



(RESEARCH ARTICLE)



## Students' perceptions of the performance of the professors of the clinic of the dental school of the University of Cuenca in the academic year 2021-2022

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World Journal of Advanced Research and Reviews, 2022, 15(01), 199–206

Publication history: Received on 04 June 2022; revised on 07 July 2022; accepted on 09 July 2022

Article DOI: <https://doi.org/10.30574/wjarr.2022.15.1.0684>

### Abstract

**Background:** The clinical teachers create a learning environment that integrates the theoretical knowledge learned in classrooms and laboratories, therefore the student, having a teacher who provides everything he/she needs to become an excellent professional will always be very indispensable. Knowing how students perceive the quality of their teachers can in turn reveal their strengths and weaknesses, and make changes if necessary. The objective of this article is to evaluate the students' perception of the performance of the clinical teachers of the faculty of Dentistry of the University of Cuenca during the academic year 2021-2022.

**Methods:** Analytical study, which involved the participation of 97 students who responded to a survey at the Faculty of Dentistry of the University of Cuenca, Ecuador. For the present study, a scale was used to evaluate the responses to the instrument, the objective of which was to determine the students' opinion of the clinical dental education provided by clinical teachers. The scale assessed six dimensions: modeling, coaching, scaffolding, articulation, reflection and general learning from the environment.

**Results:** The general result indicated a neutral perception, the majority of the students are unbiased with a slight tendency to "partially agree", however this depends on each dimension.

**Conclusion:** For the students' impartiality, it is important to provide feedback to the clinical teachers in order to improve and implement new methodologies that allow the student to guarantee a professional training with the full support of their teacher.

**Keywords:** Dental education; Dental students; Effectiveness; Educational environment

### 1. Introduction

Students in the area of dentistry receive training over a period of 5 years, which allows them to obtain knowledge, strengths, manual skills, and the ability to solve cases in different areas such as periodontics, surgery, orthodontics, endodontics, among others. A good teacher trains good students; therefore, evaluating teachers is necessary in the teaching-learning process, not only to establish the quality of teaching, but also to serve as a criterion for reflection in order to make appropriate decisions and encourage continuous improvement [1,2]. The teacher's mission is to enable the student to integrate all the theoretical and practical knowledge necessary for the achievement of the competencies required as a health professional [2]. The primary objective is to train professionals with critical thinking, trained for lifelong learning and capable of incorporating innovations in the sciences into their clinical practice. In view of this need, the teaching of basic sciences requires reinventing itself to be aligned with this new trend [1,2].

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The strategies used by teachers are very important for students to be able to relate the knowledge obtained with the new learning situations by executing the procedures required in each activity in a responsible and non-empirical way. Emphasizing that a level of knowledge about the contents and the objectives to be achieved in each procedure is essential [2,3,4]. Clinical teaching is an area that requires a great commitment from all those who are involved in the process and have the responsibility to offer a high-quality education [1,3]. The mental processes involved in clinical teaching are difficult to build, since students must bring together a series of skills, both cognitive and procedural, which will be fundamental for them to be able to develop and analyze cases in the different areas of dentistry. This will help to establish the treatment plan in search of rehabilitation and recovery of the patients' oral health. It is essential for clinical teachers to seek didactic strategies that nurture the teaching-learning process, since in dentistry the clinical method constitutes not only the implementation of certain processes but also the planning and organization of teaching based on work education. In order to obtain all the benefits of a good teaching-learning procedure, the teaching dentist must have the knowledge in his area as a great expert, intervening with the treatment of patients attended by his students, through the diagnosis, treatment plan, prognosis, execution of procedures and resolution of specific problems [3-8]. The responsibility that the dentist must assume is to provide quality services to his patients in search of their well-being, so the proper training received by a dental student is essential for proper professional performance. Therefore, the role of a clinical teacher is to transmit their knowledge to students, which can be through six teaching methods: modeling, training (coaching), scaffolding, articulation, reflection, and exploration of cognitive learning. They are designed to help students gain cognitive and metacognitive skills during clinical practice [2,9]. Follow-up to check whether clinical teachers are fulfilling their role is essential to check whether students are being adequately trained. Consequently, the objective of this article is to evaluate the students' perception of the performance of the clinical teachers of the School of Dentistry of the University of Cuenca during the period March-August 2022, in order to identify the shortcomings and seek strategies to provide students with quality training in all aspects.

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## 2. Material and methods

The study design of this article is a quantitative non-experimental relational analytical cross-sectional study. The study population is composed of students in their fourth and fifth years of dental school at the University of Cuenca. A non-probabilistic sample of 97 students was obtained, of which 65 were female and 32 were male. To calculate the sample, the formula for calculating the finite sample size was applied and the selection of participants was by a non-probabilistic method of convenience. Information was collected through an online survey with the application of the scale proposed by Stalmeijer, using google forms [9]. All participants were informed that they were going to be part of a research study and that their participation was completely voluntary and anonymous. Twenty-three questions were selected from the scale, aimed at evaluating teachers in six dimensions: modeling (act of the teacher demonstrating and explaining his/her judgment and reasoning to students), coaching (act of the teacher observing students performing a clinical activity, giving feedback during the process), scaffolding (act of the teacher providing support in relation to the students' skill and knowledge levels), articulation (act of the teacher generating questions to the students and stimulating them to link their knowledge and reasoning), reflection (teacher's act stimulates students to evaluate their strengths and weaknesses and how to improvise), and general learning of the environment [8,9]. The SPSS v.25 tool was used for data organization and analysis.

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## 3. Results and discussion

Ninety-seven students of the total number of students enrolled in the undergraduate program (fourth through fifth year) responded. Of these, 67% were women and 33% were men. The number of students who participated according to year of study was 74.2% in the fourth year and 25.8% in the fifth year. The frequencies found for each item according to year of study, and which presented significant differences between years of study, are summarized in Table 1.

**Table 1** Frequency of responses to the first dimensions of the scale according to year of study

N°	Question The clinical teacher...	Academic year	Totally disagree	Partially disagree	Neither agree nor disagree	Partially agree	Totally agree
1	Demonstrated how different procedures should be performed	4	5 (5.2 %)	13 (13.4%)	19 (19.6%)	29 (29.9%)	6 (6.2%)
		5	0 (0%)	4 (4.12%)	4 (4.12%)	12 (12.37%)	5 (5.2%)
		T	5 (5.2%)	17 (17.6%)	23 (23.8%)	41 (42.3%)	11(11.4%)
2	When asked a question, he explained which aspects were important and why.	4	5(5.2%)	5(5.2%)	13(13.4%)	32 (33%)	17(17.5%)
		5	1(1%)	1(1%)	3 (3.1%)	19 (19.6%)	1(1.1%)
		T	6 (6.2%)	6 (6.2%)	16 (16.5%)	51 (52.6%)	18(18.6%)
3	created enough opportunities for me to watch him	4	5(5.2%)	12(12.4%)	16 (16.5%)	33 (34%)	6(6.2%)
		5	0(0%)	3(3.1%)	6(6.2%)	12(12.4%)	4(4.1%)
		T	5(5.2%)	15(15.5%)	22(22.7%)	45(46.4%)	10(10.3%)
4	was an example for me	4	4(4.1%)	12(12.4%)	16 (16.5%)	34(35.1%)	9(9.3%)
		5	0(0%)	4(4.1%)	5(5.2%)	11(11.3%)	2(2.1%)
		T	4(4.1%)	16 (16.5%)	21(21.7)	45(46.4%)	11(11.4%)
5	observed me while I was performing a procedure	4	12(12.4%)	12(12.4%)	13(13.4%)	25(25.8%)	10(10.3%)
		5	0(0%)	5(5.2%)	4(4.1%)	13(13.4%)	3(3.1%)
		T	12(12.4%)	17(17.5%)	17(17.5%)	38(39.2%)	13(13.4%)
6	Provided me with constructive and concrete feedback during direct observation	4	6(6.2%)	9(9.3%)	16 (16.5%)	28(28.9%)	14(14.4%)
		5	1 (1.1%)	2(2.1%)	9(9.3%)	11(11.3%)	0(0%)
		T	7(7.3%)	11(11.4%)	26(26.8%)	39(40.2%)	14(14.4%)
7	was willing to teach me rather than leave me on my own to do it independently.	4	2(2.1%)	15(15.5%)	19(19.6%)	29(29.9%)	6(6.2%)
		5	2(2.1%)	2(2.1%)	3(3.1%)	15(15.5%)	4(4.1%)
		T	4(4.1%)	17(17.6%)	22(22.7%)	44(45.4%)	10(10.3%)
8	provided me with a better perspective on the areas of my performance that need improvement.	4	4(4.1%)	9(9.3%)	17(17.6%)	31(32%)	9(9.3%)
		5	1(1.1%)	4(4.1%)	7(7.2%)	13(13.4%)	1(1.1%)
		T	5(5.2%)	13(13.4%)	25(25.8%)	44(45.4%)	10(10.3%)
9	adapted his teaching activities to my level of experience and competence.	4	4(4.1%)	15(15.5%)	14(14.4%)	25(25.8%)	12(12.4%)
		5	1(1.1%)	3(3.1%)	9(9.3%)	14(14.4%)	0(0%)
		T	5(5.2%)	18(18.6%)	23(23.7%)	39(40.2%)	12(12.4%)
10	allowed me to perform tasks independently	4	5(5.2%)	7(7.2%)	12(12.4%)	26(26.8%)	24(24.7%)
		5	0(0%)	2(2.1%)	4(4.1%)	9(9.3%)	8(8.2%)
		T	5(5.2%)	9(9.3%)	16 (16.5%)	35(36%)	32(33%)
11	was supportive when I was experiencing difficulties with a procedure.	4	3(3.1%)	7(7.2%)	16 (16.5%)	26(26.8%)	20(20.6%)
		5	0(0%)	3(3.1%)	5(5.2%)	11(11.3%)	6(6.2%)
		T	3(3.1%)	10(10.3%)	21(21.65)	37(38.1%)	26(26.8%)

12	Gradually decreased its amount of guidance to reinforce my independence.	4	3(3.1%)	8(8.2%)	22(22.7%)	26(26.8%)	13(13.4%)
		5	0(0%)	3(3.1%)	6(6.2%)	12(12.4%)	4(4.1%)
		T	3(3.1%)	11(11.3%)	28(28.9%)	38(39.2%)	17(17.5%)
13	alerted me to gaps in my knowledge and skills.	4	1(1.1%)	8(8.2%)	14(14.4%)	29(29.9%)	20(20.6%)
		5	0(0%)	4(4.1%)	6(6.2%)	10(10.3%)	5(5.2%)
		T	1(1.1%)	12(12.4%)	20(20.6%)	39(40.2%)	25(25.8%)
14	asked me questions to increase my knowledge and understanding.	4	6(6.2%)	8(8.2%)	14(14.4%)	25(25.8%)	18(18.6%)
		5	0(0%)	2(2.1%)	3(3.1%)	16(16.5%)	5(5.2%)
		T	6(6.2%)	10(10.3%)	17(17.5%)	41(42.3%)	23(23.7%)
15	stimulated me to ask questions to increase my knowledge and understanding.	4	5(5.2%)	9(9.3%)	18(18.6%)	25(25.8%)	15(15.5%)
		5	0(0%)	2(2.1%)	6(6.2%)	14(14.4%)	3(3.1%)
		T	5(5.2%)	11(11.4%)	24(24.7%)	39(40.2%)	18(18.6%)
16	encouraged me to think about my strengths and weaknesses.	4	8(8.2%)	6(6.2%)	19(19.6%)	30(30.9%)	10(10.3%)
		5	3(3.1%)	10(10.3%)	6(6.2%)	13(13.4%)	2(2.1%)
		T	11(11.3%)	16(16.5%)	25(25.8%)	33(43.02%)	12(12.4%)
17	stimulated me to think about how to improve my strengths and weaknesses.	4	6(6.2%)	16(16.5%)	12(12.4%)	29(29.9%)	9(9.3%)
		5	1(1.1%)	3(3.1%)	7(7.2%)	12(12.4%)	2(2.1%)
		T	7(7.2%)	19(19.6%)	19(19.6%)	41(42.3%)	11(11.3%)
18	established an environment where I felt free to ask questions or make comments.	4	8(8.2%)	12(12.4%)	18(18.6%)	23(23.7%)	10(10.3%)
		5	0(0%)	2(2.1%)	11(11.3%)	9(9.3%)	4(4.1%)
		T	8(8.2%)	14(14.4%)	29(29.9%)	32(33%)	14(14.4%)
19	used enough time to supervise me.	4	5(5.2%)	15(15.5%)	14(14.4%)	32(33%)	9(9.3%)
		5	2(2.1%)	0(0%)	6(6.2%)	11(11.3%)	3(3.1%)
		T	7(7.2%)	15(15.5%)	20(21.69%)	43(44.3%)	12(12.4%)
20	Showed interest in me as a student	4	2(2.1%)	16(16.5%)	16(16.5%)	28(28.9%)	11(11.3%)
		5	2(2.1%)	2(2.1%)	4(4.1%)	11(11.3%)	5(5.2%)
		T	4(4.1%)	18(18.6%)	20(20.6%)	39(40.2%)	16(16.5%)
21	Treated me and my patient with respect.	4	9(9.3%)	11(11.3%)	17(17.5%)	22(22.7%)	13(13.4%)
		5	1(1.1%)	4(4.1%)	4(4.1%)	12(12.4%)	4(4.1%)
		T	10(10.3%)	15(15.5%)	21(21.6%)	34(35.1%)	17(17.5%)
22	was constantly available at the clinic	4	7(7.2%)	23(23.7%)	20(20.6%)	17(17.5%)	4(4.1%)
		5	0(0%)	8(8.2%)	7(7.2%)	9(9.3%)	2(2.1%)
		T	7(7.2%)	31(31.9%)	27(27.8%)	26(26.8%)	6(6.2%)
23	was punctual in the clinical sessions	4	11(11.4%)	26(26.8%)	14(14.4%)	19(19.6%)	1(1.1%)
		5	3(3.1%)	7(7.2%)	7(7.2%)	7(7.2%)	2(2.1%)
		T	14(14.4%)	33(34.02%)	21(21.6%)	26(26.8%)	3(3.1%)

Table 1 shows the results obtained in the survey responses. According to the students' opinions, in the dimensions of

### 3.1. Modeling (questions 1-4)

- 42.3% of students felt that they partially agreed that their clinic teachers demonstrate how different procedures should be performed, followed by 23.8% who neither agreed nor disagreed, and 17.6% of students partially disagreed.
- 52.6% of the students partially agree that when asked a question the clinic teacher explained what aspects were important and why, followed by 18.6% who strongly agreed, and 4.12% who neither agreed nor disagreed.
- 46.4% of students partially agree that the clinic faculty member created sufficient opportunities for the student to observe, followed by 22.7% who neither agreed nor disagreed and 15.5% who partially disagreed.
- 46.4% of the students partially agree that the clinic teacher was an example for the students, followed by 21.65% who neither agree nor disagree and 16.5% who partially disagree.

In this dimension 46.9% of students partially agreed that clinic faculty demonstrate and explain their judgment and reasoning to students, followed by 21.1% who neither agreed nor disagreed, and 12.9% strongly agreed.

### 3.2. Coaching (questions 5-8)

- 39.2% of the students partially agreed that their clinic faculty observed them while they were performing a procedure, followed by 17.5% who neither agreed nor disagreed, and 17.5% who partially disagreed.
- 40.2% of students partially agree that their clinic teachers provide them with constructive and concrete feedback during direct observation, followed by 26.8% who neither agree nor disagree and 14.4% who strongly agree.
- 45.4% of the students partially agree that the clinic teacher was willing to teach the student rather than leave the student alone to do it independently, followed by 22.7% who neither agreed nor disagreed and 17.5% who partially disagreed.
- 45.4% of the students partially agree that the clinical teacher provides the student with a better perspective on the areas of their performance that need improvement, followed by 25.8% who neither agree nor disagree, and 13.4% who partially disagree.

In this dimension 42.5% of the students partially agreed that the clinic teachers observe the student when performing a clinical activity, in which feedback is given during the process, followed by 23.17% who neither agreed nor disagreed, and 12.1% totally agreed.

### 3.3. Scaffolding (questions 9-12)

- 40.2% of students partially agree that the clinic faculty member tailored his teaching activities to the student's level of experience and competence, followed by 23.7% who neither agreed nor disagreed and 18.6% who partially disagreed.
- 36% of students partially agree that the clinic teacher allowed the student to perform tasks independently, followed by 33% who strongly agree and 16.5% who neither agree nor disagree.
- 38% of students partially agree that the clinic faculty member was supportive when the student experienced difficulties with a procedure, followed by 26.8% who strongly agree and 26.1% who neither agree nor disagree.
- 39.2% of students partially agree that the clinic faculty gradually decreased their amount of guidance to reinforce student independence, followed by 28.9% who neither agree nor disagree and 17.5% who strongly agree.

In this dimension 38.35% of the students partially agreed that the clinic teacher provides support in relation to the students' skill and knowledge levels followed by 22.68% who neither agreed nor disagreed, and 22.42% strongly agreed.

### 3.4. Articulation (questions 13-15)

- 40.2% of the students partially agree that the clinic teacher alerted the student to the gaps in their knowledge and skills, followed by 25.8% who strongly agree and 20.6% who neither agreed nor disagreed.
- 42.3% of the students partially agreed that the clinic teacher asked questions to increase student knowledge and understanding, followed by 23.7% who strongly agreed and 17.5% who neither agreed nor disagreed.

- 40.2% of the students partially agree that the clinic teacher encouraged the student to ask questions to increase their knowledge and understanding, followed by 24.7% who neither agree nor disagree and 18.6% who strongly agree.

In this dimension, 40.9% of the students partially agreed that the teachers of the clinic generate questions to the students and stimulate them to unite their knowledge and reasoning, in which feedback is given during the process, followed by 20.9% who neither agreed nor disagreed, and 22.7% totally agreed.

### 3.5. Reflection (questions 16 and 17)

- 43.02% of the students partially agree that the clinic teacher encourages the student to think about his/her strengths and weaknesses, followed by 25.8% who neither agree nor disagree and 16.5% who partially disagree.
- 42.3% of the students partially agree that the clinic teacher encourages the student to think about how to improve their strengths and weaknesses, followed by 19.6% who neither agree nor disagree and 19.6% who partially disagree.

In this dimension 42.66% of the students partially agreed that the clinic teachers encourage students to evaluate their strengths and weaknesses and how to improvise, in which feedback is given during the process, followed by 22.7% who neither agreed nor disagreed, and 11.8% totally agreed.

### 3.6. General learning environment (questions 18-23)

- 33% of clinic students partially agreed that the clinic faculty member established an environment where the student felt free to ask questions or make comments, followed by 29.9% who neither agreed nor disagreed, and 14.4% who strongly agreed.
- 44.3% of clinic students partially agreed that the clinic faculty member took sufficient time to supervise the student, followed by 15.5% who partially disagreed, and 12.4% who strongly agreed.
- 40.2% of the students partially agreed that the clinic teacher showed interest in the student as such, followed by 20.6% who neither agreed nor disagreed and 18.6% who partially disagreed.
- 35.1% of the students partially agreed that the clinic faculty treated the student and patient with respect, followed by 21.6% who neither agreed nor disagreed and 15.5% who partially disagreed.
- 31.9% of students partially disagreed that the clinic faculty member was constantly available in the clinic, followed by 27.8% who neither agreed nor disagreed and 26.8% who partially agreed.
- 34% of students partially disagreed that the clinic faculty member was punctual in the clinical sessions, followed by 26.8% who partially agreed, and 21.6% who neither agreed nor disagreed.

In this dimension 34.2% of the students partially agreed that the clinic teachers provided a positive educational environment, followed by 23.86% who neither agreed nor disagreed, and 11.68% who strongly agreed. In the present study the students' perceptions of the teachers of the clinic of the School of Dentistry of the University of Cuenca were evaluated. The general result indicated a neutral perception, the majority of the students are impartial with a slight tendency to "partially agree", however this depends on each dimension. It is possible that given the large number of students, the clinical teachers do not present the same disposition for each student. It has been found that in the study of Castro et al. the majority of the students indicated a favorable perception, that is to say that the majority agreed that the clinical teachers fulfilled the 6 dimensions, although additionally it is considered that there may be various factors that can influence the perception of the clinical environment such as the decrease in the expectations of the students or the increase in the complexity of the career with the passing of the years [1,4]. In addition, a study by Shoaib et al. considered that the treatment of students is very important because it encourages them to improve their performance in the faculty clinic, and also mentions that the teacher should facilitate the acquisition of knowledge by placing the student at the center of the teaching objective, and not as an individual inferior to him/her. Students' perceptions of the educational, emotional and social climate are also predictive factors in student performance within the faculty [3,5,6]. Clinical practice is one of the most important curricular components in the training of the future dentist. Therefore, during the preclinical practices, the teacher should encourage the student to integrate all the theoretical and practical knowledge necessary to achieve the necessary skills and be able to apply them in his or her professional life. Learning in the dental clinic implies a different reality and a correct student-teacher-patient relationship is rarely observed. As we know, this relationship is very common in health areas, but it is rarely put into practice. Therefore, there is concern about changing the clinical teaching style within the Faculty [10-13]. However, further studies are needed to determine as such limitations in student learning These include study factors that may affect outcomes during teaching, such as student sociocultural background, attendance and academic qualification [7,10,14]. In addition, future case-control

studies are recommended to evaluate the influence on dental school students' perception of the educational environment and to be able to improve the teaching methodology [12].

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#### 4. Conclusion

The educational perception of the Faculty of Dentistry of the University of Cuenca is neutral, the results obtained reflect that in the teacher-student learning process there are positive and negative aspects, but no one aspect prevails over another. Therefore, educational strategies based on problem solving should be encouraged. Evaluating the students' perception is very important in this case to provide continuous feedback on the study processes in the Faculty of Dentistry, in order to implement proposals for quality control of the learning process and the implementation of improvement plans to positively achieve a better curriculum and above all the teacher's commitment to transmit information strategically and with adequate skills to motivate the student. We consider that this type of evaluations could be used in the future as tools to manage and improve education in the faculty. It would be convenient to provide training to clinical teachers on different teaching methodologies and to carry out follow-ups taking into consideration the different dimensions so that the teacher fulfills his/her role. Finally, it would be advisable to develop guidelines for clinical practice, these will allow the student to be informed and can establish a collaborative relationship with the teachers of the clinic in all areas.

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#### Compliance with ethical standards

##### *Acknowledgments*

We are grateful to all those who encouraged the creation of this study in order to seek improvements in education.

##### *Funding*

The authors received no financial support for the research, authorship, and/or publication of this article.

##### *Disclosure of conflict of interest*

The authors declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

##### *Statement of ethical approval*

Approval was obtained from all individual participants included in the study.

##### *Statement of informed consent*

Informed consent was obtained from all individual participants included in the study.

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