TEACHERS' EXPERIENCES IN THE IMPLEMENTATION OF DIGITAL TEACHING STRATEGIES IN THE MEDICINE PROGRAM OF THE UNIVERSITY OF NARIÑO DURING AND AFTER ISOLATION DUE TO COVID–19

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Abstract

Over the course of history of education, the need to include appropriate teaching materials for the development of academic activities has been discussed, in the era of Information Technology and Communication ICT and the global situation SARS - CoV-2 (COVID-19), the School proposed the challenge of implementing Digital teaching strategies to support the teaching-learning processes in all areas of knowledge. However, some questions arise that deserve to be analyzed specifically related to the experiences of teachers of the basic cycle of the Medicine Program at the University of Nariño, in the use of digital tools during and after the period of compulsory isolation by COVID-19 and how to contribute to a comprehensive training strengthening interests and needs of the educational process to the point of stimulating and providing pleasant environments, transforming education in the area of health.

Keywords: Digital teaching strategies, education during pandemic, TIC in education.

Resumen

A lo largo de la historia de la educación se ha discutido la necesidad de incluir materiales didácticos adecuados para el desarrollo de actividades académicas, en plena era de las Tecnologías de la Información y la Comunicación TIC y ante la coyuntura mundial SARS - CoV-2 (COVID-19), la escuela propuso el reto de implementar estrategias didácticas digitales para apoyar los procesos de enseñanza – aprendizaje en todas las áreas del conocimiento. Sin embargo, surgen algunos interrogantes que merecen ser objeto de análisis puntualmente relacionados con las experiencias de los docentes del ciclo básico del Programa de Medicina de la Universidad de Nariño, en el uso de herramientas digitales durante y posterior al periodo de aislamiento obligatorio por COVID-19 y, en la manera de contribuir a una formación integral fortaleciendo intereses y necesidades del proceso educativo a tal punto de estimular y ofrecer ambientes agradables, transformando la educación en el área de la salud.

Palabras Clave- Estrategias didácticas digitales, Educación en Pandemia, TIC en Educación.

Introduction

The integration of digital didactic strategies to support teaching and learning plays an essential role in streamlining content at all levels of academic education. This approach facilitates access to a wide variety of resources, such as web exploration, database searching and collaborative idea building. This access to digital resources is reflected in substantial benefits for the educational process.

The convergence of didactic strategies with technology has generated a radical transformation in the social paradigm, stimulating the adoption of strategies aligned with the interests and needs of the educational process. This change was particularly evident during the health emergency of 2020, when educators saw the need to acquire dignified skills transformative to give continuity to the development of academic processes. The use of didactic strategies, both in virtual and face-to-face environments, opens the door to the creation of didactics that contribute to comprehensive and dynamic training in all areas of knowledge. These are meticulously designed to achieve goals and objectives based on the school curriculum, promoting a more interactive and participatory learning.

A concrete example of this educational transformation was observed in the Medicine program of the Universidad de Nariño, constituting a living testimony of the adaptive capacity of academic institutions in the face of unprecedented challenges, such as those imposed by the COVID-19 pandemic. The agile response to the need to continue teaching in a virtual environment led to the implementation of didactic strategies that took full advantage of Information and Communication Technologies (ICT). In this sense, the teachers of the Basic Cycle of the Program of Medicine became key agents of this transition, exploring and adopting innovative pedagogical practices in the digital environment. This adaptation not only involved the simple replacement of traditional methods with online platforms, but also generated a deep reflection on how to enhance the learning experience in a virtual environment.

Exploring the experiences of these educators during and after the COVID-19 isolation period presents an invaluable opportunity. This analysis will allow us not only understand the challenges faced, but also identify best practices and lessons learned that could inform future educational strategies. Furthermore, the evaluation of the real impact of this transition towards digital education in the Medicine Program will offer valuable interpretations about the effectiveness of Information and Communication Technologies (ICT) in the academic context and how they can be optimized to improve the quality of learning in the long term.

General aspects

Given a global situation due by SARS-CoV-2 (COVID-19), and given the Governmental decrees to safeguard both the life and health of people, in Colombia since March 2020, mandatory isolation was ordered in the majority

of the sectors into which the country is divided, affecting all the daily activities that were carried out in person, one of the most affected sectors was the education sector at all its school levels, requiring the adaptation of different teaching-learning strategies and models to continue with academic processes remotely, which was extended until 2022.

Reason why, the Ministry of Computer and Communication (MINTIC) and the Ministry of National Education (MEN) implemented a series of virtual courses and training for teachers in all areas of knowledge, in order to strengthen the use of Information and Communication Technologies (ICT) as the main means in teaching and in this way, Angulo mentions: "...contribute to a comprehensive training to connect with the entire country and understand the learning dynamics of young people" (Ministry of National Education, 2020).

The above strengthened the development of good skills in the management of Information and Communication Technologies (ICT) and further emphasized the proposal of influencing new professionals in the different areas of knowledge to generate transformative, relevant and collaborative practices that supported by Information and Communication Technologies (ICT), restructure teaching principles and of course contribute to the educational quality.

In this sense, the Higher Education Educational Institutions invested in platforms, digital tools, network expansion and coverage, teacher training, thus strengthening teaching methodologies and teaching strategies of the universities specified how much the investment amounted to and how it materialized. For example the National University made an investment of COP$1.826 millon (Colombian currency) in Bogotá, and in the other locations (Medellín, Manizales, Palmira, San Andrés, Leticia, Tumaco, Orinoquía and La Paz) the investment amounted to COP $2,750 million (Colombian currency)" (Pinto, 2022).

Now, at the University of Nariño a great commitment was evident in implementing strategies and resources to adapt academic development to the remote modality assisted by Information and Communication Technologies (ICT), achieving access to virtual classes, with better connectivity, covering needs through "...supply and enabling the use of tablets, laptops, zoom licenses for the virtualization of courses, SIMS cards or modems to improve learning". (Superior Council of University of Nariño, 2021) (p.69)

Investigating the Medicine Program at the University of Nariño, theoretical classes were developed for some subjects such as: Biophysics, Biochemistry, Physiology, Pathology, among others, using Information and Communication Technologies (ICT) through virtual platforms, online digital tools, videoconferences, etc.,

which allowed the academic processes to continue during the global situation due to SARS-CoV-2 (COVID-19) and which have resulted in its use to date.

This raised some questions regarding the experiences that the teachers of the Medicine Program at the University of Nariño have perceived in the use of digital teaching strategies in the educational process during and after COVID isolation; such as: the challenges experienced during confinement, the autonomous training and training process, the implementation of digital teaching strategies and also perceiving the change in the pedagogical process, the achievements and responses of the students, the training and training needs evidencing a positive change although with several challenges regarding the inclusion of digital teaching strategies in education.

Contextual Framework

"The population is defined as the totality of the phenomenon to be studied, where the population units have a common characteristic, which is studied and gives rise to the research data" (Tamayo & Tamayo, 1997).

One of the purposes of the Medicine Program is to promote the education of individuals with a scientific foundations and a research-oriented mindset. These individuals must be trained to address health challenges both locally and globally. That is why the Medicine Program has continued to strengthen the primary purpose of obtaining high-quality accreditation, seeking academic excellence and the implementation of training processes for students as people of great human, social, ethical and professional quality.

In the context of the Medicine Program at the University of Nariño, the outstanding participation includes a total of 93 teachers, who play a crucial role during each academic period. This study focuses particularly on teachers assigned to the Basic Cycle, which includes fundamental subjects such as Biophysics, the History of Medicine, Biochemistry, Physiology, Neuroanatomy and Pharmacology. It is important to highlight that these subjects are taught until the fifth semester of the program's curriculum, marking a vital starting point in the academic training of medical students.

In the Basic Cycle of the program, a figure close to 20 teachers has been identified, mainly hired as Hour Chair professors, although there are also some hired under the Service Provision Order modality. It is important to note that, in relation to students, the current enrollment amounts to 395. This diverse group of professionals and the significant number of students contribute to the richness and dynamism of our educational program.

Conceptual Framework

From the following points of reference, it is pertinent to delve into how these have been involved as a determining factor in times of contingency in the face of a health emergency due to COVID-19, as well as the role that digital teaching strategies played after their inclusion, in learning to allow giving continuity to academic processes at all levels of education.

Information and Communication Technologies

According to Sánchez (2000) and Corrales (2009): Information and Communication Technologies (ICT) are technological resources that enable the treatment, compilation, summary, recovery and display of information in different formats, adjusting to the demands of users, they constitute a set of methodologies intended to manage information, particularly through computers and software, in order to acquire, store, produce and transmit data.

The Ministry of Information and Communications Technologies (2009) defines it as: "Information and Communications Technologies (ICT) are the set of resources, tools, equipment, computer programs, applications, networks and media; that allow the compilation, processing, storage, transmission of information such as: voice, data, text, video and images" (Art. 6 Law 1341 of 2009).

Teaching strategies

According to the State Distance University (2013), teaching strategies are defined as premeditated actions by the teacher with the purpose of guiding the student towards the construction of knowledge and the achievement of the proposed objectives. In this context, a teaching strategy is understood as a structured, formal approach specifically directed towards the achievement of a specific objective (p. 1).

For application in everyday situations, it is necessary to improve specific methods and skills in a conscious and reflective manner in relation to the methods and activities that can be used to achieve learning objectives, the meticulous selection and design of which rests in the hands of the educator. This involves the need to plan the teaching and learning process.

Digital Tools

They include all the programs or software through which various tasks are performed. These tools encourage greater interaction with technology, improving communications with the purpose of cultivating aptitudes and skills in students and with the objective of applying them in the educational environment.

Recent research has shown that digital tools facilitate collaborative knowledge management among educational agents (Álvarez et al., 2011), likewise they enhance feedback and make evaluation methods more attractive (Palomo et al., 2010).

Likewise, these digital didactic strategies also function as a collaborative environment that stimulates the learning process, critical thinking and personal development of students throughout their university journey, in addition to "improving the ability to learn to learn in the university context" (Palomares, 2011).

Education in Pandemic
According to ECLAC-UNESCO (2020): Pandemic has caused a transformation in the way curriculum is approached in education. This is due not only to the use of digital platforms and the need to consider conditions different from those originally planned for the curriculum, but also to the growing importance of certain learning and competencies in the current context.

An example of these challenges is the need to make adjustments to the curriculum, prioritizing certain content and contextualizing them appropriately so that it is relevant to the current situation. Likewise, it is crucial that, during these adjustments, priority is given to the skills and values that have proven to be essential in the current context. This requires making decisions and having resources that pose challenges to school systems, educational institutions and teachers.

Information and Communication Technologies (ICT) in education

In the era of the information society and based on various studies that have demonstrated its importance, among some definitions include the one proposed by (Hernandez, 2019). The integration of Information and Communication Technologies (ICT) Iin education has evolved into a process that encompasses much more than the technological tools that configure the educational environment. It is about building a didactic approach and determining how learning with value can be created and strengthened through technology. From a rigorous pedagogical approach, reference is made to the use of technology in the educational environment.

Methodology

Research methodology
This section presents the methodology applied with the objective of examining the experiences that teachers of the Basic Cycle of the Medicine Program of the University of Nariño experienced when using technological resources as part of their educational approach in the teaching and learning process, both during and after

the period of isolation due to the COVID-19 pandemic

Research paradigm

Interpretative, Molina (as cited in Ricoy, 2006) refers that this paradigm presents distinctive characteristics, especially how to see consciousness as something active and significant, it recognizes that there are fundamental structures in the consciousness from which we obtain knowledge through reflection on different events. It does not seek to make generalizations, if it does not understand that reality is changing and intertwined. It considers the behavior of others and acts accordingly from an integral perspective.

This research paradigm, by representing a way of looking at reality, it establishes a dialectical connection between the researcher and the phenomenon being studied, in other words, by finding different interpretations and through communication with teachers, a coherent set of ideas is generated, but heterogeneous where various positions on the use of digital teaching strategies are confronted; possibly discovering particularities in the perceived experiences.

Research Approach

The interpretive approach uses qualitative methodology. Bogdan and Taylor (1986, as cited in Quecedo and Castaño, 2002) when referring to this modality allows "They understand and develop concepts based on data patterns, and not collecting data to evaluate preconceived hypotheses or theories, they follow a research design flexible, they begin a study with vaguely formulated questions" (p.7-8).

This approach was chosen as the objective of the research focuses on examining the experiences of teachers, exploring in more detail their perspectives, interpretations and connotations.

Method

Descriptive: Guevara et al. (2020) defines descriptive research as a type of study that seeks to detail certain essential aspects of uniform groups of events, employing systematic criteria that make it possible to identify the organization or the way in which the events unfold. This results in systematic information and comparable with data from other sources.

The above considering that when analyzing some experiences of teachers supported by a structured inquiry process the relevant information to identify different phenomena such as: the challenges lived during the confinement, the autonomous process of formation and training, the implementation of digital didactic strategies and equally perceive the change in the pedagogical process, the achievements and responses of students, the demands of preparation, the novel digital strategies to incorporate; which will be analyzed considering the point of view of the teacher,

with the purpose of unveiling in the experiences certain reflections on the application of Information and Communication Technologies (ICT) in the educational field.

Case Study

Yin (1994, as cited in Monge, 2010) points out that the case study is an empirical investigation that examines a modern event in its real-life context, especially when it is not easy to distinguish the boundaries between the event and its context. The case study successfully analyzes a situation with particular technical characteristics in which there are more relevant variables than observed data. It therefore relies on multiple sources of evidence, with data that must be matched to provide an accurate picture. In addition, it benefits from the prior development of theoretical ideas that drive the collection and analysis of information.

In this specific research situation, a case study with a qualitative approach is used since the objective is to examine the teachers' experiences.

The sample is uniform, which is defined by the fact that the individuals have a common profile and share similar characteristics, in this particular case teachers of the Basic Cycle in the Medicine Program of the University of Nariño.

Data collection instruments

For this purpose, a questionnaire and a semi-structured interview with teachers of the Medicine program of the University of Nariño were designed to obtain information on the incorporation of digital didactic strategies during and after the pandemic in order to reveal some reflections on the use of Information and Communication Technologies (ICT) in education.

In this way, finding out in the teachers' experiences, reflections that guide the need or not to confront mediated by Information and Communication Technologies (ICT).

Data Analysis

The data have a descriptive analysis, since this method provides important information about the sample being studied, describing the key inclinations in the existing data and observing the behavior of teachers through the use of Information and Communication Technologies (ICT) as digital didactic strategies facilitate the interaction between the teaching process and the learning process.

Objectives achieved

The implementation of digital teaching strategies in times of contingency, especially during the COVID-19 health emergency, has achieved several fundamental objectives in the educational field.

Within the framework of the Medicine Program, interviews were conducted with Basic Sciences

teachers to discuss the application of digital teaching strategies during the COVID-19 health emergency. The professionals highlighted that, both during the crisis and after overcoming it, they have observed positive results in the implementation of Information and Communication Technologies (ICT) in the educational process.

According to their testimonies, the use of various digital strategies has yielded satisfactory results, fulfilling fundamental objectives that go beyond mere educational continuity. They have achieved, for example, the development of digital competencies among students and have been involved in a significant boost in pedagogical innovation.

They emphasized that, at present, they have had the opportunity to employ different strategies that have ranged from educational continuity to the promotion of essential digital competencies. In addition, they highlighted the positive impact of taking advantage of the simulation laboratory, implemented as of 2022, further enriching the educational experience and strengthening students' practical skills.

These testimonies underline the adaptability and effectiveness of digital teaching strategies. In addition, it is important to highlight that the following aspects are generally discarded:

Continuity of the Educational Process: The implementation of digital didactic strategies has played a crucial role in guaranteeing the continuity of educational activities, even in the midst of the restrictions imposed by the health emergency. This measure has avoided significant interruptions in the teaching and learning process, ensuring that students have continuous access to educational content and interaction with their teachers, despite the challenging circumstances.

Remote Access to Education: The implementation of digital didactic strategies has facilitated remote access to educational content, providing students and teachers with the flexibility to participate in academic activities from any location. This remote access capability has been essential to ensure the continuous participation of all involved, even in situations of confinement. In this way, the physical barrier has been overcome, allowing the educational process to continue effectively and teaching and learning to adapt to changing circumstances.

Interaction and Collaboration: The application of digital didactic strategies has stimulated interaction and collaboration between students and teachers, despite physical distance. Online learning platforms, videoconferencing and other collaborative tools have facilitated communication and the exchange of ideas, generating a participatory environment. This dynamic has provided opportunities for real-time discussions, virtual consultations and collaborative projects, thus strengthening the connection between members of the educational community and enriching the learning experience beyond the physical boundaries of a traditional classroom.

Development of Digital Competencies: The implementation of digital didactic strategies has catalyzed the development of digital competencies in both teachers and students. The need to adapt to these new technological tools has fostered the acquisition of digital skills, ranging from effective navigation in online platforms to the creation and management of digital content. This strengthening of digital competencies not only benefits active participation in the current educational environment, but also prepares teachers and students to confidently face future challenges in constantly evolving digital environments.

Personalization of Learning: The application of digital didactic strategies has enabled greater personalization of learning, adjusting to the individual needs of students. Online educational platforms provide personalized resources and activities, thus optimizing the learning experience. This adaptability allows each student to progress at his or her own pace, address specific areas of interest or difficulty, and receive individualized feedback, thus promoting a more student-centered approach and facilitating more effective and meaningful learning.

Continuous Assessment and Feedback: The implementation of digital didactic strategies has simplified continuous assessment through the creation of online quizzes, interactive activities, and instant feedback systems. This evolution has significantly improved the ability of educators to monitor student progress in an effective and timely manner. The availability of digital tools has allowed the creation of more dynamic and formative assessments, enabling teachers to provide immediate and accurate feedback, which in turn contributes to the process of continuous improvement in learning.

Pedagogical Innovation: The health crisis has acted as a catalyst for pedagogical innovation, motivating educators to explore and adopt new methodologies and approaches centered on technology. This adaptation to digital strategies has not only been a necessary response to the circumstances, but has also opened up a wide horizon of possibilities in teaching. By incorporating digital tools, educators have expanded their pedagogical repertoire, allowing experimentation with more interactive, personalized and participatory approaches. This pedagogical innovation not only benefits learning during the current crisis, but sets a precedent for continuous improvement and evolution in education in the long term.

Conclusions

Information and Communication Technologies have made possible to develop knowledge, skills and abilities

in a much more interactive way, allowing the actors in this process to use digital didactic strategies that promote the management of innovative models and experiences within a classroom.

Nowadays, in an era in which society is based on information and communication, education faces challenges that become evident due to the increased use of Information and Communication Technologies (ICT) to achieve educational objectives. These objectives seek to change the way teaching and learning processes are carried out. These digital didactic strategies play a crucial role as educational strategies, creating diverse learning opportunities in different fields and levels of knowledge.

In response to current demands, especially local ones, the Medicine Program of the Universidad de Nariño began to incorporate technology in its academic approach since 2019. This has been achieved through the use of online platforms, specialized databases and simulator tools. This initiative has allowed exploring the benefits that Information and Communication Technologies (ICT) offer in the field of health. In addition, it has been very well received by both professors and students who are part of this program.

In a pandemic situation, faced with the obligation to adopt new didactic strategies, the potential of Information and Communication Technologies (ICT) in education was observed, which when used and implemented well generate multiple skills, hence the need to delve into these studies and even more so if they are based on teaching experiences, which allows to deepen and learn how these can become a technological innovation for future research.

On the other hand, due to the SARS-CoV-2 pandemic (COVID-19), the Medicine Program adopted additional educational measures to maintain the continuity of the learning process, pedagogical approaches were implemented using digital tools, such as telemedicine, in the theoretical parts of the curriculum, these strategies included classes in real time and recorded since the beginning of the isolation in the Colombian territory, observing certain benefits as challenges, so investigating the experiences of teachers of the Basic Cycle of the Medicine Program at the University of Nariño in relation to the use of digital teaching strategies, both during and after the period of isolation due to COVID-19, is of utmost importance considering that, currently persists the implementation of certain digital resources that strengthen the learning process.

Finally, the use of digital didactic strategies in education is highlighted, since they have enabled a transcendental change for both students and teachers. On the one hand, students, through these strategies, are developing new technological skills that will be essential in today's world. On the other hand, teachers are managing to capture the attention of students through new alternatives, turning their classes into different, updated and innovative spaces.

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