

Teaching Training in Simulation: Perspectives and Challenges

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ABSTRACT

Nowadays, courses in the Health Area value proposals for differentiated pedagogical practices where the student assumes a more participative posture and solves problems. An approach to innovative teaching practices by professors requires a re-dimensioning of the look and understanding of the method applied in their area of expertise. Among the pedagogical possibilities with these characteristics is the simulation method. The objective of this study is to investigate how teacher training based on the simulation method has changed the perspective on practical activities and their impact on the classroom. This is a qualitative study in which the inclusion criteria were to take the teacher training course promoted by the simulation and performance laboratory in this space. Data collection occurred in January and February 2022, and content analysis in March 2022. The construction of being a teacher in simulation is related to internal motivations that lead to the search for change and new perspectives in the classroom classes, which are accompanied by challenges that can be overcome to achieve quality critical-reflective education for teachers and students.

Keywords: Learning, Medical Education, Simulation, Teachers, Teaching

Introduction

The teacher's role as an educator is related to motivating, innovating, and helping students to participate autonomously in the educational process in the classroom, in the role of facilitator of the learning processes. Therefore, the pedagogical practice is associated with applicability so that there is an educational dynamic between the facilitator and his learner [1].

Changes in theoretical-methodological references and ingrained assumptions about teaching must be considered in the development of teaching in practice. With the search for new models and new practices in health education institutions, a conflict arose in the relationship between teaching and learning in an attempt to modify the traditional and bring innovative tools to the classroom and the teaching process learning as a whole [2].

The first guidelines for medical education in Brazil, dating from 2001 considered the social role of training as the major axis of the teaching-learning process, starting to include the integration between theory and practice, research and teaching, inserting the student in training activities and active participation in the construction of knowledge. As of 2014, the Curricular Guidelines (DCNs) proposed to break with the pedagogical practice of knowledge transmission, still very present today, to return to the critical reflection of knowledge production and its applicability. Proposals for differentiated pedagogical practices in which the student assumes a more participative posture solves problems, develop behavioral and affective skills create opportunities for

building knowledge, and are being more valued in medical courses [3].

Among the pedagogical possibilities with these characteristics is the simulation method. A recent review regarding teacher training in simulation showed that few studies show the difficulties and challenges of this type of activity by teachers [4]. This study aims to investigate how teacher training based on the simulation method has changed its perspective on practical activities and its impact in the classroom.

The Teaching Profession in the Faculty of Medicine

It is questionable whether a medical specialty is enough for applying to a teaching position in medical schools. Many public notices prioritize postgraduate studies as a prerequisite for this function. Although postgraduate training is required to qualify for the position, generally it is related to research functions and not to classroom experiences. The understanding of being a teacher is associated with a task performed naturally, that does not need training, only technical knowledge of their professional practice. The qualification of the future professor as a specialist, in the case of medical school, is not enough to develop the skills necessary for their performance in academic education. In this sense, teacher-centered training and their experiences are extremely important for the insertion of new practices and processes in the classroom and education as a whole [5].

Undergraduate professors who are not epistemologically aware of their role in the context of student education consider teaching a secondary activity to their profession. The devaluation of teaching activities as opposed to the overvaluation of research

activities is one of the limiting factors that leads to a lack of interest in the profession and being a professor. The lack of pedagogical training in these cases undermines the professional identity of the doctor-teacher, preventing the appreciation of teaching as a profession. The identification of the teacher as the professional responsible for the pedagogical practice plays a fundamental role in its appreciation, thus reflected in his/her actions [1,6].

Skills of Being a Professor

The self-reflexive development required to leverage teaching professionalization goes beyond technical-scientific knowledge, it is related to “reflective praxis” and to an interaction between “pedagogical and scientific knowledge” [5]. In contrast, a more technical view refers to teacher training as involvement in didactic-pedagogical aspects, technical-scientific updating, and the interrelationship with services for the management of changes [1].

Teachers who are prepared to combine technical knowledge with pedagogical work, based on their reflections arising from experiences of experimentation, innovation, and different teaching methods, can conceive and implement appropriate actions for student learning demonstrating the specific mastery of the profession. By knowing the complexity of their involvement in the teaching categories such as curriculum guidelines, teaching plans, lesson plans, and assessments, professors assume their role as a facilitator in a formative process of experiential learning for students. Using its skills, the teacher prepares the student to learn how to learn, and to follow the knowledge evolution, in an approach that encourages reflection, and self-assessment.

An approach to innovative teaching practices by professors requires a re-dimensioning of the look and understanding of the method applied in their area of expertise, which allows the construction of knowledge. In a decentralized way, it allows understanding the world in its multiple relationships, interacting with it, and acting in direction of its transformation. In this way, the teacher becomes a facilitator of the learning process. During the articulation of changes, the university and the professor become dependent, on the one hand, on the provision for innovation and, on the other, on reflective practice and application, not dissociating the importance of this relationship for teacher education [5].

Simulation as a Teaching Methodology

Simulation as a teaching methodology provides real-life experiences, in which participants can act authentically, seeking to improve their conduct, in situations of self-assessment and self-correction under the guidance of a facilitator. Thus, the process of teaching and learning occurs through structured situations providing an environment capable of reflecting reality. It is constituted by didactic instruments capable of providing relevant experiences, stimulating communication skills, conflict resolution, sending and receiving feedback, establishing goals, decision-making processes, and aspects inherent to group leadership, characterized as “Soft Skills”. In this practice, students are mobilized to study and solve problems, research and seek solutions for issues related to professional practice, learning for themselves with greater interest. Each simulation provides new attitudes and decisions, assertive or not, that should be

reflected, discussed, and corrected later. Performance feedback, in the form of structured feedback or safe debriefing, should be offered to the student so that they can improve their practice, stimulating their cognitive abilities and critical thinking. Not giving feedback or not carrying out the debriefing distances the student from reality and makes him have a distorted idea of his performance, without the possibility of self-correction [7-10].

Methodology

This is a qualitative study derived from the conclusion monograph of the Teaching Specialization course at UFPEL. The related research question is: How do training processes in simulation impact health professors at UCPEL in their training and practices? Inclusion criteria were professors at the Life and Health Center who took the simulation training course promoted by the Realistic Simulation Laboratory-SIMLAB and who work at Simlab. Exclusion criteria form professors who do not participate in SIMLAB activities. Data collection happened between January and February 2022. Content analysis happened in March 2022.

Instruments

Qualitative Questionnaires

Firstly, a qualitative questionnaire containing five questions about the experience of teacher training in the simulation was sent via the Google Meet platform to teachers who work at SIMLAB/UCPEL and who took the training courses offered by the laboratory, as shown in Table 1.

Table 1: Teacher training in simulation 1

| |
|---|
| What is your opinion about the teacher training course offered by SIMLAB? |
| What aspects did you identify yourself with the proposed method? describe |
| Were you able to put into practice what was proposed? Explain. |
| What were the advantages of the method that you found? |
| What difficulties did you encounter with the method? Have suggestions? |

Then, a qualitative questionnaire with open questions about the classroom implementation of skills and competencies developed in the courses was sent via the Google Meet platform to teachers who work at SIMLAB/UCPEL and who took the training courses offered by the laboratory, as shown in Table 2.

Table 2: Implementation of activities 1

| |
|---|
| What activities do you experience in the Simulation Laboratory? |
| Describe the facilities found by you in carrying out the Realistic Simulation. |
| Describe the difficulties you encountered in carrying out the Realistic Simulation. |
| Did you receive any instruction to work with this active method of teaching and learning? |
| What is the importance of this method for teachers and students? |
| What skills do you think this method develops in students? |
| What is your degree of satisfaction with the administrative organization of SimLab (materials, mannequins, assembly of classes)? Justify. |
| What is your degree of satisfaction with the pedagogical organization of SimLab (teacher qualification, training)? Justify. |

The content obtained was analyzed in March 2022, and the responses were categorized in a Microsoft Word table, capturing the central ideas.

Ethics Committee

The study was approved by the UCPEL Ethics Committee under opinion 4.780.560 / CAAE 47947921.3.0000.5339.

Theoretical Methodological Framework in Simulation

The simulation methodology leads the student to a formative education that provides reflection and self-correction, when training in a safe environment, guided by the facilitator. Thus, characterizes learning that aims to place the student at the center of the teaching-learning process, actively involving him in the acquisition of new knowledge [11].

The Simulation Laboratory is a center that involves activities to train students in dealing with common situations in medical practice in the health area. The simulation method allows the student to act in a safe environment before exposing himself to the patient and real situations. This implies the development of a set of skills and competencies provided by the practices developed during their passage through the laboratory. For teachers, training in the simulation method aims at conceptual appropriation and the development of skills necessary for planning their activities, getting to know the structure of the simulation center, and inserting simulation into their teaching practices to facilitate the student's learning-teaching process, based on significant experiences, hence the term facilitator is attributed to the teacher when it comes to simulation [1].

The student-teacher relationship, now centered on students and their experiences, on freedom of expression as a contributing factor to dialogue and in the teaching-learning process, are the axis of the simulation method. The teacher's role in this process

is that becomes a facilitator/tutor, a provocateur that triggers learning processes [4,11].

A Proposal for Training Facilitators/Instructors

As learning facilitators, professors must lead students to a practice closer to reality in simulation. Considering the inclusion of the simulation laboratory in graduation and the method, an annual training course was offered to the institution's professors, starting in 2017, as a proposal for training facilitators/instructors in simulation. The undergraduate courses and professors that joined the study came from the faculties of medicine, nursing, dentistry, physiotherapy, and biomedicine. Despite the participation, not all professors remained active in the laboratory.

During the period from 2017 to 2021, 64 professors participated, with 15 professors currently active in SIMLAB. Many of these did not identify themselves with the method or were unable to insert it into their practices. Disciplines from the second to the sixth year of medical school implemented the method as a complement to the development of student skills and competencies.

The professors were introduced to the methodology of teaching in simulation, to its pedagogical proposals, in addition to the operating rules and scheduled activities of the laboratory. The subjects were approached in different ways each year, according to the need and the disciplines, seeking to meet the requests of the professors. The meetings lasted 3 face-to-face days, totaling 24 hours. Since the pandemic, meetings have been online, for a total of 12 hours. In these meetings, different topics were addressed, such as the development of lesson plans, and scripts, handling of mannequins, assembly of the simulation room, knowledge about laboratory management, discussion and development of scenarios, simulating their performance with students, in the same way as they would simulate in their subjects. (Table 3).

Table 3: Teacher training in simulation 1

| Period (Years) | 2017 - 2021 |
|----------------------------|---|
| Content | The curricular model and its proposal in the construction of clinical competencies. Realistic simulation in health education. How to work with the different complexities and allegiances? The simulation laboratory and its multiple possibilities. Work with Communication in relationships in the health area. Communication activity. The simulation and the facilitator. The Fiction Contract. Feedback workshop. SWOT Analysis. Crisis Management. Team Works. How to create low-fidelity and complex guides? Create a class script (Simlab). Spike report for communication. The Communication Lab: Hard News. Communication simulation. Workshop - Workshop 1 (scenario 1 / high fidelity) - Simulation x Debriefing (instructor). Workshop 2 (scenario 2/ high fidelity) - Simulation x Debriefing (Instructor). High-fidelity simulation with Debriefing (Team 1) (Team 2) (Team 3). Adult learning and the simulation method. Simulation as a teaching methodology. Know the laboratory and available materials. The management and operation simulation laboratory. Activity planning for students: development of low-fidelity guides.6. Elaboration of medium and high-fidelity guides. Instructional feedback x Debriefing. Feedback and Debriefing workshop. How do we learn? How do we teach? What does the student expect? Understanding adult learning. Knowing the educational process. Active methodologies in teaching and Constructivism. The simulation. The role of the teacher/facilitator. Principles and Instructional Design of Simulation. Meaningful learning. Pedagogical workshop: developing simulation scenarios. Structured Debriefing. Evaluation with simulated stations: OSCE. Pedagogical workshop: station simulated by Teles simulation (simulated scenario, assistance, debriefing, and evaluation). Stations simulated in SIMLAB (group 1 with 4 participants). |
| Gradation Courses | Medicine, Nursing, Dentistry, Physiotherapy, and Psychology. Núcleo de Saúde Coletiva medical school. Center of Gynecology and Obstetrics of the Faculty of Medicine. |
| participating teachers | 64 |
| Teachers working at SIMLAB | 24 |

During the course, teachers receive interactive material, such as recorded classes, didactic material, and tasks to be carried out on the interactive platform to instigate reflection and a new look at everyday life and the epistemology of their practices [1].

Interviews With Findings in Dialogue with the Theory Teacher Training in Simulation

The learning process for adults is related to an internal motivation that is accompanied by moments of action-reflection-action of the environment for practice, which allows its transformation [1]. The offer of the training course aimed at teachers arose from the need to bring them closer to the laboratory and the tools associated with the simulation method. In this process, the teachers who participated in the activities reported that the experience allowed them to reflect on teaching methods, fostering curiosity and the desire to seek more information, generating more confidence in their practices. This reinforced the premise that training is related to the change component, and that this must occur in partnership with the workplace since it occurred during the period of implementation of the laboratory and method at the university [5]. The process of “learning to teach” is related to the development of affective, cognitive, ethical, and performance factors as well as the integration of these factors into the process of analyzing one’s performance in the pedagogical context of doing and of being a teacher [12]. The teachers highlighted the need for more practical hours in the simulation room during the course, eager for moments of simulation of their practices, which reinforces the need for learning-by-doing in adult teaching-learning processes and engagement in the training proposal.

Identification with the Method Proposal

The teaching role in the planning and development of simulation practices should be emphasized since it is not just technology and infrastructure that are responsible for successful activities [4]. For this, knowing and identifying with the tools that the method provides is fundamental. The opportunity for diversified scenarios, and the possibility of discussing and re-discussing teaching models and evaluation methods were attractions that involved the teachers participating in the training course. These felt motivated by the practicality of the method that brings professional practice and the resolution of daily situations to the simulated scenarios, making it a feasible and up-to-date method as it allows replicating everyday life for both teachers and students. Once again, the importance of the place where teaching takes place is also where training takes place is highlighted. Other cited identification characteristics with the method were proactivity, innovation, learning power, the richness of the debriefing, and the exchange of knowledge between facilitator and apprentice, one of the pillars of the simulation method. In this way, participants were able to apply the method in their classes and were able to visualize the results of their training in teaching practice.

Facilities and Difficulties of the Method

Simulation in the medical area provides learning experiences, the opportunity to repeat and review what has been done, and the opportunity for the student to resolve what is presented in decision-making, in a scenario close to the reality of care [4]. These characteristics of the method were described by the professors as facilities found in its application: joining scenarios,

allowing explaining what happened, putting clinical cases into practice, controlled environment, small classes, and more productive discussions. Just as planning is part of the activity, implemented in each teacher’s lesson plan, its application during the simulation made the process more pleasant and satisfactory, guaranteeing better performance, as reported by the teachers interviewed. It is important to emphasize that the method does not revolve around technology and the innovation that accompany it, but the understanding of the teachers of the conceptual basis of its application [4].

In terms of the difficulties encountered, the professors reported more time to prepare the activities, little time available to finish all the classes, inexperience and the complexity of creating scenarios, the need to have simulated actors, and how the lack of this element in the simulations weaken the activity, as the activity in its planning becomes strenuous, for working with large groups and, therefore, having to repeat the activity countless times.

In the literature there is a lack of information regarding the educational intervention of simulation, emphasizing the difficulties encountered concerning the organization of activities and laboratories, such as the lack of financial resources and technological infrastructure, the need for teacher learning, as well as the lack of teacher training courses in the method. Among the interviewees, one highlighted the need for materials, incomplete scenarios, the fragility of the audio system, and low-complexity simulators, as hindering the application of the simulation.

In this context, we evaluated the degree of satisfaction with SIMLAB during the development of teaching activities related to administration, its structural organization, and satisfaction. The availability of the team (laboratorians) was considered very good, which characterizes the need for the technology domain to be in charge of the team of responsible laboratorians, while the professor is fully involved with the pedagogical practices [4]. The structural organization was considered satisfactory, and the professors emphasized the lack of mannequins for some activities as a factor that interferes with the progress of the activity. Regarding the pedagogical organization, they reported that it was very good, but they would like to have more moments of meetings to exchange experiences, suggesting a continuous learning program, integrative activities, and scientific production. Thus, the continuity of teaching as continuing education highlights the assumed role and appropriation of the method by teachers and its relevance in institutional training processes [4].

Challenges and Perspectives of Teacher Training in Simulation

One of the characteristics of teacher training is related to the process of “learning to teach” constituted in the development of cognitive, affective, and behavioral skills in the construction and appropriation of pedagogical knowledge applied in teaching methodologies. The motivation to be a teacher begins with the recognition that training is necessary and, more importantly, that it makes sense in the subject’s day-to-day practices, that it has applicability, and that it presents advantages and disadvantages capable of being discussed in this process [12]. Identifying the simulation methodology, and understanding the method and its applicability in everyday life is part of the process of being a teacher in a simulation laboratory. In this sense, based on previous and daily experiences, we identified that the characteristics

reported by the professors of the course and their experiences during and in the application corroborate with the characteristics of adult learning. When performing a comparison between teaching and student teaching in graduation, we can see that both have the characteristics of retention and development of learning based on motivations, behaviors, experiences, and exchange of knowledge, and it is important that the teacher experiences and rationalizes this to approach the reality of student learning [6].

In this context, the simulation method contains the principle of adult learning, of learning by doing, under the guidance of the teacher-facilitator, knowledgeable in simulation practices, and concerned with the participatory and collaborative teaching process. Understanding the need for learning and experiencing experiences in training courses consolidates this two-way exchange process.

The professors who inserted the simulation method into their practices were those who identified the need for the new, for changing the traditional classroom and who proposed to break the barriers of unidirectional education and content transmission. This disruptive way of adhering to new proposals brought new perspectives and perspectives on teaching practices, taking comfort from those who felt the need for more integrated activities, with the exchange of information between teachers and students, facilitating the development of clinical reasoning through situations closer to reality.

On the other hand, the new brings challenges to be overcome during the teaching-learning process for teachers and their applicability in practice, such as adapting to the use of technologies, assuming the pedagogical role in the laboratory facilities, regarding the planning of classes, scenarios, and discussions. Developing a lesson plan aimed at simulation requires knowing in detail the availability of materials and equipment in the construction of scenarios within the possibilities of the environment, this often requires creativity and deep knowledge of the structure and other forms of application to practice, which can make planning tiresome and time-consuming. The constitution of scenarios involving simulated actors, considered complex, can be one of the great challenges to be overcome within the simulation laboratories due to the unavailability of actors [13-18].

Conclusion

The construction of being a teacher in simulation is related to internal motivations that lead to the search for change and new perspectives in the classroom, which are accompanied by challenges that can be overcome in the processes of continuing teacher training to achieve a critical-reflexive education of quality for teachers and students in shared environments.

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