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Online and Constructivist Learning Approach Based Obstetrics and Gynecology Nursing Course Experiment

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ABSTRACT

This study aims to investigate the satisfaction of nursing students with online and constructivist-learning approach-based Obstetrics and Gynecology Nursing Course. This semi-experimental study included 101 nursing students. Data were collected between October 2020 and January 2021 using the course evaluation form, Satisfaction Scale for E-Courses and Scale on Assessing Constructivist Learning Environments. Kolmogorov Smirnov, Spearman's correlation and Friedman tests were used in data analysis. The mean satisfaction scores of the students were 124.39±8.02, 120.01±19.42 and 118.15±21.10 in the 4th, 8th and 14th weeks (FX^2= 4.617; p=0.099). The mean constructivist environment evaluation scores of them in the 4th, 8th and 14th weeks were 154.13±23.72, 150.63±28.83 and 146.10±29.09 (FX^2=3.608; p= 0.165). A moderate and positive correlation was found between the students' satisfaction levels with E-courses and their total scores regarding the constructivist learning environment ($p<0.05$). To increase student satisfaction, online classrooms which are structured more are needed.

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Çevrimiçi ve Yapılandırmacı Öğrenme Yaklaşımına Dayalı Doğum ve Kadın Hastalıkları Hemşireliği Dersi Denemesi

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ÖZ

Bu çalışma, hemşirelik öğrencilerinin çevrimiçi ve yapılandırmacı öğrenme yaklaşımına dayalı Doğum ve Kadın Hastalıkları Hemşireliği dersinden memnuniyetlerini araştırmayı amaçlamaktadır. Bu yarı deneysel çalışmaya 101 hemşirelik öğrencisi dahil edilmiştir. Veriler Ekim 2020-Ocak 2021 tarihleri arasında Ders Değerlendirme Formu, E-Dersler için Memnuniyet Ölçeği ve Yapılandırmacı Öğrenme Ortamlarını Değerlendirme Ölçeği kullanılarak toplanmıştır. Verilerin analizinde Kolmogorov Smirnov, Spearman's Korelasyon ve Friedman testleri kullanılmıştır. Öğrencilerin ortalama memnuniyet puanları 4., 8. ve 14. haftalarda sırasıyla 124,39±8,02, 120,01±19,42 ve 118,15±21,10'dur (FX2= 4,617; p=0,099). Yapılandırmacı ortam değerlendirme puan ortalamaları 4., 8. ve 14. haftalarda sırasıyla 154,13±23,72, 150,63±28,83 ve 146,10±29,09'dur (FX2=3,608; p=0,165). Öğrencilerin e-derslerden memnuniyet düzeyleri ile yapılandırmacı öğrenme ortamına ilişkin toplam puanları arasında orta düzeyde ve pozitif bir korelasyon bulunmuştur (p<0.05). Öğrenci memnuniyetini artırmak için daha fazla yapılandırılmış çevrimiçi sınıflara ihtiyaç vardır.

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INTRODUCTION

Nursing education requires a significant combination and synthesis of theoretical knowledge and practical skills. During nursing education, it should be ensured that students interiorize knowledge, skills, attitudes, professional values and ethical standards related to nursing and make them a part of their behaviors (1). However, due to the COVID-19 pandemic measures worldwide and in our country, remote education method has become widespread in all departments and even in nursing education which includes hands-on courses (2).

Whether the education is remote or face-to-face, for meaningful learning to take place, the student should receive and control the information and also construct it (3). Constructing the information learned in the courses, making it meaningful, and adapting it to daily life are important steps of the learning process (4). One of the most important philosophies in the transfer of knowledge is constructivism (3-5). The most important principle of constructivist education is being student-centered. In this educational approach, the student learns by experiencing and drawing conclusions. For this, the trainer creates the desired experience environment for the student and asks questions that will lead to new experiences. Thus, the trainer enables the student to compare the new knowledge with the previous knowledge, classify and associate it. In the constructivist education system, the student actively constructs knowledge (6). Asking questions, making the student prepare a project and giving homework serve this purpose in constructivist education. The purpose of all those is to create problems that the student can solve using the information he/she has structured and deliver the student problem-solving skills. In other words, constructivism is not the acquisition of knowledge as it is but adaptation of that knowledge while acquiring it. Thus, knowledge is reconstructed not by memorization but by the student's interpretation (6,7).

Today, education methods, such as simulation, are used in nursing education especially in developed countries, that prepare the student for his/her future profession and enable learning by doing. In this respect, in recent years, it has been emphasized that active constructivist approaches facilitate learning skills in the nursing skills training. One of the effective teaching methods for gaining professional skills is the interactive method that enables the student to participate actively in the learning process (8). Thus, the use of educational methods, such as clinical scenarios, role-play, video presentation and active learning strategies, has been recommended in addition to traditional learning methods in nursing education (9,10). Many studies have been published on constructivism, and various benefits of this method have been emphasized (11-14). For example, in the courses in which these methods are used, it has been determined that the students' success is higher, the permanence of information increases, the ability to use information increases, and the students gain the ability of critical thinking (11-14).

The education process in the nursing profession, which plays a key role in the health care system, should include cognitive, affective and psychomotor learning areas that will provide students with the contemporary roles required by profession (8). Although nurse educators have started to use effective learning methods that will increase the learning motivation of nursing students who have compulsory remote education during the pandemic, it was actually necessary for them to use these methods in face-to-face education, make learning interesting, structure knowledge and to keep students active (5,8,10,11). For the nursing education system to be beneficial to students, education programs that will enable students to actively participate in the learning-teaching process should be used instead of a memorizing-based undergraduate education. In other words, the constructivist learning approach should be adopted, and in this approach, every student should be active in the learning process and should be responsible for their own learning (7,9,12-15). Thus, the quality of their future nursing care can be increased by providing catchy and questioning learning and time management in the nursing education. One of the most important indicators of the quality of undergraduate education is the students' satisfaction. The type of education given in universities directly affects the satisfaction levels of students. The students'

satisfaction will increase as long as their interests, needs and expectations are met (11,13,14). This study aims to evaluate the effects of the online Obstetrics and Gynecology Nursing Course, which used a constructivist approach, on the satisfaction of nursing students.

MATERIALS AND METHODS

This study used a one-group pretest-posttest design, STROBE reporting and the CHERRIES e-survey guidelines.

Population and Sample

The data collection of this semi-experimental study was carried out between October 2020 and January 2021 via the Google forms platform. The universe of this study consisted of 280 third-grade nursing students who had Obstetrics and Gynecology Nursing Course using remote education through the Sakai online course platform in the 2020-2021 academic fall semester in the Faculty of Nursing of one of the largest state universities in İzmir. However, 111 students who did not attend three or more of the online courses and 68 students who did not filled out all the forms completely were excluded from this study. One hundred and one volunteer students formed the sample of this research.

The power of the study was calculated with the G*Power program and post hoc power analysis was used. When the relationship between the total scores of Satisfaction Scale for E-Courses and Scale on Assessing Constructivist Learning Environments was taken as 0.689, 97% power was reached in 101 sample size with 5% margin of error. In the Faculty of Nursing, classes were conducted remotely in the fall semester of the 2020-2021 academic year, and interactive teaching methods were used to enable the students to remember and perpetuate the education they had in their previous classes and the topics covered in the previous courses by associating them with their emotions.

The Data Collection Tools

The data in this study were collected with the Individual Identification Form, the Satisfaction Scale for E-Courses and the Scale on Assessing Constructivist Learning Environments. In the individual identification form, there are six questions about the sociodemographic characteristics of the students, their preferences for the education system, the duration of remote education, active participation in remote education, and views on the methods applied.

Satisfaction Scale for E-Courses (SSCE) was developed by Kolburan Geçer and Deveci Topal (2015) to determine how satisfied the students were with the e-learning method (4). The scale consists of 35 items in total and consists of five sub-dimensions: the content of the course and the teaching process, the materials and communication tools used, the attitude towards e-learning, the environment design and the teacher-student interaction. It is a five-point Likert scale and the items are marked between “1” I strongly disagree and “5” I completely agree. The Cronbach’s alpha value of the scale was calculated as .96. The highest score that can be obtained from the scale is 175, and the lowest score is 35. High scores indicate a high level of satisfaction, and low scores indicate a low level of satisfaction. The Cronbach’s α values of the sub-dimensions of materials and communication, teacher-student interaction, environment design, attitude towards e-learning, and content of the course and the teaching process are .69, .62, .76, .28, .30 and .95, respectively. In our study, the Cronbach’s α value of the scale was.71, while the Cronbach’s α values of the sub-dimensions were.89, .88, .92, .393 and .67, respectively.

Scale on Assessing Constructivist Learning Environments (SACLE) developed by Argün and Aşkar (2010), was used as a data collection tool in this study (16). This 7-point Likert-type scale consists of 28 questions, and it was developed to evaluate constructivist learning

environments. There are six factors in the scale: student-centered, thought-provoking, collaborative, life-related, combination of teaching and assessment, and providing different perspectives. The total explained variance of the scale was 66.65% and the Cronbach's alpha coefficient was.96. A minimum of 28 points and a maximum of 196 points can be obtained from the scale. The suitability of the environments to constructivism changes in direct proportion with the score obtained on the scale, and as the score increases, the conformity to constructivism increases. The Cronbach's α values of the student-centered, thought-provoking, collaborative, life-related, combination of teaching and assessment and providing different perspectives sub-dimensions of the scale are .69, .89, .76, .85, .77 and .87, respectively. In our study, the Cronbach's's α value of the scale was .95, and the Cronbach's's α values of its sub-dimensions were .92, .82, .80, .89, and .89, respectively.

Procedure

The conceptual framework for the study is based on one of the most important philosophies in the transfer of knowledge is constructivism (3-5). The points of the SSCE and the SACLE were used to determine how satisfied the students were with the e-learning method and evaluate constructivist learning environment of the educational design of the study.

Within the scope of the Obstetrics and Gynecology Nursing Course, we aimed to increase the interest of the students in the course and make the acquired knowledge catchy. Thus, interactive teaching methods, such as puzzles, concepts and mind maps, poster preparation, role-plays, video watching, questions-answers and discussions, taboo games, case examples, debates and Kahoot, were used. In the curriculum, the courses were planned as 45-minute sessions. In these sessions, in line with the content of the lesson, interactive interaction methods were used (For example, while the subject of contraception was being covered, the family planning counseling role was played, skill videos for newborn and postpartum examination were displayed and discussed as a group, see Table 1).

To give an example of a lesson planned using the interactive lesson preparation form; for example, in the first 5 minutes of the lesson within the scope of the topic of looking at the history of women's health, a thinker's aphorism emphasizing the importance of women's health is shared as a warm-up exercise and the class discusses it. In the next 15 minutes, the lecturer makes a presentation on the subject content, decorated with the speeches of the lecture avatars, and at the end of the lecture, a question and answer activity is held and the subject is summarized. Then the students are divided into groups for 15 minutes to discuss the factors affecting women's health and present the problems they have identified. After the break, the lecture continues for another 20 minutes with video sharing on the subject, and in the next 15 minutes, students are presented with a case related to the subject and are expected to identify and present women's health problems and nursing interventions in the case through group work. In the remaining 10 minutes at the end of the lesson, Kahoot application related to the subject is made and the subject is summarized and summarized with a question and answer activity.

During the semester, the individual identification form and scales prepared for course evaluation were applied to the students by sharing them from the WhatsApp course group using Google Forms platform three times, in the 4th, 8th and 14th weeks of the education. In the first application, after taking the consent of the students, the individual identification form and scales were applied to the students. Students were asked to fill in the scales again in the 8th and 14th weeks.

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Table 1. Interactive Interaction Methods Used by Weeks

Weeks	Course subjects	Constructivist Approach
Week 1	-Overview of Women's Health in the World and in Turkey	PowerPoint Presentation, Question and Answer, Brainstorming, Case Discussion, Group Work
Week 2	-Female-Male Anatomy and Physiology -Preconceptional Care	Kahoot, PowerPoint Presentation, Question and Answer, Discussion, Video Displaying
Week 3	-Pregnancy Physiology	PowerPoint Presentation, Question and Answer, Case Discussion, Video Displaying, Debate
Week 4	-Maternal Changes in Pregnancy -Diagnosis and Tests Used to Evaluate Maternal and Fetal Health	Brainstorming, PowerPoint Presentation, Question and Answer, Discussion, Video Displaying, Puzzle, Group Work, Communication Lab, Homework
Week 5	-Antenatal Education -Risky Pregnancies (1st Trimester)	PowerPoint Presentation, Question and Answer, Video Displaying, Birth preparation class education program design and role play, Poster Designing
Week 6	-Risky Pregnancies (2nd and 3rd Trimester)	PowerPoint Presentation, Question and Answer, Case Discussion, Video Displaying, Communication Lab
Week 7	-Delivery and Nursing Care -Midterm Exam	Kahoot, Brainstorming, PowerPoint Presentation, Question and Answer, Discussion, Role-Play, Taboo Game, Video Displaying
Week 8	-Risky Delivery	PowerPoint Presentation, Question and Answer, Case Discussion, Video Displaying, Concept Map Creation
Week 9	-Adaptation and Care of the Newborn to Extrauterine Life -Postpartum Period and Nursing Care	Power Point Presentation, Question and Answer, Discussion, Puzzle, Professional Skills Lab, Video Displaying, Homework
Week 10	-Lactation Physiology and Breastfeeding -Contraceptive Methods	PowerPoint Presentation, Question and Answer, Case Discussion, Role Play, Communication Lab
Week 11	-Infertility and Nursing Approach -Menopause Period	Warm-Up Game, PowerPoint Presentation, Question and Answer, Debate, Video Displaying
Week 12	-Gynecological Diagnostic Methods -Abnormal Uterine Bleeding	PowerPoint Presentation, Question and Answer, Case Discussion, Professional Skills Video Displaying
Week 13	-Reproductive System Infections and Sexually Transmitted Diseases -Structural Disorders of Reproductive Organs	PowerPoint Presentation, Debate, Case Discussion, Project Development
Week 14	-Sexual Dysfunctions -Gynecological Benign Problems -Reproductive Organ Tumors and Nursing Care -Final Exam	Kahoot, PowerPoint Presentation, Question and Answer, Case Discussion, Concept Map creation

At the end of the 14-week Obstetrics and Gynecology Nursing Course, students were able to pass the course if the minimum course success grade was at least 60 by taking 50% of the semester grade formed by taking 50% of the score they received from the practice of the course in hospitals and 50% of the midterm exam score they took from the theoretical course and 50% of the final exam. The midterm exam of the course was held in the 7th week and the practice grade and final exam results were given at the end of the semester. Students whose midterm exam grades were below average and whose practice performance was poor were given feedback in the 8th week and support was given by explaining what they needed to improve.

Data Analysis

The data obtained from this research were analyzed by the researcher using IBM SPSS Statistics for Windows, v.15.0 software. Statistical significance level was $\alpha = .05$. Data on the students' demographic characteristics and their views and participation in online education were presented as mean, standard deviation, min. and max. The normal distribution of the data was evaluated using the Kolmogorov Smirnov test and the skewness and kurtosis since the number of the samples was over 50. As a result of the analysis, it was determined that the data were not normally distributed since the p-value was less than 0.05. Therefore, nonparametric tests were used in the analysis. The relationship between total and subscale scores of SSCE and SACLE was analyzed with Spearman correlation analysis. Friedman Test, one of the nonparametric tests used in repeated measurements, was used to analyze the difference in the changes in SSCE and SACLE scores over time.

Ethical Considerations

Institutional permission was obtained from the Faculty of Nursing of a state university, and Ethics Committee approval was obtained from the Non-Interventional Research Ethics Committee

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to conduct this study (2021/04-02). In addition, before the data were collected, verbal explanations were given to the students, and the scales were applied after obtaining consent from the students who agreed to participate in this research using Google Forms. During the data collection, students' e-mail addresses were not collected, and the answers of all participants were uploaded to the system anonymously.

Limitations

Our research results are limited only to the results of the nursing faculty third class students of the university where the present study was conducted. In addition, we should note that the obligation to attend classes, the emphasis on homework in interactive methods, length of online course duration and the repetition of similar methods in some weeks might have reduced the students' satisfaction with the course.

RESULTS AND DISCUSSION

The data regarding the demographic characteristics of the students are presented in Table 2. In this study, 80.2% (n=81) of the participants were female, 19.8% (n=20) were male, and the mean age was 21.05±1.45 years. The duration students demanded for the courses conducted through remote education was 45.24±23.48 minutes in the 4th week, 41.97±21.80 minutes in the 8th week, and 49.80±42.30 minutes in the 14th week. 60.4% of the students actively participated in the courses, and the majority (46.5%, n=47) preferred a hybrid education. Regarding the methods applied in remote education, 40.6% (n=41) of the students found the applied methods as positive, while 16.8% (n=17) of the students stated that the applied methods should be improved.

Table 2. Students' Demographic Characteristics and Opinions and Participation in Online Education

	Week 4				**Week 8**				**Week 14**			
	n	**$\bar{x}$±SD**	**Min**	**Max**	**n**	**$\bar{x}$±SD**	**Min**	**Max**	**n**	**$\bar{x}$±SD**	**Min**	**Max**
Age	101	21.05±1.45	19	27	101	21.05±1.45	19	27	101	21.05±1.45	19	27
Duration demanded for the courses (min)		45.24±23.48	0	180		41.97±21.80	0	180		49.80±42.30	0	300
	Week 4				**Week 8**				**Week 14**			
	n	**%**			**n**	**%**			**n**	**%**		
Active participation in the course												
Yes	61	60.4			57	56.4			41	40.6		
No	40	39.6			44	43.6			60	59.4		

The mean SSCE satisfaction scores of the students in the 4th, 8th and 14th weeks of the course were 124.39±8.02, 120.01±19.42 and 118.15±21.10, respectively. No statistically significant difference was found among the repetitive measurements of the mean SSCE satisfaction scores of the participants (FX^2= 4.617; p=0.099) (Table 3). When the score distributions of the SSCE were examined, there was a significant difference in the repetitive measurements of the material-communication and teacher-student interaction sub-dimensions (FX^2=12.505, p=0.002; FX^2=6.935, p=0.031). There was no significant difference among the repetitive measurement means of the sub-dimensions of environment design, attitude towards e-courses, course content and teaching process (FX^2=0.837, p=0.658; FX^2=4.266 p=0.118; FX^2=1.727, p=0.422) (Table 3).

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Table 3. Distribution of total and sub-dimension SSCE scores over time

	Total SSCE score (n=101)		Material and communication		Teacher-student interaction		Environment design		Attitude towards e-courses		Course content and teaching process	
	$\bar{X}$ ± SD	**Median (min;max)**	**$\bar{X}$ ± SD**	**Median (min;max)**	**$\bar{X}$ ± SD**	**Median (min;max)**	**$\bar{X}$ ± SD**	**Median (min;max)**	**$\bar{X}$ ± SD**	**Median (min;max)**	**$\bar{X}$ ± SD**	**Median (min;max)**
Week 4	124.39 ±8.02	124 (110;138)	28.42± 3.55	29 (19;40)	15.45± 1.70	16 (11;20)	29.99± 3.05	31 (21;39)	18.20± 2.47	18 (12;24)	32.31± 2.41	32 (28;41)
Week 8	120.01 ±19.42	121 (61;173)	26.02± 6.11	27 (8;40)	15.08± 3.24	16 (5;20)	29.12± 6.02	30 (8;40)	18.22± 3.70	18 (6;30)	31.54± 4.33	32 (17;43)
Week 14	118.15 ±21.10	120 (55;161)	25.81± 7.06	27 (8;40)	14.33± 3.69	15 (4;20)	29.12± 6.50	30 (8;40)	17.72± 3.29	18 (10;25)	31.15± 4.42	32 (15;39)
Friedman	FX^2= 4.617 p= 0.099		FX^2= 12.505 **p= 0.002**		FX^2= 6.935 **p= 0.031**		FX^2= 0.837 p= 0.658		FX^2= 4.266 p= 0.118		FX^2= 1.727 p= 0.422	

The mean SACLE scores of the students in the 4th, 8th and 14th weeks of the course were 154.13±23.72, 150.63±28.83 and 146.10±29.09, respectively. No statistically significant difference was found among the mean repetitive SACLE scores of the participants (FX^2=3.608; p=0.165) (Table 4). Repetitive measurements of student-centered and collaborative sub-dimensions of constructivist learning environment assessment scale yielded a significant difference (FX^2=10.273, p=0.006; FX^2=6.360, p=0.042). No significant difference was determined among the means of the repetitive measurements of thought-provoking, life-related, teaching and evaluation, and different perspectives sub-dimensions. (FX^2=1.686, p=0.430; FX^2=3.836 p=0.147; FX^2=1.595, p=0.450; FX^2=1.026, p=0.599) (Table 4).

Table 4. Distribution of SACLE total and sub-dimension scores over time

	SACLE total (n=101)		**Student-centered**		**Thought-provoking**		**Collaborative**		**Life-related**		**Combination of teach. & assess.**		**Different perspectives**	
	$\bar{X}$ ± SD	**Median (min; max)**	**$\bar{X}$ ± SD**	**Median (min; max)**	**$\bar{X}$ ± SD**	**Median (min; max)**	**$\bar{X}$ ± SD**	**Median (min; max)**	**$\bar{X}$ ± SD**	**Median (min; max)**	**$\bar{X}$ ± SD**	**Median (min; max)**	**$\bar{X}$ ± SD**	**Median (min; max)**
Week 4	154.13 ±23.72	159 (41;196)	22.55 ±3.51	23 (6;28)	39.07 ±6.13	40 (11;49)	19.13 ±4.74	20 (5;28)	23.37 ±4.18	24 (4;28)	21.99 ±3.71	23 (6;28)	28±4.89	28 (6;35)
Week 8	150.63 ±28.83	154 (68;196)	21.31 ±4.56	22 (8;28)	38.84 ±7.83	41 (16;49)	17.70 ±5.41	17 (6;28)	23.07 ±4.77	25 (8;28)	22.15 ±4.79	24 (7;28)	27.53 ±5.71	29 (11;35)
Week 14	146.10 ±29.09	151 (41;196)	20.60 ±4.79	22 (6;28)	37.47 ±7.77	39 (11;49)	16.91 ±5.90	18 (5;28)	22.36 ±4.59	23 (6;28)	21.44 ±4.78	22 (5;28)	27.30 ±5.45	28 (7;35)
Friedman	FX^2= 3.608 p= 0.165		FX^2= 10.273 **p= 0.006**		FX^2= 1.686 p= 0.430		FX^2= 6.360 **p= 0.042**		FX^2= 3.836 p= 0.147		FX^2= 1.595 p= 0.450		FX^2= 1.026 p= 0.599	

The relationships between students' satisfaction levels towards e-courses and their evaluations of the constructivist learning environment are presented in Table 5. There was a moderate positive and significant correlation between total SSCE score and total SACLE score at 4th, 8th and 14th weeks ($p<0.05$).

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Table 5. Correlation analysis of total and subscale scores of SSCE and SACLE

	SSCE total *	Material and communication	Teacher-student interaction	Environment design	Attitude towards e-learning	Course content and teaching process
Week 4						
SACLE total *	.645[a]	.595[a]	.472[a]	.587[a]	.389[a]	.569[a]
Student-centered	.620[a]	.536[a]	.491[a]	.576[a]	.393[a]	.535[a]
Thought-provoking	.592[a]	.544[a]	.406[a]	.550[a]	.352[a]	.532[a]
Collaborative	.522[a]	.533[a]	.421[a]	.426[a]	.343[a]	.425[a]
Life-related	.447[a]	.368[a]	.339[a]	.482[a]	.189[b]	.441[a]
Combination of teaching and assessment	.537[a]	.542[a]	.348[a]	.450[a]	.362[a]	.442[a]
Different perspectives	.549[a]	.499[a]	.396[a]	.527[a]	.325[a]	.498[a]
Week 8						
SACLE total	.662[a]	.601[a]	.481[a]	.534[a]	.459[a]	.527[a]
Student-centered	.635[a]	.578[a]	.497[a]	.446[a]	.435[a]	.523[a]
Thought-provoking	.543[a]	.494[a]	.416[a]	.452[a]	.372[a]	.451[a]
Collaborative	.599[a]	.564[a]	.365[a]	.466[a]	.419[a]	.427[a]
Life-related	.491[a]	.449[a]	.349[a]	.474[a]	.319[a]	.392[a]
Combination of teaching and assessment	.575[a]	.530[a]	.490[a]	.459[a]	.403[a]	.478[a]
Different perspectives	.593[a]	.483[a]	.381[a]	.533[a]	.426[a]	.494[a]
Week 14						
SACLE total	.689[a]	.576[a]	.598[a]	.608[a]	.426[a]	.668[a]
Student-centered	.655[a]	.555[a]	.633[a]	.558[a]	.390[a]	.597[a]
Thought-provoking	.590[a]	.475[a]	.496[a]	.518[a]	.368[a]	.637[a]
Collaborative	.626[a]	.600[a]	.567[a]	.545[a]	.342[a]	.458[a]
Life-related	.496[a]	.408[a]	.408[a]	.509[a]	.323[b]	.553[a]
Combination of teaching and assessment	.688[a]	.547[a]	.547[a]	.602[a]	.499[a]	.705[a]
Different perspectives	.532[a]	.407[a]	.407[a]	.487[a]	.291[b]	.566[a]

a < 0.001, b < 0.05
* Spearman correlation analysis

The COVID-19 pandemic has significantly affected every aspect of human life, including the education system in Turkey, as in many countries (17). The chaos worldwide and in our country has caused postponing educational activities. Several academic institutions continued their education online, which was disrupted due to quarantine. Institutions providing nursing education also had to continue their education by adopting the e-learning approach (18).

In this study, the satisfaction of nursing students with the remote undergraduate education and Obstetrics and Gynecology Nursing Course was evaluated in a state university in the Aegean Region, one of the most developed regions of Turkey, during the COVID-19 pandemic. In the present study, the findings showed that about half of the students preferred a hybrid education. The basis of hybrid learning is the combination of traditional education and e-learning. It is thought that the majority of the students want to continue their education with the hybrid education due to some challenges brought by remote education, such as the difficulties of being motivated and concentrating, accessing the internet and making practical clinical applications (18,19). Some studies in the literature support our results. In a qualitative study conducted by Park and Seo (2021) to examine the factors affecting the learning status of nursing students under pandemic conditions, it was determined that students experienced a reduction in their clinical practice due to virtual classrooms and faced difficulties in concentrating on e-learning (20). In another study conducted by Terzi et al. (2021), the findings showed that students thought that remote education was not suitable for nursing education and to develop basic practical nursing skills (21). In the study conducted by Kahyaoğlu Süt and Küçükkaya (2016), 87.5% of 297 nursing students did not approve of remote education in the field of nursing, 79.8% of them said that all nursing courses could not be given effectively with remote education, 83.5% of them reported that it could cause

deficiencies in laboratory and clinical practices due to the fact that the nursing profession is application-based (22). Since the nursing profession is based on clinical practice, not all education can be conducted remotely. The nursing profession is a practice-oriented education that requires equipment, a variety of tools, and real patients and is, therefore, is not suitable for remote education (20-23).

When we explored the students' opinions about the methods applied in remote education, approximately half of the students (n:41) found the methods applied as positive, the other half of them (n:43) found negative, while a small part of the students (n:17) stated that the methods applied should be improved. Among the reasons for the students' negative attitudes towards remote education are COVID-19 anxiety and not knowing how long the courses will continue remotely, the fear of not being able to develop their nursing skills because they cannot practice, and motivation and concentration problems due to the environment they are in (24). In addition, use of devices, such as phones or tablets and internet access problems, might have negatively affected their learning (19,25). In addition, when the active participation in the course was examined, the findings showed that approximately two-thirds of the students actively participated, and this rate decreased at the end of the 14th week. It can be said that there is no obligation to attend classes in remote education, and the repetitive use of similar active education methods reduces students' active participation rates.

The mean SSCE scores of the students decreased from the first week to the 14th week. This shows that students' satisfaction with e-courses decreases as the course progresses, and their satisfaction is moderate. Although the use of active learning methods in the design of structured course content pleased students, it is thought that the long-term use of these methods with the help of online technologies throughout the semester caused technology fatigue in students. There are studies in the literature that are consistent with our findings. Atasoy et al. (2020) found that university students' satisfaction with the e-courses during the COVID-19 pandemic was moderate (26). In addition, in our study, students gave the highest score to "course content and teaching process" sub-dimension and the lowest score to the "teacher-student interaction" sub-dimension in the satisfaction scale for e-courses. This may be interpreted as the course content created by the lecturers regarding the e-courses attracts the attention of the students. In the teaching process of the course, the instructor should develop constructivist techniques that will support students' participation in the course more and should benefit from teaching strategies to enable students to participate in the discussions cognitively (27,28). Teacher-student interaction is one of the most important components of the learning and teaching process and student satisfaction. However, interaction can sometimes be insufficient in online education. In the study conducted by She et al., interaction in an online learning environment was accepted as a critical factor determining how satisfied students are with online education (29). Similar to our study, in the study conducted by Sezer et al. in 2022, nursing students reported problems interacting with the teacher, such as not being able to ask questions during the course. In another study, it was concluded that the educator's high level of interaction with other students leads to high satisfaction and therefore high participation in online learning (18). On the other hand, an international study conducted by Baber revealed that interaction was the most important factor in examining students' satisfaction with online learning and learning outcomes during the COVID-19 pandemic. The findings suggest that the interaction in online learning has not been sufficiently achieved due to technological limitations, and the literature on remote education has largely neglected the importance of interaction (30). In a study conducted by Kuruçay and İnan, the findings showed that the learner-learner interaction in online learning, which allows students to socialize, exchange ideas, participate in idea discussions and group activities, will significantly increase student satisfaction (31).

Another finding of our study is that the mean SACLE scores of the students decreased from the first week to the 14th week. There is a significant difference in the mean scores of the student-centered and collaborative sub-dimensions of the SACLE in repetitive measurements. In this research, when the learning environment of the students has been evaluated, it has been revealed that the constructivist approach is carried out and it provides the qualities of the constructivist learning environment (student-centered, suggestive, collaborative, life-related, the combination of teaching and assessment and different perspectives) to a large extent. Given that the environment is student-centered and collaborative means that students can easily express their ideas in online courses and have the opportunity to actively participate in the courses, communicate with other students within the scope of the course, and share their ideas easily with the instructors and students (32,33). It has been supposed that the SACLE scores of the students decreased as the weeks progressed due to the fatigue of online courses and screen exposure and the repetitive use of similar active education methods. In order to minimize all these negativities in structured courses; it is recommended that the lesson duration, especially in online sessions, should not exceed 30 minutes, that all interactive methods should not be given in one lesson but could spread over weeks so that students encounter a different interactive method in each lesson, participation of the students should be mandatory, mini quizzes should be given before and after each lesson to increase the student's interest and the results of the quizzes should contribute to the passing grade.

A moderately positive and significant relationship was found between the students' total satisfaction scores for e-courses and their total constructivist learning environment scores at the 4th, 8th and 14th weeks. As the constructivism of the learning environment increases with the use of interactive education methods, the satisfaction level of the students towards e-courses also increases. In the literature, it has been emphasized that student satisfaction plays a very important role in determining the success or failure of online education (31-34). Student satisfaction rates also reflect the quality of course instruction. Research on online learning has shown that student satisfaction is a critical indicator of their learning achievement and the success of online learning system implementation (34-37). In this sense, constructivism gains importance. In a qualitative study conducted by Pivac et al., in which students' perceptions of the use of active learning methods, such as concept maps, used by nurse educators were evaluated, the findings suggest that nursing students improved communication skills and critical thinking (35). Studies emphasize that new teaching methods should be used to increase students' willingness (36-39).

CONCLUSION AND RECOMMENDATIONS

Online learning emerged and became widespread in the form of emergency remote education as an alternative to traditional learning during the COVID-19 pandemic worldwide. Constructivist learning theory, on the other hand, is a theory that has become increasingly influential in the field of education and nursing in recent years. It is a very suitable approach to developing remote nursing education in Turkey. Although constructivist learning is implemented in face-to-face education, technological developments have made it possible to create an online constructivist environment. To increase students' satisfaction, online classrooms should be made more constructivist. Variables, such as students' motivation to participate in e-courses and the structure and teaching of the course, are important determinants of student satisfaction. Further studies should focus on critical factors and new strategies to increase students' acceptance and satisfaction of online learning, which has been used in nursing education. In particular, an education and training strategy is recommended in which the theoretical contents of the courses are diluted with different interactive teaching methods and learning by having fun is improved. In addition, interactive teaching methods based on constructivist learning theory should be tested on a larger

sample by extending them to classes at all levels. In future research, it may be suggested to develop and implement a hybrid program in line with the structured theory for nursing students. In addition, by conducting in-depth interviews with students, feedback can be obtained for the teaching methods or learning environments that they are bored with in these courses based on structured theory and these can be improved.

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