



SKILLS TRAINING BY SKILLS DEVELOPMENT TECHNIQUES FOR NURSING STUDENTS

TREINAMENTO DE HABILIDADES POR SIMULAÇÃO NO DESENVOLVIMENTO DE COMPETÊNCIAS DE ESTUDANTES DE ENFERMAGEM

ENTRENAMIENTO DE HABILIDADES MEDIANTE SIMULACIÓN EN EL DESARROLLO DE LAS COMPETENCIAS DE LOS ESTUDIANTES DE ENFERMERÍA


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ABSTRACT

Objectives: to identify the contributions of skills training through simulation as a pedagogical strategy to develop competencies in the training of Nursing students. Method: this was a qualitative, exploratory-descriptive study. The study setting was a discipline of the undergraduate Nursing course of a public university in southern Brazil. Participants were students enrolled in the collection semester, constituting a convenience sample. Data were collected in 2019, at the end of the skills training, through a questionnaire composed of open-ended questions. The data corpus was submitted to thematic analysis, following the steps of pre-analysis, material exploration, treatment of the results obtained, and interpretation. Results: twenty-five students agreed to participate in the study, and the results comprised three categories: i) Skills training as a strategy to develop criticality in learning; ii) Learning from knowing oneself and recognizing feelings that emerged during the experience; iii) Contributions to developing competencies from a dialogical process. Conclusion: skills training provides the opportunity to develop dexterity and mastery of technical procedures prior to clinical practice and contributes to the educational process of Nursing students through the development of competencies. The professors' welcoming and receptive pedagogical posture, contributing to a positive experience, stood out.

Keywords: Education; Nursing; Students; Nursing; Nursing Education Research; Simulation Training; Competency-Based Education; Clinical Competence.

RESUMO

Objetivos: identificar as contribuições do treinamento de habilidades por simulação como estratégia pedagógica para o desenvolvimento de competências na formação de estudantes de Enfermagem. Método: pesquisa qualitativa, do tipo exploratório-descritiva. O cenário do estudo foi uma disciplina do curso de graduação em Enfermagem de uma universidade pública do sul do Brasil. Os participantes foram os estudantes matriculados no semestre de coleta, constituindo uma amostra por conveniência. Os dados foram coletados em 2019, ao término do treinamento de habilidades, por meio de questionário composto por questões abertas. O corpus de dados foi submetido à análise temática, seguindo as etapas de pré-análise, exploração do material, tratamento dos resultados obtidos e interpretação. Resultados: vinte e cinco estudantes concordaram em participar do estudo. Os resultados compreenderam três categorias: i) Treinamento de habilidades como estratégia para desenvolver a criticidade no aprendizado; ii) O aprendizado a partir do conhecendo a si mesmo e reconhecendo sentimentos que emergiram durante a experiência; iii) Contribuições para o desenvolvimento de competências a partir de um processo dialógico. Conclusão: o treinamento de habilidades oportuniza o desenvolvimento de destreza e domínio de procedimentos técnicos antes das práticas clínicas e contribui com o processo formativo de estudantes de Enfermagem mediante o desenvolvimento de competências. Destaca-se a postura pedagógica acolhedora e receptiva das professoras, contribuindo para uma experiência positiva.

Palavras-chave: Educação em Enfermagem; Estudantes de Enfermagem; Pesquisa em Educação de Enfermagem; Treinamento por Simulação; Educação Baseada em Competências; Competência Clínica.

RESUMEN

Objetivos: identificar la contribución del entrenamiento de habilidades por simulación como estrategia pedagógica para el desarrollo de competencias en la formación de estudiantes de Enfermería. Método: investigación cualitativa exploratoria-descriptiva. El escenario del estudio fue un curso de pregrado en Enfermería en una universidad pública del sur de Brasil. Los participantes eran estudiantes matriculados en el semestre de recogida, lo que constituye una muestra de conveniencia. Los datos se recogieron en 2019, al final de la formación en competencias, mediante un cuestionario compuesto por preguntas abiertas. El corpus de datos se sometió a un análisis temático, siguiendo los pasos de preanálisis, exploración del material, tratamiento de los resultados obtenidos e interpretación. Resultados: veinticinco estudiantes aceptaron participar en el estudio. Los resultados comprendieron tres categorías: i) El entrenamiento de habilidades como estrategia para desarrollar la criticidad en el aprendizaje; ii) El aprendizaje desde el conocimiento de sí mismo y el reconocimiento de los sentimientos que surgieron durante la experiencia; iii) Las contribuciones al desarrollo de competencias desde un proceso dialógico. Conclusión: el entrenamiento de habilidades permite el desarrollo de la destreza y el dominio de los procedimientos técnicos antes de las prácticas clínicas y contribuye al proceso formativo de los estudiantes de Enfermería, mediante el desarrollo de competencias. Destaca la postura pedagógica acogedora y receptiva de los profesores, contribuyendo a una experiencia positiva.

Palabras clave: Educación en Enfermería; Estudiantes de Enfermería; Investigación en Educación de Enfermería; Entrenamiento Simulado; Educación Basada en Competencias; Competencia Clínica.

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INTRODUCTION

Critical thinking in competency development presupposes that awareness must be the first objective of the educational process, as only then is it possible to awaken in the student a critical, reflective, and committed attitude towards action. In this perspective, the teaching-learning process must take place by problematizing activities, allowing the reality of professors and students to be unveiled in a critical and committed way, with knowledge being the fruit of reflection and the reconstruction of knowledge.^{1,2}

One aspect that has posed challenges to training Nursing students is related to the need to congregate pedagogical references that support the accelerated technological advance in the health field.³ Added to this is the ambiguity that can involve adopting pedagogical practices supported by the development of critical thinking⁴ and training abilities, which can be configured as a repetitive and technical activity, eventually considered obsolete.

Skills training is considered a teaching strategy in which the student can practice and repeat a certain technical procedure as often as deemed necessary in a safe environment, similar to the context they will encounter in practice. It is a scenario that allows the student to make mistakes in order to learn, helping to improve skills, strengthening the students' confidence, and promoting patient safety.⁵ In other words, a repetitive and mechanized action in a simulated scenario, although not realistic.

In Brazil, educational transformations have been indicated by the National Guidelines for Higher Education in Nursing, which encompasses evidence-based learning and incorporating soft and care technologies through the formation of cognitive and technological competencies. They advocate that the acquisition of competencies be developed by articulating theoretical and practical knowledge with activities in laboratories, simulation training, or in clinical practice environments, such as hospitals, emphasizing the development of critical thinking and clinical reasoning.⁶

Competencies are considered a combination of knowledge, skills, attitudes, values, experiences, and judgments and must be geared toward comprehensive care, decision-making, and leadership in the health context.⁷ Skills involve cognitive and motor aptitudes to perform interventions to maintain the activities of daily living, including body hygiene, sleep and rest, feeding and hydration, and elimination, as well as therapeutic actions such as

medication administration, catheterization, hand hygiene, and checking vital signs, among others.⁸

Given this context, teaching practice is urged to explore strategies that expand possibilities for acquiring skills by students, respecting their individuality, their limits, and their involvement in the teaching-learning process. Thus, the following research question arose: how do Nursing students perceive skills training for developing professional competencies? Therefore, this study aimed to identify the contributions of skills training through simulation as a pedagogical strategy for developing competencies in the training of Nursing students.

METHOD

This is qualitative research of the exploratory-descriptive type applied to the study of questions involving interpretations and perceptions concerning the object of interest.⁹

The research scenario was a subject with a weekly workload of 21 h of the third semester of the undergraduate Nursing course at a public university in southern Brazil. The students' assessment is formative and procedural, being carried out as follows: i) theoretical assessments of the content taught; ii) theoretical and practical assessments in the Nursing practice laboratory and care settings; iii) socialization, which consists of the creative presentation of some situation experienced in the care setting related to a theme, such as patient safety; and iv) reflective portfolio, prepared based on the students' experiences in the theoretical and practical activities in the care setting.

In the course syllabus, among other specific objectives linked to the learning process in the initial stage of the course, one can note the development of technical skills of procedures that are performed in Nursing care, including placement of personal protective equipment, checking vital signs, hygiene and comfort techniques, physical examination, dressings, peripheral venipuncture, oxygen therapy, fluid therapy, preparing and administering medicine, nasogastric/nasogastric probing, and relief/delay bladder catheterization.

Given the complexity involved in the teaching-learning process for developing competencies related to the technical procedures studied in the discipline, different pedagogical strategies were organized to address each theme. In this study, skill training stands out. The theoretical-practical activities developed in this context are

characterized by providing an opportunity for the first experience in which students come into contact with competencies that subsidize Nursing care.

In the course, three distinct moments are scheduled for skills training and take place after completing a set of content covered in the classroom, being developed through active methods and in the Nursing practice laboratory. The first skill training includes the procedures of paramentation, vital signs, dressings, and stitch removal; the second one includes preparing drugs and venipuncture with a needled device, preparing insulin mixtures and subcutaneous administration, preparing fluid therapy, and venipuncture with a catheter over a needle. In the third skills training, nasogastric tube, nasogastric tube, and vesical catheterization procedures are developed.

The technical procedures performed in the laboratory follow a script prepared by the discipline professors called a procedure guide, built based on the best practices according to current scientific evidence. The students have access to this guide since the theoretical class, so they are already familiar with the document when they participate in the theoretical-practical class.

Hence, after the theoretical and theoretical-practical classes, the students are aware of the dates when the skills training will take place, as well as the list of contents that will be developed at that time so that they can prepare themselves. Each student develops two technical procedures: with the assistance of a professor and with a previously stipulated time. At the end of the procedure, the professor provides feedback based on the items described in the procedure guide, clarifying doubts, problematizing, and restating important points discussed with the student based on their experience during the training.

The study participants comprised 25 students enrolled in the discipline in the collection semester, constituting a convenience sample. The inclusion criterion was being an undergraduate student in Nursing and being regularly enrolled in the discipline that was the focus of the study. The exclusion criterion was the absence of one of the three meetings scheduled for developing skills training. Ten students were excluded from the study.

The research professors of the discipline conducted data collection in November 2019 at the end of the third training of the semester. For this, all students, organized in groups of six, at the end of the skills training in the Nursing practice laboratory, were invited, on the same day, to participate, oriented to go to the laboratory support room

to answer the self-applied questionnaire in the time they considered necessary. The average response time was 15 min. The students were instructed to deposit the instrument in an appropriate place, still in the support room, when they finished filling it out for later collection by the researchers to ensure the anonymity of the participants.

The questionnaire was composed of two parts. The first one focused on the participants' sociodemographic characterization; the second related to skills training and was composed of the following open-ended questions: How did skills training improve knowledge, skills, and attitudes? How important was it for your learning? How did you feel when performing the drawn procedure?

All answers were transferred in their entirety to a Microsoft Word digital file and organized by question corresponding to the questionnaire, resulting in the data corpus for the thematic analysis.⁹

Thus, the analysis was carried out, identifying the themes that made up each category according to the stages of pre-analysis, material exploration, treatment of the results obtained, and interpretation. The result of this processing originated in three categories, corresponding to the items explored in the questionnaire.

This study was approved by the local Research Ethics Committee and complied with the ethical precepts of the Helsinki declaration, with the consent of the participants through the individual signature of the free and informed consent form. It is worth mentioning that the participants were guaranteed exemption from interfering in the student evaluation of the discipline, regardless of whether or not they participated in the study.

To preserve the participants' anonymity, they were identified with an alpha-numerical code: letter S (student) and number from 1 to 25, sequentially ordered according to the questionnaire delivery. The method followed the criteria indicated for qualitative research, described in the Consolidated Criteria For Reporting Qualitative Research (COREQ) checklist.¹⁰

RESULTS

Of the 25 undergraduate Nursing students participating, 19 (76%) were female and 6 (24%) were male. The age range of the participants ranged from 18 to 29. The categories that emerged from the analysis provide contributions of skills training as a pedagogical strategy for developing competencies for the training of Nursing students. Figure 1 lists a synthesis of these results.

Figure 1 - Summary of the survey results, Florianópolis, Santa Catarina, Brazil, 2019

Category	Topics
Skills training as a strategy to develop criticality in learning	Learning about the techniques Dexterity enhancement Qualified feedback on strengths and weaknesses A risk-free, simulated environment conducive to learning Safe conditions to develop care practices in real care scenarios
Learning from knowing oneself and recognizing feelings that emerged during the experience	Initial feelings of nervousness, insecurity, and anxiety Transformation throughout the experience to feelings of trust and tranquility Reflective about oneself and one's learning Collaborative, supportive professor posture, mediating the experience
Contributions to developing competencies from a dialogical process	Reflection on the execution of the technical procedure instigated by communication Improving the technique through self-evaluation and professor mediation Attitude development: self-evaluation, autonomy, responsibility towards oneself and the other (patient), organization

Skills training as a strategy to develop criticality in learning

The students considered the skill training an opportunity to improve their dexterity and learn the technique since they performed the procedure from the theoretical content and, afterward, received the professor's feedback about the strengths and weaknesses presented when performing the technique.

Skills training has proven to be an excellent learning tool as it provides the opportunity to apply the knowledge of the practice studied and grow with the feedback received. (S2)

It is important to identify the deficiencies and failures. (S5)

Improve, remember, learn (S7)

To know how much we are capable of, to know what is missing, where we have more difficulties, and to remember the small details of each procedure. (S9)

For me, it is of great importance because we see where we're making mistakes, and we pay attention to that (S11)

As the name implies, it helps us develop skills and perfect our procedures. (S13)

Students highlighted the importance of developing techniques in a controlled and risk-free environment, a condition that allows them to make mistakes in order to learn. In addition, they reported that with the training,

they feel safer going to the practical experience scenarios since the skills training occurs before the care practices in hospitals, which are real care scenarios.

I think it is important because it helps me deal with my feelings of insecurity and improve my techniques more. (S3)

Maximum importance because it simulates the hospital environment, making us safer for the internship. (S6)

Being able to observe my mistakes so as not to make them anymore. And this part of training in practice is always good and refreshes our memory of everything we learned. (S18)

Very good, I think there should be more; I feel much safer going to the hospital [...]. (S19)

The importance of learning is essential because I learn and record better when I am being tested, and when I make a mistake, I remember what I did wrong, so I don't make more mistakes. (S21)

Learning from knowing oneself and recognizing feelings that emerged during the experience

At the beginning of the skills training, students reported feelings such as nervousness, insecurity, and anxiety; however, throughout the experience, these feelings were reduced and/or alleviated. They affirmed that the professor's attitude in conducting the activity was crucial to help them deal with their feelings and finish the procedure.

Very good; a little nervous at first, but the professor pointed out my mistakes in a very polite way that made me understand without feeling sad for having made gaffes. (S1)

A little nervous, but I find it very valid (S10)

I felt confident in the whole procedure of the professors' conduct and the instructions provided. (S15)

Nervous, but with the professors performing the procedure, I was calmer. (S16)

I was a little nervous, but as I was doing it, I felt better and having the professor there helped me see where I needed to improve. (S17)

[...] Today, I felt calmer. I believe that the way the professor conducted the activity was indispensable because she didn't just observe in silence; she questioned things, making me think. I believe that this makes the method active [...] (S23)

Nervous, but depending on the professor with me, it's something that calms me down. (S24)

I felt very anxious before starting the training. But the way the professor led me made me believe I could finish the activity. (S25)

Because this moment is a moment for you to test yourself, it is an adjustment of details, and I think this moment with the professor alone is important because you end up with some doubts, and there you can solve them. (S14)

I can test in the practical activity and with supervision and get help from those who have knowledge. (S20)

Regarding attitudinal competencies, the participants affirmed that the skills training contributed to self-evaluation and to building autonomy, promoting positive attitudes, such as responsibility for their learning, organization, and recognition of the need to study to appropriate the theoretical and practical content.

By performing the technique, despite all the nervousness, it was important for me to know what I already know and can do alone and what I can improve and study more. (S4)

When we need to reason about the procedures by ourselves, we need to organize ourselves as much as possible so as not to forget anything; normally, when I make a mistake once, I end up remembering it and don't make repeat it. (S8)

It requires knowledge and attachment to procedures, involuntarily encouraging study and dedication. (S22)

Contributions to developing competencies from a dialogical process

Communication during the execution of the procedure reinforced knowledge about the technique and better prepared the student for direct patient care. The skills training also helped improve the technique guided by the professor and answered doubts, which were solved through dialogue.

Reflection on the procedure brings great learning. I had the opportunity to repeat the same procedure I had done in a previous training and witnessed how the first practice developed and improved my technique. (S2)

Because although we always prepare for the procedures, verbalizing and executing the procedure in practice reinforces the technique and prepares us better for when it is a patient. (S12)

DISCUSSION

Skills training provides the practical doing and the focus on the student, making their experience meaningful within the teaching-learning process. It is known that experiences that bring meaning to students during the educational process favor developing competencies for the future professional during academic training.¹¹ One of the ways to achieve meaningful experiences is using active and problematizing educational methods, which are dialogical-critical and invite students and professors to an investigative attitude towards life.^{1,2}

Hence, using skills training as a teaching strategy in practice laboratories provides students with opportunities to repeat, adjust patterns, and identify weaknesses, helping to improve safety and decision-making in the proposed practices. A recent study indicates that Nursing students positively evaluate teaching activities that simulate care contexts before they have contact with the

patient because it allows them to better remember the theoretical content and reflect on their mistakes, helping develop skills.¹²

The reports show that students perceived skills training as an essential strategy for their learning. The controlled environment, the possibility of applying the theoretical-practical content already exposed, the repetition of the technique, and the pointing and reflection on the successes and mistakes during the procedure reinforce that this teaching strategy facilitates assimilating knowledge and also provides greater confidence for the real experiences in clinical practice.

To be a student in the educational environment from the perspective of critical pedagogy is, first of all, to be a human being who has consciousness and, therefore, is capable of problematizing and making relations with the world. However, this awareness can only be reached when one knows they are incomplete and, because of this condition, places themselves in a permanent learning process, with creativity and criticality in the face of what they live and observe. Thus, individuals assume and, by doing so, recognize themselves as subject-students capable of knowing, in the relationship with the other individual, the professor, equally capable of knowing.^{1,2}

Skill training is considered a process that contributes to improving the performance of the technical procedure and developing clinical reasoning about the activity, since it is related to the repetition of motor and cognitive skills.¹³ Although it may be considered obsolete for some authors, research has shown that this teaching-learning strategy, associated with simulation, is of great value for healthcare students, who show better retention and development of skills over time. In Nursing and other disciplines, skills training has been used not only for developing motor skills but also communicative skills,¹⁴ which shows that this is a fundamental competence to be achieved in professional life - especially in health.

Corroborating this point, a study conducted in Iran with 63 Nursing students revealed that skills training, role-playing strategies, group discussions, video presentations, and workshops improved students' attitudes and empathy towards the elderly, thus contributing to further developing technical skills.¹⁵

It is also noteworthy that, as pointed out by the participants of this study, the authors described the importance of individual feedback. Feedback has been described as a simple but essential tool for the evaluation process¹⁶ because it allows communication between students and

professors, which helps self-regulate learning.¹⁷ Nonetheless, it is necessary to improve the training of professors so that they can perceive themselves as part of the feedback, that is, that it functions as a two-way tool in assessment for students and professors.¹⁸

Thus, in skills training, the professor can identify, monitor, and provide feedback on the evolution of learning and competence of each student. It is noteworthy that the reflection process that occurs during training also allows the student to be an active subject of his teaching-learning process in a controlled environment that simulates care delivery.⁵

Notably, evidence has shown that structured feedback has more positive results in students' critical thinking and clinical judgment because it is a systematized method of discussion and reflection on action. It allows students to acquire problem-solving skills and the ability to make the most appropriate clinical decisions.^{19,20} Thus, to know how to teach is to create possibilities for constructing knowledge, making this knowledge a mediation of the teacher-student relationship and its apprehension and conquest as a path to liberation, awareness, and humanization.¹

Considering that there are different learning styles, incorporating simulated practices and skills training should occur throughout the Nursing course so that students can improve clinical reasoning for their professional practice in addition to improving technical performance.¹⁶ In this sense, skills training brings the student closer to the real universe of healthcare practice. The knowledge, skills, and attitudes developed depend on the scenario surrounding the student in the teaching-learning process. This also includes the professor's ability to recognize, direct, and support the development of feelings and emotions and the chances of mistakes and weaknesses in developing a given skill.

Therefore, the importance of reflection on pedagogical approaches and professor training is reiterated as an inherent condition for the success of the educational process.²¹ It is considered that, for skills training to contribute to students' awareness and critical thinking, it is necessary to have prepared teaching staff capable of arousing curiosity and reflection, elements that foster the development of competencies.²²

The students in this study manifested emotional and sentimental lability as a remarkable point in the learning process. This condition is inherent to the beginning training, the little ability with the materials and the approach to the scenario of care practice, generating anxiety and

nervousness related to the insecurity of the learner. These feelings are normal for those who experience something new. Paradoxically, the Nursing skills training in the introductory disciplines of the undergraduate course contributes to the future professional's ability to face their emotions, making them more confident, empowered, and critical of their actions.

Notably, anxiety, nervousness, and insecurity are possibly linked to the rigor of responsibility required in realistic training when facing procedures that translate to well-being, comfort, food, hygiene, respect for someone's life. The set of stressors pointed out by the students in this study brings possibilities of weaknesses in attention and concentration, prolongs the response period to stimuli, causes cognitive repercussions and possibly alters students' learning process.²³

Another factor to be highlighted is the stress evidenced, mitigated by the referral that the professor brings up, and the realistic environment of skills training worked with a formative and not evaluative focus, which gives confidence to the student.¹¹ This reinforces the thought of competence-based professional training, considering the competitiveness in disseminating knowledge and the plurality that health care requires in the multiple geographical and political spaces in which nurses have the opportunity to be inserted.

The term competence encompasses elements that transcend the technical level of a procedure. In Nursing education, when we talk about students' competence, we also talk about critical thinking, clinical reasoning, communication, teamwork, collaborative spirit, and decision-making.²³ In this study, the students reported that the skills training contributed to improving the procedure technique; nonetheless, in addition to the technique, it awakened reflection and attitudes towards the proposed activity.

Change in the educational process only occurs when professors and students know the need for change and want it. A critical attitude is the only way to enable man to realize their ontological vocation to be inserted in the construction of society and engage in social transformation.^{1,2}

Training through formative assessment brings skills to the reality of the classroom and laboratories, and simulated practices have been used in Nursing training as a routine practice. According to the Curricular Guidelines for National Education, the teaching-learning of the future

nurse requires content and practices to conceive a humanistic, critical, and reflective professional based on ethical rigor and the ability to make decisions. In this sense, teaching must be centered on the student to make them consider themselves as participative and active agents in the learning process.²⁵

FINAL CONSIDERATIONS

This study showed that skills training is an opportunity to develop dexterity and mastery of technical procedures before clinical practices, awakening students' active insertion in the teaching-learning process. Such factors contribute to the training process of Nursing students, considering the development of competencies from the perspective of patient safety.

Regarding competencies, we highlight their directly intertwined dimensions in this development process: knowledge, skills, and attitudes. In this sense, the training of skills provides to perform techniques in a controlled environment and follow scientific principles, subsidized by all the learned knowledge. It allows learning by doing and learning by reflecting, improving skills related to dexterity and logical and temporal sense; it involves learning the necessary attitude for the care process by safely performing indicated technical procedures, interacting and observing possible individual and collective responses, even in a simulated environment.

The emotional lability manifested by the students in the initial stage of skills training turned into a process of self-knowledge through critical reflection on weaknesses and potentialities, mediated by the supportive attitude of the professors in the form of qualified feedback. The professors' pedagogical, welcoming, and receptive attitude contributed to a positive experience, indicating the need for conscious teaching practice.

As a limitation of the study, we considered that the discipline professors conducted the research, and this condition may have generated some bias in the students' answers. Nevertheless, the collection strategy adopted, with the organization of a reserved room with privacy, specifically for students to answer the questionnaire and deposit it without the presence of the professors, may have resolved this bias. Additionally, it should also be considered that a limitation of the study is the lack of observational methods that could enrich the information obtained and the fact that an interview was not conducted.

As for future studies, our findings point to a gap to be explored regarding the characteristics of the professor's mediating role as a promoter of the students' formative process from the perspective of critical pedagogy.

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