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Özgün Araştırma Makalesi

The Preferences of Dentistry Students in Different Academic Period On Learning Conditions

Farklı Akademik Dönemlerdeki Diş Hekimliği Öğrencilerin Öğrenme Koşulları ile İlgili Tercihleri

Ayşe Ersin

ABSTRACT

Aim: Dentistry is a professional field in which effective teaching is very important and dentistry students differ in their culture, experience, personality, and learning preferences. In these circumstances, students' preferences should be considered more and educators should try to improve conditions to meet students' learning needs.

Material and Method: To investigate the preferences of dental students regarding lecture components, exams, attendance, and professional development a survey has been sent to 190 students at the Faculty of Dentistry, Cyprus Health, and Social Sciences University via the Classroom application as of May 2020. Results were evaluated in five categories; demographic components, lecture components, exams, attendance, and professional development.

Results: The respondent rate was 66.8%. The majority of the respondents preferred 40-minutes morning lectures and multiple-choice exams and thought attendance should not be compulsory. Most students agreed that having lectures delivered through PowerPoint presentations and informing students in advance regarding the course topics make the lectures more efficient and thought practical course is necessary to consolidate knowledge after the theoretical course. Some of them agreed that homework is useful for supporting the course.

Conclusion: Changes and improvements in teaching methods and channels are now more necessary than ever, and the results of our research can shed light on these changes.

Keywords: Dental education; Prosthodontics; Student preferences; Teaching

ÖZET

Amaç: Diş hekimliği, etkili öğretimin çok önemli olduğu profesyonel bir alandır ve diş hekimliği öğrencileri kültür, deneyim, kişilik ve öğrenme tercihlerinde farklılıklar göstermektedir. Bu nedenle öğrencilerin tercihleri daha fazla dikkate alınmalı ve eğitimciler öğrencilerin öğrenme ihtiyaçlarını karşılamak için koşulları iyileştirmeye çalışmalıdır.

Gereç ve Yöntem: Diş hekimliği öğrencilerinin ders bileşenleri, sınavlar, devam ve mesleki gelişim konusundaki tercihlerini araştırmak için Mayıs 2020'de Classroom uygulaması aracılığıyla Kıbrıs Sağlık ve Sosyal Bilimler Üniversitesi Diş Hekimliği Fakültesindeki 190 öğrenciye anket gönderildi. Sonuçlar beş kategoride değerlendirildi; demografik bileşenler, ders bileşenleri, sınavlar, derslere katılım ve mesleki gelişim.

Bulgular: Geri dönüş oranı %66.8 oldu. Katılımcıların çoğunluğu 40 dakikalık sabah derslerini ve çoktan seçmeli sınavları tercih etti ve devam zorunluluğunun olmaması gerektiğini belirtti. Çoğu öğrenci, derslerin PowerPoint sunumları kullanılarak verilmesinin ve öğrencilerin ders konuları hakkında önceden bilgilendirilmesinin dersleri daha verimli hale getirdiğini ve teorik dersten sonra bilgiyi pekiştirmek için uygulamalı derslerin gerekli olduğunu kabul etti. Bir kısım öğrenci ödevin dersi desteklemek açısından yararlı olduğu konusunda hemfikirdi.

Sonuç: Öğretim araç ve yöntemlerinde değişiklik ve iyileştirmeler artık her zamankinden daha gereklidir ve araştırmamızın sonuçları bu değişikliklere ışık tutabilir.

Anahtar Kelimeler: Diş hekimliği eğitimi; Protetik diş tedavisi; Öğrenci tercihleri; Öğretim

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INTRODUCTION

Dentistry students differ in their culture, experience, personality and learning preferences. In order to increase student motivation and performance, it is an important task of educators to organize dental education in a way that meets the educational needs of all students, and to adapt teaching techniques to students' learning preferences and styles.[1,2]

Regular evaluation of teaching efficiency is necessary for the development of effective education in dentistry faculties.[3,4] Understanding the concerns of dental students might help the faculty administration modify existing programs to improve some issues or practices that have been identified as deficient.[4] The best course of action to improve the learning atmosphere may be to create a dialogue between students and faculty.[2]

The purpose of this study is to investigate the preferences of dental preclinical students about duration, timing, presentation of the lectures; notification of the course subjects and access to the course presentations before the lectures; the obligation to attend the lectures; assignments and exams and compare the students' preferences based on the age, gender, and grades as possible determinants.

MATERIAL AND METHOD

A survey containing 14 questions is prepared via Google Forms to evaluate students' preferences regarding learning conditions in prosthodontic lectures. The survey has been sent to 190 preclinical students (freshman, sophomore and junior) at the Faculty of Dentistry of the Cyprus University of Health and Social Sciences via the Classroom application as of May 2020. 127 students responded to the survey; 123 forms were accepted as valid; 4 surveys were invalid because of missing responses in major fields. The study has been approved by the Ethical Committee of Near East University at 04/23/2020 (2020/78-Project no:1020).

The survey had three parts. In the first part, information regarding the aim of the study and assurance regarding the confidentiality of the answers were given. The second part consisted of 6 demographic questions such as gender, age, nationality, academic year, grade point average ("GPA"), and cumulative grade point average ("CGPA"). And the third part covered 14 questions about preferences related to learning conditions such as; duration and timing, course presentation type, prior notification of the course subject, attendance status, benefits of homework and practical applications in terms of reinforcement, the qualities of exams and the parameters that will enable students to improve themselves.

The questions were mainly in multiple-choice formats and for some questions, there was an option of giving an open-ended answer. Most of the questions were designed to be answered on a 5-point Likert scale (1. Strongly agree 2. Agree 3. Neither agree nor disagree 4. Disagree 5. Strongly disagree).

Data were analyzed using SPSS version 20. Descriptive analyses were used to evaluate the student preferences. T-test and the chi-square test were used to compare the preferences between genders and academic years. The statistical significance level was taken as $p<0.05$.

RESULTS

The respondent rate was 66.8%.

Demographic Components

58 of the 123 participants (47.2%) were male, 65 (52.8%) were female. Out of 123 students, 48 (39.%) were freshmen, 33 (26.8%) were sophomore and 42 (34.1%) were junior. 81 of the respondents (65.9%) were Turkish, 15 (12.2%) were Cypriot and the remaining 27 students (21.9%) were from different countries (Egypt, Jordan, German, Syria, Yemen, Nigeria, Iran, Sudan, and Saudi Arabia).

The mean of the ages of the respondents was 20.8 (±1.93). The mean CGPA was 2.34 (±1.12). There was no significant difference between males and females with respect to CGPA ($P>0.05$).

Lecture Components

82 of the 123 students (66.7%) preferred 40-minutes lectures, 35 (28.5%) preferred 30-minutes lectures and 6 (4.9%) preferred 50-minutes lectures.

37 of the students (30.1%) preferred courses in time range between 9 a.m.-11 a.m. The least preferred

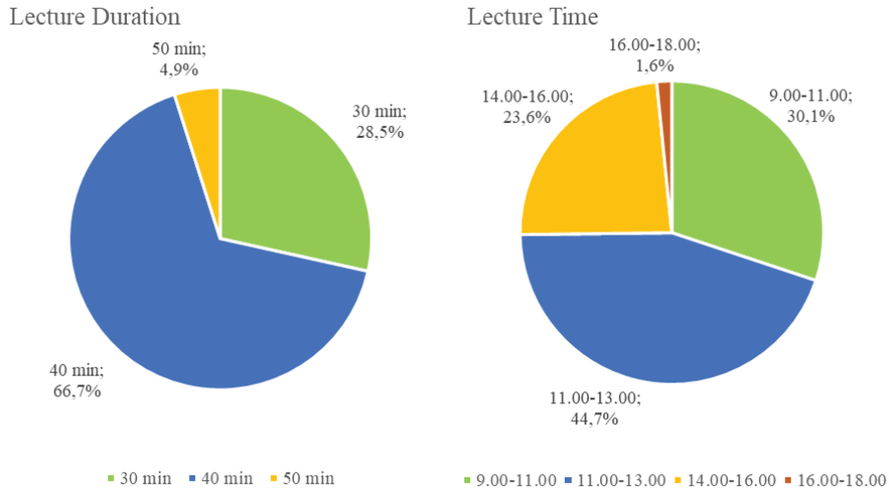

Figure 1. Lecture components 1

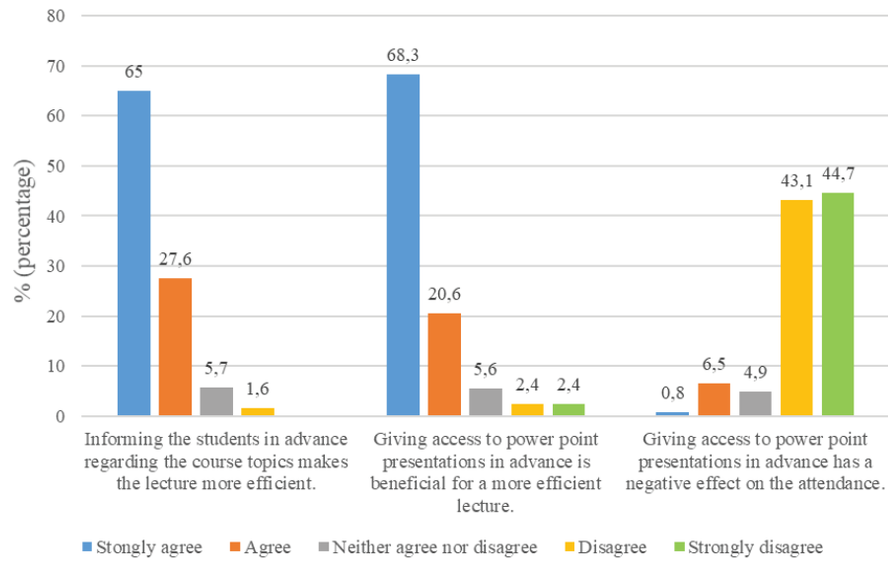

Figure 2. Lecture components 2

time interval was 4 p.m.-6 p.m. (1.6% of the students). Most of the students (74.8%) preferred morning lectures. The gender difference among the students that preferred morning lectures, (72.4% male and 76.9% female) was not significant (P>0.05). (Figure 1)

85 of the students (69.1%) preferred having lectures delivered through PowerPoint presentations and taking notes. 23 (18.7%) preferred classical oral lecture and taking notes. 15 of the respondents (12.2%) made open-ended suggestions such as using videos about the lecture with the PowerPoint presentation.

92.6% of the students agreed that informing students in advance regarding the course topics makes the lecture more efficient. Most of the students (88.9%) indicated that having access to PowerPoint presentations regarding the course topics before the course is beneficial for a more efficient lecture. (Figure 2)

Approximately half of the students (51.3%) agreed that homework is useful for supporting the course. 28.5% of them were not sure and 20.3% of them disagreed that homework supports the lectures.

113 of the students (91.8%) agreed that practical application is necessary to consolidate knowledge after the theoretical course.

Exams

88.6% of the students preferred multiple-choice tests. Only 1.6% preferred the classical open-ended tests. 8.9% of them mentioned that the mixed tests which include multiple-choice and open-ended questions or having an assignment instead of an exam would be better.

In order to study for the exam, 89.4% of the students prefer PowerPoint presentations prepared for the courses. Only two students (1.6%) preferred recommended sourcebooks. 11 (8.9%) of them made different suggestions such as watching videos, sources on the internet, or attending class to capture topics which the lecturer emphasized as important.

Attendance

The survey showed that the majority of the students (68.3%) think that attendance at lectures should not be compulsory. Significantly more male than female students (77.6% vs 60.%) indicated that lecture attendance should be optional (P<0.05). In terms of age or students' grades (CGPA), there was no statistically significant difference among the students who think the lectures should be compulsory or optional (Table 1).

87.8% of the respondents (44.7% strongly disagreed, 43.1% disagreed) indicated that students' access to PowerPoint presentations before the lecture did not have a negative effect on attendance.

Professional Development and Self-Learning

There are questions in the survey that addressed the importance of issues related to their professional development.

While 32.5% of the students agreed that the courses highly improve their skills in using information technologies (internet, office programs and professional software programs), 53.7% of them stated that the courses improve their skills at an intermediate level. 13.8% of the respondents stated that their skills are not improved at all.

The majority (84.6%) of the students indicated that they have not attended seminars, panels, conferences, and workshops for self-development. Only 15.4% stated that they have attended live or online seminars or conferences. The mean age of the respondents (mean 22, sd 3.3) who have previously attended seminars, panels, conferences, and workshops were higher than the ones who have

Table 1. Attitudes about attendance by sex, age, and grade

	Mandatory attendance	Optional attendance	
	n (%)	**n (%)**	**sig. (chi-square)**
Sex			0.05
Male	13 (22.4)	45 (76.6)	
Female	26 (40.0)	39 (60.0)	
	mean (sd)	mean (sd)	sig. (t-test)
Age	20.4 (1.35)	20.9 (2.14)	>0.05
CGPA	2.36 (1.24)	2.33 (1.07)	>0.05

Table 2. Attendance to extracurricular seminars etc. by sex, age, and grade

	Attended seminars etc.	Not Attended seminars etc.	
	n (%)	**n (%)**	**sig.(chi-square)**
Sex			
Male	13.8	86.2	> 0,05
Female	16.9	83.1	
	mean (sd)	mean (sd)	sig. (t-test)
Age	22 (3.3)	20.5 (1.46)	0.002
CGPA	2.53 (1.04)	2.31 (1.14)	> 0.05

Table 3. Benefit from laboratory or library

	Benefited from labs, library etc.	Not benefited from labs, library etc.	
	n (%)	**n (%)**	**sig.(chi-square)**
Sex			>0.05
Male	52 (89.7)	6 (10.3)	
Female	55 (84.6)	10 (15.4)	
	mean (sd)	mean (sd))	sig. (t-test)
Age	20.7 (1.4)	21.31 (4.1)	>0.05
CGPA	2.47(1.02)	1.48 (1.42)	0.015

not (p=0.002). However, there was no significant gender difference between these categories (p>0.05) and there was no significant difference between the mean CGPA of the students who have and have not attended. (Table 2)

While 87% of the students have benefited from school laboratories or library to study, 13% have not used these facilities. The mean CGPA of the students who have benefited from labs or library is higher than those who have not, which is statistically significant (p=0.015). (Table 3)

DISCUSSION

Researchers tried to discover what counts as excellence in teaching, on which there seems to be little or no consensus. However, the majority underlines that it is very important for the teacher to clarify her/his teaching objectives and evaluate the teaching approaches she/he utilizes and the teaching quality achieved. Education researchers argue that every student has a learning style and the learning process can be improved if the methods can be adapted to those styles.[1,2]

Lecture Components

In our study 66.7% of the students agree that 40-minutes for a lecture is ideal. 28.5% of them prefer 30-minutes lectures. Some researchers have noted that human attention span is limited, lasting no more than 20 minutes.[5,6] For this reason, many authors argue that a lecture session should not continue nonstop more than 10-15 minutes in order not to exceed the biological attention span limit of a student.[5,6] Long lecture periods may have a negative effect on teaching and learning quality. However, other variables such as teaching method, classroom environment and subject characteristics also affect the attention span relatively.[6]

Parolia *et al*.[7] have found in their study that the students preferred early morning classes, because they are able to concentrate better at this time of the day. In our study also most of the students (74.8%) preferred morning lectures. It is understood that there is no specific one time period when all students are most alert. It is not possible to manage the course schedule according to different preferences of each single student. However, there are some courses within the faculty that do not require total concentration and can therefore still be taught when students are not at their best. Nonetheless, it cannot be ignored that for high quality education the time of the day shall also be considered as a factor in the learning process.[8,9]

The use of course materials and organization of the lecture have been dramatically influenced by technology. In general, research indicates that students prefer PowerPoint-type presentations to traditional lectures.[2,10] Our results reveal that 69.1% of the students preferred to have their lectures delivered through PowerPoint presentation and note-taking. Unlike whiteboards and written documents, PowerPoint slides allow the educator to present the lesson content in small sections in an organized manner. Accompanying lectures with PowerPoint is a more efficient strategy instead of writing on a whiteboard and following written materials for time management. Lectures may flow better if teachers spent less time writing on a writing board. The studies conducted on the students revealed that lectures given with PowerPoint presentations increase the visual stimulation and motivation of the students. In addition, the students perceive the lectures with PowerPoint as more interesting and entertaining.[10,11] It is also reported that PowerPoint should not be viewed as a replacement for the blackboard, but rather as an efficient auxiliary medium, that can improve learning.[11]

Printed PowerPoint slides can be a good reference for students during lectures. Students will know what the teacher is talking about and what will be discussed next. Therefore, downloading PowerPoint slides before a lesson can increase students' understanding of the materials in the classroom, thus enhancing their learning. Notetaking is not an easy task for students, hence downloading PowerPoint slides before lecture can be helpful for students to get better at notetaking.[12,13] In a study, it was stated that students' access to lecture slides before the lectures increased their academic performance.[14] In current study 92.6% of our students also agree that informing students in advance regarding the course topics makes the lecture more efficient and most of our students (88.9%) think that having access to PowerPoint presentations before the course is beneficial.

Making lecture slides available online so the slides can be downloaded or printed before lectures can really increase student engagement. Also, the availability of lecture notes can reduce the incentive for students to attend the course as all information is likely to be available.[7] The results of the study conducted by Babb[13] showed that mean attendance was higher when slides were available before lecture. Similarly, in our current study 87.8% of the students indicated that students' access to power point presentations before the lecture do not have negative effect on attendance.

Throughout the history, the impact of homework on student achievement has been an active research topic and continues to be a source of controversy among educators.[15] In our study, approximately half of the students (51.3%) agreed that homework is useful for supporting the course, and 20.3% disagreed with the view that homework supports the lectures. The concept of homework has recently changed and lost its intended purpose. Mostly, homework turned into a tool for grades and students do not clearly understand the purpose of the homework[16]. The study conducted by Deveci[16] suggested that a new approach should be taken towards learning with a shift from "homework" to "home-learning". The results of that study revealed that beside students' concerns about homework in line with their general enthusiasm for learning, the students also reported more positive views about home learning concept as long as it was adjusted to student needs, interests and learning styles.

Pre-clinical prosthetic dentistry is taught in the first three years of education to support the development of competence and expertise.[17] Students spend most of their time in the laboratory doing preclinical exercises without patient contact.[17] Prosthetic education is one of the most comprehensive components of the dentistry curriculum. Therefore, it is very important to gain proficiency in prosthetics.[18] Preclinical demonstration after theoretical lectures is preferred to enable the students to associate the procedures to the lectures.[7] Perrin[19] claimed that the lecture is only considered important in providing the introduction and the practical tutorials provide the confirmation of understanding. In our study 113 of the students (91.8%) also agree that practical application is necessary to consolidate knowledge after the theoretical course.

Exam

Assessment is a necessary part of academic studies on all levels.[20] The effectiveness of any assessment strategy depends on how well it matches individual students' learning styles.[21] An in-class, closed-book exam is the traditional assessment method.[20] The closed book format encourages recall-type learning rather than practice-oriented learning. The main argument against this type of learning is recall-type learning can be easily forgotten by students.[22] Multiple-choice tests are also frequently used. They are also recall-type assessments and may not be suitable for advanced classes where students need to identify problems, predict, form hypotheses, experiment, analyze, conclude, and have the ability to think reflectively.[20,22] On the other hand, the foremost characteristic of the open-book examination is defined as the creative use of the course-acquired knowledge.[22] In the current study the majority of the students prefer multiple-choice test. Advanced skills can preferably be tested with open-ended questions that are not facilitated by in-class exams, requiring plenty of time to answer.[22]

In recent years dramatic events such as the overcrowding of the universities and the necessity of distant education have changed the foundation of higher education.[19,20] The new conditions forced the universities to make extensive reorganizations

in every aspect of education, exam practice is one of these areas.[20] Take-home exams can be the preferred assessment method in higher education as they develop deeper thinking skills and allow time for reflection.[20] Some of the participants in our study stated as an open-ended choice that they preferred preparing homework instead of exams.

Attendance

In our study it is found that the majority of the students (68.3%) think the attendance to the lectures should not be mandatory, more male students stated that the courses should not be mandatory. Results from the study conducted by Halperin[23] indicate that while attendance does have a positive impact on academic achievement, the impact is only moderate that it is probably not worthwhile for universities to enforce strict attendance policies. However, teaching professionals must ensure that students are aware of the impact of attendance on academic achievement.[24] In the current study, there was no statistically significant difference between students who think that courses should be compulsory or elective in terms of students' grades. Some authors think that absenteeism has a direct negative impact on learning, but the solution to the problem of academic absenteeism is not to make attendance compulsory, but to encourage students to attend classes by improving the quality of teaching in terms of both content and form.[13,25]

Professors who provide notes to the students prior the lectures will likely make students happier and make them feel that they understand the material better, thus may encourage them also to attend classes.[13] In the light of many studies, it is generally accepted that attendance should be encouraged in order for students to be successful in university courses.[24,25,26]

Professional Development and Self-Learning

The application of digital technologies to the dental curriculum has recently become a global trend.[27] Continuously adapting to technological developments and integrating these developments into dental education is a major challenge.[27] Digitalization offers unique opportunities for future dentists in dental education in terms of practice. The use of virtual reality in preclinical dental education has been considered recently. A recent review highlighted the need for a better evidence base for the use of virtual reality in dental education.[28] While undergraduate students learn about traditional treatment strategies and processes, they also need to be prepared for digital dentistry.[27] In our study while 32.5% of the students indicated that the courses improved their skills in using information technologies (internet, office programs and professional software programs), 53.7% of the students stated that they improved their IT skills at intermediate level. 13.8% stated that they did not develop at all. It is clear that we need to improve ourselves institutionally in this regard.

In our study only 15.4% of the students stated that they have attended live or online seminars or conferences. The mean age of the respondents who have previously attended seminars was significantly higher than the ones who have not. This may indicate that as the professional knowledge of dental students increases, their desire to participate in seminars, panels, conferences, and workshops for the purposes of their self-learning also increases. Knowledge acquisition through seminars constitutes an important part of training programs. Seminars, webinars can support learning and enhance students' theoretical knowledge.

The factors such as laboratory equipment, clinical facilities, library resources, have direct as well as indirect effect on the students' progress and achievements.[29] The schools which allocate sufficient finances for these resources have observed better results in relation to the students' performance.[29] Our study shows that 87% of the students have benefited from school laboratories or library as study spaces. Only 13% have not used these facilities. The mean of CGPA of those who have benefited from labs or library was significantly higher than those who have not.

The coronavirus pandemic (Covid-19) resulted in significant changes in education system. Many dental education institutions all over the world had to be closed for a long while and the need for alternative learning channels became crucial. It is now inevitable for dental faculties and educators to adapt their mindsets to digitization. In order to transfer applied and theoretical knowledge, instructors should be

trained on e-learning and e-teaching, and faculty administrations should take the necessary steps in this direction.[30]

CONCLUSION

Dental education can be differentiated to keep up with the changing world. Students' learning preferences must definitely be considered for effective restructuring of teaching practices and education.

Dentistry education has a loaded content. Professional classes should be held in the morning when the student is more productive, and the duration of the course should not exceed 40 minutes. Presenting the lectures in the form of PowerPoint presentations and providing prior access to PowerPoint presentations about the lecture topics and notes are helpful in terms of making the lessons more interesting and more beneficial for the students. Practical application immediately after the lecture is useful to consolidate knowledge.

Mandatory attendance does not make lectures productive; lectures must be engaging and interactive to increase participation and interest.

Although students prefer multiple choice exam questions, reasoning questions in professional fields such as dentistry are more suitable for internalizing and measuring knowledge, especially for advanced classes where students need to identify problems, predict, form hypotheses, experiment, analyze, conclude, and have the ability to think reflectively.

Students should be encouraged to participate in activities such as seminars, workshops, panels, congresses for professional development. Student's professional self-development is important and both the students and trainers should be supported in acquiring these skills and awareness.

We are now living in a world of technology and information. Current developments, especially due to the effects of the recent Covid-19 pandemic, show that traditional teaching techniques are not sufficient, or in some cases not even applicable, anymore. Thus, changes and developments in teaching methods and channels are now crucially required, more than ever.

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