GUIDING LEARNING THROUGH SIMULATION IN HEALTH: THE TRANSFORMATIVE ROLE OF THE TEACHER

GUIANDO EL APRENDIZAJE A TRAVÉS DE SIMULACIÓN EN SALUD: EL PAPEL TRANSFORMADOR DEL DOCENTE

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BRIEF ORIGINAL

ABSTRACT

The parameters to define what "a general teaching role" should be have varied in the history of higher education. The existing evidence in favor of generating spaces for controversy, questions, active and greater participation of students, guiding learning and not directing it, is overwhelming. Although the clinical simulation teacher does not escape this definition, there are still controversies as to whether there are true differences in their role compared to other areas of health teaching. In this article we intend to break down some issues that differentiate the teachers in charge of the facilitation process, such as clinical simulation, which stimulates autonomous learning, meaningful learning, vicarious learning, cooperative and reflective learning, learning in action and experiential learning.

Keywords: Simulation; Simulation Training; teacher; patient simulation. (Source: MESH-NLM)

RESUMEN

Los parámetros para definir lo que debiera ser "un rol docente general" han variado en la historia de la educación superior. La evidencia existente a favor de generar espacios de controversias, preguntas, una activa y mayor participación de los estudiantes, guiando el aprendizaje y no dirigiéndolo, son abrumadoras. Si bien el docente en simulación clínica no escapa a esta definición, existen aún controversias en cuanto a si hay verdaderas diferencias en su rol comparado con los otros ámbitos de la docencia en salud. Pretendemos en este artículo desglosar algunas cuestiones que diferencian a los docentes encargados del proceso de facilitación, como es la simulación clínica, estimulante del aprendizaje autónomo, el aprendizaje significativo, el aprendizaje vicario, el aprendizaje cooperativo y reflexivo, el aprendizaje en la acción y el aprendizaje experiencial.

Palabras clave: Simulación; formación mediante simulación; Docente; enseñanza; Simulación de paciente. (Fuente: DeCS - BIREME)

INTRODUCTION

The parameters defining what should constitute a "general teaching role" have varied throughout the history of higher education. Evidence supports the importance of generating spaces for controversies, active student participation, guiding learning rather than directing it. Recently, it has been recommended to dispel the myth that "the role of researcher is superior to that of teaching." In earlier times, teacher-researchers in health sciences careers were exempted from classroom teaching roles to preserve their pure scientific activity.

An editorial in The Lancet journal enumerates the lessons we have learned from having a free and leading university in most parts of the world, largely due to teaching work [1]. These include the ability of free educational institutions to generate spaces for transformations or disruptions in society or "knowledge societies" based on new emergents. Teachers are an important workforce in all countries, and health professionals become such when they "step forward voluntarily, selflessly, and bravely." Thus, with these lessons learned, this article aims to unravel some issues that differentiate teachers in charge of facilitation and guidance during health simulation, regardless of whether it is low or high fidelity and the development zone or Sim Zones of it [2].

Strictly speaking, the role of a facilitating teacher is to collaborate with participants in developing their skills, exploring their mental conceptualization during critical thinking, problem-solving, or conflict situations towards patient safety in any setting as the final goal [3]. The first question in health simulation is whether there is a unique and omnipresent facilitating role for all scenarios. The answer is negative. There are as many facilitating roles as there are ways of understanding critical thinking during the development of a simulation space. It is not the same to direct low-fidelity zones, practically face-to-face with a student, guiding their skill towards safe places, giving feedback "in action" with a checklist; as directing a heterogeneous group of students in a high-fidelity scenario, where "in action" intervention is non-existent, where a brief or scenario conduction had to be prepared in such a way that it runs practically without any collaboration, and having to, at the end, "enter" the immense and intricate network of possibilities offered by each one's thinking about what happened in the scenario during the debriefing. Much more so if it were collaborative spaces or interprofessional training.

It is emphasized that in health simulation, work is done in and on error, that it is a safe space, and that the scenario can be "run" or reproduced as many times as necessary. Our health simulation team believes that the essential and additional advantage is that students can apprehend all the actions they do correctly, transferring those correct ones to other scenarios and to reality in service. Apprehending what we do well inexorably leads to attempting to transfer the correct practices to similar practices and, at the same time, validating efficient practices while discarding practices of little clinical value.

Therefore, an untrained teacher acting as a facilitator in technical skills, even being a "Nobel Prize" in their clinical specialty, can lead to disaster in a complex scenario like a crisis simulation (Crisis Resource Management) by not knowing its implications (knowledge of mental models, active listening, leading silence, etc.). This means they could limit and reduce student participation during the simulation and miss a unique opportunity to understand the cognitive "gap" that makes that student, later as a professional, do "good" without knowing it or make mistakes without remedying it.

Should the facilitating teacher have their own conceptualizations of the teaching career? The first answer is yes, but, basically, they must understand that no professional teaching career amalgamates the heterogeneities and evolution of student trajectories. Much less knowing that the title is not only given to the most selfless teachers, who manage time well, attention, and who have the patience to give their class "with their mouth shut" [4].

What is clear is that the facilitating teacher must initially endorse constructivist and sociocultural pedagogical theories. That is, one cannot be a "denier" of theories that set limits to old ways of teaching and learning and that establish a priori that each scenario offers a new opportunity for the teachers themselves to modify their pedagogical objectives based on the students they have in front.

At the same time, a facilitating teacher must read about simulation. This, which seems an a priori truth, establishes that one must be alert to courses, congresses, expert seminars where issues related to teaching work are discussed: construction of scenarios, educational standards, and even about those issues that health science students must learn, but where simulation does not have advantages over other techniques, but even that it is inappropriate to be implemented from a practical and cost-benefit point of view compared to other techniques and tools (problem-based learning, projects, skills laboratories, classroom exercises, a seminar, etc.).

Should the facilitating teacher begin teaching simulation and producing scenarios only when their training has been completed? No, the important thing in health simulation is doing. One learns by doing, with theory at the fingertips. Health simulation requires starting with less complex scenarios, of short duration, with few students if possible, with the resources available. At the same time, they must train in health simulation, know its standards. Training produces an advantageous effect of knowing the evidence in favor of implementing communication strategies, making students confident in themselves, in their peers, in their teachers, establishing lasting fiction contracts, and at the same time showing the genuine respect necessary that simulation requires. It must be remembered that, in the history of teaching health simulation, there are unfortunate events and concerns that transformed into measures thought for the physical and psychological safety of health teams, patients, and families.

Should the facilitating teacher know in-depth the functioning of all the material resources available in a health simulation laboratory? Not necessarily; but knowing what is available allows not dreaming too far, conceiving achievable learning objectives. What is not available can be built, but what is possessed as a material resource must be known in its intimate functioning, especially of all the elements necessary to meet the objectives. If the skill to be observed in the students is orotracheal intubation, the available phantoms or partial body simulators and how they are manipulated should be considered, and at the same time, know the elements of intubation: gloves, oxygen sources, ventilation bags with reservoir, masks, cannulas, orotracheal tubes, syringes, fixation elements, etc. If the teacher does not know how to aseptically put on gloves, they cannot run a scenario where this instruction is included in the evaluation checklist. Facilitating teachers have a crucial role in the brief or pre-briefing of the scenario, which is the initial guiding element that ensures that everyone involved in learning feels confident about the existing physical material and that it can be used at some point in the simulation.

Within the framework of institutions involved in undergraduate and postgraduate teaching processes and with the aim of achieving safe practice, better performance, and quality in health care, the teacher involved in simulation must ensure that all people involved in medical care simulation are treated and treat others with integrity, fairness, inclusion, respect, empathy, and compassion, starting from planning and developing care and safety skills, essential so that in the future, as professionals, they are part of appropriate medical care that every patient and community deserves. The simulation teacher must contribute to the ethical application of simulation, which is achieved, in part, with training and updating and the subsequent compliance with common guidelines and/or standards for all those who practice it[5].

The facilitating teacher's role as a "designer" of the simulation scenario

The participation of the teacher in the scenario design is fundamental and requires knowledge of the curriculum, down to the specific subject matter that the scenario will be part of. This process also requires a combination of clinical knowledge, pedagogical skills, and creativity to create effective, realistic, and authentic learning experiences. The teacher must identify the specific learning objectives they wish to achieve with the simulation, which can range from technical skills and clinical procedures to communication skills and decision-making. A clear definition of these objectives will guide the scenario design and ensure that all elements of the simulation are aligned with the defined educational goals.

The facilitating teacher's role during pre-briefing or brief

When we do simulation, we assume risks, but always in the service of learning. No one is guaranteed that the scenario will turn out as planned and that the objectives will be met exactly as planned. This assumption of risk is guided by findings that emphasize the student's willingness to reach their social and intellectual limits with a positive attitude. Edmondson [5] refers to this student commitment, which includes:

- Reflection on action
- Seeking feedback
- Speaking up about one's thoughts
- Asking for help
- Trying out ideas that may or may not be correct
- Reflecting on outcomes

Psychological safety is the perception of the consequences of taking interpersonal risks in a given context. For example, psychological safety is high when team members perceive "a sense of confidence that the team will not embarrass, reject, or punish someone for speaking up." One practical way to ensure this does not happen is to invite students to familiarize themselves with the scenario, explore each part, point out aloud that it is a safe practice space, and emphasize that they can return to it as many times as necessary.

At the same time, it is emphasized that only those who have met the prerequisites, such as learning maneuvers through texts, videos, and other pre-provided materials, are allowed into the scenario. A low-fidelity scenario cannot turn into a seminar experience. For that, there is the seminar. During the brief, the facilitating teacher invites the exploration of the scenario and encourages participants to behaviorally return to an initial psychological phase, akin to early childhood, allowing exploration through the senses: they must touch the manikin, recognize the possible respiratory or cardiac sounds it makes, etc.

Additionally, if the facilitator has not been with the students before, they inquire about the students' mental concepts of psychological safety, getting to know them. Questions such as: How are you? Were you able to read the material we provided? Any questions about it? And affirmations such as: "We are in a simulation scenario, which is a safe practice space," "You are fourth-year students familiar with respiratory physiology, handling the stethoscope and oximeter," "Please recognize the parts of the simulator," "These are the objectives we seek in this scenario," are questions and statements that ensure the student wants to immerse themselves in the scenario without haste but without pauses.

The facilitating teacher's role during the scenario

During the development of a low-fidelity scenario or in Simulation Zones 1 or 2, it is essential that the facilitating teacher anticipates whether their role will be to invite the student to walk through the process steps during the action itself or at the end of it. This has advantages and disadvantages. If the teacher initiates the simulation of a specific technique, such as orotracheal intubation, systematically observes the steps in the student, and asks them to narrate what they are doing, there is a disadvantage that interruptions due to the student's need to "narrate" may create a lapse that prevents them from going through the steps of the implicit checklist the first time. However, the goal is that once they have practiced it in simulation several times, they can narrate it while doing it, as if speaking and doing came from the same brain region.

But if it is the first time they enter the scenario for a specific practice, it may be more beneficial to let the scenario flow during the allotted time and then invite reflection and feedback. There is no one best model for all. The best will be the one that allows the student to perform the procedure several times until they can say they "know the procedure, how it should be done, how it is done," and finally do it.

Whichever way reflection and feedback are carried out, during the action or immediately after it, the goal is for the student to know they have done many things very well, that they should repeat those every time similar situations arise, ensuring their patient is safe, secure, and prepared for the next step in hemodynamic recovery or health-illness process. It is an opportunity for the student to consciously and clearly articulate the errors made, what they would modify about those errors, why they would modify them that way, and to explore what they did not recognize in the pre-scenario material that would have led to success in their technique or skill. It is not about explaining their error. It is about identifying where the error was and recovering confidence in the technique, the scenario, and above all, self-confidence. The goal is for the student to feel it is important to do it again.

In a high-fidelity or realistic simulation, things change. There are usually more than one actor (not excluding), there may be interprofessional roles, the simulators are more complex, or the simulation involves teaching actors, simulation technicians, etc. The first clarification is that there is no possibility that all the mentioned elements will articulate and harmonize like an orchestra if the musicians get on stage only at the time of the performance. The scenario must be run beforehand: technicians, simulated actors, facilitating teachers must run the scenario, repair its elements, remove what is not conducive from the scene. Less is more, even in technical aspects. Paraphrasing Robert De Niro

in the 1998 film Ronin, he says: "You're either part of the problem or part of the solution or just part of the landscape."

Secondly, there must be a well-designed script. The script must be written, made known to all team members, and modified based on the steps evidenced during the teachers' scenario run before the students' scenario run. One critical point in simulation is that we often write the script, can even imagine it running, but another phrase from De Niro says it all: "A map is not the territory." We must set the scenario in motion as planned, leading its script, establishing its successes, difficulties. Only then will we know there are high chances it will run smoothly with students as the main actors and objectives met.

Running the scenario also shows the speed required, for example, when wanting to change a parameter on a monitor that will trigger the desired objective for the students involved in the scenario. Manipulating scripted commands, often from tablets or computers in a central location meters away from the scenario, can have synchronization issues. It will also show that for complex scenarios, several people are needed. One teacher cannot handle technical aspects, check scenario results, save the scenario if necessary, give the start and end orders, do the briefing, and debriefing, etc. There must be a facilitating teacher guiding the entire high-fidelity simulation process.

The facilitating teacher's role during debriefing
The health simulation dictionary defines debriefing as an important strategy for learning and making improvements in individual, team, and system performance. It occurs at the end of the scenario or after significant clinical events such as a cardiac arrest, adverse patient event, or medical error. The brief (introduction, orientation, pre-briefing session) in a simulation sets the tone for everything that follows[6].

If, as we mentioned earlier, we want the simulation space to be efficient and non-threatening, it is essential that the initial guidance or pre-briefing or brief is conducted by instructors capable of examining and revealing their own mental models with which they interpret the observed clinical situation. I understand the other if I can understand myself [7,8].

The simulation teacher is not "just an Instructor"

Health simulation as a teaching strategy in health sciences requires not only being a good instructor but essentially being an educator. The simulation teacher combines two knowledge/being: on the one hand, being able to design, transform, and finally plan the simulation-based teaching process, always starting from the objectives of each subject: knowing "as an educator." On the other hand, being able to fulfill operational functions and apply validated teaching strategies according to standards to achieve the objectives of a plan, even if they did not participate in its design: knowing "as an instructor."

To "teach in health simulation" it is not enough to know and apply an "effective teaching strategy" to meet defined objectives; it fundamentally implies considering the students' learning process in its individuality and entirety, in its complexity, considering situated learning, contemplating psychological safety for students and safety for the final recipient (people), navigating between what is planned and what actually happens in practice in the various scenarios. Therefore, being a simulation teacher means knowing the graduate profile, knowing the mission and vision of the career, the curriculum, and the program of the subject to which the teacher belongs or who requests the simulation, and from there, planning, executing, evaluating, and feeding back to the subject referents. This last step is crucial when it comes to reformulating programs and curricula.

As an educator in the field of health care, one must also consider training communication skills (patient-provider, team), the role of leadership, implementing teamwork, situation awareness, ongoing decision-making training, resource management, the concept of safe practice (minimizing/mitigating adverse events), and professionalism.

Therefore, to achieve the teaching profile discussed in this article, it is not enough to technically train teachers in health simulation, but we must also guide health simulation-based training programs to develop educators who reflect on situated and reflective teaching; and on the need to maintain critical thinking considering institutional, local, and regional realities. Limiting training programs to only forming "instructors" will result in applying a pedagogical training model that reduces their future teaching practices to executing a mere "teaching technique," likely leading to an incompetent teacher to solve the various situations posed by simulation-based teaching since this teaching strategy has become a practice that generates constant challenges.

Finally, teacher training in health simulation should aim to develop educators with knowledge and competencies in the best practices of simulation education, pedagogy, and practice; who empower their students and inspire them towards continuous improvement, self-criticism, reflection on practice, and the development of metacognitive processes.

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