

TIC-Mediated Pedagogical Practice: A Challenge in Nursing Programs

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Abstract

Introduction: In the field of training of Nursing professionals, the pedagogical practice mediated by information and communication technologies constitutes a dynamic training space that allows the student to achieve autonomous performance and relevant to the social demands related to care of the health. Objective: To inquire about the appropriation of competences on information and communication technologies in the pedagogical practice of Nursing.

Methodology: Complementary, descriptive, prospective cross-sectional type. It was developed in five phases: documentary review, diagnostic survey, direct observation, in-depth survey and semi-structured interview. This article presents the results of the development of the diagnostic phase where 59 teachers from the Nursing program of a public Higher Education Institution in Norte de Santander, Colombia participated, 4 teachers were selected to participate voluntarily in the in-depth survey phase.

Results: The integrator level (58.3%) with respect to technological and pedagogical competences predominates in the teachers, while the communicative and investigative competences show an innovative level (41.6%), however, for the management competence, an exploratory level prevails in the majority of teachers.

Conclusion: The teaching-learning process through information and communication technologies goes beyond the acquisition of knowledge, it is essential to appropriate these technologies to achieve a change in teacher action, where different dimensions of work appear with each technology, promoting a new way of acting in his role as a teacher of the Nursing program.

Keywords: Teaching; Learning; Nursing Education; Higher Education; Information Technology

Abbreviation

ICT: Information and Communication Technologies

Introduction

Education faces important challenges, one of them is to characterize the pedagogical practices of Nursing teachers, it is considered that Information and Communication Technologies (ICT) play a leading role in the construction of knowledge and the development of students' skills of the XXI century [1]. The use of ICT in the world's universities has become a conclusive factor to achieve change and adaptation to new ways of doing and thinking in different sectors of society [2]. Therefore, it is essential to promote the acquisition of competences in the teaching - learning process, through ICT as virtual tools that favor flexibility and collaboration between students and teachers [3].

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Nursing education has some special particularities, it is based on theory and practice, which must be developed in Health Institutions, where the main axis is the care of the individual, which leads to reflect on the pedagogical practice of the teacher and the articulation of the disciplinary axis for the renewal of knowledge and health practices that allow the resolution of problems displayed in the occurrence of the educational process. ICTs go beyond the barriers of space and time, with powerful and creative resources that allow the resignification of pedagogical practice as a continuous process of permanent change [3].

The meaning of pedagogical practice is related to the experience in teaching the knowledge of the discipline and innovation, the lack of teacher preparation, enthusiasm and continuous learning, the implementation of strategies oriented to reflection and the commitment to contribute to improvement. of discipline [4]. The training process includes pedagogical actions that enhance meaningful learning, linking new knowledge to existing ones and incorporating everyday experiences or professional practice [5].

The pedagogical practice in Nursing mediated by ICT constitutes an element of change in curricular practices and conceptions, through new designs that increase flexibility in learning opportunities, counteracting the limitations of time, space and presence [3]. It should be noted that the training process in Nursing is developed in different institutional settings with diverse contexts, characteristics and elements that the teacher must consider when planning their teaching method, adapted to the structure of the disciplinary contents and the activities planned with students, who require continuous interaction with the educational process, which makes it possible to transform and transform it to strengthen health care.

The incorporation of ICT into the educational field has innovated the teaching-learning process and academic performance, allowing the reconfiguration of habitual educational practice [6]. In this way, ICTs are presented as a new form of communication that facilitate and provide answers to the different challenges in education [7]. In the pedagogical practice mediated by ICT, technological, communicative, pedagogical, management and research competences must be developed, which depend on the level of development of the teacher, his role, the discipline he teaches and his interests, whose levels are exploration, integration and innovation, where ICT reconfigures educational practice.

Methodology

Complementary, descriptive, prospective cross-sectional research. The diagnosis included 85 teachers from the Nursing program of a public higher education institution in the city of Cúcuta, Norte de Santander, Colombia. The sociodemographic variables were: age, gender, educational level, marital status, type of teaching relationship, time of teaching experience. To detect teacher training needs, the following dimensions have been taken into account: frequency of ICT training, training of virtual environments and ICT, use and application of the training received, assessment of training needs and satisfaction of the training plan, weaknesses and strengths of the training plan. Regarding the limitations, it was found that 15% did not accept to participate, 8% could not be contacted to apply the instrument, 5% were not linked and 2% received the instrument, but did not fill it out.

For data collection, reference was made to Carrillo Mejía: 2014 [8], the Instrument Training needs for teaching in the virtual environment of the Nursing program was structured, with Cronbach's Alpha coefficient $\alpha = 0.61$, good internal consistency. An in-depth survey of ICT competencies for teacher professional development was applied to 4 teachers, validated by experts in Colombia, average rating: 97.5%, reliability analysis with coefficient $\alpha = 0.96$, high internal consistency. The SPSS version 24 program was executed. The ethical principles established in Colombia with resolution 008430 of 1993 were respected, using informed consent and information privacy [9].

Results

Fifty-nine nursing teachers participated (70%), with the 41-50 age group being the most representative (37.3%); 84.7% correspond to women and 15.3% to men. Contrary findings were found in Mendoza Rojas and Placencia Medina: 2017, where the male sex predominat-

ed (69.1%) [10]; According to Arancibia; Cabero and Marín: 2020, male teachers have less use of virtual platforms and present resistance to the use of ICT in their educational practice; It is also evidenced that teachers with more experience do not reveal significant differences in their perceptions in relation to technology and their beliefs about teaching, contrary to younger teachers where they evidenced a difference between their beliefs about teaching and the index on frequency of use of platform tools ($p < .1$), and the index on the frequency in which they have used the platform for the execution of activities ($p < .05$) [1].

It was evidenced that teachers have a master's level (50.8%), they are people with a stable partner (39% married; 11.9% in common-law union), 71.2% full-time teachers, 76.3% have more than 5 years of teaching experience. In Mendoza Rojas and Placencia Medina: 2017, the master's degree (42%) predominated, part-time (59.3%) and full-time (18%) links [10]. According to a study by Zempoalteca Durán., *et al.* 2017, the highest percentage of teachers have a master's degree, with 63%; likewise, the range of thirty-five to fifty-four years of age represents 64% of the sample. (eleven).

The results show that 71.2% (42 teachers) have received ICT training from the educational institution, 73.8% have taken training during the academic semester, although it was found that some teachers received an average of 2 to 4 trainings. Regarding the training plans in which they have participated, virtual environments for teachers predominate (44.1%) and didactic strategies on the Moodle platform (33.9%). Participation in training processes allows the appropriation of ICT, it is considered that training has been quite useful (49%), very useful (25%) and little or nothing has served them in practice (23%). According to Mendoza and Placencia: 2017, trained teachers use ICT in class by 95% [10].

In this context, teachers trained in ICT often apply this knowledge in their teaching practice (44.1%), very often (15.3%), only on some occasions (32.2%) or never apply it (8.5%). Contrary results were found in Mendoza Rojas and Placencia Medina: 2017, most teachers state that they use ICT in their classes (70.37%). [10] According to the level of ICT training, Zempoalteca Durán., *et al.* 2017 found that, when there is no training, there is no significant relationship with the factors related to the use of the Internet for teaching activities in a Web 1.0 environment, access and availability of ICT in the institution and ICT training and it is evident that digital competence is low; on the contrary, as the level of training increases, the correlation between the factors increases, as well as digital competence, and becomes greater as a whole than separately, since in the case of high training, the multiple correlation was $R = .913$, $p < .01$ [11]. The use of ICT encourages students to handle different tools and diverse sources of information, to achieve learning objectives and exercise problem solving towards cooperative interaction [3].

Regarding the application of ICT knowledge in the virtual environment of the educational institution, it was found that it is used as a mechanism for disseminating materials and/or teaching support (54.8%), to teach subjects at a distance through the virtual environment (23.8%) and research activities and cooperative construction of knowledge (16.7%). According to a study by Matosas-López and Bernal-Bravo 2019, the findings reveal that the tools used correspond to the Learning Management System (LMS) (63.83%), video classes (34.04%) and videoconferencing (29.79%) being technological resources with greater presence [12] In turn, Arancibia; Cabero and Marín: 2020 consider that the beliefs that teachers have about teaching continue to be a determining factor for the strategies they use in it, hence the significance of their research [1].

Teachers state the need for specific training in the use of ICT to manage teaching in virtual environments in the institution (72.9%). It was also found that the satisfaction of teachers with the training received in ICT is satisfactory in half of the teachers (51%). In Mendoza and Placencia: 2017, teachers report lack of ICT training (38.3%) [10]. Similarities were found in Zempoalteca Durán., *et al.* 2017 where 32% of the sample reported having had at least one ICT training in the last three years, while 68% did not have formal ICT training or did not remember it [11]. Therefore, Arancibia; Cabero and Marín: 2020, express that teacher reflection and collaborative work are essential to give way to a reflective and collaborative culture, however, it is evident that the constructivist beliefs of teachers are not related

to their pedagogical practice and the use of technologies, moreover, a conventional educational model continues to be taught [1]. One of the factors that limits educational innovation through the use of ICT is the reiteration of obsolete teaching habits or the maintenance of an educational paradigm that has disappeared without teachers noticing it [13].

Among the strengths found on ICT training, permanent updating, improvement of teaching, ease of learning, greater interaction and strengthening of autonomous learning stand out. According to Bustos and Parra: 2019 training in digital skills allows teachers to create, publish and share attractive teaching material for their students [14]. From another perspective, the results show that teachers consider that, for the use of ICT, student motivation, availability of time for course development, and teacher training are essential. Therefore, it is important to strengthen the ICT training process, with greater flexibility in schedules, improvement of the training personnel, implementation of new content that captivates the teacher, likewise, the installed capacity in equipment, networks and software must be improved. In contrast, the statistics of the qualified registration and high-quality accreditation processes of programs and institutions in Colombia show the appropriation that institutions have had due to the fact that the regulations regarding ICTs were established as a mandatory requirement, that has allowed the acquisition and expansion of computer resources, in order to support the academic and administrative activities of higher education institutions [15].

The results describe the different levels found in each of the competencies evaluated. In technological competences, the integrating level predominates, technological tools are linked in the training processes to improve the planning and implementation of educational practice (75%); In communicative competences, the innovative level predominated by contributing with their own knowledge and that of students to repositories of humanity on the Internet, with texts of diverse nature (75%); integrative level in pedagogical competences, autonomous and collaborative learning supported by ICT is encouraged (50%); In management competencies, the explorer level stands out, educational elements are identified that can be improved with the use of ICT (75%); In investigative competences the innovative level prevailed, the teacher uses information available on the Internet with a critical and reflective attitude in conjunction with his students (75%). According to Barreto and Diaz: 2017, the level of use of information technologies is located at medium-low or low levels, despite the recognition of the importance and usefulness that these resources can have in the teaching-learning process [2]. However, carrying out academic projects does strengthen the acquisition and development of such skills in relation to the use of ICT [16].

Discussion

ICT implementation is related to various factors. In Colombia, the recommendations in program accreditation resolutions are aimed at increasing, improving, updating and strengthening the ICT infrastructure, which benefits the pedagogical appropriation by teachers, through the implementation of strategies within the universities, their curricular and pedagogical integration to guarantee the use of ICT and achieve the objectives in the educational field [15]. However, the beliefs that the teacher has about learning and teaching are fundamental when integrating ICT in the classroom, it has been shown that the use of technology does not ensure the transformation of pedagogical practices, since the practice is a reflection of the teacher's beliefs [1].

When contrasting the usefulness of ICT knowledge in pedagogical practice, it is considered quite useful (49%), the participation of teachers in research and use of ICTs in full-time teachers (80%) and professors (20%). Specific training in ICT is considered necessary to handle teaching in virtual environments (72.9%), the training received in ICT being satisfactory (51%). According to Arancibia; Cabero and Marín: 2020, teachers recognize the importance of introducing ICT in education, however, the lack of training is reflected in the little use of more significant strategies such as collaborative, which leads to the use of ICT is limited [1].

In the Nursing teacher the integrating level predominates (58.3%) in the technological and pedagogical competences, in the communicative and investigative competences an innovative level (41.6%) and an explorer level in the management competence are evidenced. In contrast, the Arancibia research; Cabero and Marín: 2020 conducted with higher education teachers, shows that more than 80 percent

of teachers have teacher-centered (transmissive) or constructivist (student-centered) beliefs, which allowed them to create two types of teaching profiles; a behaviorist one, where teaching is centered on the teacher and a constructivist one, centered on student learning [1]. The teaching-learning process through ICT goes beyond the acquisition of knowledge, it is essential to appropriate them to achieve a change in teaching actions, where different dimensions of work appear with each technology.

Conclusion

According to the results and with the proposed objective, it is concluded that the appropriation of ICT competences in pedagogical practice reveals a favorable effect, the Nursing teacher conceptualizes pedagogical practice as a structured teaching process that allows teacher-student interaction, considering ICT a support resource that facilitates the teaching - learning process. In this sense, ICT training improves its use by teachers who often apply this knowledge in their pedagogical practice, since, with more training, the teacher believes they have greater digital competence. In this research, it is important to highlight that the majority of teachers are at the integrating and innovative level, results that are expressly related to the efficient use of ICT resources.

Similarity is found with the reviewed literature regarding the need to increase efforts in teacher training, it is considered that the scarce training of teachers is one of the factors that impacts on the use of ICT in the pedagogical practice of teachers in higher education institutions. Therefore, it is time to appropriate ICT, as a challenge in higher education, in order to strengthen teacher training and resignify pedagogical practice to promote the development of skills in this digital age.

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