

Portfolio in the undergraduate course of Dentistry: from clinic to Collective Health

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ABSTRACT

Objective: the objective of this study was to evaluate the portfolio as an instrument of the teaching-learning process, under the perception of undergraduate students in Dentistry in clinical and theoretical subjects. **Material and Methods:** the was a cross-sectional study, with a quantitative approach, using a structured questionnaire. The data collection was developed in 2015 and 2016 and occurred in the dependencies of an undergraduate course in Dentistry, with a final sample of 169 participants (96% of the population). **Results:** it was possible to notice that 71.4% of the students did not have difficulties to make the portfolio, 78% said that their use improved their learning, 66.1% of the students would use it if they were teachers, and for 84.4% of them the portfolio is excellent, great or good as a teaching-learning method. **Conclusion:** it can be concluded that the portfolio is an effective teaching-learning method and has a good acceptance by the students, being able to be used in theoretical and practical courses of Dentistry.

Keywords: Education measurement; Surveys and questionnaires; Education higher.

Introduction

The traditional pedagogy, in which the student is a mere receiver and the teacher conveys their experiences and knowledge, is insufficient for the current teaching in undergraduate courses of the health area.¹ Given this context, changes in teaching and learning methodologies that allow improving the performance of pupils' academic life are required. Thus, the portfolio is an instrument that acts as a facilitator in construction and reconstructing the teaching-learning process, allowing the continuous education and the development of the student's critical thinking.^{1,2}

Portfolio is an arrangement of several documents that provide the critical reflection on the knowledge built, the methodological strategies used, and the writer's desire to continue acquiring knowledge.² It is an instrument in which one can analyze the learning experiences, allowing for both teachers and students a better understanding of the issues addressed, thus raising the levels of quality of the education.³

Widely used as a means of evaluation, the portfolio encourages group discussion, critical analysis, and reflection on the topics covered in class, creating an environment in which the students understand more and more the contents discussed, participating and active actors of the teaching-learning process.⁴ In the portfolio, one can insert compilations of the works performed by the students, descriptions of visits, summaries of texts relevant to the subject addressed, research projects and reports, as well as notes of experiences of the students, self-reflective essays, among others.⁵

The main objective of the portfolio is to help students to develop the ability to qualify the products of their work.⁵ It also keeps track of the whole path of the students during undergraduate studies, where they can report their doubts, opinions, thoughts and impressions on the proposed activities.¹ These records may be later evaluated by the own students, so that they can verify the construction of their learning throughout the teaching-learning process and conduct a self-analysis, this being able to construct their own theoretical knowledge.⁶ As for its evaluation process, the portfolio broadens the view on the education process, beyond the acquisition of knowledge. It is necessary to evaluate the students' experiences in their relationship with scientific knowledge, the others around them, and themselves.⁷

Understanding the extent of this learning instrument and considering the few studies assessing its use, this study is justified, whose general objective was to evaluate the portfolio as an instrument of the teaching-learning process for the training in Dentistry. The specific objectives, in addition, were the verification of the ease and difficulties the students faced on its preparation, as well as the degree of acceptance of the portfolio by students.

Material and Methods

This is a cross-sectional and descriptive study, conducted in the city of Fortaleza between August 2015 and June 2016. Data were collected through a structured questionnaire (Chart 1), applied to students enrolled in the second to

fourth semesters of the Course of Dentistry of the Christus University Center, who used the portfolio as a methodological teaching strategy in the period of data collection. The

subjects using the portfolio at the time of data collection were Collective Health (I, II, and III), Pre-Clinic (I and II), and Clinic I.

Chart 1. Questionnaire applied to scholars enrolled in the course of Dentistry at the Christus University Center who used a Portfolio

Identification of the respondent

Gender: () MALE () FEMALE Age: _____

Subjects: _____ + _____

01. How do you rate the use of portfolio as a method of evaluation?

() Excellent () Great () Good () Regular () Bad () Terrible

02. The preparation of the portfolio was made:

() With ease () With difficulty

03. What is your greatest difficulty in making the portfolio?

() Articles research
() Capacity of synthesis
() Written communication
() Mastery of internet tools
() I have no difficulty
() Others: _____

04. Do you feel motivated to use the portfolio in other subjects?

() Yes () No

05. Do you believe the portfolio provided you with greater autonomy?

() Yes () No

06. You managed to carry out the activities proposed to be include in the portfolio:

() Yes, with ease
() Yes, with difficulty, and I needed help
() No, with difficulty

07. The time for execution of the portfolio was:

() Sufficient () Insufficient

08. Do you consider that the methodology of teaching and learning using the portfolio facilitated your learning process?

() Yes, with ease
() Yes, with difficulty, and I needed guidance
() No

09. Have you identified advantages and disadvantages in using the portfolio? Which ones?

10. How do you analyze the professor's approach to the use of the portfolio:

() Excellent
() Good
() Regular
() Insufficient

11. The time in which you managed to complete each activity was:

() Short () Long

12. Did the portfolio provided some improvement in your learning?

() Yes () No

13. Do you think your development in writing the portfolio is:

() Excellent
() Good
() Regular
() Bad

14. How do you analyze the performance of your class using the portfolio as a method of learning?

() Excellent
() Good
() Regular
() Bad

15. Would you use this teaching method if you were a teacher?

() Yes () No

16. Did the portfolio promoted in you the capacity for reflective thinking?

() Yes () No

17. With the use of the portfolio, have you become more critical?

() Yes () No

18. Does the portfolio guide you in practical lessons?

() Yes () No

19. Do you prefer the portfolio over the traditional tests as a method of evaluation?

() Yes () No

20. What is the main purpose of the portfolio to you?

() Reflective report of activities developed in theory and practice
() Assessment tool
() A summary between theory and practice
() A sum of all learning experiences during the course
() Method to expose one's creative and imaginative side

The Christus University Center had 176 students enrolled in the Course of Dentistry, who were studying the subjects that use the portfolio as a teaching instrument. Among these, 169 students participated in this study, being 75.1% (n=127) female and 24.9% (n=42) male. Most (56.4%) of the students surveyed had up to 20 years of age and 43.6% were above 20 years old. The inclusion criteria for participation in the study was the regularity of the student's enrollment in the subjects under scrutiny and the acceptance in participating of the study, whereas the exclusion criterion was not signing the Informed Consent Form and the inadequate filling of the questionnaire. Several applications of the instrument were made, until all the chances for questionnaire filling were exhausted for all students enrolled in the subjects that used the portfolio. The questionnaire was applied in between classes by two scholarship interns of the project, taking on average 10 minutes to be answered.

Such questionnaire was devised based on the prior research of the same study group⁴ and underwent a conceptual assessment from the study group on Collective Health of the institution, which is composed of 4 professors specialists in the area, with at least 5 years of teaching experience.

To assess the comprehensibility of the instrument, a pilot test was conducted to validate the questionnaire, for which ten students were selected. Those who participated in the pilot test were all undergraduate students of Dentistry, aged from nineteen to twenty-six years, who were using the portfolio as a teaching-learning method for the first time. This group suggested modifications, reported the difficulties found, and encountered synonyms for words with a greater possibility of misunderstanding; hence, the groups of researchers reached the final version of the questionnaire. Students participating in the pilot test were excluded from

the final sample.

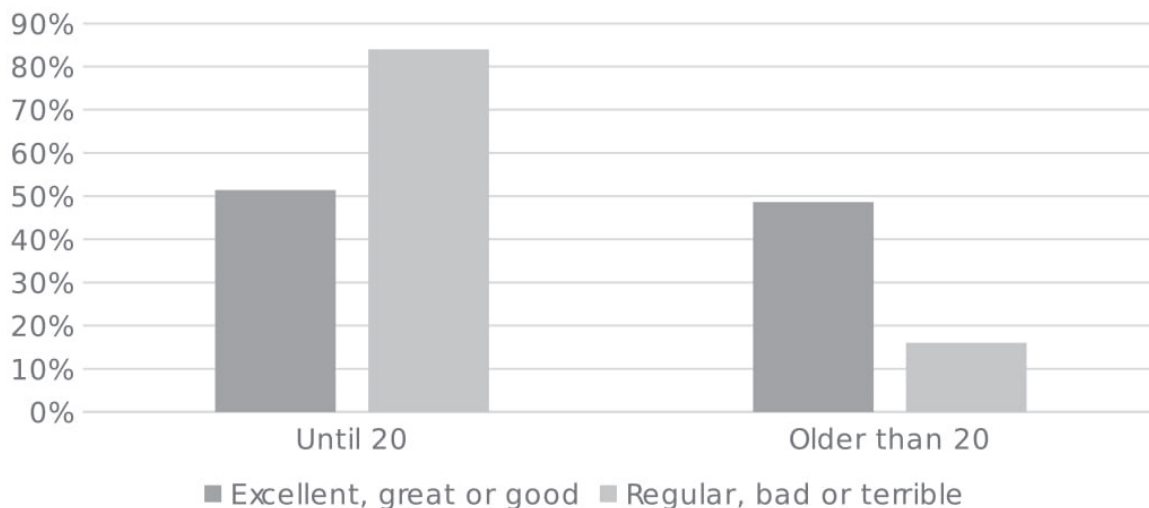
The academic subjects studied had two types of evaluation: the summative and the formative. Grades of the summative evaluation correspond to each (theoretical) test that occurs at the end of every period. The grades of formative evaluation will be the responsibility of professors, who shall evaluate the student through the registry in the Portfolio Field Notes, which should portray the activities experienced and their own reflections. Portfolios were evaluated three times a semester, because the course is composed of three stages every six months. Other aspects will be also observed, such as: attendance, punctuality, interest, participation, student/teacher relationship, as well as the search and use of literature that supports the knowledge about the practice experienced.

Descriptive statistical analysis was used, and the data was expressed in absolute frequency and percentage. Results obtained were divided into two categories of analysis: group 1, whose reviews were classified as excellent, great or good, and group 2, in which the students evaluated the instrument as regular, bad, or terrible.

Results

In this study, 169 students participated, consisting of 96% of the study population. Most students were female 75.1% (n=127). As for age, 56.4% (n=93) are aged up to 20 years and 43.6% (n=72) are above 20 years old.

Most respondents (n=141; 84.4%) reported that the use of portfolio was excellent, great or good. Through the analysis of Figure 1, it was possible to observe that most students who evaluated the portfolio as a regular, bad or terrible teaching instrument are below 20 years of age.



Source: Author.

Figure 1. Portfolio assessment regarding the age of Dentistry students, Fortaleza, CE, Brazil, 2016

Regarding the difficulty in producing portfolio activities, 71.4% (n=120) stated they had no difficulties. When there is a difficulty, it is in the search for scientific articles, with 46.2% (n=78), highlighting the search for reliable data sources. The second major difficulty was synthesizing their reports, with 27.8% (n=47).

Although 56.3% (n=94) of the students reported that the portfolio provides greater autonomy, it was possible to observe that students who do not believe that the portfolio brings more autonomy classified the teaching-learning method as regular, bad or terrible. Those who stated that the portfolio enabled greater autonomy, in turn, evaluated it as an excellent, great or good teaching-learning method.

The proposed activities were carried out with ease by 70.2% (n=118) of the participants. And the time was considered sufficient for them (72.8%; n=123). In Figure 2, one can note that students who had difficulty in preparing the portfolio are the ones that most rate it as regular, bad or terrible. Among those who do not experience difficulties, most consider the portfolio as excellent, great or good.

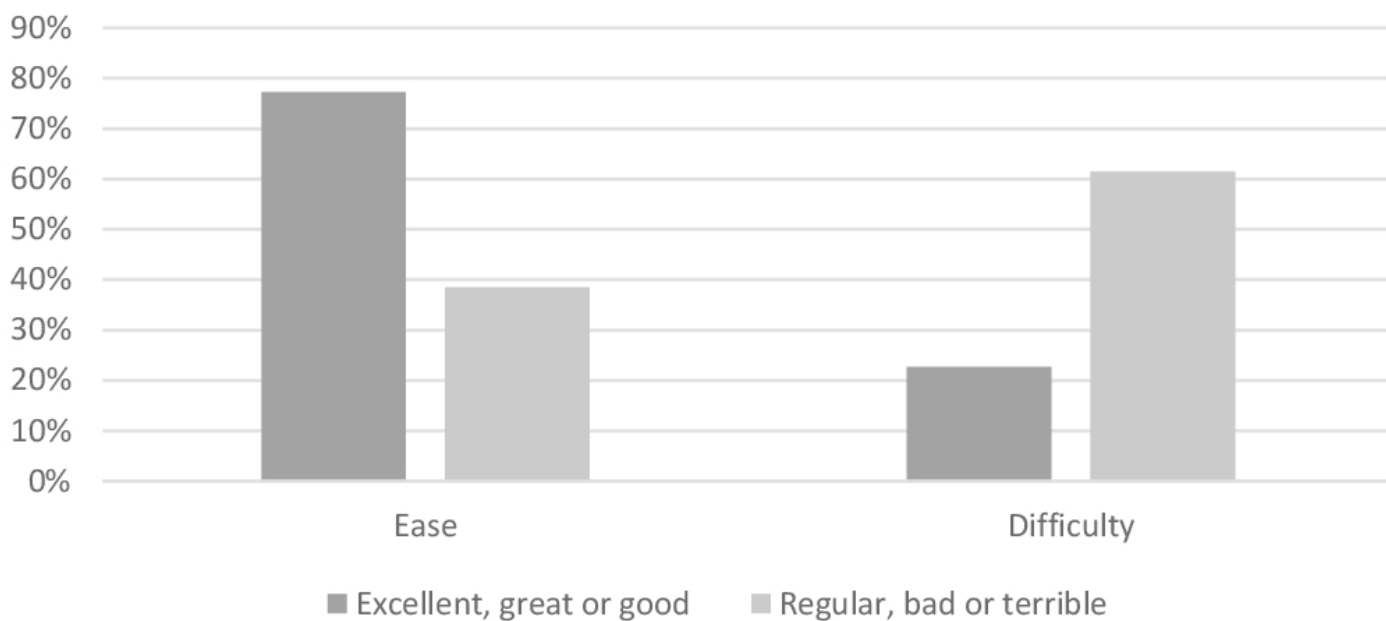
In agreement with such information, it has been seen that 60.5% (n=101) of the students stated that the portfolio facilitates and 78% (n=131) considered that it also provided improvements in their learning.

During analysis, we found that 73.7% (n=123) of the scholars rated the professor's approach to the use of the portfolio as excellent or good. Analyzing the development of writing, 72.8% (n=123) reported that it is excellent or good. Class performance using the portfolio as a learning method was classified as excellent or good for 65.6% (n=109).

The portfolio was also envisioned as a stimulus for students to want to use this study method if they become teachers (n=109; 66.1% of the respondents).

According to this study, we found that 67.5% (n=112) of the respondents stated that the portfolio promotes the ability of reflective thought, and 46.1% of the students reported they became more critical with its use.

Activities prior to theoretical or practical classes were proposed by the professors to students, stimulating them to research both the theoretical content as the techniques for



Source: Author.

Figure 2. Portfolio use assessment regarding the ease or difficulty in making it by the Dentistry students, Fortaleza, CE, Brazil, 2016

performing a practical procedure; with that, 81.8% (n=135) stated that the portfolio guides the practical lessons. In addition, 53,9% (n=89) preferred the portfolio to the traditional tests.

As observed in Figure 3, students who regarded the portfolio as excellent, great or good (59.9%; n=82) prefer it to traditional tests. Students who do not prefer the portfolio to traditional tests, in turn, are 76.9% (n=20) of those who evaluate the portfolio as a regular, bad or terrible teaching method. Most students regarded the portfolio as a reflective report (59.2%, n=100).

by their little experience and maturity in academic issues. Moreover, being this an innovative methodology, some students may find it difficult to accept the use of the portfolio, considering they are familiar with more traditional methods of evaluation.¹

Almost 3/4 of the respondents state that there is no difficulty in producing the portfolio activities and, when it does exist, the second major struggle was the synthesis of their reports – similarly to the findings of a research that discovered that students have difficulty in choosing the most important information.¹¹

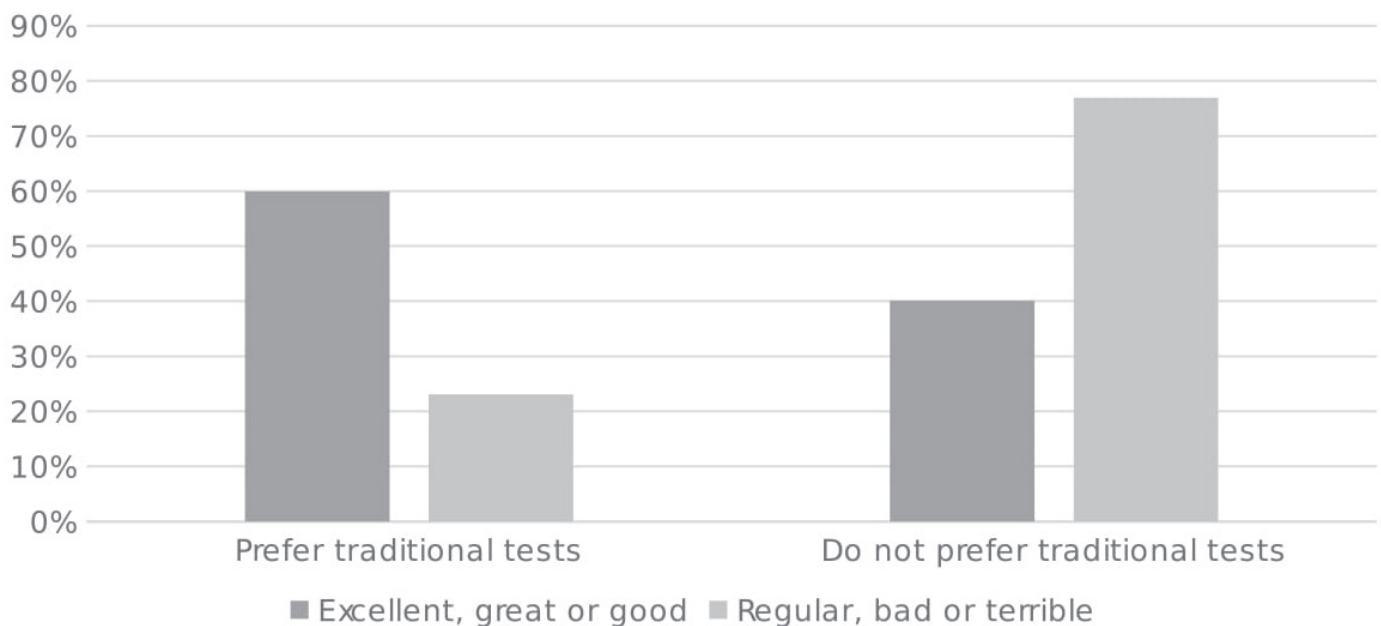


Figure 3. Portfolio use assessment regarding the preference for it or not in comparison to traditional tests. Fortaleza, CE, Brazil, 2016

Discussion

Most respondents were female, corroborating the INEP data of 2013, in which 76.5% of the students enrolled in higher education courses of the Health area are female.⁹ In addition, the mean age of most students participating in this study was over 20 years old, which is consistent with the mean age of students with conditions to enroll in an in-class undergraduate course – 25.8 years old.

The large majority of the interviewees stated that the use of the portfolio was excellent, great or good, in accordance with the findings of a study which determined that such pedagogical tool brings fundamental experiences for the professional development.¹⁰ Since most of the students who evaluated the portfolio as a regular, bad or terrible teaching instrument are under 20 years of age, this may be justified

As the students who did not believe that the portfolio brings greater autonomy classified this teaching-learning method as regular, bad or terrible, this corroborates the results of a research carried out with Medicine students of a public University in São Paulo. There, few students regarded the portfolio as a learning tool, stating that it did not contribute to increase their reflective capacity regarding the subject for which it was used.¹⁰ It should be emphasized that the professor has a fundamental role in the acceptance and success of the method. Professors must be trained to use the portfolio, through complementary readings and collective discussions to understand the concept, objective, and pedagogical proposal, so they can rethink their teaching practice.¹²

The difficulty encountered in this research as to the preparation of the portfolio may be linked to the fact that students prefer traditional, more familiar methods, and end up rejecting new teaching-learning methodologies, or yet to the lack of training of professors who use the method and, sometimes, even the difficulty in the guidance process due to the large number of students per subject.^{4,6,8-13} Another hypothesis for the difficulty in preparing the portfolio would be the little experience with the method, being often the first time the students uses this teaching-learning strategy.

Since most students in this study reported that the portfolio facilitated and provided improvements in learning, this is in accordance with the idea that the record of activities in the portfolio amplifies and deepens knowledge.¹⁴ The use of the portfolio was also employed in a study carried out at the University of São Paulo, in which the authors concluded that such strategy enables several ways to discuss professional life situations, thus leading to an effective learning.¹⁵ Yet, in a study conducted with students of a Health subject in the Federal University of Viçosa, 79.3% of the respondents opted for the active learning methodology using the portfolio instead of the traditional methodology, which was mainly justified by the stimulation of critical-reflective thinking.¹⁶

Dentistry scholars evaluated the professor's approach with the use of the portfolio as good or excellent, which may be justified by the fact the professor is the one who is in charge of transmitting knowledge and their experiences, thus favoring the creation of a bond of admiration between professor and students,¹⁷ in addition to the frequent meetings between professor and students to reflect, discuss, criticize and propose a policy for using the portfolio.¹³ Moreover, the development of writing and the performance of the class with the use of the portfolio as a learning method was reported as being excellent or good, reaffirming that the improvement of writing makes the students find themselves within the groups, creating bonds and participating in the collective work.¹⁸

The portfolio is a work done by the own student, and the professor has the role of guiding the learning,¹⁹ a factor that stimulates most students to want to use this method of study should they follow the teaching career.

This strategy promotes the faculty and students start a reflective thinking both about themselves as those surrounding them.^{20,21} When this study states that the portfolio promotes the ability of reflective thinking, it only confirms what such tool enabled in a study group, retracing the past and present thinking and analyzing in depth the problems proposed and their solutions.²²

The evaluation using this teaching strategy happens in a procedural manner,⁴ and students tend to prefer the portfolio, as seen in this study. Traditional tests do not allow the longitudinal monitoring of the student's learning process nor the assessment of its quality, as they are not a continuous evaluation. Furthermore, they do not reliably represent the knowledge acquired by the student during such process, because they may be influenced by psycho-emotional factors.²³

The portfolio has great importance as a potentiator of reflective knowledge construction¹⁰, ratifying the findings of this study. Such pedagogical tools is regarded as reflective because it stimulates self-criticism, freedom, expansion of conceptual bases, and continuous evaluation.²⁴

The limitation of this study is its cross-sectional design, as it is a new teaching-learning method for the course under study. Longitudinal studies should be carried out to check the evolution of the method and the individual monitoring of the students.

Conclusion

Students of the Undergraduate Course of Dentistry evaluated the portfolio as an effective teaching-learning method with ease in its preparation, in addition to guiding practical activities. As advantages of the method, we could mention the procedural evaluation of the teaching and stimulus to critical reflection, in addition to the good acceptance by students. Some difficulties in preparing the portfolio could also be observed due to the greater familiarity of students with more traditional methods. However, according to most participants of this study, the portfolio stimulated the reflective thinking and was a proper strategy to evaluate the teaching-learning process, whether in theoretical, practical or clinical academic subjects.

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