

THE CHALLENGES OF THE NURSE PROFESSIONAL IN THE APPLICABILITY OF ACTIVE TEACHING METHODOLOGIES AND EDUCATIONAL LEARNING TECHNOLOGIES

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ABSTRACT

The use of active methodologies (AM) in the health sciences is justified by the need to overcome traditional teaching models and, consequently, has the purpose of training professionals who can reconstruct the knowledge acquired and not just transfer knowledge in a mechanical and uncritical way. This is a Scoping Review or Scoping Study, guided by the methodological guidelines proposed by the Joanna Briggs Institute (JBI) and in compliance with the PRISMA-ScR. The scoping review was recorded on the OSF-Open Science Framework platform. Subsequently, the descriptors listed were used to search for studies in the Pubmed, Scielo and VHL databases, the grouping and summarization of key information of the collected articles was carried out with the help of Mendeley®, a reference manager that facilitated the primary analysis of the collected studies. Finally, the data and information found were arranged in table format, encompassing the following variables: authors; year of publication; database where the study was indexed; title; type of research and outcome. The results of the scoping review will provide support for future discussions related to the challenges of the nurse in the applicability of active methodologies and innovative learning technologies. Possible knowledge gaps identified during the scoping review will be highlighted, offering suggestions for future research on the subject.

Keywords: Active methodologies. Nursing education. Educational learning technologies. Applicability of methodologies.

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INTRODUCTION

The training of nursing professionals is carried out according to the bachelor's degree model, allowing them to develop their activities in the field of human health, performing technological interventions essential for the reestablishment of the health of the sick. Those who choose to teach seek to develop their pedagogical practices through the experiences acquired in the labor market (Lourenço; Barriento; Ribeiro, 2023).

Considering that at this level of education the vast majority of teachers have a bachelor's degree without a licentiate, it is necessary to tend to reproduce the teaching methods of their training, such as expository classes, which are simply a transfer of knowledge, centered on the teacher, with no discussions and construction of knowledge, consequently generating the weakening of the teaching-learning process (Fontana; Wachekowski; Barbosa, 2020).

Studies empirically observe that university professors in areas other than the human sciences are limited professionals in terms of knowledge about innovative teaching methods and pedagogical bases. Its practice is guided by expository classes that focus only on the curricular component, with little or no pedagogical preparation (Fontana; Wachekowski; Barbosa, 2020).

It is necessary to reflect on the construction of the nursing professional, to consider that professional training focused on aspects of patient care does not always allow us to understand the specificities of the pedagogical work. The process of preparation/training of nursing professionals should anticipate social changes and teaching proposals should dialogue with such changes (Fontana; Wachekowski; Barbosa, 2020).

In order to create an education based on critical-reflective references, teaching should be understood as a participatory process so that health practices, curriculum design, contents, assessment techniques and learning scenarios offer training opportunities centered on teamwork and human subjectivity (Manhães; Tavares, 2020).

The nurse professor is responsible for the development of a pedagogical proposal that includes actions aimed at the autonomy of the student through teaching models that reflect the daily life of the professional, based on a political-pedagogical project designed, executed and evaluated with the effective participation of all educational agents, especially teachers (Trombetta Franco; Fernandes; Fernandes Millão, 2020).

The use of active methodologies (AM) in the health sciences is justified by the need to overcome traditional teaching models and, consequently, has the purpose of training professionals who can reconstruct the knowledge acquired and not just transfer knowledge in a mechanical and uncritical way (Santos Dias; Freitas de Jesus, 2021).



In this context, AM emerge to promote a critical and reflective education based on stimulating teaching and learning processes, in which students actively seek knowledge and, consequently, it is essential to use this learning method in the training process of health professionals, considering that it will be useful in solving health issues of the population and later in their pedagogical practice as a teacher (Santos Dias; Freitas de Jesus, 2021).

The use of an active methodology ensures a connection between the university and the community. This process allows for direct interventions that are consistent with reality; values all those involved in the process of knowledge construction in their different knowledge, allowing academic training incorporated into the practices of the health system (Santos Dias; Freitas de Jesus, 2021).

By emphasizing intellectual protagonism in the education of students, the teacher provides a space for decision-making based on the problematization and innovation of approaches, both for themselves and for those involved in the implementation of the methodological content (Barbosa *et al.*, 2021a).

The benefits that active methodologies add to the learning process during the training of health professionals are notorious and indisputable, but it is necessary to know which of the numerous active methodologies have caused greater advances in the clinical-scientific development of professionals and which competencies and skills are developed throughout the application in each innovative method (Júnior *et al.*, 2023).

Knowing the effects of these new educational technologies will allow the expansion of the possibilities of transmitting knowledge, since new educational technologies provide a basis for new academic and professional research, emphasizing that this model is developed in the new training process based on the evolution of professional competencies and skills (Júnior *et al.*, 2023).

Still in this line of thought, we can reinforce that the applicability of active methodologies in the teaching of health sciences stems from the need to break with the traditional educational model (Carrijo *et al.*, 2020).

Innovative educational learning technologies that are accompanied by technological evolution and the advancement of information technology emerge as a strategy for the reconstruction of knowledge, not only for the reproduction and repercussion of care practices, but also demystifying the mechanical and uncritical subject, when it provides new possibilities for the applicability of knowledge transfer (Carrijo *et al.*, 2020).



METHODOLOGY

This is a scoping review or Scoping Study, guided by the methodological guidelines proposed by the Joanna Briggs Institute (JBI) and in accordance with what is proposed in PRISMA-ScR (Tricco AC, *et. al.*, 2018).

The scoping review was registered on the OSF-Open Science Framework platform for the science and development of this research, and the record is available for consultation through DOI No. 10.17605/OSF.IO/AKUGY.

In addition, some recommendations proposed by the PRISMA protocol, 2020 were also followed, such as: identification in the title of the study as being a scoping review, explicit presentation of the research objectives; specification of eligibility criteria (inclusion and exclusion); presentation of the databases from which the included studies were recruited; presentation of the research strategy used; explanation of the selection process and choice of data extracted from the studies; elaboration of the results containing the characteristics and synthesized results of their individual analysis; pointing out the limitations of the study based on the delimitation of evidence included in the review; declaration of conflicts of interest and disposition of data, codes and other materials consulted for the preparation of this study.

An order of 6 steps was used to construct the study. These phases consisted of the elaboration of the guiding question (1), the search or sampling in the literature (2), data collection (3), critical analysis of the included studies (4), discussion of the results (5) and presentation of the scoping review (6).

As mentioned in the 1st step, the elaboration of the guiding question was based on the application of the PICO strategy, where "P" corresponds to the Population (nursing faculty and student nurses), "I" corresponds to the phenomenon of interest (applicability of active methodologies and innovative learning technologies) and "Co" corresponds to the context (challenges in the applicability of active methodologies and innovative learning technologies), Resulting in the guiding question, what are the challenges faced by the nursing professional in the applicability of active teaching methodologies and educational learning technologies?

In the search for evidence in the literature described in step 2, the descriptors in Health Sciences (DeCS) were consulted. Subsequently, the descriptors listed for the search for studies in the Pubmed, Scielo and VHL databases were used. In addition, the "last 5 years" filter was applied on both platforms, being justified by the intention to work with more recent articles on the subject.



In the 3rd stage, the inclusion criteria for the articles that composed this study were defined, selecting as inclusion criteria studies that evaluated the challenges of the faculty nurse in relation to the applicability of active methodologies (AM) and innovative learning technologies. Studies that identify the applicability of AM during the teaching-learning process of nursing students and that describe the understanding of which tools need to be improved, so that there is certainty in the commitment to quality education, guaranteeing the labor market a professional trained to face the challenges related to the applicability of active teaching methodologies and educational learning technologies.

As exclusion criteria, articles and studies that were repeated in the databases or that did not fit the inclusion criteria were discarded.

After that, the grouping and summarization of key information from the collected articles was carried out with the help of Mendeley®, a reference manager that facilitated the primary analysis of the studies collected from the reading of the title and abstract.

After this initial process, a critical and detailed analysis of the articles was carried out according to the 4th stage, based on the reading of the full text. Subsequently, the 5th stage of the process was carried out, in which the articles were interpreted to extract indispensable and relevant information for the theme in question.

These stages of study selection were carried out using the double-blind methodology of both, the studies were selected according to the selection criteria, with divergences being resolved later through discussions and consensus. Those studies that met the inclusion criteria were read in full and had their references analyzed to identify additional articles.

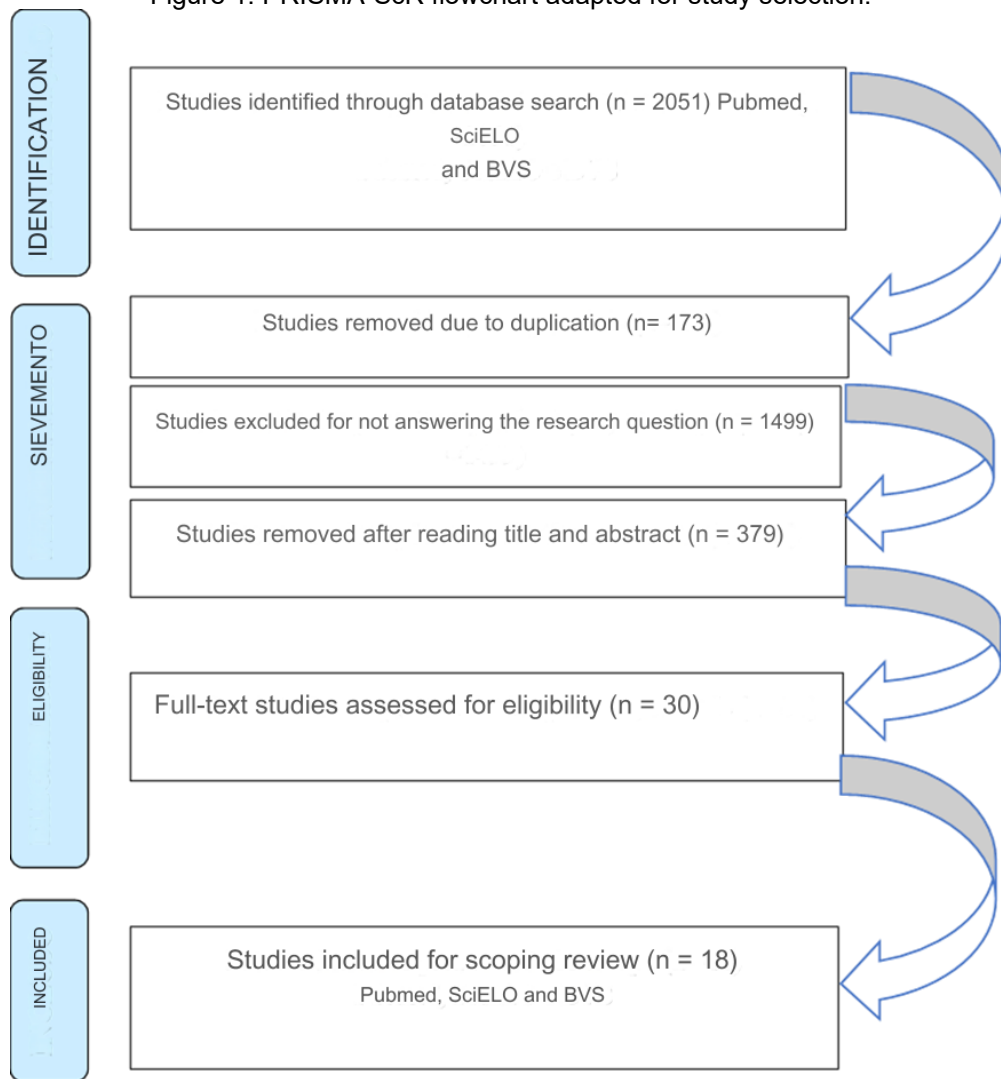
After reading the studies in full, the main characteristics were extracted and summarized by the authors who organized the database in the form of a spreadsheet in the Excel software, version 2016, of the Microsoft Office suite.

Finally, the data and information found were arranged in Chart 1, which includes the following variables: authors; year of publication; database where the study was indexed; title; type of research and outcome, thus concluding the 6th stage of this scoping review.

RESULTS

The search process identified 2051 articles in the three databases, and 1672 of them were initially excluded because they were duplicate or because they did not meet the criteria for inclusion in the study. Therefore, there were 379 studies that were filtered by screening titles and abstracts and, from this process, 30 articles were selected that were sent to full-text screening, after this analysis 18 articles were selected, thus concluding the search process, as presented in the adaptation of the PRISMA-ScR Flowchart (Figure 1).

Figure 1: PRISMA-ScR flowchart adapted for study selection.



Source: Prepared by the authors



Table 1: Results

YEAR	REFERENCES	TITLE	SOURCE	DESIGN OF STUDY	MAIN RESULTS	CONCLUSION
2023	(Silva <i>et al.</i> , 2023)	Meaningful learning in nursing education: an integrative review	UNIPAR Health Sciences Archives (2023) 27(9) 5224-5242	Integrative literature review	Meaningful learning (SA) can stimulate the student to be able to learn how to learn, becoming the subject of his own praxis.	Or development of AS by demonstrating that the student was seen as an active subject in the context of learning,
2023	(Júnior <i>et al.</i> , 2023)	Evaluation of the Applicability of Active Teaching-Learning Methodologies in Professional Nursing Education	Conjuncture Bulletin (BOCA) (2023) 14(N.40) 1-21	Literature review, descriptive, qualitative	The transformations in the curricular components in the training institutions, appropriating the active methodologies.	Therefore, it is necessary to have an education based on criticism-reflection that favors an adequate and effective professional practice. and the construction of a critical character –reflexive.
2022	(Souza & Batista, 2022)	The need for didactic teaching practices for Nursing Professionals	Ibero-American Journal of Humanities, Sciences, and Education (2022) 8(3) 979-987	Integrative literature review	At the beginning of the course, the student is not yet prepared to know which professional area of the field of nursing he will be directed to.	The need for nursing professionals to always be attentive to didactic practices is clearly and objectively shown.
2022	(Sousa Maia <i>et al.</i> , 2022)	Educational technologies for the teaching of semiology and semiotechnics in nursing in social distancing: an integrative review	Current Nursing In Derme Journal (2022) 96(40)	Integrative literature review	Regarding the contents covered, they were predominant in terms of theoretical and practical contents, including patient safety skills.	It was observed that the use of technologies enabled the continuity of teaching and the inclusion of the discipline of Semiology and Semiotechnics.
2021	(Nascimento & Pinho, 2021)	From Nurse to Teacher: trajectories of professionalism	Ibero-American Journal of Studies in Education (2021) 2493-2508	Qualitative research, from the philosophical hermeneutic to	In view of the numerous challenges in professional education, most pointed out deficiencies in the choice and use of methodological strategies.	Education is inseparable and related to the production of meanings about personal and professional experiences.



2021	(Reinaldi <i>et al.</i> , 2021)	Formação continuada para professores de Curso Técnico em Enfermagem / Continuing education for teachers of a Technical Course in Nursing	Brazilian Journal of Development (2021) 7(7) 75042-75058	Qualitative research	Most teachers do not use the teaching methodology covered in the course.	Continuing education is essential to teachers and technological evolution has increasingly integrated societies.
2021	(M. L. Barbosa <i>et al.</i> , 2021)	Evolution of nursing education in the use of educational technology: a scoping review	Brazilian Journal of Nursing	Scoping review	The evolution in nursing education is a reality and goes hand in hand with the modernization of teaching.	The implementation of ICT directed to learning must be aligned with pedagogical theories.
2021	(Dos Santos <i>et al.</i> , 2021)	Use of mobile applications in the teaching-learning process in undergraduate nursing	Bahian Journal of Nursing	Integrative literature review	Some challenges are pointed out for the use of mobile applications in the teaching-learning process, including the need for validation by judges and the target audience and the adoption of institutional channels.	The rationale and dissemination of the use of mobile applications become pertinent.
2021	(Santos Dias & Freitas de Jesus, 2021)	Application of active methodologies in the nursing teaching process: an integrative review	Health and Development Journal (2021) 15(n.21) 19-31	Integrative literature review	Nursing knowledge should be (re)constructed individually and collectively in tutorial groups.	The new pedagogical techniques can be applied in both active and conservative methodology.
2021	(After the death of Cavichioli <i>et al.</i> , 2021)	Continuing education and active methodologies in distance learning courses in nursing: an integrative literature review	Nursing (São Paulo) (2021) 24(276) 5670-5685	Integrative literature review	The need for new studies with methodological rigor capable of analyzing the courses that use one or more MAE.	Active Teaching Methodologies (MAE) contribute effectively to the learning process in distance courses.
2021	(Fontes <i>et al.</i> , 2021)	Use of active methodologies in undergraduate nursing courses: an opportunity to overcome the traditional teaching model	Research, Society and Development (2021) 10(1) e35410111774	Integrative literature review	The teacher needs to be sensitive to the needs of the student, respecting their autonomy and creativity	The use of active methodologies in undergraduate nursing leads to the education of a nurse critical-reflective.

Multidisciplinary Research and Practice



2021	(K. K. Barbosa <i>et al.</i> , 2021)	Active Methodologies in Meaningful Nursing Learning	Humanities and Innovation Journal (2021) 8(n.44) 100-109	Integrative literature review	It has been proven that memorizing information does not form competent professionals in the fields of empathy and emotional intelligence.	It is indisputable that the Problematic Methodology requires a prior storage of information.
2020	(Trombetta Franco <i>et al.</i> , 2020)	Profile of nurses-teachers of technical professional education at the secondary level in nursing	Collective Health (Barueri) (2020) 10(56) 3164-3175	Quantitative study	Only professionals with teaching experience over 4 years seek training in the area of teaching/education.	Revealing the profile of nurse-teachers can allow contributions not only to Nursing.
2020	(Gonçalves <i>et al.</i> , 2020)	The Use of Digital Information and Communication Technologies as an Educational Resource in Nursing Education	Distance Learning in Focus (2020) 10(1)	Integrative literature review	Digital technologies integrated into nursing education and health education that indicate the effectiveness of theory-practice integration and specialized support.	They distinguish the effectiveness of the initiatives carried out in the course.
2020	(Fontana <i>et al.</i> , 2020)	The methodologies used in nursing education: with the word, the students	Education in Review (2020) 36	Descriptive cross-sectional investigation	Students are increasingly adhering to technologies and show interest in classes that use them;	From what has been observed, it is a relatively emerging area in the use of Information and Communication Technologies
2020	(Ribeiro <i>et al.</i> , 2020)	Implementation of active methodologies in the teaching-learning process in undergraduate nursing courses	Research, Society and Development (2020) 9(7) e708974709	Integrative review	Higher education institutions are poorly prepared.	The positive points related to the use of Active Methodologies in the undergraduate course.
2020	(Celestino <i>et al.</i> , 2020)	Active teaching-learning methodologies in the education of nurses	Revista Nursing (2019) 22(259) (2019) 3457-3464	Systematic review	The studies pointed out a wide variety of active methodologies used in undergraduate nursing education.	It is necessary to reformulate the process of training nurses.
2019	(Villas <i>et al.</i> , 2019)	Challenges of university teaching in health: pedagogical training, contemporaneity and new technologies	REVASF, Petrolina-Pernambuco - Brazil (2019) 9 283-297	Exploratory, qualitative research	It is essential to develop a culture of valuing teaching in universities.	Professional training is linked to the formation of ethical, responsible subjects committed to social reality.

Source: Prepared by the authors

Multidisciplinary Research and Practice

The challenges of the nurse professional in the applicability of active teaching methodologies and educational learning technologies



DISCUSSION

PEDAGOGICAL TRAINING OF THE PROFESSIONAL NURSE

Nursing was recognized in Brazil in 1986 through the law that provides for the professional practice of Nursing (Law No. 7,498, of June 25, 1986). This regulation was necessary because it aimed to give scientificity and autonomy to the profession, which was previously seen as an auxiliary profession to medical practice (Souza; Batista, 2022).

The areas covered by nursing professionals are expanding, the category has advanced in a diversified way, expanding its areas of activity. The Cofen (Federal Council of Nursing) published a resolution with the list of nurses' specialties, by area of coverage, the list of specialties was released by the Federal Council of Nursing and has more than 60 specialties (Souza; Batista, 2022).

Didactics is included in all 60 nursing specialties, as nurses have a job of educating for health. The inclusion of the teaching and research area is an advance, it covers the role of nurses in technical professional training in nursing and in teaching in health courses at higher education levels (Souza; Batista, 2022).

Professional education is attended by many professors with a bachelor's degree, who arrive in the educational field of basic education with good professional experience (assistance), but without time or previous knowledge to develop a solid didactic-pedagogical action that is essential for the nursing teacher to be able to face (Nascimento; Pinho, 2021).

When becoming a teacher, nurses need to have the necessary understanding to plan educational situations that promote learning. Therefore, it is necessary not only to master the content, but also to seek the appropriation of teaching methods that favor the learning process (Nascimento; Pinho, 2021).

To train professionals with ethical commitments, imbued with a scientific spirit, the teacher must also be endowed with these same qualities, the contents need to be integrated with the lived reality and the methods must maintain coherence between theory and practice, a pedagogical approach consistent with a reflective praxis, providing meaningful learning guiding a transformative education (Trombetta Franco; Fernandes; Fernandes Millão, 2020).

The role of the university professor should be to help the student to think and act using the conceptual instruments and research processes of the science that the professor teaches. Thus, valuing the development and mastery of the management of intellectual and human capacities, in addition to teaching how to produce and apply new knowledge (Villas *et al.*, 2019).



It is essential that teachers are able to perceive, understand, analyze and monitor the changes that have occurred in higher education, aiming to develop pedagogical relationships compatible with an environment conducive to meaningful learning, considering the teacher as a mediator of knowledge, and not the holder of it (Villas *et al.*, 2019).

Nurses who currently teach in vocational education face limitations related to pedagogical, didactic knowledge and in-depth specific knowledge about educational practices. These limitations are related to the fact that during the bachelor's degree, training focuses on curative care activities, training future nurses who will be able to work in professional education institutions as teachers, but with little or no pedagogical preparation to develop the function (Reinaldi *et al.*, 2021).

In view of the limitations of nursing faculty professionals, there is an urgent need for a well-structured program, with trained professors and students, in addition to structural investments that allow easy access to information. The understanding of the philosophical aspects and the new profile that teachers and students must assume are essential elements for the development and application of active methodologies (Santos Dias; Freitas de Jesus, 2021).

The use of active methodologies during the training process allows them to have security, responsibility and the ability to manage new situations and work as a team. These are the main characteristics that bring positive impacts on the daily life of the nursing professional, it can be observed that the professionals after graduation, when evaluating their professional training, affirm that the use of active methods during training gives them more security and responsibility (Santos Dias; Freitas de Jesus, 2021).

Schools and vocational training centres have a responsibility to promote the development of increasingly complex skills and abilities in order to respond to the needs of postmodernity. The current traditional methods used in the teaching-learning process have shown students a growing lack of interest in the content taught and a great loss of recognition of the teacher's authority, making the mere traditional transmission of information inefficient (Júnior *et al.*, 2023).

This problematization emerges from the fact that most teachers obtained their training based on traditional methodologies, so that in the face of active methodologies it is natural to encounter difficulties and feelings of pedagogical limitation. For this, it is essential to continuously train teachers, so that they can overcome their doubts (Santos Dias; Freitas de Jesus, 2021).



Active teaching methodologies

Active methodologies include an interactive process of knowledge, analysis, studies, research and individual or collective decisions that aim to find a solution to a problem and the teacher's role must be performed as a facilitator, to make the student think and decide what to do to achieve the proposed objectives (Fontana; Wachekowski; Barbosa, 2020).

Since the twentieth century, several researchers have discussed teaching-learning models in order to understand the main challenges of teachers and emphasize the student's lack of autonomy (Júnior *et al.*, 2023).

From then on, several pedagogies seek to focus on the student as the main subject of the active exploration of teaching-learning. Among them, the most well-known educational philosophy is that of John Dewey, which aims to intensify the student's active search for knowledge (Júnior *et al.*, 2023).

The active methodologies conceived by John Dewey in the mid-nineteenth century result from the New School movement, whose philosophy is the change for the improvement and transformation of an ideal educational environment through a process of knowledge accumulation through the reconstruction of technical standards and the defense of traditional educational methods (Barbosa *et al.*, 2021).

Considered the first school antagonistic to traditional schools, because it was founded from the movement of renewal of teaching, this school offers a new model of relationship between teaching and learning with a more dynamic format, compared to traditional methods, actively including the student in the teaching-learning process (Barbosa *et al.*, 2021).

Consequently, this pedagogy is considered a significant expression of democracy in the field of education, since this pedagogical conception is constructivist, as there is a reconstruction of knowledge based on the experience lived by the student (Júnior *et al.*, 2023).

Educational strategies that fragment the curriculum and knowledge must be rethought, placing the teacher at the center of the pedagogical didactic process. It is important to adopt a broad and incorporated approach in study programs, prioritizing the formation of skills and promoting the use of active learning methodologies, thus building professionals with a broad visual perception of man (Ribeiro *et al.*, 2020).

Only through the use of active methodologies, aggregated in reflective practices, with a critical foundation and committed to the student's scenario as the protagonist of his knowledge, will it be possible to live a pedagogy that develops the autonomy of the student, thus enabling the confrontation of conflicting reactions. It is necessary for teachers to learn



new methodologies with progressive pedagogical approaches that provide support in the development of knowledge (Fontana; Wachekowski; Barbosa, 2020).

The problem-based learning method – PBL is an innovative teaching strategy where students are the main responsible for building their knowledge. The benefits of active methodologies are corroborated by experts in the field who contribute greatly to the development of students' critical reasoning, in order to transform the context in which they are inserted (Celestino *et al.*, 2020).

Problematization is a pedagogical approach that is based on practical activities, whether real or simulated, which demand direct experience. The process involves observing the context, followed by reflection that leads to a concrete action or practice. The groups focused on collective health mostly adopted this educational orientation after specific training for educators. This methodology has proven to be essential to address topics that go beyond theoretical knowledge, requiring social interaction between academia and health services, thus contributing to the construction of scientific knowledge applicable in everyday social life (Miguel *et al.*, 2023).

Team Based Learning (TBL) The BTL or Team-Based Teaching (EBE) is characterized by the acquisition of skills based on science and technical knowledge. It is combined with other approaches, organizing educational experiences in a safe environment, which ensures the clinical training essential for professional performance. However, this knowledge, when integrated, is not detached from reality and thus addresses the health needs of the population through health promotion and the prevention of diseases and mortalities specific to each stage of the life cycle (Miguel *et al.*, 2023).

It is important to emphasize that this transformation of paradigms that teachers must adopt is not something so simple to propose and constitute in an educational environment. Based on this perception, the emphasis is placed on each person in the learning process, whether student or teacher, acting in line with the conceptions of education and learning that they have. It is necessary, therefore, to bring them to reflection as a possibility of redefining educational practice. (Ribeiro *et al.*, 2020).

In general, the training of university teachers takes the form of updating, training or continuing education, but the increasingly rapid contemporary changes in the context of new technologies pose more complex challenges in their pedagogical practice, the contents of the curricular components are no longer sufficient, requiring innovative teaching experiences integrated with the interests and needs of students (Villas *et al.*, 2019).

Nursing students in their undergraduate courses have the discipline of didactics as a curricular requirement. However, at this moment, the student is not yet prepared to know



which professional area of nursing he will focus on, this discipline does not have the importance it deserves and, throughout his professional career, the nurse becomes aware of the need for teaching (Souza; Batista, 2022).

Teaching directed to health professionals does not aim to prepare them to assume the role of educator, or even teachers in the training of other nursing professionals. The importance of targeted teaching during the training of future health teachers is necessary in order to develop good educators (Souza; Batista, 2022).

Currently, one of the great challenges of nursing courses is to train professionals capable of facing changes, professional training must be based on a liberating methodology and not on methods restricted to the memorization of content (Ribeiro *et al.*, 2020).

As a result, in recent years, the adoption of problem-solving learning strategies has been incorporated into the teaching plans and schedules of undergraduate nursing courses. The change in the curricula of the courses solidified the idea that teaching needs to be reinvented (Fontes *et al.*, 2021).

Educational learning technologies

The process of integrating Digital Information and Communication Technologies (DICT) in educational contexts has offered different possibilities for recreating learning spaces. These technologies play a prominent role when instituted for the production and dissemination of information, in addition to contributing to the development of new forms of learning (Gonçalves *et al.*, 2020).

Nursing has been introducing Information and Communication Technology (ICT) in its teaching-learning processes, when differentiated and modern activities are inserted into traditional classes, favoring dynamism in the learning process (Barbosa *et al.*, 2021b).

Despite the perceived difficulties in the integration of technologies into nursing education, including structural aspects and lack of ability to use some tools, research results reveal their potential for the teaching-learning process. "ICT" leads to more substantial learning, due to the tools that provide auditory, visual and interactional means that are attractive and allow greater retention of information (Gonçalves *et al.*, 2020).

There are several possibilities for using ICT, including virtual clinical simulation, virtual learning objects, hypermedia, web platforms, videos and mobile applications. In general, such tools are characterized by interactivity, multimedia support, hypermedia language, and reusability, proving to be a strong supporter of learning at different levels of training (Barbosa *et al.*, 2021b).



The use of cell phones, computers and other instruments with information systems connected to the internet promotes the union of life in today's society. In the context of education, the use of these tools in the teaching-learning process strengthens the construction of knowledge, expanding the potential of this process (Dos Santos *et al.*, 2021).

Digital educational technologies are widely used as strategies in the teaching-learning process, especially with the advent of the COVID-19 pandemic. For nursing education, this approach can allow the development of new skills and competencies, as they actively stimulate the student's creativity and autonomy (Silva *et al.*, 2023).

Online classes (video lessons) and educational videos are a didactic teaching strategy because they stimulate and support students' understanding, videos contribute to the professional training of the nursing team by bringing the student to the clinical situation not yet experienced, improving cognitive knowledge and technical skills related to the procedure and are capable of improving the quality of care (Takaki Cavichioli *et al.*, 2021).

The use of digital technologies in the teaching-learning process reduces the distance between student and teacher, facilitates and makes access more flexible for different people, stimulates autonomy and reflection on learning itself, as it involves the student in an articulated process of strategies and resources related to the use of technology (Barbosa *et al.*, 2021b).

Nursing is in constant transition, and it is possible to observe that technological tools are important factors for the evolution of practical classes. Digital educational technologies are often seen as a modality that promotes more autonomy. Proper planning of activities is capable of stimulating students more than traditional theoretical classes (Sousa Maia *et al.*, 2022).

It is essential to prepare future professionals in simulated realities, the contributions of the use of digital educational technologies in nursing education are associated with nursing skills, such as the use of virtual simulators and mannequins, which aims to provide safety before they start practicing with humans. The use of these resources allows the author to recognize the student's possible errors before performing the procedure with the patient (Fontana; Wachekowski; Barbosa, 2020).

The teacher must analyze the social and political context of the student before choosing the appropriate method to be applied in the context portrayed. Among the methods currently in existence, the following can be mentioned: Problem Based Learning (PBL), game-based learning and gamification, learning between teams, flipped classroom, design thinking and peer instruction, blended study, simulators and technologies based on



virtual reality, augmented reality and Learning Analytics, case study, Evidence-Based Practice (PBE), teamwork, portfolio, practice-based learning, research, group discussion, videos, and role-play (Takaki Cavichioli *et al.*, 2021).

Educational technologies can provide possibilities in the context of nursing for students and professors to interact and discuss the skills and competencies necessary to provide reflections for academic teaching, an example that evidences this duality between active and passive methods resides in the discourses commonly expressed by professors and students, in which students complain about boring and not very dynamic classes (Barbosa *et al.*, 2021a).

Having the planning of the discipline focused on the insertion of digital technologies, it is necessary to understand its characteristics to help direct teaching strategies, respecting the learning pace of each student, which requires a new attitude from the teacher, so that the student has a leading role, developing autonomy in a participatory and reflective way of approximation and distancing (Sousa Maia *et al.*, 2022).

This context of advancement of digital technologies makes us reflect that it is necessary to invest in teacher training to manipulate information and communication technologies. Above all, it is necessary to highlight the important limitation regarding the lack of information technology infrastructure that covers teaching activities, however, it is important to highlight the need to build new learning spaces, taking into account dialogue and possible strategies that can improve current didactic resources (Gonçalves *et al.*, 2020).

FINAL CONSIDERATIONS

It is relevant to understand the importance of the applicability of active methodologies and innovative technologies during the teaching-learning process of nursing students, since nurses have little or no knowledge regarding active teaching methodologies and educational learning technologies during their training process.

The teaching nurse who works in the training of other professionals was commonly trained using a traditional teaching methodology, most of these professionals do not have a pedagogical basis or any teaching training course that brings them closer to the pedagogical methods necessary for teaching, and this makes us question the importance of having a different look in order to introduce a new way of teaching by teachers.

The study shows that it is necessary to understand which tools need to be improved, so that there is certainty in the commitment to quality training, which guarantees the labor



market a professional trained to face the challenges related to the applicability of active teaching methodologies and educational learning technologies.

This study made it possible to identify that the presence of more studies that evaluate the results of the use of these methodologies in educational institutions in which these active methods are already consolidated is relevant, with the objective of showing their effects on learning and their consequences for the academic community.

We also emphasize the importance of new studies that evaluate how new nursing professionals (graduates who have already experienced such methodologies) have used Active Methodologies in their teaching and care practices, such results solidify the importance of these methodologies and the repercussions to be expanded to ensure a solidified education based on the ethical commitment to quality education.



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