

Dental Students' Perceptions on Restorative Dentistry Education in Shahid Beheshti Dental School

¹Ahmad Najafi ^{*2}Zahra Jaber Ansari ³Mohammad Naseri

¹Member of Staff, Dept. of Restorative Dentistry, School of Dentistry, Shahid Beheshti University of Medical Sciences, Tehran, Iran.

^{*2}Associate Professor, Dept. of Restorative Dentistry, School of Dentistry, Shahid Beheshti University of Medical Sciences, Tehran, Iran. E-mail: zahrajaberiansari@yahoo.com

³General Practitioner.

Abstract

Objective: Numerous studies have emphasized on the importance of developing an ideal educational system for high-quality dental education. The present study sought to assess the perception of dental students on operative dentistry education in Department of Restorative Dentistry, Shahid Beheshti Dental School, Tehran, Iran.

Methods: In this descriptive cross-sectional study, 220 students were selected and given a questionnaire including demographic, grades in operative dentistry clinical and didactic courses, the efficacy of preclinical courses in preparing students for clinical practice, ways to improve competency and expertise of students for clinical setting, student's opinion on relating the assessment tests with the taught topics, required instructional resources for assessment of students' proficiency in restorative dentistry and satisfaction rate of students with clinical courses offered in the current curriculum. Data were analyzed using descriptive statistics (SPSS 18).

Results: The Clinical Operative Dentistry 3 and Preclinical Dental Anatomy received a mean satisfaction score of 3.31 and 2.74, respectively. Furthermore, 57.3% of students highly emphasized the necessity of studying textbooks of restorative dentistry. 50.5% of students believe that lectures by instructors along with active participation of students were the best method for didactic operative dentistry courses. In addition, 60.5% were in favor of using a combination of textbooks, lectures, and class notes for the assessment of students' learning.

Conclusion: The present study revealed that Department of Restorative Dentistry in Shahid Beheshti Dental School is successful in its teaching and achieving students' satisfaction. However, some revisions need to be made in educational methods and contents and active participation of students in class discussions should be encouraged as well.

Key words: Dental curriculum, Dental students, Evaluation, Restorative dentistry.

Please cite this article as:

Najafi A, Jaber Ansari Z, Naseri M. Dental Students' Perceptions on Restorative Dentistry Education in Shahid Beheshti Dental School. *J Dent Sch* 2014; 32(3): 159-166.

Received: 09.10.2013

Final Revision: 03.05.2014

Accepted: 20.05.2014

Introduction:

Physicians and dentists play a critical role in health care system. It is important to assess whether the medical and dental education system are capable of teaching students the required proficiency in their respective fields. The routine assessment of the efficacy of dental education is important to improve faculties, departments, and institutions. The efficacy of education can be determined by observing the extent to which the provided instruction fulfills its intended purposes and objectives (1). Dental science is

growing fast and it is important to familiarize dental students with the new advancements in the field. Dental educators face a challenge to improve student satisfaction with the learning environment all over the world. Operative dentistry education is a significant part of dental science and dental students have to learn the principles of conservative dentistry, reconstruct the lost tooth structure, and restore function, speech and esthetics. Increased prevalence of caries among different age groups, high DMFT index, new dietary habits and tendency towards the use of cariogenic foods in Iran further signify

the importance of operative dentistry (2). However, there seems to be a gap between the dental students' education and the expected proficiency in the field. Current operative dentistry courses in Shahid Beheshti Dental School are lecture-based, teacher-led, and offered in 3 didactic and 4 clinical mandatory courses. In didactic courses, fundamentals of operative dentistry are discussed and taught whereas the clinical courses provide a dedicated period of clinical contact with patients. Learning activities include case-based learning, clinical skills workshops, and supervised patient care. Students are also provided with textbooks, audio-video educational tapes, practical programs, workshops and continuing education courses. However, these techniques appear not to be sufficient to achieve the expected knowledge, attitude and performance in clinicians. For instance, there is no guarantee that dental graduates can do well later in the clinical setting despite obtaining high grades. Dental curriculum should encourage collaborative and interactive learning among students to raise competent and caring dentists (3). The majority of previous studies assessing dental school curricula (4-6) have addressed organization, structure, and content of courses from the perspective of administrators and faculty members. Only a few studies (7,8) have focused on students' opinions about the received dental education. This lack of input from dental students is striking since there is a widely held belief that students are mostly dissatisfied with their dental school experience, mainly because of the stressful learning environment (9). According to Bertolami (2001), the fact that dental students generally do not like dental school is a big tip-off indicating the need for revision of dental curricula (10). However, not much empirical documentation is available in this respect. Finding concern areas from the dental students' viewpoints can provide a road map for the

administrators and dental educators and can greatly help in the improvement of dental curriculum (7). Students are the "consumers" of dental education and are considered a valuable asset for providing feedback regarding the quality and efficacy of dental instruction (11,12). Considering the high value of students' opinions about the quality of dental education as determinants of teaching effectiveness and since student ratings in this respect can provide a feedback mechanism for continuous improvement (13-15), the present study was conducted to assess the perceptions of dental students on operative dentistry education in Shahid Beheshti Dental School 2011-2012.

Methods:

This descriptive cross-sectional study was conducted on 220 dental students in Shahid Beheshti Dental School, Tehran during 2011-2012. List of students who passed the relevant basic science (Dental Anatomy 1 and 2) and Operative Dentistry courses was obtained from the Students Affairs Office of Dental School. The list comprised 254 students; out of which, 220 were accessible and participated in this study. All understudy students had received the same method of instruction in terms of content, hours and the instructing professors. Informatory sessions were held for students prior to giving the questionnaires. The study design was approved by the Research and Ethics committees of Shahid Beheshti University of Medical Sciences. Moreover, the study proposal was thoroughly evaluated in the EDO council of the university and its shortcomings were eliminated. A questionnaire was specifically designed for this purpose following brainstorming of the EDO council members, the supervisor of the project, the consulting professor (also member of the EDO council), 4 restorative dentistry specialists (faculty members) and 2 senior residents of restorative dentistry and

administered among students. The internal validity was ensured taking into account the followings: (a) due to the short period of study, neither the coincidence nor the maturation factors had no effect on the results; (b) since retesting was not required, the testing factor had no significant effect on the results either; (c) the instrumentation factor was minimized by ensuring high accuracy of the examiners; (d) differential selection of subjects also had a minimal effect on the results due to adequate sample size and no grouping. The external validity was ensured taking into account the followings: (a) the pretest-treatment interaction had no effect on the results since it was a single-phase study; (b) differential selection of subject had no effect either due to the absence of mortality factor; (c) the specification of variables and the reactive arrangement in experimental condition had no effect since it was not an *in-vitro* study; (d) multiple treatment interference had no effect either since it was a descriptive and not an etiologic study. Subjects were asked to only answer the questions about the courses they had passed. Answers to questions for which the student had not passed the related course were excluded from the statistical analysis. Students were reassured about the confidentiality of information and filled out the questionnaire anonymously. The questionnaire included demographic characteristics and background, e.g., gender, age, university entrance year, and semester. The second part of the questionnaire includes questions on student's GPA in the previous semester, scores obtained by the student in Dental Anatomy, and also didactic and clinical courses of Operative Dentistry, student's opinion regarding the order, structure and content of offered courses relevant to Restorative Dentistry, the efficacy of preclinical courses in preparing students for clinical practice on patients, the adequacy of duration and number of demonstrations offered throughout the courses, the adequacy of

graduation requirements in clinical courses of Operative Dentistry (required number of patients), student's perspectives and viewpoints regarding didactic courses, the need and necessity of studying Restorative Dentistry textbooks, ways to improve preparedness of students for clinical practice on patients, ways to improve competency and expertise of students for clinical setting, student's opinion on relating the assessment tests with the taught topics, required instructional resources for assessment of students' proficiency in Restorative Dentistry and satisfaction rate of students with clinical courses offered in the current curriculum. Student satisfaction with the offered courses was assessed with a five-point scale (very little, little, moderate, high, very high). Very little was given a score of 1 and very high was allocated a score of 5. The means of obtained scores were used for statistical analysis.

Based on the objectives of the study, descriptive statistics were applied. Considering the qualitative nature of variables and questions of the questionnaire, the frequency and percentage were used to sum up the results. SPSS 18 was used for data entry and drawing tables. For five-point scale questions, the mean of the obtained scores was used and answers to multiple-choice questions were reported as absolute and relative frequency (number and percentage).

Results:

A total of 220 dental students with the response rate of 86.6% participated in the present study. There were 122 females (55.5%) and 98 males (44.5%). The mean age of students was 22.35 ± 2.33 years (range 20-40 years.). Of students, 33(15.0%) were studying in fifth semester, 39(17.7%) in sixth semester, 33(15%) in seventh semester, 25(11.4%) in eighth semester, 29(13.2%) in ninth semester, 29 (13.2%) in tenth semester, 22(10%) in eleventh semester and 10(4.5%) in twelfth semester. The mean GPA

score of students for the previous semester was 16.26 ± 1.25 out of 20 (range 15.5-19.5). The majority of students were satisfied with the current order of operative dentistry courses in the curriculum and 85.9%, 89.5%, 84%, 79.1%, 78.9%, 77%, 89.6%, 82% and 71.9% of students were satisfied with didactic Dental Anatomy,

Preclinical Dental Anatomy, didactic Operative Dentistry 1, 2 and 3, and Clinical Operative Dentistry 1, 2, 3 and 4, respectively. Furthermore, student satisfaction with the methods and also content of Operative Dentistry education is demonstrated in Diagrams 1 and 2, respectively.

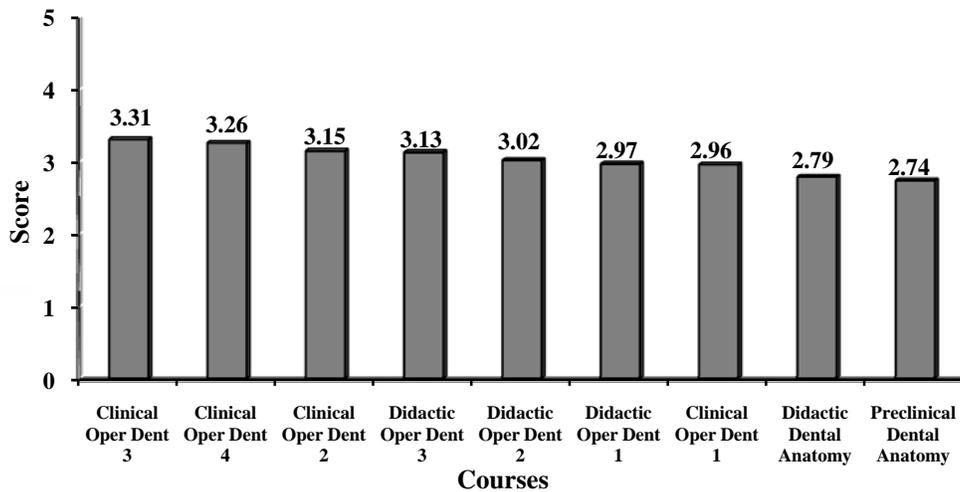


Diagram 1- The mean satisfaction score given by students to the Operative Dentistry courses regarding the methods

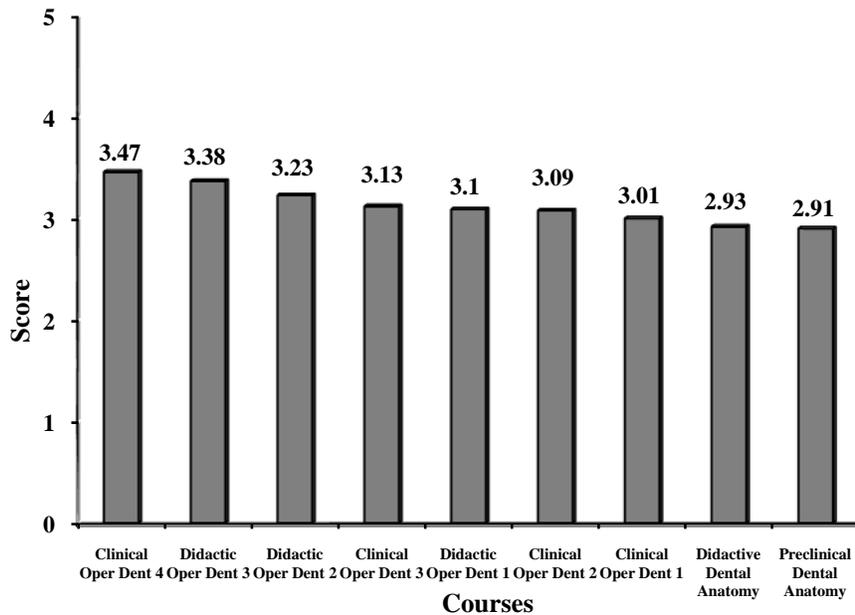


Diagram 2- The mean satisfaction score given by students to the Operative Dentistry courses regarding the educational content

Moreover, a total of 126 students (57.3%) highly emphasized on the necessity of studying operative dentistry textbooks during their dental education; 39.5% ($n=87$) of students gave a moderate score to the effectiveness of preclinical courses on expertise and preparedness of students for clinical work; 40% of students ($n=88$) also gave a moderate score to the adequacy of allocated time and number of demonstrations offered in clinical courses and 63 students (42.6%) allocated a moderate score to the adequacy of requirements in clinical courses of Operative Dentistry. The mean score given by students to questions about the necessity of studying textbooks, effectiveness of preclinical courses for their clinical proficiency and skills, number and duration of demonstrations and adequacy of requirements was 3.77, 2.90, 2.60 and 2.59 out of 5, respectively. In general, 50.5% of students ($n=111$) believed that lecture by instructors with active participation of students was the best method of

instruction for didactic courses. Two subjects (0.9%) chose lectures by students, 36 (16.4%) chose review of textbooks, 42 (19.1%) chose lecture by instructors and the remainder selected a combination of all as the best method of education. A total of 175 subjects (79.5%) stated that working on mounted natural teeth further prepares the students for dental practice on actual patients, 19 (8.6%) preferred working on teeth made of chalk, another 19 (8.6%) chose practicing on acrylic teeth, 5 (2.3%) preferred working with mounted natural teeth plus acrylic teeth and 2 (0.9%) selected all three for further preparedness for clinical practice on patients. When questioned about the methods to increase preparedness and proficiency for clinical practice, 71(32.3%) students selected direct observation, 5(2.3%) chose watching an educational tape, 12 (5.5%) selected watching a software program and 132 (60.0%) chose a combination of these methods.

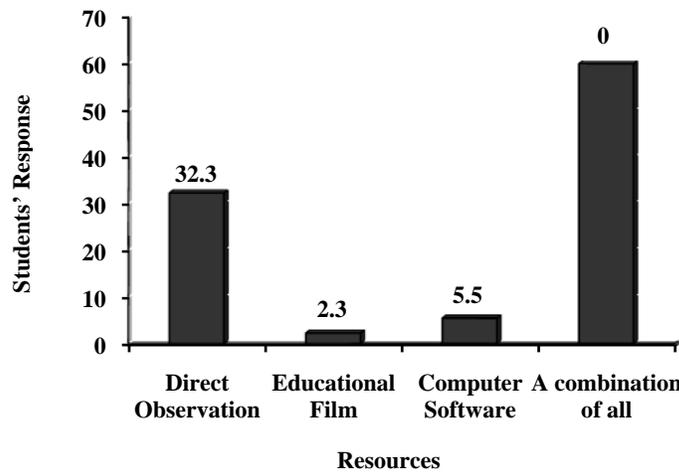


Diagram 3- Relative frequency distribution of students' response in terms of methods to improve preparedness and proficiency for clinical dental practice

Subsequently, 98 students (44.5%) admitted the relevance of learning assessment tests and taught topics; while, 122 (55.5%) stated otherwise. Overall, 18.6% ($n=41$) believed that study of textbooks was necessary for preparation for learning assessment tests, 3.2% ($n=7$) stated

lectures by instructors, 14.5% believed ($n=32$) class notes, 7 mentioned textbooks plus lectures by instructors and 133 (60.5%) chose all three to be essential to prepare for learning assessment tests.

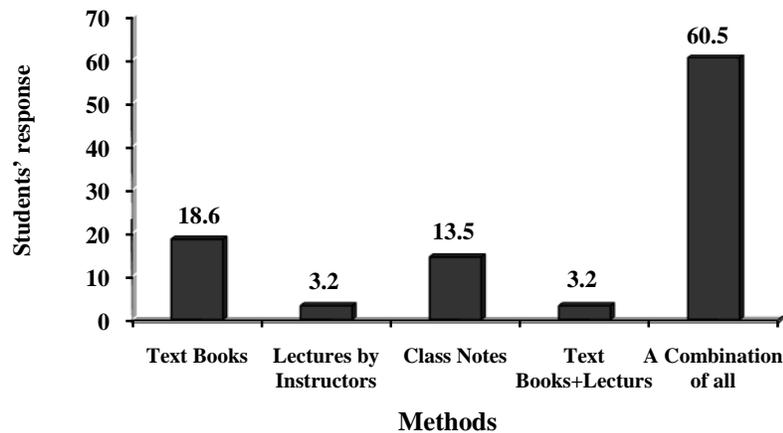


Diagram 4- Relative frequency distribution of students' response regarding the necessity of using different resources to prepare for learning assessment tests in Restorative Dentistry

Discussion:

At present, dental schools worldwide face a challenge in designing and implementation of patient-centered, comprehensive dental care curricula to make sure that students gain adequate experience in patient care required for general practice (4). Viewpoints and perspectives of dental students regarding the content, structure, and quality of their dental education are an essential part of a broad-based evaluation of dental curriculum and also an important source of data for making decisions and setting policies for ultimate development of the current curriculum.

The American Dental Education Association collects the opinions of senior students and fresh graduates about the curricular content (e.g., too much, too little, about right) every year and communicates this information to dental schools. However, the mentioned reports do not provide qualitative information (i.e. perception of students about their learning experience) to help curricular policy making (7). Currently, various teaching methods are used in dental schools all around the world. Therefore, obtaining a better understanding of students' viewpoints regarding these methodologies would be beneficial for

professors and institutions (1,15). The assessment of a curriculum is essential for validation of outcomes, and since curricula never remain static, their continuous quality control and monitoring are of great importance for their ongoing improvement (5). Most dental school curricula are based on an educational delivery model which is at least fifty years old (6) and therefore, it is in need of major revision. Similar to many other countries, some revisions were made in dental curricula in Iranian dental schools.

Considering the importance of assessment of dental education, the present study sought to assess dental students' viewpoints regarding the quality of dental education offered in Department of Restorative Dentistry in Shahid Beheshti Dental School, Tehran. The majority of students were satisfied with the order of courses in dental curricula of Department of Restorative Dentistry and thus, no revision or modification seems necessary in this respect. Level of satisfaction of students with the method of instruction and educational content of courses was moderate; whereas Shetty *et al*, in their study assessed the learning experience of dental graduates in India and found that more than 95% of them were satisfied with the program;

however, some areas of concern were detected that needed to be addressed (15). In addition, Stewart, *et al.* (1990) demonstrated that dental graduates of Melbourne University gave the highest priority to dental anatomy courses (16).

Rafeek, *et al.* (2004) evaluated the self-rated competency of dental graduates of University of the West Indies and their overall preparedness for practice. Graduates rated their overall preparedness for practice as 3.27 in a 5-point scale (5). In our study, 55.5% of students believed that the tests did not match the taught topics while 44.5% stated otherwise. This finding emphasizes the important role of educators in better conduction of tests that match the taught topics.

The present study showed that a considerable number of students admitted that studying Restorative Dentistry textbooks are highly necessary (57.3%). A high percentage of students believed that lectures by instructors with active participation of students are the best method for didactic courses (50.5%), 0.9% preferred student lectures, 16.4% preferred review of textbooks, 19.1% selected lectures by instructors and the remainder chose a combination of all methods as the best way of instruction. In Parolia *et al.* (2012) study, the majority of students reported that they preferred lectures assisted with slide presentations by computers and chalkboard (1). The majority of students in our study preferred lecture by instructors associated with active participation of students; which is noteworthy.

In order gain insight for new clinical instructors and better understand the learning environment in dental schools, Henzi *et al.* (2006) evaluated the perception of dental students of their learning experience and assessed the effectiveness of clinical instruction from the perspective of students. In their study, most students rated their interaction with the clinical instructors as favorable; which is in accord with our study but the clinical learning opportunities

gained lower ratings due to the lack of opportunity to treat actual patients in different clinical settings (17).

Ali, *et al.* (2012) evaluated the perception of students of the educational environment in five dental schools in Pakistan and found the main concerns of students to be related to teaching methodology and attitudes of teachers (18) while in our study, students were relatively satisfied with the teaching system in the restorative department. However, they used the DREEM (Dundee Ready Educational Environment Measure) questionnaire for the curricula; while we used a questionnaire designed by the authors; which may be considered a limitation of this study.

Overall, this study indicates the need for proper programming to increase student satisfaction with the method and content of instruction, relate the tests with the taught topics, increase the number of graduation requirements (number of patients treated by the students in each course) with the supervision of mentors and encourage students to participate in class discussions and lectures.

This study evaluated the quality of instruction in Department of Restorative Dentistry alone and it is imperative to evaluate other departments as well. Course evaluations are useful for identification of strength and weakness points of the respective course. This can be done by further research to achieve students' overall perceptions on the entire dental curricula. However, this way the negative viewpoints with unforeseen impacts on performance satisfaction with the profession of students may go undetected despite individual assessment of each course.

Conclusion:

Within the limitation of this study, it was shown that Department of Restorative Dentistry at Shahid Beheshti Dental School was relatively

efficient in dental education and dental students were moderately satisfied with the didactic and clinical courses. However, this department needs to progressively improve the methods and

contents and students should also be encouraged to actively participate in class lectures.

Conflict of Interest: “None Declared”

References:

1. Parolia A, Mohan M, Kundabala M, Shenoy R. Indian dental students' preferences regarding lecture courses. *J Dent Educ* 2012; 76: 366-371.
2. Pakshir HR. Dental education and dentistry system in Iran. *Med Princ Pract* 2003; 12 Suppl 1: 56-60.
3. Yiu CK, McGrath C, Bridges S, Corbet EF, Botelho M, Dyson J, *et al.* Graduates' perceived preparedness for dental practice from PBL and traditional curricula. *J Dent Educ* 2011; 75: 1270-1279.
4. Holmes DC, Boston DW, Budenz AW, Licari FW. Clinical curriculum for the twenty-first century. *J Dent Educ* 2003; 67: 1299-1301.
5. Rafeek RN, Marchan SM, Naidu RS, Carotte PV. Perceived competency at graduation among dental alumni of the University of the West Indies. *J Dent Educ* 2004; 68: 81-88.
6. Pyle M, Andrieu SC, Chadwick DG, Chmar JE, Cole JR, George MC, *et al.* The case for change in dental education. *J Dent Educ* 2006; 70:921-924.
7. Henzi D, Davis E, Jasinevicius R, Hendricson W, Cintron L, Isaacs M. Appraisal of the dental school learning environment: the students' view. *J Dent Educ* 2005; 69: 1137-1147.
8. Greenwood LF, Lewis DW, Burgess RC. How competent do our graduates feel? *J Dent Educ* 1998; 62: 307-313.
9. Davis EL, Tedesco LA, Meier ST. Dental student stress, burnout, and memory. *J Dent Educ* 1989; 59: 193-195.
10. Bertolami CN. Rationalizing the dental curriculum in light of current disease prevalence and patient demand for treatment: form vs. content. *J Dent Educ* 2001; 65: 725-735.
11. Davidovitch N, Soen D. Using students' assessments to improve instructors' quality of teaching. *J Further Higher Educ* 2006; 30: 351-376.
12. Victoroff KZ, Hogan S. Students' perceptions of effective learning experiences in dental school: a qualitative study using a critical incident technique. *J Dent Educ* 2006; 70: 124-132.
13. Abrami PC, d'Apollonia S, Rosenfield S. The dimensionality of student ratings of instruction: What we know and what we do not. *The scholarship of teaching and learning in higher education: An evidence-based perspective.* Springer Netherlands 2007: 385-456.
14. Theall M, Franklin J. Looking for bias in all the wrong places: a search for truth or a witch hunt in student ratings of instruction? *New Dir Instit Res* 2001; 109: 45-56.
15. Shetty VB, Shirahatti RV, Pawar P. Students' perceptions of their education on graduation from a dental school in India. *J Dent Educ* 2012; 76: 1520-1526.
16. Stewart BL, Macmillan CH, Ralph WJ. Survey of dental practice/dental education in Victoria. Part III. Trends in general dental practice. *Aust Dent J* 1990; 35: 169-180.
17. Henzi D, Davis E, Jasinevicius R, Hendricson W. North American dental students' perspectives about their clinical education. *J Dent Educ* 2006; 70: 361-377.
18. Ali K, Raja M, Watson G, Coombes L, Heffernan E. The dental school learning milieu: students' perceptions at five academic dental institutions in Pakistan. *J Dent Educ* 2012; 76: 487-494.