

Convergence of Explanation Meeting in Cadaveric Dissection with Communication Skill : Correlation between Self-evaluation Factor and Academic Achievement of Medical Students

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의사소통 기술과 해부학 실습 설명의 융합 : 의과대학 학생들의 자기평가 요소와 학문적 성취감의 상관관계

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Abstract This study aimed to evaluate correlation between self-evaluation factors and academic achievement of medical students according to introduction of explanation meeting in cadaveric dissection. The students explained cadaveric structure to health allied sciences students and discussed with each other. Just after the meeting, 102 medical students filled out a self-reported questionnaire on impact of self-evaluation factors and communication. The data were analyzed by frequency analysis, t-test and analysis of variance. Regardless of their gender, age, previous experience, the majority of the students gave high scores in all of self-evaluation factors. Among them, linkage with major and verbal communication factor were closely related to their academic achievement($p<0.05$). The verbal and non-verbal communication factors also had a high correlation of 0.580($p<0.01$). The explanation meeting provided a chance to learn further with positive attitude to medical students and motivated them academically.

Key Words : Convergence, self-evaluation, medical students, explanation meeting, communication

요약 본 연구의 목적은 해부학실습에서 의과대학 학생들의 설명을 도입하여 만족도, 전공과의 연계성, 운영의 적절성, 언어적, 비언어적 의사소통을 포함한 자기평가요인과 학업성취도의 상관관계를 알아보고자 하였다. 의과대학 학생들은 보건관련학과 학생들에게 해부학 실습을 통해 시신의 구조를 설명과 토의를 하였다. 그 직후, 102명의 의과대학 학생들은 자기 평가요인과 의사소통의 영향에 관한 자기기입식 설문을 작성하였다. 연구기간은 2012년 6월부터 9월까지였다. 자료는 빈도 분석, t-test, 변량분석으로 처리되었다. 성별, 나이, 해부학 설명회의 경험에 관계없이 학생들은 자기평가요인의 모든 질문에서 높은 점수를 기록하였다. 그 중에서, 전공과의 연계성, 언어적 의사소통 요인은 학업성취도와 밀접한 관계가 있었다 ($p<0.05$). 언어적, 비언어적 의사소통 요인 또한 0.580의 높은 상관관계를 보였다. ($p<0.01$). 해부학 설명 과정은 의과대학 학생들에게 긍정적인 태도로 더 배우려는 기회를 제공하였고, 학업 동기를 부여하였다.

주제어 : 자기평가, 의과대학 학생, 융복합, 설명회, 의사소통

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1. Introduction

1.1 Necessity and purpose of the study

Anatomy is one of the important compulsory subjects in medical school curricula. It is not only the highly required subject but also the indispensable lesson to the medical school students. In particular, learning anatomy by cadaveric dissection is very important process in acquiring systematic knowledge of human body [1,2]. In spite of aforementioned importance, anatomy class has been taught by the conventional method including dissection, direct observation of the preparation and web-based instruction of dissection. Due to shortage of manpower, educational facilities and budget, dissection practice is being substituted and cut down by another method. In addition, 6-year medical school is being turned into 4 plus 4 year graduate school in Korea. Reduction of anatomy class hours concerns for the poor quality of anatomy education. Because of these reasons, various improving proposals are presented as virtual dissection practice, disease-based anatomy class, clinical trial-associated anatomy practice, and cadaveric dissection using communication skills.

'Communication theory' is derived from journalism, but in medical world communication is accepted as one of the hot issues owing to the explosive demand for the medical knowledge and medical service among consumers. Even the medical profession personnel try to acquire the true communication skills. It is said that doctor-patient relationship in communication influence upon the satisfaction and therapeutic outcome [3,4,5]. The introduction of communication concept is also being tried in formal education in Korea [6]. There were some reports on communication class in medical school and medical graduate school students in Korea. The reports said that students felt the importance of communication skill and acquired the right value as the future doctors [7,8,9].

The researchers introduced the communication skills and hold the explanation meeting in cadaveric

dissection using communication skills once in the first semester since 2006. Out of the passive conventional class method, the communication class was focused on free communication skill acquisition with the health-allied science students. Through this explanation meeting, satisfaction level of the students proved to be high enough [10,11]. However, it is not investigated that the medical school students evaluated themselves and reflected on their academic results.

This study aimed to evaluate correlation between self-evaluation factors(satisfaction, linkage with major, suitability of management, verbal and non-verbal communication) and academic achievement of medical students according to introduction of explanation meeting in cadaveric dissection.

2. Methods

2.1 Preparation of explanation meeting and implementation

The explanation meeting was held to the students of nursing science, sports science, emergency medical technology, and dental hygiene. Medical students who completed cadaver dissection delivered an explanation to the health-allied science students in regular class. Medical students showed the cadaver of their own dissection and made a summary of the body(head&neck, trunk and extremities). The time schedule of explanation meeting consisted of introduction (1 hour), medical communication class (1 hour), cadaver preparation(4 hours), explanation rehearsal (4 hours), explanation meeting (4 hours), questionnaire filling out, and evaluation by reflection journal. Each group consisted of one explainer and 4 students by random sampling. They moved to each cadaver every 20-30 minutes. The students took part in question and answer. After explanation meeting, medical students filled out the questionnaire and sent in reflection journal. All the data were analyzed.

2.2 Questionnaire development

In order to develop the questionnaire, the review of the previous research papers was done and the questionnaire was made by the researchers. The questionnaire was filled out by the participants after the meeting [8,9,10]. The questionnaire consisted of 25 questions of 5 subtitles. ① general characteristics of the respondents (gender, age, and experience of communication) ② satisfaction ③ linkage with major ④ suitability of management ⑤ verbal and non-verbal communication. Each question was listed by 5 scale of Likert such as never (1 point), not likely (2 points), so likely (3 points), average (3 points), likely (4 points), and very common (5 points).

2.3 Statistics

The data were input and analyzed by SPSS WIN (version 13.0). The general characteristics were analyzed by frequency analysis. The t-test and ANOVA (analysis of variance) were used for comparison and verification of satisfaction, relation with major, suitability of management, verbal communication, and non-verbal communication. In order to find out the satisfaction factor, logistic regression and correlation were used.

3. Results

3.1 General characteristics of the respondents

The general characteristics of the respondents accounted for 51.0% of male and 49.0% of female. Age of 25-29 and 20-24 years old formed 49.0% and 45.1%, respectively. These age groups showed higher distribution than age of 30-34 years old. The experience of cadaver dissection consisted of yes(65.7%) and no(34.3%). It revealed that most of the students had no experience of anatomy explanation meeting <Table 1>.

<Table 1> General characteristics of the respondents

Variables	N	%
Gender		
Male	52	51.0
Female	50	49.0
Age (Years)		
20~24	46	45.1
25~29	50	49.0
30~34	6	5.9
Previous Experience		
No	67	65.7
Yes	35	34.3
Total	102	100.0

3.2 Factor analysis of self-evaluation by general characteristics

<Table 2> showed the factor analysis of self-evaluation by general characteristics. The satisfaction, linkage with major, suitability of management were higher in male than female ($p < 0.05$), but the verbal and non-verbal communication showed similar score in male and female. Age of 20-24 and 25-29 years old

<Table 2> Factor analysis of self-evaluation by general characteristics (Mean±SD)

Variable	Satisfaction	Linkage with major	Suitability of management	Verbal communication	Non-verbal communication
Gender					
Male	4.0±0.5	3.5±0.5	3.9±0.4*	3.8±0.4	3.8±0.5
Female	3.8±0.6	3.4±0.5	3.7±0.4	3.8±0.4	3.8±0.5
Age (Years)					
20~24	3.9±0.7	3.5±0.5	3.8±0.4	3.8±0.4	3.8±0.5
25~29	3.9±0.5	3.4±0.4	3.8±0.4	3.8±0.4	3.8±0.5
30~34	3.8±0.4	3.5±0.8	3.7±0.6	3.6±0.4	3.6±0.6
Previous Experience					
No	4.0±0.6	3.5±0.5	3.9±0.4	3.8±0.4	3.8±0.5
Yes	3.9±0.6	3.4±0.4	3.8±0.4	3.8±0.4	3.8±0.5

* $p < 0.05$

<Table 3> Correlation between general characteristics and self-evaluation factor

Variable	Satisfaction			Linkage with major			Suitability of management			Verbal communication			Non-verbal communication		
	p	parameter estimates	Estimated regression coefficient	p	parameter estimates	Estimated regression coefficient	p	parameter estimates	Estimated regression coefficient	P	parameter estimates	Estimated regression coefficient	p	parameter estimates	Estimated regression coefficient
Gender															
Male			1			1			1			1			1
Female	-0.711	0.072	0.491	0.105	0.832	1.110	-1.192	0.439	0.304	-0.202	0.768	0.817	-0.011	0.983	0.989
Age (Years)															
20~24			1			1			1			1			1
25~29	-0.116	0.746	0.891	-0.675	0.198	0.509	0.401	0.488	1.494	-0.610	0.371	0.543	0.340	0.520	1.405
30~34	-0.383	0.563	0.682	0.320	0.738	1.377	-0.612	0.612	0.542	-0.843	0.578	0.429	-0.592	0.611	0.553
Previous Experience															
No			1			1			1			1			1
Yes	-0.286	0.419	0.751	-0.694	0.210	0.500	-0.391	0.514	0.676	-0.334	0.633	0.716	0.412	0.442	1.510

revealed higher scores of satisfaction, suitability of management, verbal and non-verbal communication and the other items represented similar distribution in all ages. The experience of cadaver dissection was not related to higher tendency in satisfaction, linkage with major, suitability of management. The verbal and non-verbal communication made similar tendency regardless of past experience of explanation meeting.

3.3 Correlation between general characteristics and self-evaluation factor

In <Table 3> showed the correlation between the general characteristics and self-evaluation factor. Female students answered negatively in satisfaction, suitability of management, non-verbal communication but it was not significant. Based on age of 20-24, age

of 25-29 showed lower record in satisfaction, linkage with major, and verbal communication, age of 30-34 displayed lower relation in satisfaction, suitability of management, and non-verbal communication. Students of no previous experience in anatomy dissection answered positively in satisfaction, linkage with major, suitability of management, and verbal communication.

3.4 Correlation between the scholastic achievement and self-evaluation factor

In order to know the relation between the grade and self-evaluation factor, multiple regression test was done. Verbal communication ($p < 0.05$) and suitability of management ($p < 0.05$) turned out to be the significant variables and the explanation power was 25.0% <Table 4>.

<Table 4> Correlation between scholastic achievement and self-evaluation factor

Variable	Standard error	β	p
Descriptive variable			
Verbal communication	4.522	0.225	0.027
Suitability of management	-3.728	-0.202	0.048
(B=67.250, R=0.25.0)			

4. Discussion

Most of the current undergraduate medical schools in Korea are being reorganized into medical graduate school [12,13]. As a result of the reorganization, reduction of anatomy class cannot satisfy the students by the conventional anatomy dissection program. In order to replace the anatomy dissection program, some researchers made a model of a human body. But they found it impossible to substitute the real effect of anatomy dissection class. The model of the human body is being used only for the subsidiary method [14,15]. The explanatory meeting of cadaveric dissection was introduced because it could maximize the education goal, communication skill, and interdisciplinary exchange of opinions [10].

The explanatory meeting consisted of human body explanation and question and answer (Q & A). In 2008-2009, the medical school students gave an explanation of the human body to the health-allied science students and the students of 3 departments made questions to the medical students. The analyses were composed of questionnaire and reflection journal. The survey consisted of general characteristics, satisfaction, linkage with major, suitability of management, verbal communication, and non-verbal communication. In addition to this survey, the researchers secured the 2008-2009 grade of all students who participated in the explanation meeting.

The satisfaction was focused on the general advantage by communication skill instead of conventional anatomy class. The progress in explanation meeting consisted of small group discussion made by two medical students and four health-allied students. The team was composed of random organization regardless of gender, age, and past experience of explanation meeting. The students were much satisfied with the meeting. This result coincided the fact that this type of learning had influenced upon the motivation and educational effect [16]. Explanation meeting weighed on

tangibles, assurance, responsiveness, and empathy. These factors turned out to exert influence on learning effect and satisfaction [17].

Students who gave a high mark on linkage with major evaluated themselves satisfied for suitability of management and verbal and non-verbal communication ($p < 0.05$). So, it is necessary to make the students have the idea that cadaveric explanation meeting is very helpful to medical science, medical activity, and right communication skill.

Suitability of management is the item that reflects progress of explanation meeting (date, time, venue, orientation, a memorial worship in honor of the body donor, explanation, Q & A, questionnaire) and host of the meeting (professors, teaching assistants, and workers). Collection of students' opinion of date and venue is very important to learning effect. This meeting was already announced at the beginning of the semester because multidisciplinary department students would participate in the meeting. Through the gathering of the opinion, anatomy professor met the health-allied science professors and discussed the date, time, and venue of the meeting. After decision of holding the meeting, the administrative support followed. Preliminary orientation and explanation meeting were made to have the students get sufficient learning effect by purpose, necessity, progress, and assignment of the work. Owing to the preliminary orientation, students were able to concentrate on the explanation meeting and the result of the questionnaire revealed suitable management regardless of general characteristics of the students.

In order to encourage students in participating actively in the meeting, Lee et al. reported that trust between the educator and students had much influenced on the scholastic achievement and satisfaction [18].

Recently, there are many concerns and researches on human science curricula and communication curricula into medical graduate school by the introduction of them [7,8,9]. The information delivery

process is divided into verbal communication and non-verbal communication. In order to deliver information to the public, it is very important to have verbal communication and non-verbal communication factor. Verbal communication includes accuracy, difficulty, and the choice of words and non-verbal communication factor comprises tidy dress of the lecturer, eye attention, position, speech tone, and speed. Sundaram and Webster [19] said that non-verbal communication delivered approximately 80% of the message and it took the lead and convey more message than sound. The influence of the quantity and quality of non-verbal communication is very important. The more self-evaluation of non-verbal communication has, the higher self-evaluation of verbal communication is. The importance of communication will take effect on medical scene after graduation of medical school. The medical education is not simply the acquisition of knowledge but practical activity by communication. This fact maintained not only the learning itself but also the reliance and satisfaction of doctor-patient relationship [20].

In scholastic achievement, anatomy grade was closely related with verbal communication and suitability of management. It seemed that students having higher grade delivered message by using the relevant terminology, accurate contents, and difficulty control. But self-evaluation of non-verbal communication was not related with grade. The importance of non-verbal communication did not appeal to the students. In order to convey and share the medical knowledge, it is necessary to introduce multi-directional education by way of non-verbal communication to active participation not by simple knowledge delivery.

5. Conclusion and recommendation

This In conclusion, explanation meeting in cadaveric dissection will be positive effect on satisfaction, linkage

with major, suitability of management, verbal and non-verbal communication regardless of gender, age, and past experience of explanation meeting. This study will propose the substitute method for conventional anatomy class by making up for the weak points in explanation meeting. Through the explanation meeting, this kind of education method will satisfy the medical students' need and improve the quality of education. Communication will persist the desirable doctor vision of the future.

REFERENCES

- [1] J.Y. Moon, "An empirical study of the strategy development and deployment effects on the hospital management and hospital performance", *Journal of the Korea Convergence Society*, Vol. 6, No. 6, pp. 57-63, 2015. <http://dx.doi.org/10.15207/JKCS.2015.6.6.057>
- [2] S. O. Shin, J. Park. "Convergence association between suicidal ideation and neighborhood environment among some adolescents", *Journal of the Korea Convergence Society*, Vol. 6, No. 6, pp. 271-277, 2015. <http://dx.doi.org/10.15207/JKCS.2015.6.6.271>
- [3] H. R. Jung, A. R. Son, Y. J. Yun, S. H. Le, S. B. Lee, J. A. In, K. H. Kang. "Study on self-development needs, job satisfaction, self-efficacy by general characteristics of dental hygienist", *Journal of the Korea Convergence Society*, Vol. 6, No. 6, pp. 231-239, 2015. <http://dx.doi.org/10.15207/JKCS.2015.6.6.231>
- [4] S. O. Kim, S. M. Kim. "Effects of the role play-based practice education on nursing students", *Journal of the Korean Data Analysis Society*, Vol. 17, No. 5(B), pp. 2837-2848, 2015.
- [5] H. S. Kim. "Effects of the nursing process education program on critical thinking dispositions of the nursing students", *Journal of the Korean Data Analysis Society*, Vol. 17, No. 1(B), pp. 561-574, 2015.
- [6] S. J. Lim, "Self-esteem, communication competence,

- and job satisfaction of public health officials in local government”, *Journal of the Korean Data Analysis Society*, Vol. 18, No. 2(B), pp. 1065-1078, 2016.
- [7] J. Lee, “College students’ use of learning strategies and its relationship with academic achievement”, *Journal of the Korean Data Analysis Society*, Vol. 17, No. 4(B), pp. 2163-2178, 2015.
- [8] S. Y. Song, M. A. Han. “Factors related to empowerment of paramedic students who experienced clinical practice”, *Korean Journal of Emergency Medical Services*, Vol. 20, No. 1, pp. 17-30, 2016. <http://dx.doi.org/10.14408/JKEMS.2016.20.1.017>
- [9] S. G. Hong, B. Y. Koh, J. E. Lee, “Curriculum development and operation methods based on national competency standards (NCS) in the department of emergency medical technicians”, *Korean Journal of Emergency Medical Services*, Vol. 19, No. 2, pp. 83-97, 2015. <http://dx.doi.org/10.14408/JKEMS.2015.19.2.083>
- [10] J. I. Heo, J. M. Park, “Work and job satisfaction of military emergency medical technicians”, *Korean Journal of Emergency Medical Services*, Vol. 19, No. 3, pp. 33-49, 2015. <http://dx.doi.org/10.14408/JKEMS.2015.19.3.033>
- [11] J. M. Park, S. M. Kim, “Comparison of paramedic image and its determinants between paramedic and non-paramedic students”, *Korean Journal of Emergency Medical Services*, Vol. 19, No. 3, pp.33-49, 2015. <http://dx.doi.org/10.14408/JKEMS.2015.19.2.039>
- [12] M. J. Chae, J. H. Lee, I. J. Song. “Effects of cardiopulmonary resuscitation reeducation on persistence of knowledge, performance and self-efficacy of nursing students”, *Korean Journal of Emergency Medical Services*, Vol. 19, No. 1, pp. 51-62, 2015. <http://dx.doi.org/10.14408/JKEMS.2015.19.1.051>
- [13] E. J. Seo, N. H. Cha. “Relationships among nursing professional values, bioethics and death ethic perception in nursing students”, *Journal of Digital Convergence*, Vol. 14, No. 5, pp. 349-358, 2016. <http://dx.doi.org/10.14400/JDC.2016.14.5.349>
- [14] Y. J. Kim. “A study of effect of disability prevention program acquired by people with disabilities are performed : centered on elementary school students”, *Journal of Digital Convergence*, Vol. 14, No. 5, pp. 369-376, 2016. <http://dx.doi.org/10.14400/JDC.2016.14.5.369>
- [15] S. G. Hwang. “The effect of athlete’s achievement goal orientation on life satisfaction”, *Journal of Digital Convergence*, Vol. 14, No. 5, pp. 519-526, 2016. <http://dx.doi.org/10.14400/JDC.2016.14.5.519>
- [16] H. W. Oh, K. U. Kim. “The effect of convergence tailed occupational therapy activities program on mental stability and social participation in elderly people with mild cognitive impairment”. *Journal of Digital Convergence*, Vol. 14, No. 4, pp. 449-457, 2016. <http://dx.doi.org/10.14400/JDC.2016.14.4.449>
- [17] S. Y. Lee, Y. Y. Kim. “The effects of self-efficacy and self-directed learning readiness to self-leadership of nursing student”, *Journal of Digital Convergence*, Vol. 14, No. 3, pp. 309-318, 2016. <http://dx.doi.org/10.14400/JDC.2016.14.3.309>
- [18] G. Y. Lee, A. C. Kim. “The relationships of self-efficacy, outcome expectation, and department-adaptation of students majoring in sports”, *Journal of Digital Convergence*, Vol. 14, No. 2, pp. 509-517, 2016. <http://dx.doi.org/10.14400/JDC.2016.14.2.509>
- [19] D. S. Sundaram, C. Webster. “The role of nonverbal communication in service encounters”, *Journal of Service Marketing*, Vol. 14, No. 5, pp. 378-391, 2000.
- [20] H. S. Sim, S. Y. Ahn. “The influence of ego state and interpersonal skill among nursing students”, *Journal of Digital Convergence*, Vol. 13, No. 12, pp. 269-275, 2015. <http://dx.doi.org/10.14400/JDC.2015.14.12.269>

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