 4. Conclusion

This study was aimed to provide basic data on safety education by investigating the actual status of safety education and general safety awareness of some high school students by grade in Chungcheongnam-do. 39.0% were general students, 61.0% were specialized high school students, and 50.9% male students, 49.1% female students were surveyed. 34.5% of the survey subjects were 1st graders, 39.5% 2nd graders, and 26.0% were 3<sup>rd</sup> graders. As a result of self-diagnosis of safety education recognition, the first graders responded the highest in average comparison, followed by the second and third graders, and showed significant differences. First graders responded, 'being more provided safety education in school', 'Safety education time is enough to live a safe life', 'Safety education is helpful for safety in life', and "Safety education in school is being conducted faithfully', 'being fully engaged in education during safety education time' and "Safety education in schools has a greater impact on the formation of safety awareness." than third graders. As for whether education of unfamiliar content will cause less interest, the second graders responded significantly higher than the third graders, and the third graders' safety education-related responses were low in all questions that showed significant results. There was no difference between graders, but not many responses that were interested in the content of education covered during safety education. In response to "I am well aware of the safety rules," students responded that the p value of 0.071 showed significant differences between graders, and that the first and second graders knew significantly better than the third graders. Self-diagnosis of general safety recognition by grade showed significant differences. In response to the belief that there are many safety-threatening factors around us, the variance by grade differed significantly at the p value of 0.061, and the third graders responded significantly higher than the first graders. In response to "I am well aware of the safety rules," students responded that the p value of 0.071 showed significant differences between graders, and that the first and second graders knew significantly better than the third graders. As a result of this study, there is a significant difference between the safety education recognition

and the general safety recognition of high school students by grade, so it is suggested that differentiated safety education is needed considering these differences.

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Table 1. General characteristics of subjects by grade

Survey questionnaire	Responses	Grade (Frequency(%))				p
		1st	2nd	3rd	Total	
		419(34.5)	479(39.5)	316(26.0)	1214(100.0)	
Gender	Male	190(15.7)	281(23.1)	147(12.1)	618(50.9)	0.000
	Female	229(18.9)	198(16.3)	169(13.9)	596(49.1)	
School type	Academic	174(14.3)	122(10.0)	177(14.6)	473(39.0)	0.000
	Specialized	245(20.2)	357(29.4)	139(11.4)	741(61.0)	
Residential area	Special city	2(0.2)	11(0.9)	2(0.2)	15(1.2)	0.013
	Metropolitan City	2(0.2)	8(0.7)	1(0.1)	11(0.9)	
	City	394(32.5)	433(35.7)	287(23.6)	1114(91.8)	
	Gun	21(1.7)	27(2.2)	26(2.1)	74(6.1)	

Table 2. Awareness of safety education of subjects by grade

Survey questionnaire	Frequency(%)				P
	1st	2nd	3rd	Total	
	419(34.5)	479(39.5)	316(26.0)	1214(100.0)	
SE-1. I think school gives students a lot of safety education.	3.50±.046 <sup>a</sup>	3.46±.041 <sup>a</sup>	3.22±.048 <sup>b</sup>	3.41±.026	0.000
SE-2. Safety education in school is necessary for school life.	3.78±.044	3.71±.040	3.80±.045	3.76±.025	0.245
SE-3. The time of Safety education at school is enough for a safe life.	3.46±.047 <sup>a</sup>	3.35±.042 <sup>ab</sup>	3.27±.050 <sup>b</sup>	3.37±.027	0.019
SE-4. The contents of safety education are helpful for safety in life.	3.58±.042 <sup>a</sup>	3.53±.039 <sup>a</sup>	3.40±.044 <sup>b</sup>	3.51±.024	0.013
SE-5. Safety education at school is being conducted faithfully.	3.58±.042 <sup>a</sup>	3.48±.040 <sup>a</sup>	3.32±.047 <sup>b</sup>	3.47±.025	0.000
SE-6. In the safety education class, I am faithfully engaged in education.	3.67±.042 <sup>a</sup>	3.53±.041 <sup>b</sup>	3.48±.047 <sup>b</sup>	3.57±.025	0.006
SE-7. Safety education in schools affects the formation of safety awareness.	3.53±.042 <sup>a</sup>	3.42±.040 <sup>ab</sup>	3.35±.045 <sup>b</sup>	3.44±.025	0.014
SE-8. I already know what is covered in safety education class.	3.67±.038	3.63±.038	3.69±.043	3.66±.023	0.639
SE-9. It is necessary to provide regular safety education at school.	3.63±.044	3.56±.040	3.67±.045	3.61±.025	0.165
SE-10. The contents of education covered in safety education class are interesting.	3.15±.048	3.13±.044	3.13±.052	3.14±.027	0.924
SE-11. I am more interested in what I know when it is educated.	3.07±.052	3.17±.047	3.09±.049	3.12±.029	0.293
SE-12. When unfamiliar content is educated, I lose much interest.	2.98±.053 <sup>ab</sup>	3.05±.045 <sup>a</sup>	2.87±.055 <sup>b</sup>	2.98±.029	0.056

Table 3. General safety awareness of subjects by grade

Survey questionnaire	Frequency(%)				P
	1st	2nd	3rd	Total	
	419(34.5)	479(39.5)	316(26.0)	1214(100.0)	
GA-1. I think there are many factors around us that threaten safety.	3.29±.050 <sup>b</sup>	3.42±.043 <sup>ab</sup>	3.44±.049 <sup>a</sup>	3.38±.027	0.061
GA-2. I am well aware of safety regulations.	3.66±.039 <sup>a</sup>	3.65±.035 <sup>a</sup>	3.54±.042 <sup>b</sup>	3.63±.022	0.071
GA-3. I usually follow safety rules well.	3.64±.041	3.61±.037	3.67±.041	3.64±.023	0.551
GA-4. Safety-related signs or posts influence safety actions.	3.54±.046	3.53±.037	3.53±.043	3.53±.024	0.987
GA-5. I am well aware of first aid in the event of a safety accident.	3.41±.043	3.39±.038	3.29±.048	3.37±.024	0.125
GA-6. I act on my own beliefs rather than knowledge about safety.	3.13±.050	3.20±.042	3.07±.055	3.14±.028	0.176