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## **THE FACTORS AFFECTING COMMUNICATION COMPETENCY OF DENTAL HYGIENE STUDENTS**

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### **Abstract:**

*The purpose of this study is to understand factors affecting on communication competency in dental hygiene students. From September 20 to October 20, 2016, 439 students participated in survey through structured questionnaire. The results showed that mean of communication competency was  $3.46 \pm 0.41$  and mean of communication apprehension was  $3.26 \pm 0.59$ , speech apprehension was highest in sub-factors of communication apprehension. The group of intention to receive communication education and the group of interpersonal satisfaction showed high communication competency and self-efficacy, low communication apprehension. But differences of communication competency according to communication education experience was not statistically significant. A negative correlation was found between communication competency and communication apprehension, self-efficacy and communication apprehension. A positive correlation was observed between communication competency and self-efficacy. The higher self-efficacy and the satisfaction with interpersonal relation, the higher communication competency is. In conclusion, to increase communication competency of dental hygiene students it needs efforts to improve self-efficacy and satisfied interpersonal relationship as well as communication skill education.*

### **Keywords:**

*Communication Competency; Communication Apprehension; Self-Efficacy; Dental Hygiene Students.*

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## **1. INTRODUCTION**

Communication means a process of using several methods, including languages, behavior, and writing, to deliver personal ideas, feelings, attitudes, and beliefs and share meanings among at least two individuals<sup>1</sup>. So good communication can refer to a condition in which individuals have a good understanding of others' intended meanings and accept them. Communication competency can refer to an ability to use communication methods to interact with others<sup>2</sup>.

College students are at the developmental stage that requires adaptation to a diversity of changes in the psycho-social environment and are in the critical period that requires them to experience close and positive interpersonal relationships with various people around them and establish subjectivity<sup>3</sup>. One of the common capabilities that those studies on the key capabilities for college students suggest is communication competency<sup>4</sup>. It is known that college students with good communication competency adapt themselves to school life well, solve problems rationally on the basis of good problem-solving ability, and use integrated, positive coping methods to manage stress<sup>5</sup>. In particular, dental hygiene students require communication competency to do dental hygiene tasks in clinical practice as well as to form desirable interpersonal relationships as a developmental task in early adulthood<sup>6</sup>. Dental hygienists who need to manage oral health are required to be equipped with an ability to communicate with patients efficiently and properly. They can meet patients with a diversity of needs and take charge of counseling with patients and their caregivers, dental hygiene education, and patient management. In such a situation, they require good communication competency and may win confidence when they treat them in a confident manner.

One of the factors that one needs to consider to improve communication competency is communication apprehension. Communication apprehension means anxiety or fear one feels in the process of communication or when one is expected to face communication<sup>7</sup>. Many researchers have reported that higher levels of communication apprehension can cause one to be less motivated to communicate, avoid the situation of communication, and have difficulty in expressing one's opinions or ideas<sup>5</sup>. It is known that communication competency is closely related to communication apprehension. Greater communication apprehension can lead to a lower level of communication competency and cause one to be less willing to communicate and avoid communication. Students with greater communication apprehension are less satisfied with their academic work and make poorer academic achievement, refuse to choose classes that require personal participation and lots of presentation, and are less attentive to learning contents due to lower levels of learning motivation<sup>8</sup>. It can be said that communication apprehension is a factor that prevents good communication and negatively affects academic work<sup>5</sup>.

One of the cognitive factors affecting communication and communication apprehension is self-efficacy. It can be said that self-efficacy is confidence in the ability related to whether one can successfully make certain behavior. One who has confidence in his/her ability to do something may have no difficulty in revealing his/her important part to others, feel less communication apprehension, and perform communication efficiently<sup>3</sup>. It is reported that those with higher levels of self-efficacy show higher levels of functional communication, make self-assertive communication, and are better at problem-based coping<sup>9</sup>.

Communication competency is required for dental hygienists in dental care practice. The studies on communication among dental hygienists or dental hygiene students examined dental hygienists' communication competency<sup>10</sup>, the aspects of communication<sup>11</sup>, communication curriculums in the department of dental hygiene<sup>9, 12</sup>, and the effects of communication competency on interpersonal relationships<sup>6</sup> and only Lim<sup>13</sup> examined the factors affecting communication competency. In particular, no research was conducted on the effects of such personal factors as communication apprehension and self-efficacy on communication competency. This study aimed to identify the factors affecting communication competency for

dental hygiene students and provide basic data for developing an education program to improve communication as well as curriculums related to communication, giving consideration to the relevant factors, not to the education to improve communication skills alone.

## **2. MATERIALS AND METHODS**

### **2.1.SUBJECTS AND DATA COLLECTION**

A survey was conducted by using a structured questionnaire in 439 dental hygiene students on the basis of convenience sampling in Gyeonggi, South Chungcheong, North Gyeongsang, and Gangwon Provinces from September 20 to October 20, 2016. The research was conducted in 439 students who were given full explanation about the fact that no disadvantage would be given for refusal to participate as well as about its purpose and who spontaneously gave a written consent. Of a total of 439 questionnaires, 433 copies were finally analyzed, with the exception of 6 that were poorly completed or contained unanswered items.

As for grade distribution, the subjects included 104 freshmen (24%), 151 sophomores (34.9%), 117 juniors (27%), and 61 seniors (14.1%).

### **2.2.STUDY INSTRUMENT**

The questionnaire was composed of 6 items concerning grade and communication education, 1 concerning interpersonal satisfaction, 25 concerning communication competency (20 concerning verbal communication and 5 concerning non-verbal communication), 18 concerning communication apprehension (6 concerning group discussion apprehension, 6 concerning conversation apprehension, and 6 concerning speech apprehension), and 23 concerning self-efficacy (19 concerning general self-efficacy and 4 concerning social self-efficacy).

#### **2.2.1. COMMUNICATION COMPETENCY**

The instrument used by Moh<sup>14</sup> and adapted to high school students by Choi<sup>15</sup> was used. It is composed of 18 items concerning verbal communication and 5 concerning non-verbal communication and covers listening skills, self-exposure and self-expression competency, empathy competency, and communication competency in forming a relationship. It is a five-point Likert scale, 5 'totally agree' and 1 'totally disagree', with a higher score meaning a higher level of communication competency. Cronbach's  $\alpha$  in this study was 0.867.

#### **2.2.2. COMMUNICATION APPREHENSION**

McCroskey's Personal Report of Communication Apprehension Scale used by Park<sup>7</sup> was used. It is composed of items concerning apprehension in group discussion, meeting, conversation, and speech situations. Those four communication situations were covered by a total of 24 items, 6 for each situation and a total of 18 items were used, excepting those concerning the meeting situation, in this study. It is a five-point Likert scale, 5 'totally agree' and 1 'totally disagree',

with a higher score meaning a higher level of communication apprehension. Cronbach's  $\alpha$  in this study was 0.904.

### **2.2.3. SELF-EFFICACY**

The self-efficacy scale used by Harrison et al.<sup>16</sup> and translated by Geum<sup>17</sup> was used. It is composed of a total of 23 items, 19 concerning general self-efficacy and 4 concerning social self-efficacy and general self-efficacy includes four sub-factors. It is a five-point Likert scale, 5 'totally agree' and 1 'totally disagree' with a higher score meaning a higher level of self-efficacy. Cronbach's  $\alpha$  in this study was 0.867.

## **2.3.DATA COLLECTION METHOD**

An SPSS windows ver. 18.0 program was used for analysis in this study, with the statistical significance level set at 0.05. Frequency analysis was performed to determine the subjects' general characteristics and identify the factors related to communication education and descriptive statistics was used to analyze communication competency, communication apprehension, and communication self-efficacy. T-test and one-way ANOVA were performed to determine communication competency, communication apprehension, and communication self-efficacy by the factors related to communication education and interpersonal relationships and Scheffe multiple range test was carried out as posttest. Pearson's correlation analysis was performed to determine the correlation among communication competency, communication apprehension, and self-efficacy and stepwise multiple regression was used to identify the factors affecting communication competency and communication apprehension.

## **3. RESULTS AND DISCUSSIONS**

### **3.1.FACTORS RELATED TO COMMUNICATION EDUCATION AND INTERPERSONAL SATISFACTION**

64% answered that communication skills were very important and 68.6% suggested that communication education be necessary. 59.4% had experience of communication education and 40.6% had no experience of communication education; as for the methods of experiencing communication education, 86.0% indicated classes and 9.2% special lectures. The most desired type of communication education was lecture (35.6%), followed by video (27.8%), role play (22.1%), and PPT (14.5%). 78.2% intended to participate in communication education necessarily and 55.8% were at the average level of interpersonal relationships <Table 1>.

Table 1: Factors related to communication education and interpersonal satisfaction

Characteristic		N	%
Importance of communication skill	Very important	279	64.6
	Important	151	35.0
	Unimportant	2	0.4
Need of communication education	Very necessary	112	25.9
	Necessary	297	68.6
	Unnecessary	24	5.5
Communication education experience	Experienced	256	59.4
	Unexperienced	175	40.6
	Class	215	86.0
Method of experiencing communication education	Special lecture	23	9.2
	External education	12	4.8
	Lecture	145	35.6
Desired type of communication education	Role play	90	22.1
	PPT	59	14.5
	Video	113	27.8
Intention to participate in communication education	Actively participate	60	13.9
	Participate, if necessary	338	78.2
	Not participate	34	7.9
Interpersonal satisfaction	Satisfied	171	39.6
	Average	241	55.8
	Dissatisfied	20	4.6

### 3.2.COMMUNICATION COMPETENCY, COMMUNICATION APPREHENSION, AND SELF-EFFICACY

The mean for communication competency was  $3.46 \pm 0.41$ :  $3.51 \pm 0.42$  for verbal communication and  $3.24 \pm 0.51$  for non-verbal communication. The mean for communication apprehension was  $3.26 \pm 0.59$ :  $3.31 \pm 0.69$  for group discussion apprehension,  $2.96 \pm 0.65$  for conversation apprehension, and  $3.50 \pm 0.73$  for speech apprehension. The mean for self-efficacy was  $3.20 \pm 0.45$ :  $3.21 \pm 0.48$  for general self-efficacy and  $3.11 \pm 0.59$  for social self-efficacy <Table 2>.

Table 2: Communication competency, communication apprehension, and self-efficacy

		<u>M±SD</u>
Communication competency	Total	3.46±0.41
	Verbal communication	3.51±0.42
	Non-verbal communication	3.24±0.51
Communication apprehension	Total	3.26±0.59
	Group discussion apprehension	3.31±0.69
	Conversation apprehension	2.96±0.65
Self-efficacy	Speech apprehension	3.50±0.73
	Total	3.20±0.45
	General self-efficacy	3.21±0.48
	Social self-efficacy	3.11±0.59

### 3.3.COMMUNICATION COMPETENCY, COMMUNICATION APPREHENSION, AND SELF-EFFICACY BY GRADE, FACTORS RELATED TO COMMUNICATION EDUCATION, AND INTERPERSONAL SATISFACTION

Communication competency, communication apprehension, and communication self-efficacy by the needs for communication education are presented in Table 3. Communication competency was statistically significantly by the importance of communication skills. It was lowest when communication skills were *important* ( $p<0.05$ ). It varied significantly by the need of communication education. It was highest when communication education was *very necessary*, compared with being *necessary* ( $p<0.05$ ). It varied statistically significantly by the intention to participate in communication education. It was highest when one intended to *participate actively* in communication education ( $p<0.05$ ). It varied significantly by interpersonal satisfaction, it was highest when one was *satisfied* with interpersonal relationships ( $p<0.05$ ). There was no statistically significant difference in communication competency by grade or communication education experience.

Communication apprehension varied significantly by grade It was lowest among *juniors*, compared with *seniors* ( $p<0.05$ ). It varied statistically significantly by the intention to participate in communication education. It was lowest in case of *active participation*, compared with *no participation* ( $p<0.05$ ). It varied significantly by interpersonal satisfaction. It was lowest when one was *satisfied* with interpersonal relationships ( $p<0.05$ ). The other variables showed no statistically significant difference.

Self-efficacy varied significantly by the importance of communication skills. It was lowest when communication skills were *unimportant* ( $p<0.05$ ). It varied significantly by the need of communication education and it was highest when the education was *very necessary*, compared with being *unnecessary* ( $p<0.05$ ). It varied statistically significantly by the intention to participate in communication education and it was highest in case of *active participation* ( $p<0.05$ ). It varied significantly by interpersonal satisfaction and it was highest when one was *satisfied* with interpersonal relationships ( $p<0.05$ ). There was no statistically significant difference in self-efficacy by grade or communication education experience.

Table 3: Communication competency, communication apprehension, and self-efficacy by grade, factors related to communication education and interpersonal satisfaction

Characteristic		Communication competency		Communication apprehension		Self-efficacy	
		M±SD	P-value	M±SD	P-value	M±SD	P-value
Grade	Freshman	3.47±0.39	0.98	3.22±0.56 <sup>ab</sup>	0.02*	3.16±0.46	0.43
	Sophomore	3.45±0.42		3.32±0.66 <sup>ab</sup>		3.19±0.45	
	Junior	3.46±0.43		3.15±0.51 <sup>a</sup>		3.19±0.40	
	Senior	3.45±0.3417		3.39±0.56 <sup>b</sup>		3.27±0.48	
Importance of communication skill	Very Important	3.51±0.39 <sup>a</sup>	p<0.01	3.23±0.61	0.27	3.27±0.44 <sup>a</sup>	p<0.01
	Important	3.34±0.42 <sup>b</sup>		3.31±0.54		3.07±0.42 <sup>a</sup>	
	Unimportant	3.54±0.08 <sup>a</sup>		3.64±1.30		2.39±1.11 <sup>b</sup>	
Need of communication education	Very necessary	3.59±0.38 <sup>a</sup>	p<0.01	3.16±0.63	0.06	3.30±0.47 <sup>a</sup>	p<0.01
	Necessary	3.41±0.40 <sup>b</sup>		3.31±0.57		3.17±0.43 <sup>ab</sup>	
	Unnecessary	3.46±0.45 <sup>ab</sup>		3.16±0.65		3.11±0.51 <sup>b</sup>	
Communication education experience	Experienced	3.45±0.43	0.78	3.25±0.59	0.70	3.20±0.47	0.992
	Unexperienced	3.46±0.37		3.27±0.60		3.20±0.41	
Intention to participate in communication education	Actively participate	3.63±0.35 <sup>a</sup>	p<0.01	3.07±0.62 <sup>a</sup>	0.02*	3.45±0.52 <sup>a</sup>	p<0.01
	Participate if necessary	3.44±0.41 <sup>b</sup>		3.28±0.57 <sup>ab</sup>		3.18±0.41 <sup>b</sup>	
	Not participate	3.30±0.41 <sup>b</sup>		3.36±0.66 <sup>b</sup>		2.96±0.48 <sup>a</sup>	
One's own interpersonal relation	Satisfied	3.62±0.37 <sup>a</sup>	p<0.01	2.99±0.61 <sup>a</sup>	p<0.01	3.40±0.43 <sup>a</sup>	p<0.01
	Average	3.37±0.39 <sup>b</sup>		3.41±0.49 <sup>b</sup>		3.08±0.39 <sup>b</sup>	
	Dissatisfied	3.06±0.37 <sup>c</sup>		3.77±0.62 <sup>c</sup>		2.79±0.43 <sup>c</sup>	

### 3.4. CORRELATION AMONG COMMUNICATION COMPETENCY, COMMUNICATION APPREHENSION, AND SELF-EFFICACY

Communication competency was negatively correlated with communication apprehension (p<0.01) and was positively correlated with self-efficacy (p<0.01). Communication apprehension was negatively correlated with self-efficacy (p<0.01) <Table 4>.

Table 4: Correlation among communication competency, communication apprehension, and self-efficacy

	Communication competency	Communication apprehension	Self-efficacy
Communication competency	1		
Communication apprehension	-0.333*	1	
Self-efficacy	0.478*	-0.548*	1

\*p<0.01

### 3.5.FACTORS AFFECTING COMMUNICATION COMPETENCY

The multiple regression analysis was performed to identify the factors affecting communication competency and obtained the results as presented in Table 5. As for goodness-of-fit of the model, F-value was 68.699 and significance probability was 0.000 ( $p < 0.05$ ). The factors affecting communication competency were self-efficacy and interpersonal relationships. Statistically insignificant variables were not indicated. The higher level of self-efficacy and the more satisfied with interpersonal relationships, the greater communication competency ( $p < 0.05$ ), which accounted for 25.3%.

Table 5: Factors affecting communication competency

Variable	Unstandardized coefficient		Standardized coefficient	t	p-value
	B	Std. Error	$\beta$		
Self-efficacy	0.360	0.043	0.392	8.376	$p < 0.01$
One's own interpersonal relation	0.147	0.033	0.205	4.389	$p < 0.01$
F= 68.699		Adjusted $R^2 = 0.253$			

Meaningless value statistically is not shown on the table ( $p > 0.05$ ).

### 3.6.FACTORS AFFECTING COMMUNICATION APPREHENSION

The multiple regression analysis was performed to identify the factors affecting communication apprehension and obtained the results as presented in Table 6. As for goodness-of-fit of the model, F-value was 106.085 and significance probability was 0.000 ( $p < 0.05$ ). The factors affecting communication apprehension were self-efficacy and interpersonal relationships. The lower level of self-efficacy and the more dissatisfied with interpersonal relationships, the greater communication apprehension ( $p < 0.05$ ), which accounted for 34.5%.

Table 6: Factors affecting communication apprehension

Variable	Unstandardized coefficient		Standardized coefficient	t	p-value
	B	Std. Error	$\beta$		
Self-efficacy	-0.645	0.060	-0.474	-10.808	$p < 0.01$
One's own interpersonal relation	-0.228	0.046	-0.215	-4.910	$p < 0.01$
F= 106.085		Adjusted $R^2 = 0.345$			

Meaningless value statistically is not shown on the table ( $p > 0.05$ ).



### 3.7.DISCUSSION

The purpose of this study was to identify the factors affecting communication competency of dental hygiene students. The results of this study can be summarized as follows.

64.6% of the students considered communication skills to be very important. Ryu, Yang, and Choi<sup>12</sup> also found that dental hygiene students felt the great need for the subjects of healthcare communication, believed in the crucial effects of communication capability on the relationships with patients, and suggested the need for the subjects related to communication as well as for knowledge concerning the major. However, more respondents considered communication education to be *necessary* rather than to be *very necessary*; 78.2% intended to *participate in the education, if required*, and 13.9% intended to *participate actively* in the education. They were aware of the importance of communication but were passive toward communication education. As for the desired type of communication education, lectures were more desired than those requiring active participation, such as role play. More than a half of the students had communication education experience and got the education in the form of classes within the curriculum. It seems that lots of students are aware of the importance of communication but don't consider communication-related classes to be effective and have no great interest in the classes. There was no statistically significant difference in communication competency by communication education experience. It is considered that the current communication-related classes failed to improve communication competency for students. Since there are few chances to get external education to improve communication competency, it is necessary to include communication-related classes in the college curriculums<sup>18</sup>. It is therefore necessary to develop an education program that can induce students to participate actively in the communication process, not simply lectures, in pursuit of effective education at college<sup>19</sup>.

The mean for communication competency was 3.46. The research in dental hygiene students<sup>13</sup> found it was 3.31 and the one using a different instrument in dental hygienists<sup>10</sup> 오|진 found it was 3.42. The research in nursing students<sup>20</sup> got a higher score (3.73) than this study and Lim<sup>13</sup> noted that nursing students' greater communication competency was related to communication education. The Korean Accreditation Board of Nursing Education suggests communication competency as key capability that a nurse is required to be equipped with and communication education is considered very important in nursing curriculums<sup>18</sup>.

Among the sub-factors for communication apprehension, speech apprehension was at the highest level (3.50). The research on office workers<sup>7</sup> found that speech apprehension was at the highest level among the sub-factors for communication apprehension and scored 3.11, which was lower than students. Lots of chances for presentation or discussion in working life are expected to allow them to feel less apprehension due to experience. The efforts to allow many students to have chances for presentation during the course of classes as well as in communication-related classes and to include the course for expressing their opinions and listening to others' opinions through discussion are expected to help students reduce communication apprehension.

The group that intended to participate actively in communication education and the one satisfied with interpersonal relationships showed the highest level of communication competency and

self-efficacy and the least communication apprehension. A higher level of self-efficacy can be due to a higher level of learning motivation and a greater intention to participate actively in every situation. There is close correlation among interpersonal satisfaction, self-efficacy, and communication competency.

Communication competency was negatively correlated with communication apprehension and was positively correlated with self-efficacy. Communication apprehension was negatively correlated with self-efficacy. This result is consistent with the findings that the greater communication competency, the higher level of self-efficacy<sup>21</sup>, that communication competency was positively significantly correlated with the propensity for critical thinking and self-esteem<sup>20</sup>, and that self-efficacy was positively correlated with communication competency and clinical performance ability<sup>22</sup>.

The regression analysis of the factors affecting communication competency and communication apprehension found that the more satisfied with interpersonal relationships, the greater communication competency and the less communication apprehension. Self-efficacy is known to be a cognitive parameter that associates behavior with the variables for determining which behavior to make and has crucial effects on human beings' thinking type, emotional intelligence, school adjustment, and behavior and role performance<sup>22</sup>. The higher level of self-efficacy, the higher level of functional communication<sup>22</sup>. Communication skills may greatly affect interpersonal relationships and play a crucial role in self-efficacy and the ability to control emotions. Those who can express their opinions can control their emotions positively and cope well with a difficult situation<sup>3</sup>. Reportedly, communication competency may help college students solve problems in interpersonal relationships, which are major stressors, relieve stress, and improve a sense of achievement<sup>23</sup>. Nursing students' improvement in communication competency was found to be associated with the propensity for positive interpersonal relationships<sup>24</sup> and good interpersonal relationships based on communication were found to be a useful factor to perform tasks efficiently<sup>25</sup>. Thus, communication skills, self-efficacy, and interpersonal relationships are factors that affect one another.

Nursing students got stress due to lack of experience in interpersonal relationships, lack of communication skills, and apprehension caused by the differences between theories and practice in clinical practice<sup>26</sup>. This is why training and education regarding interpersonal relationships and communication are necessary. Han et al. suggested the need of training to improve self-efficacy as well as desirable communication types and Choi et al.<sup>9</sup> suggested the need of a systematic learning course that allows dental hygiene students to have in-depth learning of patients' psychology on the basis of the fundamental understanding of human beings, instead of acquiring skills alone. Besides, a training course is necessary to reduce communication apprehension.

#### **4. CONCLUSIONS & RECOMMENDATIONS**

In conclusion, the efforts should be made to improve self-efficacy and interpersonal relationships in addition to communication skill education with the objective of helping dental hygiene students improve their communication competency.

This study made convenience sampling among some dental hygiene students and its results can hardly be generalized and have failed to confirm causal relations among communication competency, communication apprehension, self-efficacy, and interpersonal relationships; therefore, further research should be made on this issue. However, this study is significant in that it has identified the factors related to dental hygiene students' communication competency and made suggestions for developing communication curriculums and education programs

## 5. ACKNOWLEDGEMENTS

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