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Satisfaction level of Dental Hygiene Department Students according to Class Types due to COVID-19

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Abstract

Background/Objectives: This study was conducted to investigate the class satisfaction of dental hygiene students according to the class type due to COVID-19 and to reflux it to future education.

Methods/Statistical analysis: The data collected in this study were analyzed using SPSS Window Ver 25.0, and the statistical significance determination was used at a significance level of less than 0.05. For analysis related to theory and practice class type by grade, descriptive statistics and Pearson's correlation coefficient were conducted, and an independent sample t-test was conducted for class satisfaction by class type. Logistic regression analysis was conducted on the effect of class form on class satisfaction.

Findings: As a result of the study, 21 students (70.0%) in 2nd grade and 30 (38.5%) in 3rd grade were conducted in face-to-face practice ($p<0.05$), In the actual theoretical lecture format, 8 face-to-face lectures (26.7%) were conducted in the second grade, and 23 (29.5%) were mixed with real-time online lectures and online recorded lectures in the third grade ($p<0.05$). As a result of logistic regression analysis as dependent variable, the combination of face-to-face and real-time online lectures increased 43.392 times compared to real-time online lectures, and the combination of face-to-face and online recorded lectures decreased 0.030 times in theoretical lectures ($p<0.05$) compared to online recorded lecture.

Improvements/Applications: In conclusion, in order to improve students' class satisfaction and academic achievement according to the change in class form due to Covid 19, it is necessary to develop various lecture types according to the delivery of theoretical lectures and practical lectures. For this, active development efforts of instructors and financial and administrative support of university resources will be required

Keywords: Dental Hygiene, Satisfaction Level, Class Type, Non-Face-to-Face, COVID-19

1. Introduction

In December 2019, the World Health Organization (WHO) reported a case in which a patient with pneumonia symptoms due to an unknown causative agent was detected in Wuhan, Hubei Province, China. As Covid 19 showed a pattern of spreading across the world beyond China, the WHO declared Covid 19 as a "pandemic," which is the highest risk rating among the infectious disease alert levels[1-3]. The university also declared the closure due to the pandemic of Covid 19 and chose a teaching method that replaces the existing on-site lectures online[4,5].

For non-face-to-face classes, social network services (SNS) such as YouTube, Zoom, Webex Mittings, and LMS played a role in face-to-face classes as a new learning medium[6,7]. Before Covid 19 hit the world, the general educational method was a face-to-face method in which instructors directly faced and educated students. Due to the epidemic of Covid 19, non-face-to-face classes were forced to be conducted in order to prevent the spread of group infections that may occur in face-to-face classes..

Non-face-to-face classes caused by the coronavirus could not quench the thirst for face-to-face classes, and it produced communication problems for new students and existing students. In addition, online classes of health-related students who have to obtain licenses were confused because they were different from the actual face-to-face classes[8]. In general, in order to open online courses, delicate preparations such as sophisticated class design, technical support, and video content development are required in advance. However, universities, which

could not continue to postpone the opening of classes due to the rapidly changing Corona situation, had to temporarily convert the existing curriculum to online lectures, and in the process, most of the schools had difficulty responding due to lack of online lecture experience, technical problems, and class quality. Online lectures, which were conducted without sufficient preparation in advance, also failed to meet students' expectations for university classes, including problems such as exposure to privacy and lack of interaction among professors or students, and server overload[9,10]. This background became an opportunity for the necessity of investigating and analyzing the satisfaction and requirements of online classes of college students in the Covid 19 situation.

Therefore, in this study, the academic achievement and class satisfaction according to the class type of dental hygiene students due to COVID-19 will be investigated and returned to future education.

2. Materials and Methods

2.1. Materials

The number of study subjects was 108 out of 134 calculated based on the significance level of 0.05, effect size of 0.15, power of 0.80, and the number of predictors using the G-power 3.1.9.4 program, excluding 26 insufficient respondents.

2.2. Methods

Data collected using Google's online questionnaire were analyzed using SPSS Window Ver 25.0, and statistical significance determination was used at a significance level of less than 0.05. For analysis related to theory by grade and practical class type, descriptive statistics and chi-square verification were conducted, and independent sample t-test was conducted for class satisfaction by class type. Logistic regression analysis was conducted on the effect of class form on class satisfaction.

3. Results and Discussion

3.1. General characteristics

As shown in table 1, 104 women (96.3%) accounted for the high percentage, 78 (72.2%) in the third grade, and the average age was 20.58±1.22 years old, followed by 58.3% in the Jeolla region, 36.1% in the Gyeongsang region, 3.7% in the Chungcheong region, and 1.9% in Kyungin region.

Table 1: General characteristics

Classification	N	%
sex		
male	4	3.7
female	104	96.3
grade		
second	30	27.8
third	78	72.2
Average age(Mean/S.D)	20.58	1.22
Region		
Kyungin area	2	1.9
Chungcheong area	4	3.7
Jeolla area	63	58.3
Gyeongsang area	39	36.1
Total	108	100.0

3.2. Types of practical practice and theoretical lectures by grade

As shown in table 2, the actual practice lecture type conducted by grade was significantly conducted with 21

people (70.0%) in 2nd grade and 30 people (38.5%) in 3rd grade ($p<0.05$). The most suitable practice type was face to face for the 16 people (53.3%) in 2nd grade and mixed form of face-to-face practice and online recorded lectures for 36 people (46.2%) in 3rd grade. In fact, 8 students (26.7%) were in face-to-face lectures for 2nd graders, and 23 students (29.5%) were in a mixture of real-time online lectures and online recorded lectures for 3rd graders ($p<0.05$). As for the theoretical lecture form that is considered the most suitable, 16 students (53.3%) in the second grade and 29 students (37.2%) in the third grade said that the online recorded lecture form was the most suitable.

Table 2: Types of practical practice and theoretical lectures by grade

Unit: : N (%)

Classification	Second grade		Third grade		Total	
Practical training course forms						p=0.023
Face-to-face practice	21	(70.0)	30	(38.5)	51	(47.2)
Mix of face-to-face practice and online recorded lectures	4	(13.3)	28	(35.9)	32	(29.6)
Mix of face-to-face practice and real-time online lectures	1	(3.3)	9	(11.5)	10	(9.3)
Mix of real-time online lectures and online recorded lectures	2	(6.7)	2	(2.6)	4	(3.7)
Mix of face-to-face practice, real-time online Lectures, and online recorded lectures	2	(6.7)	9	(11.5)	11	(10.2)
The most appropriate form of hands-on lecture						p=0.180
Face-to-face practice	16	(53.3)	28	(35.9)	44	(40.7)
Mix of face-to-face practice and online recorded lectures	7	(23.3)	36	(46.2)	43	(39.8)
Real-time online lectures	2	(6.7)	5	(6.4)	7	(6.5)
Online recorded lectures	5	(16.7)	9	(11.5)	14	(13.0)
The actual form of a theoretical lecture						p=0.008
Face-to face lecture	8	(26.7)	9	(11.5)	17	(15.7)
Mix of face-to face lecture and online recorded lectures	6	(20.0)	8	(10.3)	14	(13.0)
Mix of face-to face lecture and real time online lecture	3	(10.0)	7	(9.0)	10	(9.3)
Mix of face-to-face, real-time online, and online recorded lectures	6	(20.0)	7	(9.0)	13	(12.0)
Mix of real time online lectures and online recorded lectures	3	(10.0)	23	(29.5)	26	(24.1)
Online recorded lectures	4	(13.3)	7	(9.0)	11	(10.2)
The most appropriate form of theoretical lectures						p=0.121
Face to face lecture	9	(30.0)	27	(34.6)	36	(33.3)
Mix of face-to face lecture and online recorded lectures	0	(0.0)	11	(14.1)	11	(10.2)
Real time online lectures	5	(16.7)	11	(14.1)	16	(14.8)
Online recorded lectures	16	(53.3)	29	(37.2)	45	(41.7)

Total	30	(27.8)	78	(72.2)	108	(100.0)

p value: by chi-square test

3.3. Class satisfaction level by class type

As shown in table 3, the class satisfaction score according to the class type was 4.18±0.65 points, which was a mixture of face-to-face practice and real-time online lectures among the actual practice lectures, indicating that the satisfaction was significantly high ($p<0.05$).

Table 2: Class satisfaction level by class type

Unit: : mean±SD

Classification	Satisfaction	P	Scheffe /Duncan
Practical training course forms			
Face-to-face practice a	3.38 ± 0.62	0.018	a<c ab<c
Mix of face-to-face practice and online recorded lecture b	3.51 ± 0.75		
Mix of face-to-face practice and real-time online lectures c	4.18 ± 0.65		
Mix of face-to-face practice, real-time online Lectures, and online recorded lectures d	3.68 ± 0.64		
Mix of real-time online lectures and online recorded lectures e	3.69 ± 0.88		
The actual form of a theoretical lecture			
Face-to face lecture	3.50 ± 0.60	0.167	
Mix of face-to face lecture and online recorded lectures	3.22 ± 0.58		
Mix of face-to face lecture and real time online lecture	3.63 ± 0.80		
Mix of face-to-face, real-time online, and online recorded lectures	3.44 ± 0.85		
Real time online lectures	3.44 ± 0.72		
Mix of real time online lectures and online recorded lectures	3.63 ± 0.60		
Online recorded lectures	3.93 ± 0.65		
Total	3.54 ± 0.70		

Very Dissatisfied:1, Dissatisfied:2, Moderate:3, Satisfied:4, Very Satisfied:5

3.4. Logistic regression analysis results of class satisfaction as dependent variable

As shown in table 4, as a result of logistic regression analysis as dependent variable of class satisfaction, the combination of face-to-face and real-time online lectures increased 43.392 times compared to real-time online lectures in hands-on lecture, and the combination of face-to-face and online recorded lectures decreased 0.030 times in theoretical lectures compared to online recorded lectures ($p<0.05$).

Table 2: Logistic regression analysis results of class satisfaction as dependent variable

Classification	B	S.E,	Exp(B)	Significance probability
Grade(ref: Second grade)				
Third grade	0.592	0.675	1.808	0.380
Practical training course forms(ref:real time online)				

Face-to-face practice	-0.236	1.432	0.790	0.869
Mix of face-to-face practice and online recorded lecture	0.507	1.361	1.661	0.709
Mix of face-to-face practice and real-time online lectures	3.770	1.767	43.392	0.033
Real time online lectures	0.558	1.478	1.746	0.706
theory lecture forms(ref: online recorded lectures)				
Face-to face lecture	-1.180	1.019	0.307	0.247
Mix of face-to face lecture and online recorded lectures	-3.493	1.439	0.030	0.015
Mix of face-to face lecture and real time online lecture	-1.485	1.111	0.226	0.181
Mix of face-to-face, real-time online, and online recorded lectures	-1.569	1.019	0.208	0.124
Real time online lectures	-0.528	0.811	0.590	0.515
Mix of real time online lectures and online recorded lectures	-1.465	0.992	0.231	0.140
Constant term	-0.710	1.249	0.492	0.570

The recent COVID-19 pandemic has brought about rapid changes in college education[11,12]. Even though the online class has been continuously discussed based on the development of internet and web-based class, it was only performed in the complementary level of face-to-face class in the actual education field, so the flow of change was insignificant. However, due to the COVID-19 pandemic, the online class was quickly spread, which was essentially accompanied by changes in college education[13,14].

In case of online non-face-to-face class, most of the students complete the courses in their home by using tools for the completion of education such as laptop, tablet PC, and mobile phone. As the programs used for online non-face-to-face lectures, various social networks such as Google Classroom, YouTube, WbeEx, and Lms were utilized. It was reported that each college and department proceeded learning by using various programs different to each other[15,16].

In the results of researches targeting the college students majoring in health science, when the school year was higher, the online class satisfaction was also high, and the class combined with recording and real-time class showed the highest satisfaction, which was followed by real time, and recording[17]. The strengths of online class included that they could repetitively play the class several times; they could learn with no limitation of time and place; and they could reduce economic costs. As the weaknesses, there were lack of communication, decline of concentration, technical fault, decline of learning quality, and lack of feedbacks.

In case of practice class, according to a research targeting dental hygiene students, the online class was not effective for strengthening practical competency as they could not even touch practical training equipment, so the face-to-face class was preferred for practice class[18,19]. This might be resulted from the pressure and anxiety about practice through self-directed learning of students who should develop practical competency through practice class.

4. Conclusion

The replace of face-to-face class with online class using the cyber space due to the COVID-19 pandemic, is still subject to various evaluation and interpretation, which will be continued in the future. In order to improve students' class satisfaction and academic achievement in rapidly-changing education environment, various types of lectures need to be developed according to the contents of theory and practice class. For this, the professors would need to put active efforts into development while there should be also financial and administrative support in the level of college.

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