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Digital competencies of basic education teachers: a recent look from an online training

Competencias digitales de los profesores de educación básica: una mirada reciente desde una formación en línea

基础教育阶段教师的数字化能力：来自在线培训的最新观察

Цифровые компетенции учителей начального образования: новый взгляд на онлайн-тренинг

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Abstract

The study proposes to explore, through questionnaire data analysis (Bardin, 1995), the changes in the perception of experiences in digital competencies of a group of primary and secondary education teachers who undertook the course for trainers in digital competencies organised by UNED-CAB-OEI with funding from AECID, during the period from February 2021 to August 2022. A qualitative research was proposed with an intentional sample composed of 15 primary and secondary education teachers from different countries in Latin America and the Caribbean, with similar occupations and who voluntarily participated in the study. The objective of this approach is to reflect on the relationship between the digital competencies of teachers, their experience during this training program and their previous competencies in the use of information and communication technologies under the ICT skills standards in Latin America from the theoretical parameters of public policies systematised in official documents of countries such as Brazil and Ecuador.

Keywords: digital competence, standard, public policies.

Resumen

El estudio propone explorar, mediante los análisis de contenido de los cuestionarios (Bardin, 1995), los cambios en la percepción de las experiencias en competencias digitales de un grupo de profesores de educación básica general que realizaron el curso de capacitación de formadores en competencias digitales organizado por la UNED-CAB-OEI con financiamiento de la AECID, durante el periodo de febrero de 2021 a agosto de 2022. Se propuso una investigación cualitativa con una muestra intencionada que se centró en un subgrupo particular de 15 docentes de educación básica de distintos países de Latinoamérica y el Caribe, con similares ocupaciones y que participaron de forma voluntaria en el estudio. Este acercamiento tiene como objetivo, reflexionar sobre la relación entre las competencias digitales de los docentes, su experiencia durante este programa formativo y sus competencias previas en el uso de las tecnologías de la información y la comunicación bajo los estándares de competencias TIC en Latinoamérica desde los parâmetros teóricos de las políticas públicas sistematizadas en documentos oficiales de países como Brasil y Ecuador.

Palabras clave: competencia digital, estándar, políticas públicas.

摘要

本研究旨在通过对问卷内容的分析（Bardin，1995），探讨参加数字能力培训师培训课程的一组普通基础教育阶段教师对数字能力体验的看法的变化。该项目由 UNED-CAB-OEI 在 AECID 的资助下，于 2021 年 2 月至 2022 年 8 月期间进行。研究为通过有意取样的定性研究，重点关注来自拉丁美洲和加勒比海不同国家和地区的 15 名基础教育教师的特定小组，研究对象具有相似的职业并且自愿参加了这项研究。本研究旨在反思教师的数字技能，在该培训计划中的经验与他们培训前根据巴西和厄瓜多尔等国家的官方文件系统化的公共政策理论参数ICT 技能标准使用信息和通信技术之间的关系。

关键词：数字能力、标准、公共政策.

Аннотация

В исследовании предлагается изучить с помощью контент-анализа анкет изменения в восприятии опыта цифровых компетенций группой учителей общего базового обра-

зования, которые прошли курс подготовки инструкторов по цифровым компетенциям, организованный UNED-CAB-OEI при финансировании AECID, в период с февраля 2021 года по август 2022 года. Было предложено провести качественное исследование с использованием целевой выборки, сфокусированной на определенной подгруппе из 15 учителей начального образования из разных стран Латинской Америки и Карибского бассейна, имеющих схожие профессии и добровольно принявших участие в исследовании. Целью данного подхода является анализ взаимосвязи между цифровыми компетенциями учителей, их опытом в ходе данной программы обучения и их предыдущими компетенциями в использовании информационных и коммуникационных технологий в соответствии со стандартами ИКТ-компетентности в Латинской Америке с теоретических параметров государственной политики, систематизированной в официальных документах таких стран, как Бразилия и Эквадор.

Ключевые слова: цифровые навыки, стандарт, государственная политика.

Introduction as a theoretical framework for the study

The last pandemic, the impacts of which we continue to experience worldwide, put training centres under significant pressure. COVID 19 was a *tsunami* for education (Cabero & Valencia, 2020), which made evident, in the case of Latin America, the even greater challenge of socioeconomic differences and digital gaps - not only in access to technologies but also in knowledge about them - for students and teachers (Rappoport, Rodríguez, & Bresanello, 2020). Hence, in Latin America, the responses were varied, with one of the main issues that has been discussed in university training centres being the digital competencies of their trainers as an element that could have been key to the training response during that health crisis that plunged the world into a forced confinement, and restricted mobility within cities. The pandemic made it clear that teachers lack the digital competencies necessary to design training environments supported by ICTs; therefore, it offers us an opportunity to (re)think about training program modalities that incorporate other digital competencies (Cabero & Martínez, 2019; Cabero et al., 2020; Cabero & Valencia, 2020).

Prior to the pandemic, ICT was already a tool that made it possible to link science and society, facilitating and speeding up not only communication but also learning and teaching. ICTs are tools that support the acquisition of diverse learning and facilitate communication channels between trainers and students and sources of information (Marqués, 2008). However, although many teachers use ICT on a daily basis, they have not implemented it into their profession and have failed to develop the digital competencies to serve their students or use the platforms available in their educational institutions. The situation is alarming, since "teacher training in the use of digital resources is inadequate. Insignificant at the university, erratic at work, biased towards the personal use to the detriment of digital pedagogical competence and not linked to collaborative projects" (Fernández & Vázquez, 2016, p. 153).

At a time when training centres were making adjustments to face the challenge of distance learning using information and communication technologies, a project developed by the UNED of Spain with funding from the AECID and with the collaboration of the Convenio Andrés Bello (CAB) and the Organization of Ibero-American States (OEI) for the training of digital competencies in primary and secondary education teachers in Latin American countries, had to be reformulated due to the COVID pandemic. The project had to be completely virtual through the use of ICTs.

Before the pandemic, the proposed project raised the need for citizens to have a level of "digital" mastery, given its importance in all areas of life: leisure, health, education, cultural activities, research, economy, management, etc. For this reason, it was urgent for the teaching communities to immerse in the use of these tools, thus giving rise to Interconecta's COMPEDIGI project. In this course, five basic digital competencies were proposed: information and information literacy, communication and collaboration, digital content creation, security and problem solving.

Upon completion of the two-year training cycle, it was decided to investigate the perception of the participating teachers on their digital skills before and after the proposed training.

In order to have a common denominator on digital competence, the same definition established for the theoretical foundation of that training course will be used; and it is the one described by Gutiérrez (2014) as the "values, beliefs, knowledge, skills and attitudes to adequately use technologies, including both computers as well as the Internet and software, which allow and enable the search, access, organisation and use of information in order to build knowledge".

However, the use of this concept and the reflection on its pedagogical meaning, which have assumed a prominent role in national and international educational research in the second half of the twentieth century (Comellas, 2000; Cruz, 2001; Gouveia, 2007; Perrenoud, 1999), must be grounded. Specifically in the school context, competence emphasises the mobilisation of resources, knowledge or experienced knowledge. It manifests itself in an action adjusted to complex, unpredictable, changing and always singular situations (Boterf, 2003; Perrenoud, 2000, 2001, 2005). In the Brazilian context, Perrenoud would be the theoretician who would have contributed the most to the understanding of this model of characterisation of pedagogical processes: focused on the construction of competencies.

This form of understanding would have provoked resistance because of the threat it represents to the traditional way of approaching the pedagogical process by focusing on the student as the centre of learning: it would be the student who would confirm whether the learning was effective by becoming a competent individual. Another reason why education for the development of competencies would have provoked the resistance that exists to this day, would be the opposition to the traditional practice of education. In this process, knowledge represents an instrument for the acquisition of skills, highlighting the contents as means that enable the development of indicators such as problem solving, organisation of possibilities, transformation of a given reality, among other factors. By valuing this conception of education, the theory-practice dichotomy is overcome, and the educational values of the school of the 21st century are developed (Costa, 2004).

The context of a society characterized by the influences of information and communication technologies (ICTs) contributes another relevant way of implementing educational methodologies: the development of digital competencies. Analysed by different authors at the end of the last century and the beginning of the present, from Schaff (1985), through Lojkine (1985), Negroponte (1985), Castells (1999) to the networked society of Moran (2000), training in digital competencies tends to generate a set of other relevant developments, starting with teacher training. After all, how to develop content for digital competencies if teachers have not developed such conditions?

Addressing these changes in the perception of the competency proposals for teacher training means addressing some divergences and other convergences on the role of

mediation for the structural transformations that digital technologies have represented. In this context, the school's own social function must begin to consider training for a process of permanent evolution in which "(...) the ability to communicate and interact using information technologies becomes the basis of a network society" (Passarell et al., 2014, p.6). Digital competencies thus become one of the central pillars of the profiles of graduates, whether from primary, secondary or higher education. In this sense, the first divergence arises, since teachers -mostly trained in another cycle of social relations- do not feel sufficiently competent to act in this new context (Perrenoud, 1999; Fernández & Fernández, 2016). Convergence arises from the necessary interaction of training processes with the demands of this interconnected society (Moran, 2000).

In another case referenced in this study, it was identified that in Ecuador, the most relevant actions taken by the State to guarantee the right to quality education, directly linked digital competencies as part of its training programs in ICT and pedagogical innovation programs for practicing teachers, such as the one carried out in 2002 by the Ministry of Education: Maestr@s.com (Gautier Cruz, 2005). In addition, based on a project initiated in 2007 whose proposal emphasised ICT equipment and in-service training for state school teachers in order to meet the educational needs of the most vulnerable sectors of the country (IIEP-UNESCO & SITEAL, 2019), the millennium educational units were created. In general, the different curricular reforms to the Ecuadorian national education system carried in 2010 and 2016 include, as a crucial point, the use of ICT as a didactic resource in the teaching process and its relevance in learning processes is emphasised (Loaiza Rodríguez, Uquillas Vallejo, & Sánchez Landin, 2021).

The experience of the "Me capacito" program, a teacher updating platform, is relevant, given that during 2020 "more than 50 training courses in the use and management of digital tools" were delivered and in which more than 300,000 teachers participated in 2020 and more than 45,000 in 2021 (Ministry of Education of Ecuador, 2021, p.9). So is the *Digital Education Agenda 2021-2025* (Ministry of Education of Ecuador, 2021), which proposes "Designing educational plans, policies and programs focused on Digital Learning, Digital Literacy and Digital Citizenship in the National Education System" (p. 11) from the outline of two structural axes: digital learning and digital literacy and digital citizenship that will enable the digital transformation of education through learning "about and through technological tools in digital environments" (p. 10) within an educational and learning community. It is worth highlighting the interest in connective, collaborative, and community learning.

As for the *Prioritised Curriculum with emphasis on communicational, mathematical, digital and socioemotional competencies* of the Primary and Secondary Education (Ministry of Education of Ecuador, 2021), we can imply the relevance of digital competencies form the title alone. This curriculum proposal is intended as a text to guide the learning process and enable the design of meaningful, contextualised learning experiences conducive to the achievement of learning objectives. The purpose of this curriculum is to respond to current educational needs that impel the development of essential competencies for life, such as digital competencies. In this case, this state proposal is aimed at the student body.

As observed, there have been a series of educational policies that incorporate ICTs, and despite this sustained effort to (re)think and (re)design agendas and curricula, there are still weaknesses in the consolidation of digital competencies in teachers. In this sense, as Loaiza Rodríguez, Uquillas Vallejo, and Sánchez Landin (2021) point out, the Ecuadorian educational reality shows certain achievements – such as the increase

in educational institutions with access to ICTs and teacher training in the management of ICTs applied to education – as well as some shortcomings and challenges. One of them is the lack of teacher training programs on digital teaching methodologies (Torres-Toukoumidis et al., 2021). In this sense, one of the challenges is to ensure that teachers advance from the stage of digital literacy to the educational use of ICTs, in response to a specific didactic scenario. Although the Ministry of Education has maintained, updated and strengthened its training programs in the use of ICT in learning processes, not enough has been done (Loaiza Rodríguez, Uquillas Vallejo, & Sánchez Landin, 2021).

General objective of this study

To analyse the opinion of a group of primary and secondary education teachers on their own digital competencies to practice teaching.

Specific objectives

1. Determine whether the competencies they possess were acquired in their university education or in subsequent courses.
2. Determine whether they consider their digital competencies for the organisation and management of resources and digital environments to be sufficient.
3. Determine if the course they took developed the five digital competencies proposed.

The questions that generated our study were:

Do teachers consider that universities train them with the competencies required to meet today's educational needs?

Did the primary and secondary education teachers of this course acquire digital competencies in their university training or through extracurricular courses such as the UNED-CAB-OEI?

Delimitation: the study was limited to collecting the opinions of teachers who were part of the COMPEDIGI course of the Interconecta-AECID project (UNED-CAB-OEI). They were the subjects of the study.

Methodology used for the valuation of experience

A qualitative method of research was proposed to allow us to collect data on the reality or points of view of the participants of a training course in digital skills, and their level of achievement in this.

The population consisted of the group of 30 participants undertaking the course under study. The intentional sample focused on a particular subgroup of 15 primary and secondary education teachers from different countries in Latin America and the Caribbean, with similar occupations and who voluntarily participated in the call.

A short instrument was developed to collect the opinions of the participants on their competencies to perform teaching activities and determine whether they acquired them through their previous training or through extracurricular courses such as the one they undertook. The Googleforms tool was used as an instrument. The content of the instrument was submitted to the judgment of two experts and a pilot sample of five teachers for validation, which made it possible to assess the items in relation to the objectives of the study and ensure that there was no repetition in the key questions.

Instrument questions:

1. Prior to the course, how do you evaluate your level of digital competence to develop your classes in a virtual form? Low/intermediate/high
2. Which of the statements below about how you apply different digital resources to different areas of knowledge to facilitate your students' learning best characterises you? I learned it during my university training/ I learned it in the digital competency training course/ I still need to develop it further.
3. Statement that best characterises the organisation and management of digital resources that you apply to your teaching processes; I acquired them in my university education/ I acquired them in extracurricular courses and because of the pandemic/ I do not have them yet.
4. Regarding the topic of creation of digital environments, how do you evaluate your level of competence? I am able to do it from my university training/I am not able to do it despite the advanced courses/I am able to do it due to courses taken after my university training, such as this one.
5. At what level do you evaluate the digital competencies teaching that universities impart on primary and secondary education teachers to prepare them to approach their activities with the current tools? Adequate/Insufficient/Very advanced/ To be improved
6. In this Digital Competencies course, which part did you develop best? theory/ practice/both?

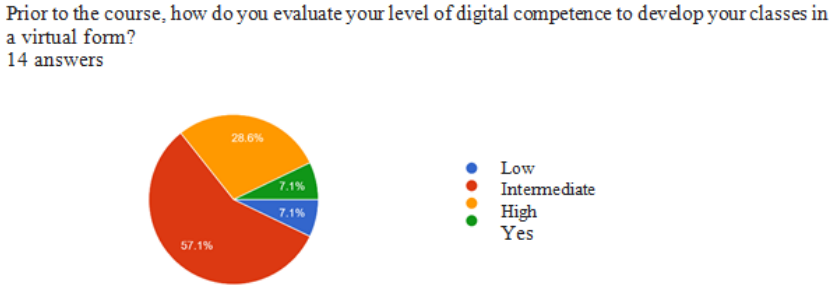
Results

The results we have obtained from the intentional sample correspond to 14 of the 15 primary and secondary school teachers of the course under study. They received the invitation anonymously and responded voluntarily. These teachers are from Panama, Cuba, Dominican Republic, Colombia, Guatemala, Ecuador, Bolivia, Honduras, and Peru. Although the representativeness of the results may cast doubt on them, given the small group of study subjects, we must bear in mind that the interest in this case is to investigate the reality of digital competency training in teacher training centres. The study does not attempt to generalise situations, but rather to reflect those that may be repetitive in other contexts and that may be the subject of further studies, since the digital competencies of teachers must become more robust every day.

For each of the questions, respondents answered as follows (Figure 1):

Figure 1

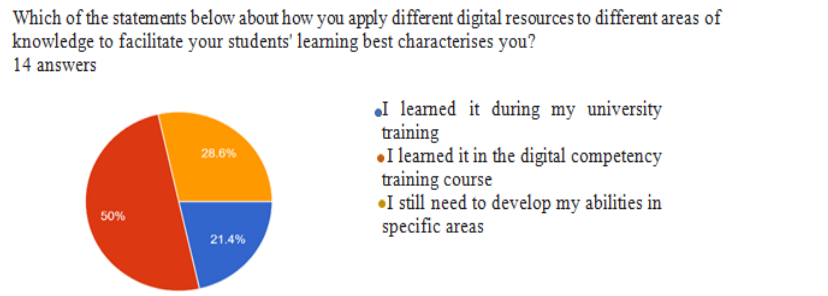
ICT knowledge to develop classes prior to the course



A total of 57.1% of the study subjects considered that they possessed intermediate digital skills to deliver their classes in a virtual form, such as during the pandemic, and 7.1% considered that they did not possess these skills. The rest of the sample considered that they were well equipped to deliver their classes virtually.

Figure 2

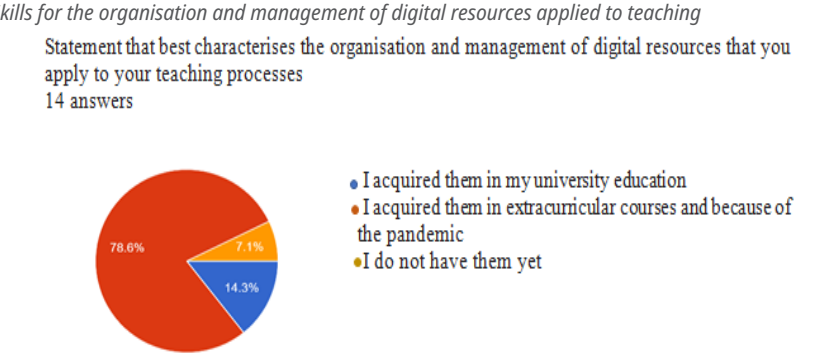
Ability to solve teaching processes with ICT



The opinion on how to facilitate student learning through digital resources indicates that 50% learned it with the course; 28.6% consider that they need to continue developing these skills and 21.4% indicated that they achieved this from their university education.

Figure 3

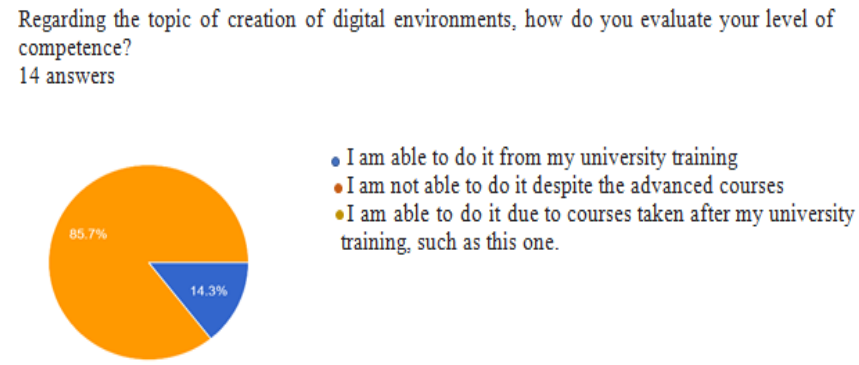
Skills for the organisation and management of digital resources applied to teaching



A total of 78.6% were able to develop these skills in courses undertaken after their university education and because of the pandemic. Respondents who indicated having these skills from university courses comprised only 14.3% of the sample.

Figure 4

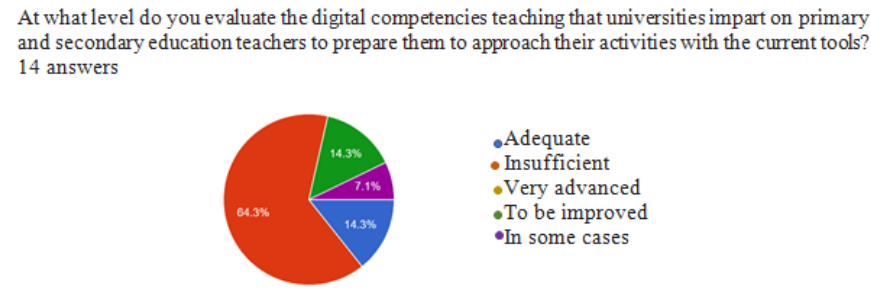
Skills for the creation of digital environments



In this question, which refers to a specific digital competence, 14.3% of teachers indicate that they can create digital environments based on the knowledge acquired during their university training, whilst 7% indicate that they have this ability through courses subsequent to their university education. It can be assumed from these answers that even those who expressed the need for further development can, with this course, create digital environments for their classes or areas of knowledge.

Figure 5

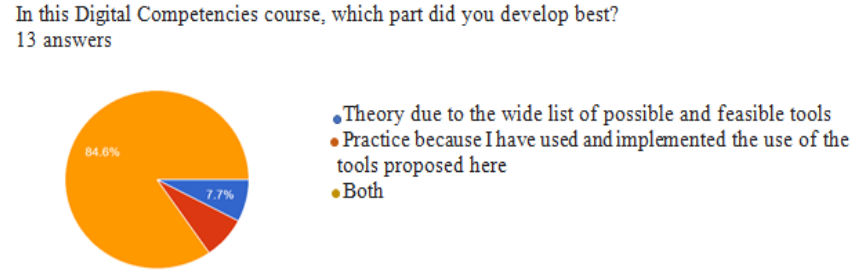
Digital skills training in initial teacher education programs



In this question, 64.3% considered that, in these teacher training programs, the forms or development of the digital competencies required nowadays are insufficient, and 21.4% considered that these programs should be improved.

Figure 6

Development of theory and practice with the COMPEDIGI course



A total of 84.6% of participants considered that they managed to develop theory and practice in a balanced way. Whilst 15.4% considered that they expanded their theoretical framework of resources (7.7%) and used the tools provided (7.7%).

Analysis of results from the Latin American contextual perspective

Although in some regions of the world, such as Europe and the United States, debates on competency-based education are considered a discussion superseded by the focus on Learning Outcomes, in the Latin American context, we are still seeking to understand and implement this mode of education. In theoretical terms, it is known that the word competence comes from the Latin *competetia*, "proportion", "fair relation", which means aptitude, suitability, faculty that a person has to appreciate or resolve an issue. The term first appeared in the French language in the 15th century, designating the legitimacy and authority of institutions (e.g., the court) to deal with certain problems. In the 18th century, its meaning was extended to the individual level, designating the capacity based on knowledge and experience. As it can be seen, there is a long succession until its appropriation in the educational field.

Still, what digital competency concept was chosen in Latin America and the Caribbean that apply to this study? Two sets of references are highlighted: MIL (Wilson et al., 2011) and DigCompEduc (Redecker & Punie, 2017). In the first instance, because they converge in the ways of defining digital competencies, understood as a set of knowledge, skills, and attitudes for the critical/creative use of technology. To this end, it is necessary for teacher training to be based on the integration of technological literacies into teaching, for the construction of a critical reflection on the notion of competence in the field of education and its repercussions on inequality of access and usability when it comes to digital technologies.

In the first set of theoretical references, MIL (Media and Information Literacy: Curriculum for Teachers), a published document titled "Media and Information Literacy: Curriculum for Teacher Training" suggests seven skills to be considered in teacher training. It should be noted that this document was prepared by more than one hundred collaborators from more than 20 countries and presents points of convergence with the European Framework for the Digital Competence of Educators: DigCompEdu (DigCompEdu), which was also prepared in consultation with specialists. This identifies six areas of competencies with their own ramifications. Considering that each competency is built from a set of skills that represent thematic categories, there would be a conceptual similarity that would result in five competencies common to both doc-

uments. Through content analysis (Bardin, 1995), these competencies represent the inferred variables that deepen the understanding of the subject under investigation.

The first would be the understanding and use of technologies as part of organisational communication, collaboration, or the use of technology in professional development; addressed with questions 1 and 2 of the questionnaire. The second would focus on the selection and critical management of content and resources, which points to the concern for the forms of management and content selection, as well as technological resources and their influences in the teaching field (identification, interpretation and critical analysis of stereotypes, representations and values, and this was investigated with the third and fourth items). The third digital competence to be developed in basic education teacher training, common to both referents, would be the use of technology in the didactic field. This competence would focus on uses of technology to improve the teaching experience, such as evaluation and collaborative learning; an approach was made to the opinion of teachers in the fourth and fifth items. In the fourth competence area, the emphasis would be on promoting pedagogical aspects and involves discussions on accessibility issues, including expanding and involving students; investigated very subtly with the fifth and sixth items of the questionnaire. The fifth and final category of the convergences in digital competencies raised in MIL, relates to the democratic use of media and technology that contemplates freedom of opinion, expression and access to information transmitted as a human right. This aspect was not addressed in the study.

It is important to highlight the fact that there are other studies on the concept of DC (digital competencies) such as those by the OECD (2003), UNESCO (2006) and the European Commission (2012), which also began to define a list of DCs for the profile of the users of these technologies, linked to an international context, although it is mostly European. According to UNESCO reports (2006), DC is one of the eight essential competencies for lifelong development. Therefore, it figures alongside other essential skills such as literacy, multilingualism, mathematical skills, science, technology and engineering, social skills such as "learning to learn", citizenship, entrepreneurship, cultural sensitivity and expression skills.

Although they are so relevant, there are few studies conducted in Latin American countries to understand the concept of these competencies in education. However, since 2017, the implementation of the National Common Curriculum Base (BNCC) in Brazil has been based on the development of competencies for primary and secondary education for a prepared teacher training -for that development-. While it is observed that CDs are interpreted in different ways, which produces multiple meanings and a range of nomenclatures, without providing clarity on the subject, all descriptions seek to refer to the ways in which people must deal with Digital Information and Communication Technologies (TDIC) in different areas of life. Thus, there is no common or globally agreed concept of digital skills, which could make it difficult to understand. Even so, it was used in the educational context, more specifically, in the systematization of the National Teacher Training Bases- BNC (2019) - seeking to analyse the omnipresence of media and technologies in everyday life.

From a bias in teacher training, the so-called DCs seem to be transversal to the general competencies of the BNCC. This document systematises the ten general competencies since 2017, four of which denote this way of understanding and represent this transversality:

1 - [...] to continue learning and collaborating for the construction of a just, democratic and inclusive society;

[...] 6 - [...] understand the relationships of the world of work and make choices aligned with the exercise of citizenship and their life project with freedom, autonomy, critical awareness and responsibility;

8 - Know yourself, value yourself and take care of your physical and emotional health [...]

10 - Act personally and collectively with autonomy, responsibility, [...] resilience and determination, making decisions based on ethical, democratic, inclusive, sustainable and solidarity principles. (Brazil, 2019, p. 14).

This makes it clear that DCs, when addressed in teacher training, must be organically aligned with the methodological, critical and productive dimensions to promote the appropriation of technology in education that results in the training of citizens and workers who interact responsibly in this 21st century.

Conclusions

The study collects a series of opinions that reflect the training of participants from Latin American countries. From their answers we can find as a common denominator, the lack of university training programs aimed at the development of ICT competencies to manage digital resources in the different areas of knowledge or communication. This is a warning to the initial teacher training programs in these countries, especially considering that ICTs are of great relevance for the achievement of the 17 Sustainable Development Goals corresponding to the 2030 Agenda approved by the General Assembly of the United Nations. From these, Sustainable development Goal number four is highlighted: *Quality education*, updated by UNESCO itself (2019) for the third time within the "ICT Teacher Competency Framework" due to it being a major issue and because of the existing need for teachers to acquire the "ICT competencies and the ability to develop them in their students, (...) [as well as] to be able to use them to help them become collaborative, creative, problem-solving learners and innovative and engaged members of society" (p. 5).

The opinions expressed by the teachers on the DCs they developed during their initial training or in subsequent courses, such as the one in this study, as well as their capacities for the organisation and management of digital environment resources are comparable with data from teacher training programs of the Ministry of Education of Ecuador. They indicate that "60% of teachers consider their performance in ICT management to be very good or excellent, while 36% believe that it is good and 4% that it is regular" (Loaiza Rodríguez, Uquillas Vallejo, & Sánchez Landin, 2021, p. 156). The cases of Loja, El Oro and Zamora Chinchipe were also reviewed (Valdivieso Guerrero & Gonzáles Galán, 2016; Loaiza Rodríguez, Uquillas Vallejo, & Sánchez Landin, 2021), and it is concluded that teachers negatively value their expertise in pedagogical-didactic aspects (Valdivieso Guerrero & Gonzáles Galán, 2016); others consider that they master the technical and basic components, as well as some advanced ones with didactic tools (Valdivieso Guerrero & Gonzáles Galán, 2016; Loaiza Rodríguez, Uquillas Vallejo, & Sánchez Landin, 2021); and finally, that they have a positive attitude towards ICT (Valdivieso Guerrero & Gonzáles Galán, 2016; Loaiza Rodríguez, Uquillas Vallejo, & Sánchez Landin, 2021).

Lastly, we can conclude the study with *tentative* answers to our research questions: first, that teachers consider that the universities that trained them did not provide them with the digital competencies required by current educational needs. And the second, that although some primary and secondary education teachers acquired DCs in their university education, the majority did so through extracurricular courses such as UNED-CAB-OEI. Since we did not ask the age or years of teaching experience of the respondents, we cannot establish a relationship between those trained more recently, who could be the minority group.

Recommendations

In the literature review for this study, it was observed that, in the Latin American region, the topics to be addressed in teacher training programs aligned with digital policies have been modified, but not the strategies for teacher training in digital technologies (Lugo et al., 2020). Hence the urgency to promote training and coaching in digital pedagogical competencies (Fernández & Vázquez, 2016) and to propose training plans that incorporate different models and current competency frameworks (Cabero & Martínez, 2019; Cabero et al., 2020). In the same way, to promote courses like the one in this study, which allows teachers to interact with each other, seems to be possible in an interconnected society.

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