The Role Of Teachers Facing Digital Competence Under The Influence Of Ict

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Abstract

The central objective of this article is to delve into the role of educators in the teaching-learning processes, where digital competence, driven by the presence of Information and Communication Technologies (ICT), becomes imperative. This approach was undertaken from a qualitative perspective, following the guidelines of the interpretative paradigm and the concrete actions of the hermeneutic method. The selected context was the San Francisco de Sales Educational Institution in Cúcuta, North of Santander, Colombia, with the participation of five secondary school teachers (said sample obtained high density and complies with saturation). The result highlights a notable tension between the expectation of adopting an education with a technological focus that facilitates the didactic organization of curriculum content in secondary education, and the reality of an educational environment influenced by

traditional approaches and a lack of enthusiasm towards innovation and change. It is concluded that the holistic training of teachers is what enables an appropriation of ICT and their application in pedagogical processes. This comprehensive pedagogical approach goes beyond mere acquisition of technical skills to embrace a deep and contextualized understanding of how ICT can genuinely enhance teaching and learning processes.

Keywords: Teacher's role, digital competence, secondary education.

Introduction

The teaching and learning process represents a systemic, complex, contextualized, and progressive action that involves aspects of cognition and action, where interactions are established between the teacher and students guided by an established curriculum developed through pedagogical practice, following guidelines that lead to the achievement of both general and specific purposes, significantly influencing the comprehensive education of the learning subjects.

It is important to recognize that contemporary society develops within a globalized world, where scientific and technological advances significantly influence the educational field, with benefits for teaching and learning processes that allow innovative and motivating access to knowledge in line with real demands. In this regard, the Colombian government includes in the current Ten-Year Plan (2016-2026) the goal of "providing quality education that increases individuals' possibilities for a better future life, promoting innovation, technological development, boosting productivity, and increasing the nation's progress opportunities" (Ministry of National Education, 2017, p. 9). This goal seeks the utilization of all available provisions and means in various aspects of human existence and dynamics of the Colombian State to promote sustainable and integral development expected from the nation.

The State's initiative to incorporate technological innovations into the educational process as a tool to support general dynamics of the territory and sovereignty implies a special emphasis on pedagogical practices, aiming for a future-oriented

education that moves away from tradition and empiricism, ensuring access to meaningful learning with a high level of motivation and updating of various elements involved in the formative process, such as teachers' appropriation of ICT, access to technological equipment, and training for the use of interactive media through ICT.

Educational institutions need to include technological innovations in educational processes, considering that we are in an increasingly complex society where ICT, as stated by Palomo et al. (2006), "offer the possibility of interaction that shifts from a passive attitude on the part of students to constant activity, continuous searching and rethinking of content and procedures" (p. 18). Education is precisely the main agent expected to take up the challenge of being at the forefront of technology usage, involving the formation of new generations in critical capacities to understand the significance of ICT in enhancing their educational development. The mentioned authors add:

"ICT are gradually becoming an increasingly indispensable tool in educational centers. These resources open new possibilities for teaching, such as immediate access to new sources of information and resources (search engines can be used for internet), as well as access to new communication channels (email, chat, forums...) that allow the exchange of work, ideas, diverse information, text processors, image editors, web page editors, multimedia presentations, interactive learning applications: resources from web pages, virtual visits" (p. 18).

Technology in education offers the opportunity to systematically employ innovative resources expressed in pedagogical practices that are in line with reality, students' motivations, and interests. This also allows countering the schemes and paradigms traditionally used in the teaching and learning process. The incorporation of ICT in the educational process requires the preparation and training of all members of the school community, especially teachers, who play a pivotal role in the interactive mediation of the learning experience, and undoubtedly require immediate technological training.

In accordance with the above, it is imminent for teachers to possess acceptable digital competencies that enable them to be in tune with technology, aiming for an updated and

contextualized pedagogical practice aligned with the demands of this digitally immersed society, where school-age children and youth are fully engaged. Gisbert et al. (2016) assert:

"We cannot conceive of a teacher in our century who does not consider the use of Information and Communication Technologies (ICT) or who, in their application, does not exhibit criteria of excellence; nor can we conceive of a teacher who is incapable of keeping their knowledge up to date, not only in relation to their disciplinary field, but also with the use of whatever technologies the future holds for us. All of this is what we refer to when we talk about teachers' digital competence, whatever labels we use for it" (p. 78).

The aforementioned notion highlights the obligation of 21st-century teachers to embrace ICT as a support resource in their pedagogical practice, especially to achieve a successful update of their disciplinary capacity in their specific teaching area. The use of ICT inside and outside the classroom increases the possibility of having greater competence, innovative skills, and abilities, aimed at ensuring excellence in their profession or educational role.

In this regard, Gisbert et al. (2016) add: "We should advocate more for understanding that teachers' digital competence is made up of the skills, attitudes, and knowledge required by educators to support student learning in the current digital world" (p. 78). From this point of view, teachers must have a series of multidimensional knowledge in their training profile that will serve their practices in the classroom, in order to transform them for the benefit of the student and to make knowledge and information relevant to them so that it can be applied in their daily practices and activities, in order to address different circumstances as they arise, in accordance with their needs and aspirations for well-being.

Therefore, it is the responsibility of teachers to seek the necessary mechanisms that lead them to training and updating of knowledge related to this digital reality, which undoubtedly encompasses the educational process at all levels, directly affecting the efficiency of such a formative process. This is why Cobo and Moravec (2011) state: "it is well known that digital competences play a strategic role in the education of 21st-century students" (p. 37).

Taking this into account, this article seeks to understand the role of teachers in formative processes where digital competence, under the influence of ICT, is a necessity, and to identify the elements that influence the development of digital competencies in current learning environments.

Methodology

This research was conducted from a qualitative approach, as proposed by Hernández et al., (2014), "qualitative research focuses on understanding phenomena, exploring them from the participants' perspective in a natural environment and in relation to their context" (p. 358). In this case, the aim was to comprehend the experience of secondary school teachers at the San Francisco de Sales Educational Institution in Cúcuta, regarding the use of ICT, and to recognize the factors, processes, and relationships they establish, as well as the elements that enable or hinder the adoption of digital teaching competencies in ICT education.

As Ruiz (2008) suggests, "the ontological nature of social reality is complex, dynamic, and singular, historically and socioculturally determined, requiring a holistic and systemic study from a hermeneutic perspective" (p. 15). This notion underscores the importance of observing the study phenomenon from an integral perspective, allowing for an understanding of the historical trajectory within the sociocultural context of the subjects participating in the educational process.

Furthermore, the research method employed is hermeneutics. Following Ricoeur's proposition (2010), "reality remains the unsurpassable presupposition of hermeneutics" (p. 54), and hermeneutics inevitably becomes interpretation, with interpretation arising from the moment of investigative action, without which hermeneutics could not take place.

The research involved three teachers aged between 45 and 56, and two women aged between 43 and 50. The sample selection was intentional, as outlined by Martínez (2004), involving the choice of "a series of criteria considered necessary or convenient to have a unit of analysis with the greatest advantages for the research's purposes" (p. 86). In this case, the criteria taken into account were that the teachers should be

from secondary education and have knowledge in history, social sciences, and geography. Another criterion was that they should possess essential knowledge about the subject of study and have lived and experienced the educational reality on a daily basis.

Throughout the process, it was essential to communicate the assumed ethical considerations, including anonymity, confidentiality, and obtaining informed consent, through which participants authorized the use of their discourse derived from their involvement as references in the research. A record of conversations held with the participants during the interviews was maintained throughout the process to allow for constant return to their analysis and thereby recognize any biases on the part of the researcher. The technique of choice for generating information was the semi-structured interview, which captured ideas and testimonies facilitating a linguistic construction of reality. Additionally, the documentary review technique was employed to expand conceptual elements related to the addressed problem.

Results and Discussion

Triangulation as an analysis strategy, as proposed by Martínez (2004), allows for contrasting theoretical sources with participants' testimonies in the research and the researcher's perspective. This serves as a starting point for recognizing diverse perspectives regarding the development of teachers' digital competencies for a multidimensional intervention, addressing the complex demands of educational institutions. The data triangulation was used because it allowed a series of elements to emerge from reality that were used for the constitution of fundamental information from the point of view of the testimonies of key informants (Rodríguez, J. A. J. (2019)

In accordance with the sociopolitical demands of the Ten-Year Plan (2016-2026), the role of the teacher is considered a noble service due to its integration of a wealth of experiences that translate into quality education. In this regard, the National Ministry of Education (MEN) (2016) emphasized that this work contributes to "improving individuals' future prospects, promoting innovation and technological advancement, boosting productivity, and increasing the nation's progress opportunities" (p. 9). To achieve this, teachers must strategically

adapt their methods, resources, and styles to stimulate the learning situations required by today's students.

According to the social and political demands outlined in the Ten-Year Plan (2016-2026), the role of the teacher is highly valued as a valuable service due to their ability to combine diverse experiences resulting in high-quality education. In this context, the National Ministry of Education (MEN) in 2016 highlighted that this role contributes to "improving individuals' future prospects, fostering innovation and technological development, boosting productivity, and increasing the nation's progress opportunities" (p. 9). To achieve this, teachers must strategically adapt their methods, resources, and approaches to stimulate relevant learning situations for contemporary students. In this regard, one of the interviewed teachers, a 52-year-old with ten years of work experience, states that:

"The teacher must identify the learning objectives they want the students to achieve in order to select essential content and topics that enable the attainment of these objectives. It is important to consider the age, interests, and needs of today's students, and thus, ICT allows the use of a variety of multimedia tools and data visualization to help students better understand complex topics and concepts."

In the aforementioned statement, the teacher highlights the need to promote learning through the integration of digital competencies aligned with the National Ministry of Education's guidelines and fundamental skills for continuous development. Consequently, the education of secondary school students requires the creation of communicative and cultural conditions that enable them to critically and creatively explore contemporary technologies, aiming to achieve educational objectives. In this process, the crucial role of teachers lies in acquiring skills to manage ICT, enabling them to merge the digitization of human knowledge with social dynamics and educational practices, thus playing a comprehensive mediating role.

In the same vein, education is endowed with fundamental aspects to adapt a series of principles that enrich teaching in correspondence with teachers' experiences, as supported by Galvis (1999), who suggests that it is necessary to define "the didactic model to be used, as well as the development of

materials and the preparation of those who will serve as facilitators" (p. 12). Having clarity regarding didactic resources allows the teacher to innovate in developing actions that align with current realities and suggestions from national and institutional guidelines for student education.

The role of teacher training is essential and necessary. Children must be prepared to face daily challenges, which demand conceptual, practical, attitudinal, and socio-emotional knowledge, as well as skills in using technology. Therefore, it is crucial to have teachers committed to stimulating students through concrete actions. For example, a 43-year-old female teacher in the history field, with 4 years of work experience, contributes the following:

"Through ICT, tools such as graphics, diagrams, interactive maps, videos, and animations can be utilized to explain and represent concepts in a more visual and appealing manner."

This implies that teachers must also possess ICT-based competencies, mastering and strategically adapting them. Through each teaching activity, they seek opportunities for students to experience different ways of understanding the world and utilize didactic aspects that provide an organized and rational framework. This framework can be used to guide students' social life situations toward improvement and comprehensive development. Additionally, beyond what has been mentioned, ICT in secondary education serves as innovative and motivating tools aligned with communication styles and human development in today's society. These technologies promote the integral participation of students, contributing effectively to strengthening their learning and competencies. A 50-year-old teacher with five years of experience highlights that:

"ICT can make significant contributions to education by providing access to a wealth of information, promoting interaction and collaboration, enabling the development of simulations and educational games, and using multimedia tools and data visualization to help students better understand topics."

The quote from the 45-year-old teacher emphasizes the importance of Information and Communication Technologies

(ICT) in education. Several benefits of ICT in education are mentioned, including access to information, interaction and collaboration among students, the use of simulations and educational games, as well as multimedia tools and data visualization to enhance topic comprehension. Furthermore, building upon González (2012), the teacher integrates knowledge with ICT to create a harmonious and realistic educational process. Secondly, the importance of focusing on educational objectives and content is highlighted when developing social thinking mediated by ICT. These two approaches contribute to the holistic formation of students.

A 53-year-old teacher with 7 years of experience expands the panorama and integrates reflection on the teaching of history, emphasizing the interrelation of the following aspects:

Contextualization: ICT allows access to a wide variety of digital resources, such as online historical archives, interactive maps, historical simulations, and contextual multimedia. Students can visually explore historical contexts and deepen their understanding through online resources, facilitating immersion in the time period under study.

Multiculturalism: ICT can connect students with direct sources and testimonies from different cultures and societies. Online platforms and multimedia resources can present stories and perspectives from various cultures, contributing to a broader and more respectful understanding of cultural diversity.

Critical reflection: ICT provides access to a vast amount of information, but also requires the development of critical evaluation skills. Students can learn to distinguish between reliable and biased online sources, fostering the ability to question and analyze historical information more rigorously.

Interdisciplinarity: ICT enables the integration of multiple disciplines through digital tools. Students can explore relationships between history and geography through interactive maps, understand economic context through data visualizations, and explore the influence of arts and literature in specific historical periods.

Technology: The integration of technology in history education can include the use of online learning platforms, historical simulations, educational videos, podcasts, and social media for

discussing and sharing historical findings. This enhances accessibility and the appeal of the subject for students.

Inclusive approach: ICT can provide a platform for presenting a diverse range of historical perspectives and challenging stereotypes. Students can research and share stories of marginalized or overlooked groups, promoting a more inclusive and respectful approach to history.

Active participation: ICT enables online collaboration, multimedia project creation, and interactive communication. Students can work in online teams, debate in digital forums, present multimedia projects, and engage in technology-based practical activities that promote their active involvement.

Historical memory: ICT can facilitate the recovery and dissemination of historical memory through online archives, cultural preservation platforms, multimedia narratives, and websites that pay tribute to relevant historical events and figures.

In the teacher's narrative, evidence emerges of the awareness they hold regarding their role as an educator, one who must be ready for constant change, updates, and preparation that, in the terms of Gisbert et al. (2016), aim towards achieving holistic virtues of the human being. This is in response to the contemporary demands placed upon educators, who must complement their in-person practices with virtuality, the utilization of both printed and digitized instructional resources, and even resources designed by students themselves to address their authentic interests. This is made possible by the opportunities presented through the preparation of assertive individuals via digital educational resources, which promote a certain coherence between environmental demands and the unique interests of the child as a human being.

Therefore, as Carrizosa (2018) proposes, the possibilities for acquiring knowledge should not be confined solely to the classroom, but should also consider other scenarios or essential moments. This ensures that knowledge isn't merely reduced to bureaucratic protocols, but instead contributes to enhanced learning experiences for secondary education students. In this regard, a 56-year-old teacher with six years of experience states:

"As educators, we must embrace the need to incorporate digital competencies that are becoming increasingly necessary due to the educational gap created by our immersion in a world dominated by Information and Communication Technologies (ICT). As educators, we lack the means to effectively address these situations, often remaining confined to the demands of conventional and routine protocols. Furthermore, teachers must take into account the available resources in the teaching environment, including didactic, technological, and bibliographical materials, in order to utilize them effectively and enrich the teaching-learning process. However, many times these resources prove to be insufficient."

In alignment with the aforementioned, it must be noted that the concept embraced corresponds to the management of a set of resources, activities, and general strategies that align with new trends in preparation. These trends surpass the stigmas of conventional education anchored in standards and other aspects, aiming to align with the demands of a future, an impending era, and an innovative education that serves as a conduit for initiatives from teachers to create new epistemic opportunities. These initiatives are fostered through strategically organized pedagogical situations designed by the teacher, enabling students to expand their somatosensory repertoire, especially within cultural contexts. This ensures that each concept serves a practical and applicable function within the realms of social, ethical, economic, scientific, and even technological aspects, aligned with the demands of the inherently complex environment.

In response, educators express that the adoption of ICT is a necessity, but acknowledge a tension between theory and practice. Nevertheless, they recognize the importance of holistic education to enable a meaningful appropriation of ICT and its application in pedagogical processes, thus facilitating the comprehensive development of students. To paraphrase López et al. (2020), education cannot disregard the digital realm, and simultaneously, this digital realm should not be seen as a whimsical manifestation of progress. Instead, ICT should serve humanity, enabling interaction in an ever-evolving world.

From this perspective, it is important to understand that traditionally, the role of the teacher has been seen as a mere

didactic and curricular operator, a view that contradicts the demands of holistic and multimodal education (Krumsvik, 2008). López et al. (2020) suggest that there is no turning back; there is a need to transcend the transmissive function of information delivery, accompanied by a passive and receptive student. This student is unquestionably prepared to be evaluated, approved, or disapproved, determining their success or failure within an abstract, detached educational system, divorced from the demands inherent to human beings.

In addition to the above, it is crucial to grasp that the integration of Information and Communication Technologies (ICT) in education extends beyond replacing physical and printed materials with digital equivalents. As Franzoni and Silva (2022) posit, this integration goes beyond merely having online resources available through the web. The author suggests that educators must incorporate the principles of Education 5.0 into every stage of teaching. "Education 5.0 entails using new technologies to offer a more humane education, centered around the socioemotional development of students and the creation of solutions that improve societal life" (p. 11). This implies moving beyond operational tasks or transforming didactic resources to align with curriculum needs.

Conclusions

In conclusion, the process of teaching and learning in contemporary society is profoundly influenced by the advancement of Information and Communication Technologies (ICT). These technologies offer a broad spectrum of opportunities to enrich and transform education, providing educators with innovative tools to create meaningful and relevant learning experiences. Teacher training in digital competencies has become an unavoidable necessity to achieve quality and effective education within this digital environment.

Educators must assume an active role in the integration of ICT into their pedagogical practice, recognizing that their role extends beyond mere knowledge transmission. They become guides for the comprehensive development of students. This transformation involves adapting methodologies, resources, and pedagogical approaches to leverage the advantages of ICT in the educational process.

Teacher training in digital competencies is not solely about acquiring technical skills but also understanding how to strategically and reflectively integrate these tools into teaching. It involves promoting critical thinking, collaboration, creativity, and problem-solving among students, using ICT as a vehicle to enhance learning.

It is essential to emphasize that education is not solely about information transfer but also about cultivating skills and attitudes that prepare students to face the challenges of the current world. Education 5.0, focused on socioemotional development and generating solutions for society, requires committed teachers to go beyond the conventional, exploring new teaching methods and adapting to changing student and societal demands. By nurturing not only digital skills but also pedagogical abilities, emotional adaptability, and a willingness to continually evolve, holistic training creates a fertile ground for educators to guide future generations towards an enriching and autonomous mastery of ICT. This transforms education into a harmonious symphony between innovation and pedagogical wisdom.

Ultimately, the effective integration of ICT into education demands trained and willing educators to assume an active role in educational transformation. This involves not only acquiring digital competencies but also adopting a pedagogical approach that promotes innovation, participation, and student engagement. This enables students to develop relevant 21st-century skills, preparing them for a future filled with challenges and opportunities.

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