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RESEARCH ARTICLE

Perception of the Learning Environment among Fifth-Year Students of the Faculty of Dental Medicine of Casablanca

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ABSTRACT

Introduction: **The "learning environment" (LE) concept generally refers to educational climate and university culture. It is an intrinsically complex phenomenon. It has various connotations (physical, social, cultural, emotional, and intellectual). In addition to influencing student behavior, the learning environment can predict their academic success, satisfaction, and success.**

Objective: **This work aimed to evaluate the students' perception of the learning environment within the Fixed Prosthodontics department of Casablanca and to collect their suggestions for improving this learning environment.**

Materials and Method: **A mixed epidemiological study was conducted with 5th-year students of the Faculty of Dental Medicine of Casablanca. The learning environment was assessed across the Dundee Ready Education Environment Measure (DREEM) for the quantitative part of the study and through focus groups for the qualitative part.**

Results: **The population studied comprised 58.5% female students with an average age of 22 years ± 0.856. According to the charter interpretation of DREEM scores, learning domains, teaching, and atmosphere present many problems. Their respective scores were 27.4 ± 6.32, 25.7 ± 5.5 and 25.6 ± 6.88. The areas of academic competence and social life received high scores. The students made suggestions for improvement in each field.**

Discussion and Conclusion: **The students' perception of their learning environment is an essential source of information for improving problem areas and enhancing the learning experience of students in terms of academic performance, overall health, well-being, quality of life, and future professional development.**

Keywords: Dental education, dental students, learning environment, students' perception.

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1. Introduction

The "Learning Environment" (LE) concept generally refers to the educational climate and university culture. It is a phenomenon intrinsically complex. It has various connotations (physical, social, cultural, emotional, and intellectual; Tackett *et al*., 2017).

In addition to influencing student behavior, the Learning Environment can predict their academic success and satisfaction. Studying students' perspectives on their environment learning can be mainly justified from the four following perspectives:

1. As a method of providing formative and constructive feedback on educational practices,
2. As a quality insurance,
3. Concerning student engagement and reflection on the process of learning,
4. In terms of democratic participation, student empowerment, and a vision of students as critical actors in learning (Subramanian *et al*., 2013).

Medical and dental education studies agree that student feedback on their learning environment is essential and

constitutes a valuable data source for further development of educational practices, environment learning, and programs (Field *et al*., 2017).

The International Working Group on Dental Education has described the characteristics of a positive academic environment and recommended paying attention to the workload, relationships between staff and students, constructive feedback, learning approaches, interactive activities, participation in extracurricular activities, counseling services, and psychological support (Divaris *et al*., 2008). It is recommended that dental institutions actively strive to balance academic training requirements and clinical ones with the students' need for personal well-being and quality of reasonable lives.

The literature contrasts widely with the characteristics of the ideal learning environment proposed above (Henzi *et al*., 2005). Stress and other associated psychological health problems have primarily been a dominant, constant, and central theme in students' perception of their learning environment. There is reasonable consensus that teaching dental medicine (undergraduate or graduate) is perceived as challenging, psychologically stressful, and emotionally draining for students.

Key themes highlighted by students as positive aspects of the learning environment include:

- More clinical experience opportunities and adequate availability of patients,
- Emphasis on the effective use of techniques, technologies, and modern apps,
- Adequate staff to ensure supervision,
- The importance of learning versus an emphasis on performance/grades, emphasis on the actual clinical needs of the patient versus formal clinical requirements, and a system fair patient assignment,
- External rotations in the "real world" and clinic community,
- An organized environment with helpful support staff (FitzGerald *et al*., 2008; Henzi *et al*., 2007; Victoroff & Hogan, 2006).

Unlike American countries, the educational environment has not received attention in Moroccan educational research in medicine and dentistry. This could be -at least in part- due to a lack of precedent of appropriate standardized measurement tools in French.

This work aimed to evaluate the students' perception of the learning environment within the Fixed Prosthesis department of the CCTD of Casablanca and to collect their suggestions for improving this learning environment.

2. Method

To achieve our objective, we opted for a quantitative transversal descriptive study supplemented by a qualitative study using focus groups. The investigation was carried out at the Faculty of Dental Medicine of Casablanca, within the Fixed Prosthesis department of the Dental Consultation and Treatment Center of Casablanca. Our investigation lasted 5 months, from October 2022 to February 2023. The quantitative study was carried out among all students in the 5th year of the Faculty of Dental Medicine of Casablanca during the academic year 2022–2023.

2.1. Participants

The administration provided a student list. For the qualitative study, the sample comprised 5 groups of 4 participants each, totaling 20 students. The participants were chosen by lot. In case of unavailability of the students drawn at random, a second draw was made. Included in this study were all students in the 5th year of the 2022–2023 academic year of the Faculty of Dental Medicine of Casablanca. Students who refused to participate and interns from the 2023 class were excluded from this study. For the qualitative part, students forming a pair within the service Fixed Prosthesis were excluded.

2.2. Measures

We used Dundee Ready Education Environmental Measurement (DREEM) for data collection. This questionnaire was developed and validated by Roff *et al*. (1997) and consists of 50 items grouped into 5 areas:

1. **Learning Domain:** Students' perception of their learning. This domain includes items 1, 7, 13, 16, 20, 22, 24, 25, 38, 44, 47 and 48, totaling 12 questions.
2. **Teaching Domain:** Students' perception of their teaching. This domain includes items 2, 6, 8, 9, 18, 29, 32, 37, 39, 40 and 50, totaling 11 questions.
3. **Academic Competence Domain:** Students' perception of their level of skills to face their future professional life. This domain includes items 5, 10, 21, 26, 27, 31, 41 and 45, totaling 8 questions.
4. **Atmosphere Domain:** Students' perceptions of the atmosphere within the Fixed Prosthesis service. This domain includes items 11, 12, 17, 23, 30, 33, 34, 35, 36, 42, 43 and 45 or 12 questions.
5. **Social Life Domain:** Students' perceptions of their social life. This domain includes items 3, 4, 14, 15, 19, 28 and 46, totaling 7 questions.

Each item is rated using a five-level Likert scale (Total agreement: 4, partial agreement: 3, no opinion: 2, partial disagreement: 1, total disagreement: 0). Most items are under form of positive statements, but for items expressed in negative form (items 4, 8, 9, 17, 25, 35, 39, 48 and 50), there is an inversion of the scores. An item is considered a weak point if its score is lower than 2. On the other hand, it is considered a strong point if its score is higher than 3.

Regarding different domains, scores can vary from 0 to 48 for the domain of Learning, from 0 to 44 for the domain of Teaching, from 0 to 32 for the area of Academic Competence, from 0 to 48 for the Atmosphere domain, and 0 to 28 for the Social Life domain. The different domains do not all contain the same number of items, so their maximum score is different. If we wanted to compare them to each other, it was essential to bring back to a percentage of points obtained in relation to the maximum domain score. From 0% to 25%, the domain is considered bad. From 26% to 50%, it presents many problems; from 51% to 75%, the domain is relatively positive; above 76%, it is excellent.

The DREEM results can, therefore, be interpreted at three levels: the score of each item, the score of each domain, or the overall score (the sum of the results of the 50 items). About the overall DREEM score, the proposed interpretation is as follows:

- 0 ≤ DREEM score ≤ 50: the educational climate is very poor,
- 51 ≤ DREEM score ≤ 100: many problems are present,
- 101 ≤ DREEM score ≤ 150: the climate is relatively positive,
- 151 ≤ DREEM score ≤ 200: the climate is excellent.

Regarding the quantitative study, a pre-survey was conducted with a random sample comprising ten students. This exploratory and preparatory phase allowed us to check the clarity and coherence of the questionnaire. Data from this pre-survey were not included in the data analysis of the investigation itself. The complete questionnaire was re-arranged by reordering the questions.

2.3. Development of the Interview Guide and Pilot Interview

In our guide, we have organized the questions according to the technique of hourglass (or funnel): from the most general question (simple) to the most precise question (complicated). Each part of the guide ended with suggestions for improvement from the person interviewed. A pilot interview allowed us to modify the guide to be well-adapted, understandable, and not included.

2.4. Conducting Interviews

The interviews were conducted remotely from 01/01/2023 to 02/02/2023, using Google Meet to organize video conference meetings. Before starting the interview, participants verbally expressed their consent to indicate their agreement to participate and authorize the interview recording, which was done by screen recording. Five interviews were included in our study and lasted between 40 and 70 minutes each. The respondent could express themselves with complete freedom, knowing that the recordings respected their confidentiality and anonymity.

The interviews were transcribed in their entirety, word by word, in verbatim form, using Microsoft Word software. Participants' names were deleted to respect their confidentiality. The non-verbal expressions (such as smiles, pauses, and hesitations) were also noted. It is essential to mention that the transcription was written in standard spelling, allowing a focus on the content and not the context linguistics of the respondents' speech.

3. Results

Of the 113 questionnaires distributed to students, 107 were completed, giving a response rate of 94.69%. Regarding the qualitative study, of the six focus groups carried out, five were included in our study. For each variable studied, the quantitative result was followed by the result of the qualitative investigation.

The study population comprised 58.5% female students with an average age of 22 years +/− 0.856. The rate of repeaters was 7.5%.

3.1. Learning Area

This area presented an average of 27.4 +/– 6.32. According to the DREEM score interpretation charter (Tomás *et al*., 2013, 2017), this area presented many problems. Concerning the qualitative study, all the students who participated in the focus groups have the same opinion:

> *The Fixed Prosthodontics courses are relevant, interesting, and complementary to what we did in the second and third-year practicals and clinical practice in the fourth and fifth years*.

Through the interviews, the Students expressed more freely the difficulties encountered during their learning throughout their course; of their lecture courses to the clinical internship in Fixed Prosthesis through the practical work and proposed suggestions for improvement:

> *I propose Clinical Reasoning Learning sessions where we will work on clinical cases as exercises and then work in groups and discuss. It would be much more interesting and beneficial*.
> *Supervisors should create videos about the different clinical stages of Fixed Prostheses, which will be published on YouTube*.

3.2. Teaching Area

This area presented an average of 25.7 +/– 5.5. According to the DREEM score interpretation charter (9) (10), this area presents many problems. All the students who participated in the focus groups believe that:

> *I find that there are enough supervisors in Fixed Prosthesis. They are all at our disposal, so there are no big problems with the teachers at the Fixed Prosthodontics unit*.
> *I think teachers are tough. However, they are right because students must be well-trained*.

3.3. Academic Skill Area

This area presented an average of 19.7 +/− 5.31. According to the DREEM score interpretation charter (Tomás *et al*., 2013, 2017), this domain is poor. Unanimously, all focus group participants responded negatively to this question.

> *We are working to validate our year, which puts us in a stressful situation, and we can't manage to do the dental preparations, which will create a problem for us in the future. We don't feel well-prepared*.
> *It takes a lot of training to complete the whole knowledge and practical side, especially in preparations. So, my current training situation is not at all sufficient for me*.

Some respondents provided suggestions for improvement:

I propose an increase in the number of vacations and also the number of chairs, and better organization of patients according to our needs and our level.
We need to increase clinical shifts. One session per fortnight, in pairs, is not enough.

3.4. Atmosphere Domain

This area presented an average of 25.6 +/− 6.88. According to the DREEM score interpretation charter (9) (10), this area presents many problems. During the focus groups, the students expressed their stress, especially during practical work and their first year of clinical practice (fourth year). Stress is attributed to the following factors:

I think it is when we feel unable to do something that stress takes it away.
For me, it is stress that wins because I have to validate.
I have one well-determined number of sessions, so I cannot find any pleasure in my teachings because there is always validation that haunts us in the mind.
Sometimes, I am afraid to ask the questions because I am afraid people will say, you are in fifth grade, and you do not know that?

3.5. Social Life Domain

This area presented an average of 15.8 +/− 4.51. According to the DREEM score interpretation charter (Tomás *et al*., 2013, 2017), this domain is poor. Student perceptions regarding these issues are as follows:

I see that the schedule is unbalanced and too tight. Break time is insufficient. I also find that the courses of practical interest are scheduled at difficult times for us.
For the listening cell, talking to a professor from the faculty and revealing a part of me to him does not feel safe. Maybe it would be easier if it were people from outside the faculty.

Some respondents provided suggestions for improvement:

Anonymity helps many people. Perhaps setting up a site where the teachers can intervene will allow us to use this cell.
For the listening cell, you need a professional, such as a psychiatrist, who is someone external to the faculty.

4. Discussion

Our study measured the perceptions of fifth-year students of Dental Medicine. Scores were more negative than positive, ranging from Areas presenting many problems (Learning, Teaching, and Atmosphere domains) to poor (Academic Skills and Social Life domains). Similarly, a study conducted in Canada (Till, 2004) and another study conducted at the KSU Faculty of Saudi Medicine (Subramanian *et al*., 2013) reported that students perceived their environment as negative (<50) with many issues that needed urgent attention.

In contrast, in a sample of Australian dental students (Malau-Aduli *et al*., 2022), student perceptions of the learning environment were more positive than negative. However, differences between countries emerged when examining the scores in each area. There is an overall similarity between Australian and New Zealand schools, although there are generally higher scores for New Zealand students (Malau-Aduli *et al*., 2022). This could be explained by the two countries' close cultural and educational similarities.

4.1. Learning Area

Morocco's traditional Fixed Prosthesis program is a teacher-centered, discipline-based program with no optional courses. Teaching relies primarily on collecting information, with the teacher being the primary source of information. Teaching methods include lectures, practicals, and clinical sessions, with few or no sessions focused on learning by clinical reasoning, thus explaining the score obtained for this domain in our study and making it a domain that presents many problems.

In general, students view learning as something "done" to them by the teacher and the curriculum as an aggregate of discrete subjects. This finding agrees with the studies of Al-Hazimi *et al*. (2004b) and Al-Hazimi *et al*. (2004a). This result can be attributed to the traditional curriculum, which is organized and taught as independent blocks of factual knowledge. This has long been recognized as an ineffective learning strategy, requiring students to use learning techniques that train the memory but not the mind, according to Albarrak *et al*. (2013).

For our qualitative study, all the students who participated in the focus groups agree on the fact that the Fixed Prosthesis courses are precise, with very specific objectives, and that the volume of hours devoted is correct and well respected, with a reservation regarding the opening courses, which for them, are not necessary and takes up additional hourly volume.

The students also emphasized that the lecture courses allow them to ensure continuity with the theoretical elements taught during the Practical Work. In other words, for all students, the course lectures allow them to have the theoretical knowledge necessary for practical work, independently of the practical aspect, which is a problem. Regarding the lessons during the practical work, the students showed difficulties carrying out the preparations and linking with the supervisor in charge of the session. Concerning the clinical part, the students' perceptions diverge. For some, the transition is seamless, while other students demonstrate the need for constant reminders or even more practice and reminders to transpose their theoretical knowledge to the clinic.

Through the interviews, the interviewees expressed more freely the difficulties encountered during their learning throughout their course and offered suggestions for improvement. Among them, we find:

- Extend practical work throughout the course (in the 5th year and also the 6th year if necessary).
- Standardize supervision in simulation sessions and make it more flexible and less demanding, especially during the first sessions.
- Establish Learning by Clinical Reasoning sessions from the fourth year for a better transition.
- Set up review sessions about the clinical practice necessary for validation once a week for each group.
- Illustrate the different prosthetic stages with videos integrated into the lectures or on platforms like YouTube.
- Create a clinical guide specific to the Fixed Prosthesis department, which will illustrate all the information necessary to carry out the different clinical procedures authorized for fourth and fifth-year students.

All these suggestions coincide with the findings of Al-Angari *et al.*'s (2022) study, which suggests that a more effective learning model that does not sacrifice results in terms of educational performance or the development of psychomotor skills is within reach. Replacing traditional lectures with small-group learning activities maintained the same high-performance level and reduced the time spent in class. This study, therefore, supports using active learning strategies to achieve a more effective learning model.

4.2. Teaching Area

In our study, the focus groups demonstrated that the behavior and attitude of teachers were correct except in exceptional cases. Unfortunately, at all academic levels except the second year, KSU (King Saud University) students agreed that teachers were bossy, ridiculed their students, and became angry during teaching sessions. This perception worsened in the second year among the trainees, which is consistent with the results of previous studies (Abraham *et al.*, 2008; Al-Hazimi *et al.*, 2004a; 2004b; Mayya & Roff, 2004; Ostapczuk *et al.*, 2012). This may reflect a problem with staff accessibility and a lack of staff training in health professions education.

The role of a dental faculty member is not a simple one. There are several issues facing dental educators. These include balancing teaching, research, and patient care. The shortage of faculty in US dental schools and the so-called "brain drain" is an immediate consequence of a "suboptimal quality of life" for new faculty (Henzi *et al.*, 2005), but this problem is global. So, it is understandable that educators cannot optimally function when they face excessive constraints.

According to Haden *et al.* (2006), when teachers and students demonstrate humanistic values, there is freedom to explore and learn without intimidation. A humanistic approach is characterized by close professional relationships between teachers and students, fostered by mentoring, counseling, and small-group interaction. The working group stresses the importance of establishing the mentor-mentee relationship early. Thanks to this mentoring relationship, undergraduates are guided towards personal and professional development and receive advice throughout their studies (Haden *et al.*, 2006). In addition, faculty recruitment and retention can be encouraged by the mentoring program.

Teachers should play a more active role in maintaining student motivation by implementing ongoing motivational strategies that are structured, organized, and student-oriented, according to a study by Sabbagh *et al.* (2020) in Saudi Arabia. Such an assertion is supported by findings that teachers' attitudes and personalities affect student motivation. Furthermore, Weller (2005) has suggested that internal motivation is more important and longer-lasting than external motivation, which requires constant reinforcement.

4.3. Academic Skills Area

Critical thinking is "the intellectually disciplined process of conceptualization, application, analysis, synthesis and active evaluation and skilled information gathered or generated through observation, experience, reflection, reasoning or communication, as a guide to belief and action." Because critical thinking involves a particular way of collecting, considering, and responding to information, it differs from the simple acquisition of information or possessing a set of SKILLS. Scriven and Paul (1987) described the mature critical thinker as the one who:

- Raises vital questions and issues, formulates clearly and precisely,
- Collects and evaluates relevant information, using abstract ideas to interpret them effectively and arrive at conclusions and well-reasoned solutions, testing them against evidence, criteria, and standards,
- Thinks with an open mind within alternative systems of thought, recognizing and evaluating assumptions, implications, and consequences,
- Communicates effectively with others to solve complex problems.

In our study, students' perception is that they lack preparation in Fixed Prosthodontics for their future careers and put in place evidence of their lack of independent practice within the clinical practice. In a study by Barrero *et al.* (2015), most respondents found the preclinical course of fixed prosthesis effective. Two-thirds of respondents (66%) agreed or strongly agreed with the statements and felt that the preclinical courses were helpful to them. The components of courses rated highest by respondents were the topics on which the course emphasizes students' clinical experience. The high percentage of positive answers to this question could be linked to the fact that, during recent years, course directors have included several hours of lessons, oral examinations, and diagnoses with patients with fixed prosthetic needs.

In agreement with the results obtained in our study, Chandran and Ranjan (2015) demonstrated that academic self-perception is linked to the ability to face academic overload. Low scores in this area clearly indicate the need for a revision of the program regarding methodology and course content. Students felt overwhelmed by their academic workload, and their main problem was that

they could not memorize everything. During our study, participants proposed some solutions to improve this area:

- Increase the number of clinical sessions,
- Diversify clinical cases,
- More flexible validation criteria, allowing students to practice and care for their patients and complete all clinical steps,
- Spread the practical work over the fourth and fifth years,
- Ensure a continuous flow of patients,
- Better organization of the secretary,
- Increase the number of chairs and set up a platform with well-equipped techniques, allowing the care of several patients per year.

4.4. *Atmosphere Domain*

In our study, students described the general atmosphere as stressful. Consistent with our study, as students become more involved in their clinical training, they experience increasingly stressful situations, according to Jiffry *et al*. (2005). The dental school's clinical environment has many problems, such as a lack of efficiency and significant unproductive time due to the amount of work administrative tasks students must carry out when working in the clinical. This work includes researching patients, writing documents, scheduling appointments, and performing other clinical operational tasks. Interestingly, shortage of teachers, inconsistent comments between instructors and the lack of calibration in the awarding of grades for clinical evaluation of students, condescending comments (especially in open areas of the clinic in front of staff, patients, and other students), pursuit of requirements, and finding patients who have dental problems that met procedural requirements dictated by the different clinical departments are perceived as highly stressful for students. This postulate is also validated by Henzi *et al*. (2005, 2007).

The stress the students perceive is multifactorial and corresponds to transitions through the different stages of the dental curriculum (didactic, preclinical, and clinical). Although the students were self-determined when engaged in the activities of the new, challenging clinical environment, the transition made them unsure of what to expect, and, as a result, they felt anxiety and a lack of confidence (Crothers *et al*., 2017). These problems were reported to be consistent with the intense schedule of dental courses and practicals, which is consistent with our study. During the focus groups, the students expressed their stress, especially during practical work and their first year of clinical practice (fourth year). This stress is attributed to the following factors:

- The workload and the absence of vacations between the different semesters,
- Labor conditions,
- The quotas set for validation and the limited number of shifts,
- The atmosphere where "hypocrisy" reigns between students,
- The impossibility, for some, of asking their questions freely,
- The inability to perform a clinical procedure and gaps in theoretical knowledge.

Another stressor reported in our study is differences in the opinions of clinical teaching staff. Further adding to the frustration, students had to adapt to different supervisors' techniques to treat patients quickly. The students' self-confidence was affected by the high expectations of staff and the behavior of supervisors. Two systematic reviews from Al-Hazimi *et al*. (2004b) and Al-Hazimi *et al*. (2004a) identified the main factors of clinical stress as criticism from supervisors, the atmosphere created by clinical faculty, and differences of opinion. Along the same lines, Silverstein and Kritz-Silverstein (2010) reported that elements related to the clinical atmosphere, mainly those created by clinical faculty and the inconsistency of instructor feedback, became significant sources of stress over time.

For the students in our study, perceived stress could be reduced with:

- Better infrastructure and a well-equipped technical platform,
- More flexibility on the part of teachers,
- Better distribution of the schedule (plan longer break times),
- Reassessment of the validation methodology,
- More para-university activities.

4.5. *Social Life Area*

For Chandran and Ranjan (2015), the social section is the area with a comparatively lower score, and the problem is that there is a poor support system for students who get bored, tired, or stressed during their academic life. There is serious concern that they are too tired to enjoy their journey. Once again, the schedule does not give them time to socialize. Program planners might consider ways to reduce the bulky curriculum and make it more innovative, engaging, and meaningful to reduce student boredom and fatigue. This study perfectly agrees with the results obtained from students within the Fixed Prosthetics department in Casablanca.

For the participants in the focus groups of our study, it is necessary to (a) entrust the listening unit to a specialist external to the faculty and (b) ensure anonymity for students using cell listening by setting up an online exchange platform.

4.6. *Recommendations*

1. Ensure early immersion of students in the clinics,
2. Opt for a mixed method by putting in place supports diversified educational courses, videos, educational guides, and workshops on Learning by Clinical Reasoning,
3. Increase the hourly volume of practical work by spreading it over the fourth and fifth years and by using the virtual reality simulation center,
4. Ensure better management of patient flow in the Fixed Prosthesis department of Casablanca,
5. Set up a computerized system to avoid repeated trips to the administration,

6. Increase the number of qualified staff responsible for managing all parameters related to paperwork, scheduling appointments, and performing other operational tasks of the clinic,
7. Establish a good support system with practical help from teaching staff and faculty administrators,
8. Improve student autonomy concerning taking care of patients by integrating actual patients into virtual reality simulators, thus allowing students to practice independently while preserving patient safety,
9. Review the evaluation methodology within the service towards an increasingly personalized assessment in order to take into account the individuality of each patient,
10. Set up continuing training for teachers,
11. Improve the working conditions of teachers,
12. Establish constant evaluation of teachers by both students and the administration,
13. Plan for increases in the teaching staff's physical, psychological, and financial comfort.

5. Conclusion

Health professionals' students' perceptions of their educational environment are a critical source of information for encouraging areas of excellence, improving areas that need attention, and improving the student learning experience.

The DREEM provides a non-culturally specific diagnostic valuable instrument for measuring the educational environment of higher education institutions, including dental schools. Clinical training is the most stressful aspect of studying dentistry. A good support system, practical assistance from teaching staff and faculty administrators, orientation conferences, advice, and stress management programs are necessary.

According to Pyle *et al*. (2006), self-evaluation is an expectation not only of students but also of faculty. Teachers are called to re-examine the relationship between what they do and what students learn, to move from the expert who transmits information to a facilitator of learning who helps the student discover new knowledge.

Faculties must re-examine their assumptions and teaching practices. These concepts represent a cultural shift in dental education.

Dental educators will facilitate or subvert the change process as in any complex social or professional organization. The compelling reasons for change and innovation must be clearly stated, and the rationale for new teaching and learning methods must be supported. Continuous faculty development is a requirement not only to promote curriculum change but also to preserve the academic dental profession.

Conflict of Interest

The authors declare that there is no conflict of interest.

References

Abraham, R., Ramnarayan, K., Vinod, P., & Torke, S. (2008). Students' perceptions of learning environment in an Indian medical school. *BMC Medical Education*, *8*(1), 1–5.

Al-Angari, N. S., Aldaham, A. S., Masuadi, E., Nadeem, M., & Alkadi, L. (2022). The effectiveness of students' performance in preclinical fixed prosthodontics course in predicting subsequent clinical performance. *Journal of Prosthodontics*, *31*(1), 45–49.

Al-Hazimi, A., Al-Hyiani, A., & Roff, S. (2004a). Perceptions of the educational environment of the medical school in King Abdul Aziz University, Saudi Arabia. *Medical Teacher*, *26*(6), 570–573.

Al-Hazimi, A., Zaini, R., Al-Hyiani, A., Hassan, N., Gunaid, A., Ponnamperuma, G., Karunathilake, I., Roff, S., McAleer, S., Davis, M. (2004b). Educational environment in traditional and innovative medical schools: A study in four undergraduate medical schools. *Education for Health: Change in Learning & Practice*, *17*(2), 192–203.

Albarrak, A., Mohammed, R., Abalhassan, M., & Almutairi, N. (2013). Academic satisfaction among traditional and problem-based learning medical students: A comparative study. *Saudi Medical Journal*, *34*(11), 1179–1188.

Barrero, C., Duqum, I., & Petrola, F. (2015). Dental students' perceived preparedness to treat patients in clinic after a fixed prosthodontics course: Survey results of a case study. *Journal of Dental Education*, *79*(4), 409–416.

Chandran, C., & Ranjan, R. (2015). Students' perceptions of educational climate in a new dental college using the DREEM tool. *Advances in Medical Education and Practice*, *6*, 83–92.

Crothers, A. J., Bagg, J., & McKerlie, R. (2017). The flipped classroom for preclinical dental skills teaching: A reflective commentary. *British Dental Journal*, *222*(9), 709–713.

Divaris, K., Barlow, P. J., Chendea, S. A., Cheong, W. S., Dounis, A., Dragan, I. F., Hamlin, J., Hosseinzadeh, L., Kuin, D., Mitriratanakul, S., Mo'nes, M., Molnar, N., Perryer, G., Pickup, J., Raval, N., Shanahan, D., Songpaisan, Y., Taneva, E., Yaghoub-Zadeh, S., West, K. *et al.* (2008). The academic environment: The students' perspective. *European Journal of Dental Education*, *12*(s1), 120–130.

Field, J. C., Cowpe, J. G., & Walmsley, A. D. (2017). The graduating European dentist: A new undergraduate curriculum framework. *European Journal of Dental Education*, *21*(S1), 2–10.

FitzGerald, K., Seale, N. S., Kerins, C. A., McElvaney, R., & Fitzgerald, E. (2008). The critical incident technique and pediatric dentistry: A worked example. *Journal of Dental Education*, *72*(3), 305–316.

Haden, N. K., Andrieu, S. C., Chadwick, D. G., Chmar, J. E., Cole, J. R., George, M. C., Glickman, G. N., Glover, J. F., Goldberg, J. S., Hendricson, W. D., Meyerowitz, C., Neumann, L., Pyle, M., Tedesco, L. A., Valachovic, R. W., Weaver, R. G., Winder, R. L., Young, S. K., Kalkwarf, K. L. (2006). The dental education environment. *Journal of Dental Education*, *70*(12), 1265–1270.

Henzi, D., Davis, E., Jasinevicius, R., & Hendricson, W. (2007). In the students' own words: What are the strengths and weaknesses of the dental school curriculum? *Journal of Dental Education*, *71*(6), 632–645.

Henzi, D., Davis, E., Jasinevicius, R., Hendricson, W., Cintron, L., & Isaacs, M. (2005). Appraisal of the dental school learning environment: The students' view. *Journal of Dental Education*, *69*(10), 1137–1147.

Jiffry, M. T. M., McAleer, S., Fernando, S., & Marasinghe, R. B. (2005). Using the DREEM questionnaire to gather baseline information on an evolving medical school in Sri Lanka. *Medical Teacher*, *27*(4), 348–352.

Malau-Aduli, B. S., Lee, A., Alele, F., Adu, M., Drovandi, A., & Jones, K. (2022). Preclinical to clinical transition experiences of dental students at an Australian Regional University. *European Journal of Dental Education*, *26*(1), 182–196.

Mayya, S., & Roff, S. (2004). Students' perceptions of educational environment: A comparison of academic achievers and under-achievers at Kasturba Medical College, India. *Education for Health*, *17*(3), 280–291.

Ostapczuk, M. S., Hugger, A., de Bruin, J., Ritz-Timme, S., & Rotthoff, T. (2012). DREEM on, dentists! Students' perceptions of the educational environment in a German dental school as measured by the Dundee Ready Education Environment Measure. *European Journal of Dental Education*, *16*(2), 67–77.

Pyle, M., Andrieu, S. C., Chadwick, D. G., Chmar, J. E., Cole, J. R., George, M. C., Glickman, G. N., Glover, J. F., Goldberg, J. S., Haden, N. K., Hendricson, W. D., Meyerowitz, C., Neumann, L., Tedesco, L. A., Valachovic, R. W., Weaver, R. G., Winder, R. L., Young, S. K., Kalkwarf, K. L., ADEA Commission on Change and Innovation in Dental Education. (2006). The case for change in dental education. *Journal of Dental Education*, *70*(9), 921–924.

Roff, S., McAleer, S., Harden, R. M., Al-Qahtani, M., Ahmed, A. U., Deza, H., Groenen, G., & Primparyon, P. (1997). Development and validation of the Dundee Ready Education Environment Measure (DREEM). *Medical Teacher*, *19*(4), 295–299.

Sabbagh, H. J., Bakhaider, H. A., Abokhashabah, H. M., & Bader, M. U. (2020). Students' perceptions of the educational environment at King Abdulaziz University Faculty of Dentistry (KAUFD): A cross sectional study. *BMC Medical Education*, *20*(1), 1–7.

Scriven, M., & Paul, R. (1987). Defining critical thinking. *8th Annual International Conference on Critical Thinking and Education Reform*. http://www.criticalthinking.org/pages/defining-critical-thinking/766.

Silverstein, S. T., & Kritz-Silverstein, D. (2010). A longitudinal study of stress in first-year dental students. *Journal of Dental Education*, *74*(8), 836–848.

Subramanian, J., Anderson, V., Morgaine, K., & Thomson, W. (2013). The importance of 'student voice' in dental education. *European Journal of Dental Education*, *17*(1), e136–e141.

Tackett, S., Wright, S., Lubin, R., Li, J., & Pan, H. (2017). International study of medical school learning environments and their relationship with student well-being and empathy. *Medical Education*, *51*(3), 280–289.

Till, H. (2004). Identifying the perceived weaknesses of a new curriculum by means of the Dundee Ready Education Environment Measure (DREEM) inventory. *Medical Teacher*, *26*(1), 39–45.

Tomás, I., Aneiros, A., Casares-De-Cal, M. A., Quintas, V., Prada-Lopez, I., Balsa-Castro, C., Ceballos, L., Gomez-Moreno, G., Llena, C., Lopez-Jornet, P., Machuca, M. C., Pales, J. (2017). Comparing student and staff perceptions of the Educational Climate in Spanish dental schools using the Dundee Ready Education Environment Measure. *European Journal of Dental Education*, *22*(1), 131–141.

Tomás, I., Casares-De-Cal, M. A., Aneiros, A., Abad, M., Ceballos, L., Gomez-Moreno, G., Hidalgo, J. J., Llena, C., Lopez-Jornet, P., Machuca, M. C., Monticelli, F., Pales, J. (2013). Analysis of the 'Educational Climate' in Spanish public schools of dentistry using the Dundee Ready Education Environment Measure: A multicenter study. *European Journal of Dental Education*, *17*(3), 159–168.

Victoroff, K. Z., & Hogan, S. (2006). Students' perceptions of effective learning experiences in dental school: A qualitative study using a critical incident technique. *Journal of Dental Education*, *70*(2), 124–132.

Weller, M. (2005). General principles of motivation. *Los Angeles Business Journal*, *14*, 23–25.