






Teaching-learning strategies for professional nursing care: consequences of COVID-19*

Estratégias de ensino-aprendizagem para o cuidado profissional de enfermagem: consequências da COVID-19

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ABSTRACT

Objective: to identify teaching-learning strategies for professional nursing care due to the consequences of COVID-19. **Methods:** a qualitative study with a phenomenological theoretical approach. The population was made up of 11 teachers and 10 students on the Bachelor of Nursing course at a public university, who were interviewed in-depth and audio-recorded for later transcription. Open categorization was used; content analysis enabled the identification of categories: Teaching-learning strategies, Acquired learning, and professional skills. **Results:** the most relevant teaching and learning strategies are active methodologies and collaborative work. The adaptability of students and teachers is the most important thing to highlight, enhancing the development of skills through the link between theory and practice. **Conclusion:** it is clear that the actors agree that the strategies have better application and results in learning care through the face-to-face education modality, facilitating the approach of real scenarios to generate meaningful learning. **Contributions to practice:** the complete panorama of the educational transition that teachers and students have gone through during the pandemic has supported the identification of teaching-learning strategies that promote meaningful learning. **Descriptors:** Education, Professional; Education, Nursing; Learning; Nursing Care; Teaching.

RESUMO

Objetivo: identificar estratégias de ensino-aprendizagem para o cuidado profissional de Enfermagem por causa das consequências da COVID-19. **Métodos:** estudo qualitativo com abordagem teórica fenomenológica. A população foi de 11 professores e 10 alunos do Curso de Bacharelado em Enfermagem de uma Universidade Pública, aos quais foi aplicada entrevista em profundidade, sendo gravada em áudio para posterior transcrição. Foi utilizada categorização aberta; A análise de conteúdo permitiu a identificação das categorias: Estratégias de ensino-aprendizagem, Aprendizagens adquiridas e Competências profissionais. **Resultados:** as estratégias de ensino e aprendizagem mais relevantes foram as metodologias ativas e o trabalho colaborativo. A adaptabilidade de alunos e professores é o mais importante a destacar, potencializando o desenvolvimento de competências por meio da ligação entre teoria e prática. **Conclusão:** fica evidente que os atores concordam que as estratégias têm melhor aplicação e resultados no cuidado da aprendizagem por meio da modalidade de educação presencial, facilitando a abordagem de cenários reais para gerar uma aprendizagem significativa. **Contribuições para a prática:** o panorama completo da transição educacional pela qual professores e alunos passaram durante a pandemia apoiou a identificação de estratégias de ensino-aprendizagem que promovam uma aprendizagem significativa. **Descritores:** Educação Profissionalizante; Educação em Enfermagem; Aprendizagem; Cuidados de Enfermagem; Ensino.

Introduction

A teaching strategy is used as a means or resource through which pedagogical help is offered and applied by an educator or instructor in the learning process. One of the purposes of teaching strategies is to achieve meaningful student learning, which is understood as the acquisition of new knowledge with meaning, understanding, criticality, and possibilities of using this knowledge in explanations, arguments, and solutions to situations or problems⁽¹⁾.

The COVID-19 pandemic has created several challenges for continuing education at all levels; students and teachers have faced a change in teaching modalities, from face-to-face to virtual, which has meant stress due to the management of information technologies and the use of digital applications, since not everyone had training in this regard, as well as situational health conditions that have generated fear and anxiety, which together have led to a deficit in academic performance and the quality of teaching⁽²⁻⁴⁾.

For nursing specifically, the training of future professionals has become even more difficult. The complexity of the health sciences, where theory and practice converge, made it difficult to acquire practical skills in the virtual setting since students did not face real scenarios and did not carry out clinical nursing interventions with patients, resulting in inexperience, limitations, and disadvantages in current practice⁽⁵⁾.

This problem has significance in various aspects of professional practice, since the academic training of nurses involves a great deal of commitment and responsibility on the part of both teachers and students, as this will result in quality patient care, recognition, leadership, and empowerment of people. For the recognition, leadership and empowerment of nursing and autonomy in care activities, therefore, it has become imperative to define the best ways in which students can acquire knowledge, skills and attitudes to provide professional care. Although several problems in higher education have been faced during the pandemic, strengths and strategies have also been

identified that have benefited student learning, despite the conditions experienced, leading to the conclusion that nursing education, exclusively in virtual mode, is not ideal, due to the effects it has on mental health and not reaching all professional competencies. However, the link between the two scenarios, virtual and face-to-face (hybrid), has advantages⁽⁶⁻⁸⁾.

In this sense, the design and use of teaching-learning strategies so that nursing professionals can provide comprehensive and humanized care becomes one of the priorities for teachers. It is necessary to identify the best way in which students can achieve meaningful learning that impacts the quality of nursing care and that their individual situations and characteristics are also taken into account⁽⁹⁻¹¹⁾; which will have a direct impact on better preparation to face diverse realities and solve health problems in different environments, contributing to the social recognition of the profession.

Therefore, the aim of this study was to identify teaching-learning strategies for professional nursing care due to the consequences of COVID-19.

Methods

The research took a qualitative approach, using phenomenology. The study population was made up of students on the Nursing Bachelor's Degree course at a public university in the state of Mexico; 10 students from the 2018-2022 generation, who were doing their social work, were invited by telephone and agreed to take part. Only one student did not agree to take part due to personal and work activities. It was decided to include this group of students since during their academic training the trainees went through different educational transitions: Face-to-face learning (from the 1st to the 3rd semester, 2018-2019), Virtual learning (from the 4th to the 6th semester, 2020-2021), Hybrid learning (7th semester, 2021) and again, Face-to-face learning (8th semester, 2022).

In addition, in order to get a complete picture of the teaching-learning process, the population of 169

full-time teachers and subjects who teach in the Bachelor of Nursing curriculum at the same university was also considered; of these, with the collaboration of the researcher, 11 teachers were selected from subjects that mostly teach practical learning units and who met the criteria of having more than one year's teaching experience and who voluntarily agreed to take part in this research project, for which they were contacted in person and by telephone. Of the teachers who did not agree to take part, the main limitation was the availability of time.

The study subjects were interviewed in depth using a digital voice recorder, lasting approximately 40 minutes, in a cubicle in the institution's library, where there was no noise or interruptions and only the interviewers and study participants were present. The participants' cooperation was accredited by accepting the invitation to take part in the study and signing the free and informed consent form, emphasizing data protection and the anonymity of their participation, leaving a copy of the documents signed by both parties.

In order to collect data from the students, the first two pilot interviews were carried out in person; from these two applications, their content was modified, totaling 28 questions, which were distributed in five dimensions or categories of analysis: 1) Learning scenarios, 2) Competencies for care, 3) Activities for learning, 4) Reflective and critical thinking and 5) Curriculum of the Bachelor's Degree in Nursing.

For the teachers, a 13-question semi-structured interview was conducted under three categories of analysis: Being (care, humanism, axiology, and motivation), Knowing (teaching strategies, planning, and problems identified), and Doing (theory-practice link, evaluation). A previous application was also carried out to modify and adjust the orientation of the different questions.

The period in which the data was collected through the interviews was from November 2022 to June 2023. Since the interviews were conducted under the criterion of information density for data saturation,

the recorded audios were repeatedly reviewed and transcribed for this purpose. version of them. The participants were identified by the aliases Teacher (T) and Student (S), followed by an alphanumeric code to guarantee their anonymity.

Subsequently, based on interpretative phenomenological analysis, in parallel with the work of reading and re-reading, notes were taken, emerging themes were identified and the content was sectioned into portions or thematic units, coded using a term or abbreviated expression (categorize), and the categories grouped according to their nature.

The study followed all the rules regulating research with human beings and was approved by the Research Ethics Committee of the Faculty of Nursing and Obstetrics of the Autonomous University of the State of Mexico under opinion no. 006/2022.

Results

Of the 10 trainees in the 2018-2022 Generation Bachelor's Degree in Nursing, 50% are female and 50% are male, aged between 23 and 28. According to marital status, 30% of those interviewed live with their partner, 70% are single and 20% have children.

With regard to the overall average when graduating from the Bachelor of Nursing, the range is 8.5 to 9.5. Regarding where they practiced social work, 30% of the interns were in third-level care, 20% in second-level care, 20% were in companies, and the remaining 30% were in School Health, at the Faculty of Nursing and Obstetrics. Only 30% of the study subjects worked caring for patients at home.

Of the 11 teachers interviewed, 82% were female, the majority (55%) were adults aged between 31 and 35, and 73% of them had contracts as teachers of the subject.

It is worth noting that the final categories of analysis were established on the basis of the data obtained in the interviews: Teaching-learning strategies, Acquired learning, and professional competencies.

Category 1: Teaching-learning strategies

Learning nursing care requires analyzing, reflecting on, and critiquing patients' state of health in order to take effective action aimed at their recovery or well-being subsequently. For example, the nursing care process is the scientific method by which nursing professionals provide care and, in this sense, the development of reflective and critical thinking is one of the most important educational strategies for future nurses. This is why the teachers interviewed stated the following: *We use critical, analytical, and descriptive thinking because I can tell them about pathology, but apart from that they have to study, and based on that we'll see how important it is to have a scientific basis* (T-2). *Promoting critical and reflective thinking, based on knowledge* (T-7).

Similarly, nursing students should remember that in their professional practice, they must make judgments based on evidence on the principles of science and the scientific method: *...Focus on making a decision about what to believe or do...* (S2). *It's having a judgment about what you're going to do...* (S7). *Expressing what you think about a subject, using arguments, points of view, and knowledge...* (S9).

Nursing is a theoretical-practical science, so the teachers refer to the theoretical bases and check that the students have this prior knowledge before carrying out procedures or activities, as this excerpt from the interview shows: *Students themselves had to explain to me why they were doing it, that they knew the scientific basis, and that they documented themselves in order to be able to put it into practice* (T-9).

These teaching-learning strategies are the ones most used by teachers and students, as they facilitate the acquisition of new knowledge and the memorization of concepts or information that need to be stored for later use in real scenarios and problems. The teachers interviewed mentioned using techniques and materials to prepare and organize information for their students: *Through PowerPoint presentations, I gave them activities with animated platforms and asked random questions and clinical cases and we investigated nursing interventions* (T-6). He

asked for the cameras to be turned on so that he could interact better, presentations, comments, and answer questions (T-9).

It is important to note that the students who took part in this study mentioned that in the face-to-face format, it was easier to visualize the content in order to memorize it, and this was possible through visual stimuli such as concept maps, diagrams, videos, using the blackboard, images, procedures, among others; recognizing the creative work and didactic preparation that their teachers carried out in their classes: *... It helps me to be very visual, occupy the board, make diagrams, and concept maps, and make a huge summary of a subject you don't know...* (S1). *Some teachers were more creative and let us make concept maps, diagrams, videos, or some other situation that we could do ourselves to put the theory we had learned into practice...* (S3).

Collaborative learning is a strategy that promotes the participation of several subjects and the support and guidance of the teacher, as well as the achievement of social and communication skills. In this sense, the teachers refer to the following: *Through an empathetic attitude, with dynamic material such as videos and photographs, thus promoting a good teacher-student relationship* (T-1). *They had to carry out their interventions under my guidance, with monitoring at all times* (T-11).

As far as the students are concerned, learning in the face-to-face mode allows access to knowledge with the help of the teacher; practically and collaboratively, you participate with your colleagues in the activities and/or tasks requested. Therefore, in the comments made by the students interviewed, the importance they attach to the knowledge acquired through these strategies stands out: *My classmates supported me because if I had any doubts, I'd go with them and the classmate would explain it to me that way we'd both study what we didn't understand or what made us doubt* (S2). *That's why I always tried to get together or form classes with colleagues who were working, in order to make classes less onerous* (S5).

The teachers taking part in the study mention that it is important to arouse student motivation, both in real and virtual scenarios, for which the use of active teaching methodologies is the ideal strategy, since

activities designed with information technologies and focused on the learning outcome that is desired, significant student performance is achieved. To illustrate this, the following arguments are presented: *I shared videos with them, gave them information and answered questions, and asked them to carry out the procedures with their family or with a stuffed animal or doll, while I watched them* (T-1). *Applying attention-grabbing strategies such as virtual rooms, online games, exhibitions, and simulations* (T-3). *Through clinical cases of real patients to arouse curiosity and self-learning in the students.* (T-5).

In order to promote not only meaningful, quality learning, but also student safety and integrity in the face of the epidemiological crisis that was being experienced, hybrid teaching was essential. It is in this scenario that the students' comments reflect the results expected by the teachers who used active methodologies, emphasizing the allusion to their memories, as shown below: *...I remember that they made us use dolls, things that we could have at home... It worked a lot for me because we learned through clinical cases...* (S1). *The teachers adapted their cameras and materials to the procedure being carried out...* (S3). *The apparatus teacher used candles, water, balloons, etc., so that we could also do it from home...* (S5). *It's better when we study nursing or caring for a person, it's practical, because that way we learn more, maybe we make mistakes among ourselves as students, but we lose our fear, and gain confidence and security* (S6).

The use of active methodologies in education implies the use of electronic devices and technological tools, which is why, in the virtual modality implemented during the COVID-19 pandemic, teachers favored students' learning by using them, as shown in the students' comments: *Through the recordings and videos that the teachers left us on Microsoft Teams, that's how I understood the subject better and studied...* (S6). *I really liked the fact that they told us the names of the applications, where we could find a nursing diagnosis, and how it is structured in the format we are asked to use in hospital units* (S9).

Category 2. Acquired learning

The health contingency due to COVID-19 has brought with it changes in the way of teaching and le-

arning, from one moment to the next having to move from a face-to-face space to a virtual one, without sufficient training and preparation of teachers and students to use virtual educational platforms and adapt their homes to work or study space. In the following interview fragments, this condition can be seen in the teachers: *Anticipate teaching materials and make videos and photos of real patients to bring them closer to a real scenario* (D-4). *Training through videos for the use of platforms and the use of various online resources* (T-8). *Using different platforms to deliver lessons via Zoom* (T-9).

Still, on the subject of adaptation, the students say: *Having a designated place where I could plug in my computer and my chargers so that I could take classes since I spent most of the day sitting down so that I had everything at hand* (S4). *Adapting to electronic devices and means of learning in the environment that the faculty presented us with* (S9).

Obviously, this adaptation has brought with it several obstacles or difficulties that have not favored the teaching-learning process, preventing students from developing and applying all the knowledge, skills, and competencies to solve problems and in turn assimilate this knowledge. Among these barriers, teachers and students highlight: *They didn't have an internet connection or their own computer equipment, sometimes the platforms didn't allow students to enter, and they lacked electricity* (T-4). *The shortcomings of the Internet, the fact that the student was taught to lie, to say that there was no Internet, that there was a power failure at home, the fact that digital books are often incomplete, the pages didn't give them complete reading, and also the student's apathy* (T-5). *The lack of internet, the lack of equipment to do the lesson, the rain and the light, as well as the students' lack of knowledge and that perhaps they were conformists* (T-6). *My internet always failed me, there were external factors that distracted me, not having an ergonomic seat on my back, lack of socialization, being in contact with another human being...* (S1). *I didn't have a good cell phone, it had a lot of faults, I also had trouble connecting to the internet and problems getting online...* (S9).

In the nursing profession there has been a problem regarding the differences that exist between theory and the practice that is taught, and the COVID-19 pandemic has widened this gap even more, because,

as we have seen in the statements of teachers and students, the virtual modality has made it difficult for students to acquire clinical skills, so here are some suggestions made by the participating students: *I think it would be right, perhaps, not to put all the theory together so that the practice can be done later, because there are times when the immediate knowledge that isn't reinforced with some practice is forgotten (S1). I can see the nursing procedures in person and see more clearly how they are carried out for patients, my confidence in being able to carry them out increases and if I make a mistake, the teacher can help me if I have any doubts or further questions (S10).*

We investigated how the participating teachers assess whether students have acquired skills, techniques, knowledge, and values in face-to-face practices and they commented as follows: *Through the nursing care process and how they carry out nursing interventions with the patient (T-2). With comments from the operational team, oral and written tests, and the nursing care process (T-4). Through an oral and written exam, as well as the delivery of work, and continuous participation, as well as observation in the performance of procedures (T-9).*

However, there was a difference in the way these competencies were assessed due to the pandemic, so the interviewees implemented assessment strategies for a virtual scenario, such as: *Through class participation, written and oral exams, and performing nursing procedures with their family members or with a mannequin (T-3). Through videos that the student makes to perform nursing procedures (T-5).*

It is worth noting the negative perception of some students about the teaching strategies and techniques used by their teachers, highlighting: *...What they did was to give us copies or presentations and ask us to read them and then we'd see each other in the exam, which didn't help me learn about nursing care... (S4). Some teachers just give presentations and talk all the time, without taking an active break so that they can rest and understand the subject better (S9). There are times when the teachers' slides themselves are not well done, they have too much text, in my case I wear glasses and sometimes I find it difficult to see, I had to have the presentation again and edit it in a different way to be able to understand all the text (S10).*

It's important to mention that, being locked up most of the time, the students adapted their roles at home to their activities, care, and tasks, to which they

had to dedicate time, a situation that emerged as an obstacle to their learning: *...My academic performance decreased because, in face-to-face classes, we already had doubts or sometimes we didn't understand the subject, now they were more virtual (S4). It had an impact on my grades, maybe I didn't have a high or low average, but I tried to concentrate in class, hand in possible assignments, and complete them in good time (S6).*

Studying face-to-face is an option that nursing students prefer and favor, as it allows them to carry out work and practice with their colleagues, as well as encouraging spaces for socialization, exchange, and interaction between students and teachers: *I liked it better in person because I learned more from the perspective of my colleagues... (S1). I concentrate more in the classroom than at home, where the teacher explains the subject more clearly and if I have any doubts or questions I can ask right there (S10).*

In addition, students prefer the face-to-face modality because staying connected in front of the computer for their virtual classes has had an impact on their mental health, causing emotional problems that have hindered them in class, both because of the workload and the lack of motivation, uncertainty, lack of knowledge, disconnection from society, an increase in abnormal behavior, among others: *...I had to seek psychological help, and being locked up affected me a lot... (S6). I felt bad emotionally because of the pandemic... I did my best, but in those months I felt sad, alone, desperate, angry, causing anxiety... (S8).*

Category 3. Professional skills

Nursing knowledge is diverse and is classified as theoretical and practical, but both are important for an integral and quality education, which will later be reflected in the care and attention given to people. Despite this, the students interviewed give more weight to practical skills or knowledge, as exemplified below: *Knowing the procedures is vitally important to safeguard the integrity of the patients we treat... (S4). Knowing the procedures serves to provide quality care to patients, where we look for the option of not impacting their economy and environment (S6).*

According to the concept of "value" and the "ethical profile of nursing", the teachers interviewed

mention that the values most used in nursing practice by students are: *Human values such as empathy and respect, spiritual values such as hope, harmony, and faith, promoting them by setting an example of good patient care* (T-2). *Respect and responsibility, as well as solidarity, honesty, empathy, justice, kindness, fraternity, tolerance, and peace, are requested when students are in the presence of the patient to apply them during care and if it is virtual to capture them in the interventions* (T-3). *Honesty, respect, integrity, responsibility, love, empathy, humanism, patience and strength. They were encouraged through clinical cases when they mentioned care, not only of the pathology but also that it should be directed toward the emotional area* (T-9).

Values are very focused and deep convictions of all human beings that determine their way of being and guide their behavior towards the responsibility that the profession has towards society to act with professional preparation and quality, and to maintain free and impartial criteria: *Commitment within the work of the nursing professional...* (S2). *You have to be supportive, respect each person, and say that you are supportive or empathetic...* (S4).

Along with the acquisition of values, the construction of a professional identity and the strengthening of humanism in future professionals are transversal competencies in the nursing profession. In the comments below, you can see the congruence between teachers' and students' thoughts on humanized care for people: *I apply it because I am empathetic with the patient and with my coworkers, I listen and communicate attention to their emotional and sentimental needs. I transmit through clinical cases, simulation, and improvisation with the ideal treatment of others* (T-5). *I apply it when I put myself in the other person's shoes and take care of myself as I would like to be taken care of. I say this to the students and they apply it to treating the patient* (T-11). *These are real people we're dealing with and we should be humble and humanistic with them because that's what nursing is all about...* (S10).

Discussion

It was possible to distinguish that the teaching-learning strategies that teachers and students report to be most convenient for achieving the learning objectives of the undergraduate nursing course are the

strategies of elaborating and organizing information, collaborative learning, and the use of active methodologies.

Nursing students report that diagrams, concept maps, images, etc., favor the memorization of information, which may also be related to visual learning; likewise, these strategies are also widely used by teachers, especially when they make their PowerPoint presentations. This is in line with another study which shows that the learning strategies most used and which contribute the most to students' academic performance are those for developing and managing time and the study environment⁽¹²⁾. In addition, when using constructivist strategies, the student is considered to be an active entity, capable of building their knowledge based on their potential and experiences, which is why they reflect greater significance in the training of nursing professionals⁽¹³⁾.

As far as collaborative learning is concerned, the students interviewed in this study report that they not only learn from their teachers but also from their colleagues, i.e. thanks to group comments and reflections, learning the content can be simplified. This ties in with other research, which highlights that the collaborative teaching-learning model applied to nursing offers positive characteristics, advantages, and challenges for nursing education; it integrates particularities that allow for the development of disciplinary competencies, attitudes, and skills in nursing students and teachers⁽¹⁴⁾.

Active learning is important because students maintain a better level of attention, it facilitates the acquisition of knowledge because students retain information better if they do something with it shortly after it has been given to them and it makes it easier to get feedback on the level of understanding⁽¹⁵⁾. This idea is reinforced by the results of this study, where according to the students, carrying out activities or practices after the presentation of the theory favors the retention of information, likewise, bringing them closer to real scenarios has these advantages, as was observed in a study where, based on realistic simula-

tion, students obtained a lower average of errors in the post-test⁽¹⁶⁾.

In addition, teachers also perceive that the use of virtual materials, games, and applications favors learning. The results are similar to those obtained in an integrative review, in which strategies related to the Modern-Traditional and Modern-Dialogical methods were identified, such as digital teaching materials, role-playing, problematization, poetry, practical experience, and educational games⁽¹⁷⁾.

Nursing is a theoretical-practical profession and for this reason, the teachers interviewed attach great importance to asking their students about the theory so that they can later carry out the techniques or procedures. In addition, asking questions or evoking memories about theoretical topics makes it easier to learn how to practice in different contexts where health problems are encountered. This highlights the importance of the intersection of components such as theory, research, and practice, as they are fundamental to understanding and approaching the phenomena of nursing care⁽¹⁸⁾.

This study concludes that nursing students and teachers agree that the face-to-face environment favors meaningful learning and the acquisition of competencies, which is in line with other studies that mention that the university curriculum requires permanent interaction with people in order to achieve attitudinal competencies⁽¹⁹⁻²¹⁾. However, the strategy of hybrid environments allowed for the meaningful construction of knowledge and the exploration of new teaching-learning models⁽²²⁻²⁴⁾.

Study limitations

The study population represents only one generation of Bachelor of Nursing students, and it would be interesting to compare these results with those of students from other eras, to determine whether the teaching-learning strategies identified and preferred are similar in all students.

Contributions to practice

The innovation of the results is determined by having a complete view of the educational transition that teachers and students have gone through. Likewise, the identification of teaching-learning strategies that favor meaningful learning stands out, which lays the foundations for these strategies to continue to be used by teachers to maintain quality in the training of future nursing professionals.

Conclusion

Based on the results presented, the experiences and the transition between teaching and learning scenarios are identified. The strategies that stand out for learning care: the most representative is collaborative learning, which emerges as a fundamental component in the training of nursing professionals, as it facilitates the understanding and retention of information, which allows a bridge between theoretical and practical knowledge, where teachers recognize that the face-to-face scenario offers a space conducive to meaningful learning and the development of skills. This highlights the limitation of the virtual and hybrid modality for the complete development of practical skills in learning care, emphasizing the need for direct interaction with reality and the daily connection between educational actors such as teachers and students.

Authors' contribution

Conception and design or analysis and interpretation of data; Drafting of the manuscript or relevant critical review of the intellectual content; Final approval of the version to be published; Responsibility for all aspects of the text to ensure the accuracy and integrity of any part of the manuscript: Rojas-Espinoza JB, Martínez-Talavera BE. Conception and design or data analysis and interpretation: Sánchez-García JA, Arzate-Zarza MSP, Puebla-Valdes MG.

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