

Student-Centered Education in Dentistry: Perspectives of Students and Academicians in Turkey

Diş Hekimliğinde Öğrenci Merkezli Eğitim: Türkiye'deki Öğrenci ve Akademisyenlerin Görüşleri

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ABSTRACT

Introduction: Student-centered education (SCE) is an instructional approach that emphasizes active student participation and learning responsibility.

Objective: This study aims to evaluate the knowledge and attitudes of academicians regarding SCE in undergraduate dental education.

Materials and Methods: The study was conducted using a Google Forms survey platform with the participation of 254 dental students (from first to fifth year) and 97 academicians. The survey assessed knowledge and awareness of SCE, current practices and experiences, encountered challenges, and recommendations for improvement. Ethical approval was obtained from the Non-Interventional Clinical Research Ethics Committee of Selcuk University Faculty of Dentistry. Dental students and academicians across Turkey were invited to participate via email and social media. Personal data were not recorded, and responses were analyzed anonymously. Collected data were statistically analyzed using the Chi-Square test and the Kruskal-Wallis test.

Results: No statistically significant difference was observed in SCE awareness between research assistants and assistant/associate professors ($p=0.11$). However, a statistically significant difference was found in the level of knowledge regarding Problem-Based Learning (PBL) and the Flipped Classroom Model (FCM) across academic titles ($p=0.018$). A total of 36.1% of participants considered themselves competent in implementing student-centered education methods in undergraduate training. Both students and academicians identified PBL and FCM as the least preferred educational methods. The most reported challenges in implementing SCE methods were time management (65% for students, 72.2% for academicians) and insufficient technological infrastructure (68% for students, 64.9% for academicians). The most frequently cited supportive factor necessary for enhancing the effectiveness of these methods was the improvement of technological infrastructure (74.4% for students, 85.6% for academicians).

Conclusion: Although healthcare education in Turkey aligns with international standards, significant deficiencies exist in both knowledge and implementation of SCE methods. Enhancing awareness and providing targeted training on these methods can contribute to highly qualified professionals and improved healthcare services.

Keywords: Student-centered education, Learning methods, Awareness

ÖZ

Giriş: Öğrenci merkezli eğitim (ÖME), öğrencilerin aktif katılımını ve öğrenme sorumluluğunu vurgulayan bir eğitim yaklaşımıdır.

Amaç: Bu çalışma, diş hekimliği lisans eğitiminde ÖME hakkında akademisyenlerin bilgi ve tutumlarını değerlendirmeyi amaçlamaktadır.

Gereç ve Yöntem: Bu çalışma, yaşları 18 ile 45+ arasında değişen 254 diş hekimliği öğrencisi (1., 2., 3., 4. ve 5. sınıf) ve 97 akademisyen üzerinde, ÖME hakkında bilgi ve farkındalık, mevcut uygulamalar ve deneyim, karşılaşılan zorluklar ve geliştirme önerilerine yönelik hazırlanmış bir Google Forms anket platformu kullanılarak gerçekleştirilmiştir. Selçuk Üniversitesi Diş Hekimliği Fakültesi Girişimsel Olmayan Klinik Araştırmalar Etik Kurulu tarafından onaylanan bu çalışmaya, Türkiye genelindeki diş hekimliği öğrencileri ile diş hekimliği akademisyenleri e-posta ve sosyal medya aracılığıyla davet edilmiştir. Katılımcıların kişisel bilgileri kaydedilmemiş, veriler anonim olarak analiz edilmiştir. Toplanan veriler Ki Kare testi ve Kruskal Wallis testi ile analiz edilmiştir.

Bulgular: Araştırma görevlileri ile yardımcı doçent ve doçentler arasında ÖME farkındalığı açısından istatistiksel olarak anlamlı bir farklılık bulunmamıştır ($p=0.11$). Akademik unvanlar arasında Probleme Dayalı Öğrenme (PDÖ) ve Ters Yüz Eğitim Modeli (TYE) metotlarına ait bilgi düzeylerinde istatistiksel olarak anlamlı bir farklılık gözlenmiştir ($p=0.018$). Katılımcıların %36,1'i lisans eğitiminde öğrenci merkezli eğitim yöntemlerinin kullanımı konusunda kendisini yeterli gördüğü ifade edilmiştir. Hem öğrenciler hem de akademisyenler, PDÖ ve TYE metotlarının eğitimde en az tercih edilen yöntemler olduğu belirtilmiştir. ÖME yöntemlerini uygularken en çok karşılaşılan zorlukların zaman yönetimi (sırasıyla %65, %72,2) ve teknolojik altyapı yetersizliği (sırasıyla %68, %64,9) olduğu hem öğrenciler hem de akademisyenler tarafından tespit edilmiştir. Bu uygulamaların daha etkili olabilmesi için hem öğrenciler hem de akademisyenlerin en çok ihtiyaç duyduğu destekleyici faktör teknolojik altyapının geliştirilmesi (sırasıyla %74,4, %85,6) olmuştur.

Sonuç: Ülkemizde sağlık eğitimi uluslararası standartlarda iyi olsa da ÖME yöntemleri ile ilgili hem bilgi hem de uygulama düzeyinde çeşitli yetersizlikler mevcuttur. Bu konuda yapılacak eğitimler ve bilincin artırılması ile daha kaliteli bireyler yetiştirilip sağlık alanında daha kaliteli hizmet sunulabilir.

Anahtar kelimeler: Öğrenci merkezli eğitim, Öğrenme yöntemleri, Farkındalık

INTRODUCTION

In line with advancements in technology and science, dental education has become increasingly complex in terms of both content and methodology. The traditional long formal education period has gradually been replaced by apprenticeship-based learning and, more recently, by self-directed learning and the pursuit of individual competence.⁽¹⁾ Didactic lectures have been the gold standard and the most common method of traditional teaching and learning practice. Despite traditional preferences for simplicity of lecture presentations, appropriateness for crowded classes, and the ability to present massive amounts of theoretical content, students are exposed to large amounts of information, making it difficult to retain, remember, and interpret. Education is a dynamic process requiring constant renewal and

development.⁽²⁾ However, today's curricula lag behind current innovative teaching techniques and remain inadequate to keep up with future advances.⁽³⁾

There have been significant changes in medical education in recent years, and student-centered education has become more widely adopted by educators. The various learning methods used in medical and dental schools include problem-based learning (PBL), case-based learning (CBL), team-based learning (TBL), competency-based education (CBE), flipped classroom (FC), simulation-based learning (SBL), peer-assisted learning (PAL), observational learning (OL).⁽⁴⁾

This study aims to investigate the knowledge and cognition of academicians and dental school students about student-centered education (SCE) in undergraduate dental education.

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METHODS

Determining the awareness of contemporary educational methods among educators and students plays a crucial role in enhancing the quality of dental education. This study aims to evaluate the knowledge levels and perspectives of both academicians and dental students regarding SCE methods.

Within this scope, the study was conducted on 254 dental students and 97 academicians aged between 18 and 45+, using a Google Forms survey platform designed to assess knowledge and awareness of SCE, current practices and experiences, encountered challenges, and suggestions for improvement.

At the initial stage of the study, it was considered to include all students from the 1st to the 5th year; however, it was deemed appropriate to evaluate the pre-clinical classes—namely the 1st, 2nd, and 3rd year students—as a single group represented by the 3rd year cohort. This study was approved by the Non-Interventional Clinical Research Ethics Committee of Selçuk University Faculty of Dentistry (Ethics approval number 2025/20), and dental students and academicians across Turkey were invited to participate via email and social media. Participants' personal information was not recorded, and the data were analyzed anonymously. The collected data were analyzed using the Chi-Square and the Kruskal-Wallis test ($p < 0.05$).

RESULTS

Participants were asked questions under four main categories: knowledge and awareness of SCE, current practices and experiences, the effectiveness of educational methods and feedback, and encountered challenges and suggestions for improvement. A five-point Likert scale (strongly disagree, disagree, neutral, agree, strongly agree) was used for the survey. The socio-demographic characteristics of participants were shown in Table 1.

Table 1. The socio-demographic characteristics of the participants.

The socio-demographic characteristics of the participants.			
Gender	Female	247	70%
	Male	101	29%
	Not mentioned	4	1%
Age	18-20	23	7%
	21-23	190	54%
	24-26	37	11%
	27-35	82	23%
	36-45	15	4%
	45+	5	1%
Title	Class 3	69	20%
	Class 4	115	33%
	Class 5	70	20%
	Specialist	9	3%
	Research Assistant	58	16%
	Associate Professor	13	4%
	Assistant Professor	11	3%
	Professor	7	2%

The study sample consisted of 70% female participants and 94% individuals under 35. Third-, fourth-, and fifth-year dental students, along with academicians from various academic ranks, participated in this study.

To assess knowledge and awareness of SCE, participants were asked three questions. The responses of participants were shown in Table 2. No statistically significant difference was found in SCE awareness among research assistants, assistant professors, and associate professors ($p > 0.05$). However, a statistically significant difference was observed among students, specifically between third- and fourth-year students ($p = 0.029$), with fourth-year students demonstrating a significantly higher level of awareness compared to third-year students. Regarding PBL, research assistants were found to have significantly less knowledge than other academic ranks ($p < 0.05$).

Table 2. The responses of participants regarding Knowledge and Awareness of Student-Centered Education Methods

Knowledge and Awareness of Student-Centered Education Methods					
How do you assess your level of knowledge about student-centered educational methods?					
	No Knowledge	Superficial Knowledge	Undecided	Good level of Knowledge	Expert-level Knowledge
Class 3	27	22	19	1	0
Class 4*	25	35	39	14	2
Class 5	18	28	20	3	1
Specialist	1	4	2	2	0
Research Assistant	17	20	11	10	0
Associate Professor	0	0	5	8	0
Assistant Professor	0	2	3	5	1
Professor	1	0	2	3	1
Which student-centered educational methods are you only familiar with at a knowledge level?					
	Academician		Student		
Problem-based learning	37		37		
Flipped Classroom	10		11		
Team-based learning	60		107		
Simulation-based learning	61		192		
Case analysis study	52		84		
Clinical practice training	78		74		
OSCE	24		160		
Others	4		12		
Which student-centered teaching methods do you use in student education?					
	Only Academicians				
Problem-based learning	21				
Flipped Classroom	3				
Team-based learning	30				
Simulation-based learning	37				
Case analysis study	43				
Clinical practice training	85				
OSCE	11				
Others	5				

*Fourth-year students showing significantly higher level of awareness compared to the third year students.

Additionally, all academic ranks were found to have significantly lower knowledge of the FC model ($p = 0.000$). Associate Professors exhibited significantly greater knowledge of case-based analysis and Objective Structured Clinical Examination (OSCE) compared to other academic ranks ($p < 0.05$).

Regarding students' experiences with SCE, a significantly higher proportion of students reported having participated in clinical practice training (CPT) ($p = 0.000$), whereas the proportion of students who had experienced OSCE was significantly lower ($p = 0.000$). Nevertheless, the majority of students reported engaging in small-group activities such as FC, PBL, and TBL.

Participants were asked four questions regarding SCE practices and experiences, and their responses are shown in Table 3. The study also investigated whether there were significant differences in SCE practice experiences among academic ranks. While no statistically significant differences were found among the groups ($p > 0.05$), academic ranks were reported using various SCE methods except for CPT. The majority of students reported utilizing simulation-based training, particularly preclinical and phantom laboratory training.

Academicians were asked about the positive changes they observed in students due to SCE implementation. The majority reported improvements in long-term learning, motivation, and the ability to apply theoretical knowledge in practice. However, research assistants noted that they did not observe a significant improvement in students' motivation.

Participants were asked two questions regarding the effectiveness of educational methods and feedback which were shown in **Table 4a** and **4b**. The responses from academicians regarding whether SCE methods enhance students' competencies were analyzed, and no statistically significant differences were found among the groups ($p>0.05$). The majority of academic staff reported that PBL significantly improved students' problem-solving skills.

Regarding FC, SBL, CPT, and OSCE, academicians shared similar views on their impact on critical thinking, problem-solving, teamwork, clinical decision-making, professionalism, and communication skills. Concerning small-group activities, academicians agreed that these methods foster teamwork skills among students. In terms of clinical practice education, academic staff generally agreed that it enhances students' clinical decision-making and professionalism.

Table 3. The responses of participants about SCE practices and experiences

What are your thoughts on the use of student-centered educational methods in undergraduate education?						
		Very insufficient		Undecided		Very sufficient
Class 3		7(%10)	16(%23)	28(%41)	16(%23)	2(%3)
Class 4		4(%3)	21(%18)	55(%48)	34(%30)	1(%1)
Class 5		2(%3)	16(%23)	28(%40)	20(%29)	4(%6)
Specialist		2(%22)	1(%11)	3(%33)	3(%33)	0(%0)
Research Assistant		4(%7)	9(%16)	24(%41)	19(%33)	2(%3)
Associate Professor		1(%8)	4(%31)	3(%23)	5(%38)	0(%0)
Assistant Professor		0(%0)	2(%18)	5(%45)	3(%27)	1(%9)
Professor		0(%0)	1(%14)	3(%43)	3(%43)	0(%0)
Which methods are more frequently used during the undergraduate dental education?						
Method	Title	Definitely doesn't contribute	Doesn't contribute	Undecided	Contributes	Definitely contributes
Problem based Learning	Class 3	0(%0)	2(%8)	10(%40)	13(%52)	0(%0)
	Class 4	7(%13)	11(%21)	13(%25)	19(%36)	3(%6)
	Class 5	7(%17)	7(%17)	14(%34)	11(%27)	2(%5)
	Specialist	2(%22)	1(%11)	5(%56)	1(%11)	0(%0)
	Research Asistant	8(%14)	6(%10)	28(%48)	13(%22)	3(%5)
	Associate Professor	2(%15)	1(%8)	7(%54)	3(%23)	0(%0)
	Assistant Professor	2(%20)	0(%0)	3(%30)	5(%50)	0(%0)
	Professor	1(%14)	1(%14)	1(%14)	4(%57)	0(%0)
Flipped Classroom	Class 3	5(%20)	3(%12)	13(%52)	4(%16)	0(%0)
	Class 4	11(%21)	12(%23)	27(%51)	3(%6)	0(%0)
	Class 5	13(%32)	1(%2)	24(%59)	1(%2)	2(%5)
	Specialist	2(%22)	2(%22)	4(%44)	1(%11)	0(%0)
	Research Assistant	10(%17)	5(%9)	40(%69)	3(%5)	0(%0)
	Associate Professor	3(%23)	3(%23)	7(%54)	0(%0)	0(%0)
	Assistant Professor	1(%9)	4(%36)	6(%55)	0(%0)	0(%0)
	Professor	1(%14)	2(%29)	3(%43)	1(%14)	0(%0)
Simulation based Learning	Class 3	0(%0)	0(%0)	3(%12)	12(%48)	10(%40)
	Class 4	2(%4)	1(%2)	4(%8)	23(%43)	23(%43)
	Class 5	1(%2)	2(%5)	3(%7)	15(%37)	20(%49)
	Specialist	1(%11)	0(%0)	1(%11)	2(%22)	5(%56)
	Research Assistant	1(%2)	1(%2)	10(%22)	24(%41)	22(%38)
	Associate Professor	0(%0)	0(%0)	0(%0)	7(%54)	6(%46)
	Assistant Professor	0(%0)	0(%0)	1(%9)	2(%18)	8(%73)
	Professor	0(%0)	0(%0)	1(%14)	5(%71)	1(%14)
Case based Studies	Class 3	0(%0)	3(%12)	8(%32)	13(%52)	1(%4)
	Class 4	4(%8)	7(%13)	16(%30)	21(%40)	5(%9)
	Class 5	1(%3)	9(%23)	5(%13)	18(%45)	7(%18)
	Specialist	1(%11)	1(%11)	2(%22)	4(%44)	1(%11)
	Research Assistant	2(%3)	2(%3)	20(%34)	27(%47)	7(%12)
	Associate Professor	0(%0)	0(%0)	2(%15)	6(%46)	5(%38)
	Assistant Professor	0(%0)	1(%9)	1(%9)	6(%55)	3(%27)
	Professor	0(%0)	0(%0)	0(%0)	6(%86)	1(%14)
Clinical practice Training	Class 3	1(%4)	2(%8)	2(%8)	13(%52)	7(%28)
	Class 4	2(%4)	1(%2)	1(%2)	14(%26)	35(%66)
	Class 5	1(%2)	0(%0)	1(%2)	7(%17)	32(%78)
	Specialist	1(%11)	0(%0)	1(%11)	1(%11)	6(%67)
	Research Assistant	0(%0)	0(%0)	7(%12)	20(%34)	31(%53)
	Associate Professor	0(%0)	0(%0)	0(%0)	4(%31)	9(%69)
	Assistant Professor	0(%0)	0(%0)	0(%0)	3(%27)	8(%73)
	Professor	0(%0)	0(%0)	0(%0)	2(%29)	5(%71)
Team based Learning	Class 3	2(%8)	2(%8)	13(%52)	7(%28)	1(%4)
	Class 4	7(%13)	10(%19)	12(%23)	20(%38)	4(%8)
	Class 5	5(%12)	5(%12)	8(%20)	15(%37)	8(%20)
	Specialist	1(%11)	0(%0)	4(%44)	3(%33)	1(%11)
	Research Assistant	1(%11)	5(%9)	18(%31)	26(%45)	8(%14)
	Associate Professor	0(%0)	0(%0)	4(%31)	8(%62)	1(%8)
	Assistant Professor	0(%0)	1(%9)	2(%18)	7(%64)	1(%9)
	Professor	0(%0)	0(%0)	0(%0)	6(%86)	1(%14)
Traditional Lesson Learning	Class 3	0(%0)	0(%0)	3(%12)	6(%24)	16(%64)
	Class 4	2(%4)	1(%2)	2(%4)	9(%17)	39(%74)
	Class 5	2(%5)	0(%0)	0(%0)	9(%22)	30(%73)
	Specialist	1(%11)	0(%0)	0(%0)	1(%11)	7(%78)
	Research Asistant	2(%3)	0(%0)	6(%10)	18(%31)	32(%55)
	Associate Professor	0(%0)	0(%0)	0(%0)	4(%31)	9(%69)
	Assistant Professor	0(%0)	0(%0)	0(%0)	2(%18)	9(%82)
	Professor	0(%0)	0(%0)	1(%14)	2(%29)	4(%57)
Which of the following "Simulation-Based Trainings" do you use in your education?						
		Academician		Student		
Preclinic Laboratory		90(%92)		235(%93)		
Fantom Laboratory		96(%98)		233(%92)		
Virtual Reality Based Technology		8(%8)		8(%3)		
Basic life support on models		20(%20)		50(%20)		
What positive changes do you observe when student-centered educational methods are used?						
		Academician		Student		
I participate more actively.		43(%44)		75(%30)		
Learning becomes more permanent.		71(%72)		196(%77)		
I feel more motivated.		53(%54)		118(%46)		
It facilitates the transition of theoretical knowledge into clinical practice.		62(%63)		185(%73)		
I do not observe any changes.		5(%5)		8(%3)		

Students' perspectives on the competencies developed through SCE were also analyzed, revealing no significant differences among their responses ($p>0.05$). The majority of students reported that PBL improved their problem-solving abilities. Regarding FC, SBL, CPT, and OSCE, students expressed similar views on their impact on critical thinking, problem-solving, teamwork, clinical decision-making, professionalism, and communication skills. Students also agreed that small-group activities enhanced their teamwork skills and that clinical practice education strengthened their clinical decision-making and professionalism.

Two questions were posed to participants regarding the challenges of SCE. The questions and responses are shown in **Table 5**. The greatest challenges reported by both students and academicians are time management and insufficient technological infrastructure. Additionally, students frequently report a lack of resources as one of the challenges they encounter. Students have indicated that to make PBL more effective, additional educational materials and resources should be provided, technological infrastructure should be ensured, and student feedback should be considered. Academic staff, on the other hand, have emphasized that, rather than focusing on student feedback, the training of the academic staff is essential in this regard.

In the final section of the survey, a general evaluation and recommendations question was asked which were shown in **Table 6** and the general evaluation comparisons within academic ranks and student groups revealed similar patterns ($p>0.05$).

Table 4a. The responses of participants regarding Effectiveness of Teaching Methods and Feedback

Do you think student-centered educational methods enhance the following competencies of students?						
		Definitely doesn't contribute	Doesn't contribute	Undecided	Contributes	Definitely contributes
Critical thinking skills	Class 3	0(%0)	0(%0)	3(%12)	14(%56)	8(%32)
	Class 4	2(%4)	3(%6)	6(%11)	29(%55)	13(%25)
	Class 5	0(%0)	1(%2)	7(%17)	22(%54)	11(%27)
	Specialist	1(%13)	0(%0)	2(%25)	2(%25)	3(%38)
	Research Assistant	1(%2)	4(%7)	16(%28)	28(%48)	9(%16)
	Associate Professor	0(%0)	2(%15)	0(%0)	9(%69)	2(%15)
	Assistant Professor	0(%0)	1(%9)	1(%9)	8(%73)	1(%9)
	Professor	0(%0)	0(%0)	1(%14)	3(%43)	3(%43)
Problem solving ability	Class 3	0(%0)	0(%0)	2(%8)	13(%52)	10(%40)
	Class 4	1(%2)	2(%4)	5(%10)	27(%52)	17(%33)
	Class 5	1(%2)	0(%0)	2(%5)	22(%54)	16(%39)
	Specialist	1(%11)	0(%0)	1(%11)	5(%56)	2(%22)
	Research Assistant	1(%2)	3(%5)	16(%28)	28(%48)	10(%17)
	Associate Professor	1(%8)	0(%0)	0(%0)	10(%77)	2(%15)
	Assistant Professor	0(%0)	0(%0)	1(%9)	9(%82)	1(%9)
	Professor	0(%0)	0(%0)	0(%0)	4(%57)	3(%43)
Communication and Patient Relationships	Class 3	0(%0)	1(%4)	4(%16)	9(%36)	11(%44)
	Class 4	1(%2)	4(%8)	4(%8)	21(%40)	23(%43)
	Class 5	1(%2)	1(%2)	3(%7)	18(%44)	18(%44)
	Specialist	1(%13)	1(%13)	1(%13)	3(%38)	2(%25)
	Research Assistant	1(%2)	2(%3)	12(%21)	33(%57)	10(%17)
	Associate Professor	0(%0)	1(%8)	1(%8)	9(%69)	2(%15)
	Assistant Professor	0(%0)	0(%0)	0(%0)	9(%82)	2(%18)
	Professor	0(%0)	0(%0)	0(%0)	3(%43)	4(%57)
Teamwork orientation	Class 3	0(%0)	4(%16)	5(%20)	6(%24)	10(%40)
	Class 4	3(%6)	5(%9)	9(%17)	23(%43)	13(%25)
	Class 5	2(%5)	2(%5)	6(%15)	19(%46)	12(%29)
	Specialist	1(%11)	0(%0)	1(%11)	5(%56)	2(%22)
	Research Assistant	1(%2)	1(%2)	11(%19)	33(%57)	12(%21)
	Associate Professor	1(%8)	0(%0)	1(%8)	8(%62)	3(%23)
	Assistant Professor	0(%0)	0(%0)	0(%0)	9(%69)	2(%15)
	Professor	0(%0)	0(%0)	0(%0)	4(%57)	3(%43)
Clinical decision-making	Class 3	0(%0)	0(%0)	3(%12)	11(%44)	11(%44)
	Class 4	2(%4)	1(%2)	2(%4)	27(%51)	21(%40)
	Class 5	1(%2)	1(%2)	2(%5)	19(%46)	18(%44)
	Specialist	1(%11)	0(%0)	1(%11)	4(%44)	3(%33)
	Research Assistant	1(%2)	4(%7)	14(%24)	28(%48)	11(%19)
	Associate Professor	1(%8)	0(%0)	0(%0)	10(%77)	2(%15)
	Assistant Professor	0(%0)	0(%0)	0(%0)	9(%82)	2(%18)
	Professor	0(%0)	0(%0)	0(%0)	3(%43)	4(%57)

Table 4b. The responses of participants regarding Effectiveness of Teaching Methods and Feedback

Which student-centered teaching method has been the most effective for you? Why?			
		Academician	Student
PBL	It promotes critical thinking	30	75
	It enhances problem solving skills	58	152
	It fosters the spirit of teamwork	12	24
	It enhances clinical decision making	25	60
	It enhances professionalism	11	45
	It improves communication skills	12	25
FC	It promotes critical thinking	30	104
	It enhances problem solving skills	31	58
	It fosters the spirit of teamwork	16	30
	It enhances clinical decision making	15	35
	It enhances professionalism	12	50
	It improves communication skills	10	31
TBL	It promotes critical thinking	17	57
	It enhances problem solving skills	25	49
	It fosters the spirit of teamwork	59	147
	It enhances clinical decision making	20	37
	It enhances professionalism	19	43
	It improves communication skills	34	73
SBL	It promotes critical thinking	10	35
	It enhances problem solving skills	35	85
	It fosters the spirit of teamwork	17	37
	It enhances clinical decision making	46	122
	It enhances professionalism	41	123
	It improves communication skills	13	29
CBL	It promotes critical thinking	24	77
	It enhances problem solving skills	33	90
	It fosters the spirit of teamwork	15	27
	It enhances clinical decision making	46	121
	It enhances professionalism	33	97
	It improves communication skills	13	32
OSCE	It promotes critical thinking	21	56
	It enhances problem solving skills	33	76
	It fosters the spirit of teamwork	18	23
	It enhances clinical decision making	30	86
	It enhances professionalism	37	99
	It improves communication skills	20	56
CPT	It promotes critical thinking	19	72
	It enhances problem solving skills	31	109
	It fosters the spirit of teamwork	31	71
	It enhances clinical decision making	58	145
	It enhances professionalism	51	147
	It improves communication skills	40	127

Table 5. The responses of participants regarding Challenges Encountered in Student-Centered Educational Methods and Suggestions for Improvement

What are the main challenges you encounter while implementing student-centered educational methods?		
	Academician	Student
Time management	71 (%72)	165 (%65)
Lack of resources	50 (%51)	137 (%54)
Insufficient technological infrastructure	64 (%65)	173 (%68)
Inadequate preparation of faculty members	38 (%39)	68 (%27)
Students struggling to adapt to this method	39 (%40)	87 (%34)
Others	4 (%4)	15 (%6)
What supportive factors do you think should be provided to make student-centered educational practices more effective?		
	Academician	Student
More educational materials and resources	76 (%78)	182 (%72)
Improvement of technological infrastructure.	84 (%86)	189 (%74)
Education of academic staff	69 (%70)	120 (%47)
Considering students feedback	48 (%49)	179 (%70)
Others	2 (%2)	12 (%5)

Table 6. The responses about Participants' overall evaluations regarding the survey.

Do you think student-centered educational methods contribute to the overall quality of undergraduate dental education?					
Title	Definitely doesn't contribute	Doesn't contribute	Undecided	Contributes	Definitely contributes
Class 3	0(%0)	1(%6)	4(%22)	7(%39)	6(%33)
Class 4	1(%3)	0(%0)	11(%28)	11(%28)	16(%41)
Class 5	1(%4)	1(%4)	2(%9)	8(%35)	11(%48)
Specialist	0(%0)	0(%0)	0(%0)	1(%11)	8(%89)
Research Assistant	0(%0)	1(%2)	12(%21)	18(%31)	27(%47)
Associate Professor	0(%0)	0(%0)	1(%8)	3(%23)	9(%69)
Assistant Professor	0(%0)	0(%0)	0(%0)	5(%45)	6(%55)
Professor	0(%0)	0(%0)	0(%0)	2(%29)	5(%71)

DISCUSSION

This study aims to determine the cognitive levels of academics and students regarding student-centered education in dental education.

Curriculum reform in dental education is ongoing, with dental faculties progressing toward a more integrated and multidisciplinary model that enhances transparency in the relationships between basic and clinical sciences. PBL and CBL are promising tools for medical and dental educators.⁽⁵⁾

Akaltan, in his review titled "Update in Dental Education: Teaching and Learning Methods" reported that numerous educational approaches, principles, and methods are currently implemented in dental education, with the common aim of these approaches being to foster the development of learning attributes such as critical thinking, self-directed learning, and problem-solving skills.⁽⁶⁾

A review evaluating the role of PBL in dental education at Showa University School of Dentistry from its inception in 2003 to 2012 concluded that while there is no single, perfect educational method to satisfy all students and staff, PBL is indubitably effective.⁽⁷⁾ Notably, SBL has been proposed as an efficacious method for medical and dental clinical training, serving as a bridge between classroom learning and real-life clinical experience.⁽⁸⁾ Today's students, particularly Millennials, expect instant access to services, the ability to download their grades, course schedules, and other relevant information automatically, as well as access to assistance 24 hours a day. To meet these expectations, a shift in mindset within dental faculties must be encouraged, and educators should receive training in e-learning and e-teaching to facilitate both theoretical and practical knowledge transfer effectively.⁽⁹⁾

Our study indicates that educators with lower academic titles tend to have less knowledge about PBL. Additionally, the FC model appears to be a method with which educators across all academic titles have limited familiarity. When students assessed themselves in terms of their knowledge and awareness levels regarding SCE methods, it was observed that they perceived themselves to be less competent compared to academicians. Furthermore, when participants were asked to indicate which SCE methods they were familiar with only at the knowledge level, academicians ranked their familiarity as follows: CPT>SBL>TBL>CBL>PBL>OSCE>FC. In comparison, students reported their knowledge levels in the following order: SBL>CPT>TBL>CBL>OSCE>PBL>FC.

When academicians were asked, "Which student-centered education methods do you use in student training?", the most frequently used methods were reported as follows: CPT>CBL>SBL>TBL>PBL>OSCE>FC. Similarly, when students were asked, "Which student-centered education methods have you experienced?", their responses aligned with their reported knowledge levels and were ranked as: SBL>CPT>TBL>CBL>OSCE>PBL>FC.

Based on these findings, despite variations in the ranking of preferred SCE methods between students and academicians, CPT and SBL consistently emerged as the most commonly used SCE approaches in dental education. These are followed by TBL and CBL, which are also frequently utilized and associated with higher levels of knowledge. Additionally, the results suggest that although OSCE, PBL, and FC are used to a lesser extent, their presence indicates a growing trend toward the increased implementation of SCE methods in the future of dental education.

The success of PBL depends on collaboration between students and instructors. Students must come to class adequately prepared to resolve misunderstandings and fill knowledge gaps.⁽¹³⁾ The FC is an innovative pedagogical approach that integrates blended learning methodologies through online, offline, or hybrid instructional materials outside the conventional classroom environment, supported by constructivist learning theory.⁽¹⁴⁾ The FC model fosters self-directed learning by requiring students to seek supplementary resources to reinforce the provided material.⁽¹⁵⁾ Its effective implementation necessitates active engagement from both educators and students. Furthermore, it is crucial for educators to meticulously plan and structure instructional activities that enhance student preparedness and participation.⁽⁴⁾

Academicians and students emphasized that CPT enhances clinical decision-making, professionalism, and communication skills. SBL (e.g., preclinical, phantom applications) improves clinical decision-making, professionalism, and problem-solving abilities. CBL contributes to clinical decision-making, professionalism, problem-solving, and critical thinking. OSCE supports the development of professionalism, clinical decision-making, and problem-solving. PBL is particularly effective for enhancing problem-solving skills. The FC model was reported to be most effective in improving communication skills. TBL was noted to be especially beneficial in fostering team spirit and collaboration. These findings suggest that the integration of diverse SCE methods into dental education plays a crucial role in equipping students with the essential competencies required for professional practice. Moreover, the use of such methods is likely to have a significant impact on graduates' ability to meet expected standards of professionalism. When asked about the necessary supportive factors for enhancing the effectiveness of SCE practices, academicians emphasized, in order of importance: the development of technological infrastructure, the need for more educational materials and resources, the training of academic staff, and the incorporation of student feedback. Similarly, students highlighted the need for improved technological infrastructure, more materials and resources, the inclusion of student feedback, and the training of academic staff. These findings further confirm that the successful implementation of SCE in dental education is heavily dependent on access to technological infrastructure, educational materials, and learning resources. Additionally, the lack of training opportunities for academicians to learn and gain experience in applying diverse SCE models represents a significant gap that must be addressed. Equally important is the ongoing collection of student feedback, which should be systematically used to make continuous improvements to educational programs.

In our study, simulation-based education emerged as the most commonly applied model among the most frequently utilized student-centered education (SCE) methods reported by both academicians and students. Within this category, preclinical and phantom laboratory training was the most frequently employed, followed by basic life support on models. In contrast virtual reality-based education was reported to be used very infrequently.

A significant portion of the limitations encountered in the implementation of SCE methods in dental education was attributed to inadequate technological infrastructure, insufficient materials and resources, time constraints, and the lack of adequate training for academicians in these methods.

In response to survey questions aimed at evaluating the effectiveness of SCE methods and the perceived value of feedback mechanisms, both academicians and students agreed that SCE contributes significantly to various professional competencies, including teamwork, critical thinking, problem-solving, communication skills, patient interaction, and clinical decision-making.

When participants were asked, "Which student-centered education methods are more effective in student training? Which competencies do they enhance?", all groups identified CPT and SBL (e.g., preclinical, phantom applications, etc.) as the most effective SCE methods in dental education.

One of the most significant challenges in student-centered education is the necessity of considering student feedback and implementing improvements accordingly.^(15, 16) To create an effective learning environment, students' experiences, expectations, and challenges must be regularly assessed. However, inadequately structured

feedback processes or the limited influence of student opinions on educational programs can negatively impact motivation and class participation.⁽⁹⁾ Therefore, student feedback should not merely be collected as data but should serve as a key component guiding the educational process. By analyzing this feedback and making necessary curriculum adjustments, educators can enhance the effectiveness of student-centered education and encourage more active student participation in the learning process.⁽¹⁷⁾

CONCLUSION

Contemporary pedagogical methods that place the student at the center of the learning process employ innovative and creative approaches to facilitate knowledge acquisition. This approach enhances professional competence by fostering skills, expertise, and leadership within the field. Differentiated teaching models should be effectively and appropriately integrated into dental education from the preclinical years onward, which necessitates flexibility in the educational approach.

To enhance the prevailing pragmatic perspectives in dental education, it is recommended that educators consider their students' level of knowledge and the philosophical foundations of dental education. This can be achieved by providing a more comprehensive theoretical framework for dental education, ultimately improving the student learning experience. Moreover, for the successful implementation of innovative approaches, educators need to receive regular training on contemporary educational methodologies and stay up to date with advancements in the field. Additionally, providing educators and students with access to a well-established technological infrastructure will not only enhance students' motivation toward education but also elevate the quality of education, thereby contributing to the provision of higher-standard healthcare services.

Değerlendirme / Peer-Review

İki Dış Hakem / Çift Taraflı Körleme

Etik Beyan / Ethical statement

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It is declared that during the preparation process of this study, scientific and ethical principles were followed and all the studies benefited are stated in the bibliography.

Benzerlik Taraması / Similarity scan

Yapıldı - ithenticate

Etik Bildirim / Ethical statement

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Çıkar Çatışması / Conflict of interest

Çıkar çatışması beyan edilmemiştir.

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