

An orthopedist working as a professor of orthopedics and traumatology at the undergraduate level



<https://doi.org/10.56238/sevened2023.007-057>

João Paulo Fernandes Guerreiro

Post-Doctorate

Institution: Pontifical Catholic University of Paraná

ABSTRACT

The practice of teaching orthopedics and traumatology at the academic level has been increasing in our country because of the increase in the number of medical courses. In many cases,

professionals who are not so well prepared become teachers in charge of a subject. In this article, I report some of the experience I have had in recent years as a professor of orthopedics at the undergraduate level. I report on the conception of teaching developed, the approach I have developed and the evaluation of the effectiveness of this approach.

Keywords: Teaching, Orthopedics, Undergraduate.

1 INTRODUCTION

1.1 TEACHING DESIGN

My current conception of teaching is based on the way I was taught in my academic training as a physician and post-graduate in orthopedics and traumatology residency, master's, and doctorate in surgery. This base has a good practical experience as a student, but it was devoid of pedagogical concepts. My practice as a professor begins as supervisor of a medical residency program in orthopedics and traumatology since 2014 and examiner in the title exams of the specialty of orthopedics and traumatology with the Society of the class in the same period. Again, a good practical experience, but without any theoretical pedagogical knowledge. The beginning of my theoretical pedagogical knowledge only happened when I started my work as an undergraduate professor in July 2017 and started to participate in training courses within the university in 2019 and start understanding concepts of Linda Suskie, 2009 and John Biggs, 2011; search for textbooks such as Scallon, 2015 and Barkley, 2020. I learned concepts to develop constrictive alignment, competency-based approach, and meaningful learning assessment. I came to know and understand better my role as a teacher and what the student's role would be.

In my practice as a teacher, I have always tried to mirror myself in the teachers I had and who most aroused interest in the subject they taught, those who made me more comfortable to learn without fear of making mistakes, those who made me learn from mistakes in a safe way and those who seemed to make that subject more accessible to their students. I realized during my training and experience as a teacher and preceptor that positive discipline can be a great ally of teaching. Reading a little about



educators like Maria Montessori and authors, like Jane Nelsen, clarified some basic points about the subject and encouraged me to practice connecting with students. I create strategies to stimulate the student's interest in the search for theoretical and practical knowledge to prepare for the future practice that awaits him. Talking less and asking more, establishing agreements, with this I try to help the student to learn to use the knowledge and tools available to solve problems.

I believe that when the student learns the most is when he feels part of the process and acts actively under supervision that always comes with the idea of giving good examples of "Knowing How to Be" in that situation, "feedbacks" in a sincere and constructive way, making it clear that no one is 100% perfect (there will always be something to improve) and stimulating self-evaluation. The teacher's role is to demonstrate in that particular action how the student should act, what would be the minimum expected of him at that moment, what cannot happen as a result of his action and demonstrate at what moment the failure happened. It should also explain what good and bad performance means in a clear way, what is allowed during the learning process, welcome when the student makes mistakes and teach him to learn from mistakes. My goal is to teach by providing the student with the opportunity to learn how to do it based on previous concepts already offered, in a safe and comfortable scenario for him, being able to make mistakes and learn from mistakes, generating some satisfaction and not just frustration.

I believe that good teaching cannot be guaranteed without good evaluation. Following the 5 dimensions of Gulikers, 2004; With the concept of authentic assessment, the student needs to know what he should do, where he should do it, with whom he should do it, what will be the result of his action and how what he does will be evaluated. For me, good teaching is what guarantees the student's learning in the best possible way. For this to happen, everything has to be well clarified and agreed between the teacher and the student before the start of learning, the process has to occur as agreed, it must have the active participation of both, always generating challenges and some satisfaction (to stimulate the greatest possible effort), producing "feedbacks" during the process, and the evaluation must be continuous and have the participation of both (aiming to generate the evolution of the student and the process itself) during the and at the end.

2 TEACHING APPROACH

I believe that most medical students, when they choose this path, imagine themselves in front of a patient trying to help them in the best possible way. Within the specialty of orthopedics and traumatology, the possibility of different scenarios is many. I use these possible scenarios as a background for my approach. I try to lead the student to this situation with examples that I cite in the lectures, with the clinical cases discussed in the tutorials, so that this feeling of responsibility and the need to make correct decisions encourages them to fix the basic knowledge of the subject (this I usually



try to make very clear in my speeches and repeat several times in several different situations and examples) and to always seek its improvement. This approach begins by indicating to the students the previous study through the reading of a basic text on a topic by the student, seeking to review previously learned content and bring new content to the discussion that we will make. Then I do an expository class in which the student has the opportunity to reinforce some concepts acquired in their study and answer questions that have arisen. In a third time, we simulate the attendance to a problem case, which I previously prepared, in which at each stage of the student's evaluation I question his ability to diagnose the problem, performing an exam or proposing the performance of analyses that help him to elaborate a hypothesis and propose a conduct For the case, based on the concept you have already learned (with the study and with the lecture) and then I present a "feedback" adding information and different ways of approaching the same case, I give examples of situations and behaviors already carried out by me or reported by colleagues, in order to increase the range of possibilities for student action in the future. This process is repeated for each of the study topics and covers all the elements of competence and learning outcomes of the discipline of orthopedics and traumatology, as we try to translate into our mental map present in the teaching plan. We did these simulations during the course cycle as a formative assessment and at the end of each course cycle we do a summative assessment following the same format, but in open and multiple-choice questions of the written test. This year, at the end of each semester, on the recommendation of our course coordination, we applied a summative practical test in the format of OSCE (Structured Objective Clinical Examination) where the student should perform a simulated service showing how he would behave and how he would make the initial assessment of a patient. We used as "models" of patients some volunteer students who had gone through the course in the previous semester. As we would have this evaluation at the end of the semester, the students were committed to the formative evaluations that I made during the face-to-face meetings that discussed clinical cases and they could practice the care in a dummy or colleague with a focus on knowing how to approach the patient, perform the physical examination and demonstrate how they would explain the diagnosis and possible initial treatment options.

I'll give you an example of the topic of traumatology. The learning outcomes include 1-analyzing the main findings of the physical examination, 2-evaluating the main complementary tests to be requested, 3-elaborating diagnostic hypotheses, and 4-proposing an initial treatment. Students are advised to study the anatomy of the joint in question. We give a practical anatomy class using the anatomy lab. Before the discussion of the topic, we provide students with some questions that we intend to be answered to serve as a study guide and search for prior knowledge. On the day of the meeting, we present a clinical case and ask about each of the intended learning outcomes as a form of formative assessment and make corrections and feedback on each question so that the whole class has the knowledge of the correct concepts and understands how they will be assessed on the day of the



summative assessment and in the future. when formed. I asked the students to demonstrate on a dummy, mannequin or colleague how they would take the anamnesis and physical examination of the patient, always stopping to correct and resolve doubts, and then how they would try to explain the diagnosis and initial treatment intended. The written summative assessments were formed by questions that followed the same model that we used in clinical cases and problem situations, always with questions asked about the intended learning outcomes. I understand that by using clinical cases and trying to bring students, at least indirectly, in front of the patient, needing to make some decisions, even during the 3rd year of college, we encourage students to feel closer to clinical practice, promote the development of reasoning, self-regulation and metacognition.

We carry out teaching in this way because we believe that the active action of the student remembering previous contents, acquiring new concepts with readings suggested by the teacher and demonstrating how to use them, under supervision, associated with the teacher's exposure of his knowledge in the expository class and with practical examples in the discussion of problem cases during feedback, including new examples, It combines the student's learning to search for information with how to use it in future practice. By working not only as a professor of orthopedics in the undergraduate program, but also as a preceptor of the internship, preceptor of the residency and seeing my patients in private practice, I am able to give the most diverse examples of the most diverse situations that I experience and this helps the students to see themselves in these various future situations, which they are preparing to face in the near future. I also realize that citing examples of cases and difficulties that I have encountered in my daily life brings me closer and arouses more interest from students. I realize that by placing, even hypothetically, students in these scenarios and giving practical examples that I have already experienced or known, I can promote the emergence of interest (reach the emotional side of students) in the discipline or topic of study that encourages them to use previous knowledge, to make the interaction between previously and recently learned information, and to seek new knowledge to solve that problem situation.

3 EFFECTIVENESS OF THE APPROACH

In the summative evaluation scores, I did not observe trends or outliers. They had a variation within the class, but without many discrepancies in my assessment. I know that this may be because there was enough learning from the class for what was proposed at the beginning of the cycle, especially because this was compatible with the results of the formative assessments we did during all the weeks of the semester.

With the return of face-to-face meetings in 2022, I was able to better understand how each student was doing with the face-to-face formative assessments. As a result, the course corrections during the semesters seemed to me to be more assertive. By working face-to-face with the students



attending the simulated patient in class or the "real" patient in the outpatient clinic, we can see that each one of them has acquired the knowledge and capacity expected and programmed before the beginning of the course. We noticed that our help as teachers helped, but the commitment of the students was fundamental. Reading the reports in our evaluations surprised us positively and we believe that we were able to convey to them some of our satisfaction in studying the specialty of orthopedics and traumatology. Some spontaneously reported that, even though they did not intend to become orthopedists in the future, they enjoyed studying orthopedics.

I believe that the formative assessments first showed what the summative assessment method would be like, reducing some of the anxiety on test day. As already said in the previous item about the teaching approach, I believe that during the evaluation of problem cases the student has the opportunity to exercise his reasoning and even to make mistakes and have his knowledge complemented by feedback and other examples of possible behaviors for each case. Being present in classes and discussions in 2022 made a difference in understanding the evolution of the students.

My way of perceiving the effectiveness of our approach was based on six items. The first was to observe the evolution, each new week, in the safety and quality of care and discussion of the cases seen in the outpatient clinic. Second, observe the results of the formative assessments during the case discussions in the tutorials. Third, by seeing their performance in the practical test that we apply quantitatively and qualitatively. Fourth, getting good ratings and feedback from students. Fifth, receive positive comments from the course coordination. Sixth, to find students from the previous years in the internship already in the practice scenarios at the hospital in the 10th period, well prepared to perform the initial orthopedic care. I felt that there was a connection between the students and orthopedics and traumatology this semester and that they will take the concepts that the general practitioner should know about orthopedics. I had high demand for students to start scientific initiation in the field of orthopedics in 2022 with 4 of them getting a PIBIC 22-23 scholarship.

This possibility of contact for a little longer in the scientific initiation after the end of the semester of the orthopedics course with some "former students" brought me "feedbacks" that are sometimes more sincere and detailed about the discipline they have just taken than the "feedbacks" of those students who are still finishing the semester of the discipline, in the "heat" of the end of the semester and with that I was more sure that we are on the right track.

The students supervised by me in 2022 achieved the expected goals for 5th period students. I noticed this by the final grades, but also by the performance in the last theoretical and practical formative assessments, by the way they were presenting and discussing the cases in the last discussions and tutorials; and in the last outpatient clinics. Another point that I consider fundamental in my role as a professor is to captivate students by the discipline that is considered "a world apart" within medicine.



I felt that I had fulfilled this well, as well as the compliments already and when many students in the class asked me to accompany some surgeries during the end of the course and even during the holidays.



REFERENCES

Scallon, Gérard. Avaliação da Aprendizagem Numa Abordagem por Competências. Curitiba: PUCPRPress. 2015

Barkley, E.; Major, C. Técnicas para Avaliação da Aprendizagem: Um Manual para os Professores Universitários. Trad. Juliana Vermelho Martins. Curitiba: PUCPRESS, 2020

Gulikers, J.T.M., Bastiaens, T.J. & Kirschner, P.A. A five-dimensional framework for authentic assessment. *ETR&D* 52, 67. 2004