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ORIGINAL

Digital Teaching Competence According to the DigCompEdu Framework. Comparative Study in Different Latin American Universities

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ABSTRACT

The relevance and importance that the topic of Digital Competences for Teachers (DCT) has gained is evident both in the field of training and in research, as can be seen by the increase in the amount of research and meta-analysis carried out on this topic. This article presents the results of an ex post facto research with a cross-sectional research design, based on a descriptive and hypothesis-testing approach. A total of 6,664 teachers from different Latin American universities participated in the self-knowledge they have regarding their Digital Teaching Competence (DTC) according to the DigCompEdu framework of the European Union. Among the results obtained, it is worth noting the intermediate level of digital competences reported by the teachers surveyed, with significant differences with respect to different key variables for their development. Therefore, we conclude by reflecting on the need to establish teacher training plans in this area.

Keywords DIGITAL COMPETENCE IN TEACHING, TEACHER TRAINING, DIGCOMPEDU, ICT

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1 INTRODUCTION

It has been more than twenty years since the beginning of the 21st century. It seems that we are becoming accustomed to the constant irruption of new technologies. For this reason, it is difficult to adapt to the use of some when others appear rapidly. Fortunately, these technologies are becoming increasingly user-friendly and intuitive, but they continue to modify the way in which we interact with different sectors: communication, leisure, economy, employment, health...

In the field of education, we have been enduring an increasing dependence on technology, which makes it crucial that teachers are equipped with the necessary skills to teach in a digital environment, on the one hand to ensure a flexible and interactive teaching-learning process through the use of these tools (Vásquez-Peñafiel, Núñez, & Cuestas-Casas, 2023)

and on the other hand to help students develop digital skills for future success (Infante-Moro, Infante-Moro, & Gallardo-Pérez, 2022).

Although the digital transformation has already reached the various elements of the education and training system, such as teachers, students, tools and content, there is still a long way to go in each of them (Prieto, 2022). In the specific case of teachers, it is necessary to acquire the so-called "digital teaching competence" (DTC), among other competences to be acquired for their professional development.

DTC can be defined as the set of teaching-specific knowledge, skills and abilities in information and communication technologies (ICT) that enable professionals to solve pedagogical and professional problems in the context of the knowledge society (Council of the European Union, 2018; Ghomi & Redecker, 2019).

The relevance and importance that the subject of Digital Competences in Teaching has gained is evident, both in the field of training and in research, as can be seen by the increase in the amount of research and meta-analysis carried out on this subject (Basilotta, Mantaranz, Casado-Aranda, & Otto, 2022; Bilbao-Aiastui, Arruti, & Carballedo, 2021; Esteve-Mon, Llopis-Nebot, & Segura, 2020; Martínez-Abad, Bielba-Calvo, & Herrera-García, 2017).

Echoing the importance of DTC acquisition by teachers, the European Commission's Joint Research Centre publishes the European Digital Competence Framework for Teachers (DigCompEdu), which aims to compile the digital competences that teachers need to acquire in order to achieve an effective integration of digital technologies in their institution, in the teaching-learning processes, and to support and encourage the acquisition of digital competences by students (Kullaslahti, Ruhalahti, & Brauer, 2019). To this end, this competence framework considers 6 competence areas with a total of 23 competences (Figure 1).

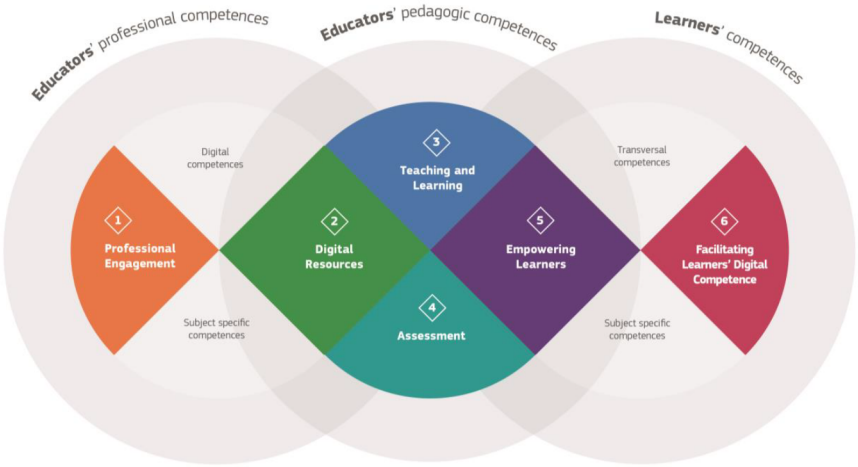

Figure 1 Source: Joint Research Centre (JCR)

2 METHODS

The research is of the ”ex post facto” type, which are those in which the researcher does not manipulate or modify any variable, but is carried out when the phenomenon has occurred (Hernández, Fernández, & Baptista, 2014). More specifically, this study proposes a cross-sectional research design with a descriptive approach and hypothesis testing that takes into account the participation of teachers from different Latin American universities in the self-knowledge they have regarding DTC in accordance with the European Union's DigCompEdu framework.

2.1 Objectives

The objectives of the research are stated in the following terms:

- To find out the degree of DTC that teachers from different Ibero-American universities had with respect to the DigCompEdu framework.
- To analyse whether teachers' DTCs differed according to their university (country) of origin.
- To analyse whether the degree of DTC achieved by teachers was determined by the following variables: gender, age, teaching experience, years of ICT use, time spent using ICT in the classroom, ICT technological proficiency and curiosity about ICT.
- To find out whether the initial classifications made by teachers of their level of digital competence (novice, explorer, integrator...) vary between the assessment made before and after the questionnaire was carried out.

2.2 Sample

The research sample consisted of 6664 teachers from the following Latin American universities: Continental University (Peru), Higher Institute of Teacher Training Salome Ureña (Dominican Republic), Autonomous University of Tamaulipas (Mexico), Autonomous University of Chile (Chile) and Private Technical University of Loja (Ecuador).

The type of sampling used was convenience sampling, so no sampling was carried out, but the diagnostic document was sent to all the teaching staff at the different universities and in some cases at the different campuses.

The number of teachers who correctly completed the questionnaire for each of the universities is presented in Table 1.

As can be seen in the table above, of the 6,664 teachers surveyed, 3,702 (55.6%) were male and 2,962 (44.4%) were female. Having 33.9% (f=2,261) between 30-39 years, 31.9% (f=2,123) between 40-49 years, 20.8% (f=1,387) between 50-59 years, 7.5% (f=499) over 60 years, 5.1% (f=339) and 0.8% (f=55) less than 25 years.

With regard to the years of teaching experience they had as teachers, Table 2 shows the frequencies and percentages achieved.

As can be seen, nearly 50% of the teaching staff had more than 10 years of teaching experience. Of these, 67.2% (f=4,481) had a master's degree and 19.7% (f=1,313) a doctorate.

Table 1 Frequency and percentage of teachers by country

Item	*f*	%
Chile	989	14,80%
Ecuador	1560	23,40%
Mexico	656	9,80%
Peru	2515	37,70%
Dominican Republic	944	14,20%
TOTAL	6664	100,00%

Table 2 Frequency and percentage of years of experience as a teacher

	f	%
1-3 years	1484	22,30%
4-5 years	818	12,30%
6-9 years	1080	16,20%
10-14 years	1115	16,70%
15-19 years	777	11,70%
20 or more years	1390	20,90%

Regarding the number of years of experience in the use of "Information and Communication Technologies" (ICT), the scores achieved are presented in Table 3. 26.9% (f=1,793) had between 1-3 years, 19% (f=1,264) between 4-5 years, and 17.6% (f=1,171) between 6-9 years.

Table 3 Years that teachers had been using ICT

	f	%
Less than 1 year	478	7,20%
1-3 years	1793	26,90%
4-5 years	1264	19%
6-9 years	1171	17,60%
10-14 years	1047	15,70%
15-19 years	483	7,2

Regarding the time they spent using ICT in their teaching activity, the frequency and percentage of the different options offered are presented inTable 4, which indicates that about 90% use them between 26-100% of the time.

Finally, it should be noted that with regard to the question: "I am curious about new applications, programmes and digital resources", the responses are shown in Table 5. This shows that the vast majority (f=4,450, 66.8%) agree with it.

Table 4 Time of use of ICT in teaching

	f	%
0-10%	130	2%
11-25%	813	12,20%
26-50%	1957	29,40%
51-75%	1920	28,80%
76-100%	1844	27,70%
Total	6664	100%

Table 5 Time of use of ICT in teaching

	f	%
Strongly disagree	559	8,40%
In disagreement	38	0,60%
Neither agree nor disagree	211	3,20%
Agree	1406	21,10%
Strongly agree	4450	66,80%

2.3 Instrument

For the analysis of teachers' digital competences according to the "European Framework for Digital Competence in Teaching DigCompEdu", the "DigCompEdu Chek-in" questionnaire was used (Cabero-Almenara, Gutiérrez-Castillo, Palacios-Rodríguez, & Barroso-Osuna, 2020), which in a research was considered ad-equate by different Spanish and Latin American educational technology experts (Cabero-Almenara, Barroso-Osuna, Gutiérrez-Castillo, & Palacios-Rodríguez, 2020).

Twenty-two items are comprised of the six competency areas of the framework: a) professional engagement (four items), b) digital resources (three items), c) teaching and learning (four items), d) assessment (three items), e) empowering learners (three items) and f) facilitating learners' digital competence (five items). The response options offered in each questionnaire were five. Please note that for each of the items five response options were offered in a scale of 0-4.

At the same time, the questionnaire asks teachers to rate their self-perceived level of digital competence, both at the beginning and at the end of the questionnaire, according to the following classification: A1: Newcomer (very little experience and contact with educational technology), A2: Explorer (little contact with educational technology), B1: Integrator (experiments with educational technology and reflects on its appropriateness), B2: Expert (uses a wide range of educational technologies with confidence, trust and creativity), C1: Leader (able to adapt the different resources, strategies and knowledge available to their needs) and C2: Pioneer (leading innovation with ICT and being a role model for other teachers).

As far as the reliability of the instrument is concerned,Table 6 presents the results achieved with both Cronbach's Alpha and McDonald's (1999) Omega, which are the usual procedures.

Table 6 Total reliability index of the instrument and its different dimensions

Dimensions	Alfa	Omega
A-Profesional engagement	.719	.801
B-Digital resources	.731	.814
C-Teaching and learning	.782	.863
D-Assessment	.792	.885
E-Empowering learner´s	.725	.823
F-Facilitating learner´s digital competence	.751	.865

The values achieved with respect to the instrument's reliability index, both at the overall level of the instrument and in its different dimensions.

3 RESULTS

We begin by presenting the mean values and standard deviations achieved for the overall sample and the overall instrument, which was a mean of 2.57 with a standard deviation of .641. These scores indicated that the teachers as a whole rated themselves in an intermediate position of mastery of their DTC, while the low score achieved in the standard deviation draws attention to the tendency towards unification of responses.

The following table shows the scores for the different dimensions and items of the instrument (Table 7), and once again the data are intermediate values with low standard deviations, ranging from 2.48 for "Digital resources" and "Facilitating students' digital competences" to 2.74 for "Teaching and learning ".

Table 7 Total reliability index of the instrument and its different dimensions

	M	SD
A-Profesional engagement	2,51	0,685
A1. I systematically use different digital channels to improve communication with students and my classmates. For example: emails, messaging applications like Whatsapp, blogs, the website of the faculty...	2,6	0,784
A2. I use digital technologies to work with my peers inside and outside my educational organization.	2,3	0,958
A3. I actively develop my teaching digital competence.	2,35	0,934
A4. I participate in online training courses. For example: online university courses, MOOCs, webinars...	2,79	1,025
B-Digital resources	2,48	0,696
B1. I use different internet sites (web pages) and search strategies to find and select a wide range of digital resources.	2,38	0,86

Continued on next page

Table 7 continued

B2. I create my own digital resources and modify the existing ones to adapt them to my needs as a teacher.	2,55	0,766
B3. I protect sensitive content safely. For example: exams, grades, personal data.	2,52	1,094
C-Teaching and learning	2,74	0,752
C1. I carefully consider how, when and why to use digital technologies in class, to ensure their added value is harnessed.	2,55	1,029
C2. I monitor the activities and interactions of my students in the online collaborative environments we use.	3,07	0,886
C3. When my students work in groups or teams, they use digital technologies to acquire and document knowledge.	2,74	1,014
C4. I use digital technologies to allow students to plan, document, and assess their learning for themselves. For example: self-assessment tests, digital portfolio, blogs, forums...	2,61	0,932
D-Assessment	2,56	0,787
D1. I use digital assessment strategies to monitor student progress.	2,56	0,881
D2. I analyze all available data to identify students who need additional support. "Data" includes: student engagement, performance, grades, attendance, activities and social interactions in online environments… "Students in need of extra support" are: those at risk of dropping out, low achievement, learning disorder , specific learning needs or lacking transversal skills (social, verbal or study skills).	2,55	0,993
D3. I use digital technologies to provide effective feedback.	2,57	0,933
E-Empowering learner´s	2,64	0,891
E1. When proposing digital tasks, I consider and address potential issues such as equal access to digital devices and resources; compatibility problems or low level of digital competence of the students.	3,01	1,042
E2. I use digital technologies to offer students personalized learning opportunities. For example: assignment of different digital tasks to address individual learning needs, take into account preferences and interests...	2,35	1,285
E.3 I use digital technologies so that students participate actively in class.	2,58	0,975
F-Facilitating learner´s digital competence	2,48	0,757
F1. I teach students how to assess the reliability of information searched online and to identify erroneous and/or biased information.	2,3	0,965
F2. I propose tasks that require students to use digital media to communicate and collaborate with each other or with an external audience.	2,51	0,917
F3. I propose tasks that require students to create digital content. For example: videos, audios, photos, presentations, blogs, wikis...	2,67	0,972
F4. I teach students how to behave safely and responsibly online.	2,34	1,051
F5. I encourage students to use digital technologies creatively to solve specific problems. For example, overcoming obstacles or emerging challenges in their learning process.	2,57	0,923

As noted, one of the objectives of the research was to find out whether there were differences between teachers in different Latin American countries. To this end, we formula-ted the following hypotheses:

- Ho (null hypothesis): There are no differences be-tween university teachers from different Latin American countries in their mastery of the DTCs of the DigCompEdu framework and the different competency areas that comprise it, with an alpha risk of error of .05.

- H1 (alternative hypothesis): There are differences between university teachers from different Latin American countries in their mastery of the DTCs of the DigCompEdu framework and the different competency areas that comprise it, with an alpha risk of error of .05.

Before analysing them,Table 8 shows the means and standard deviations found in each of the dimensions and in the instrument as a whole.

Table 8 Medias y desviaciones típicas para cada una de las dimensiones y para el total del instrumento por países.

	Chile		Ecuador		Mex-ico		Peru		Dominican Republic	
	M	SD	M	SD	M	SD	M	SD	M	SD
A-Profesional engagement	2,41	0,711	2,51	0,632	2,39	0,77	2,5	0,66	2,73	0,692
B-Digital resources	2,41	0,697	2,35	0,716	2,46	0,654	2,51	0,666	2,7	0,703
C-Teaching and learning	2,48	0,753	2,73	0,729	2,48	0,871	2,8	0,689	3,07	0,705
D-Assessment	2,3	0,739	2,61	0,751	2,28	0,899	2,58	0,751	2,9	0,752
E-Empowering learner´s	2,46	0,907	2,58	0,912	2,54	0,97	2,67	0,851	2,95	0,803
F-Facilitating learner´s digital competence	2,28	0,732	2,39	0,747	2,38	0,782	2,52	0,739	2,78	0,732
Total	2,39	0,635	2,53	0,608	2,42	0,705	2,6	0,613	2,86	0,619

As can be seen, the average scores achieved are at an inter-mediate level of mastery, both for the instrument as a whole and for each of the competency frameworks.

For this purpose, we applied the non-parametric Kruskal-Wallis test, achieving the results presented inTable 9.

Table 9 Years that teachers had been using ICT

	H of Kruskal-Wallis	df	Sig.
A-Profesional engagement	132,094	4	0,000
B-Digital resources	166,409	4	0,000
C-Teaching and learning	369,549	4	0,000
D-Assessment	365,751	4	0,000
E-Empowering learner´s	165,416	4	0,000

The results found allow us to reject the H0 at a significance level of $p \leq ,001$, for all dimensions. Consequently, it can be indicated that there are significant differences in the assessments that teachers from different universities in different Latin American countries make regarding their mas-tery of the DTC according to the ”DigCompEdu.” framework.

In order to find out between which countries there were dif-ferences, we applied the rank test. It should be noted that, in order not to repeat the findings, only the results achieved with the overall scores of the instrument will be presented, since the scores achieved in the different frameworks follow the same logic as those obtained in the instrument as a whole.Table 10 shows the ranges achieved.

Table 10 Rank test for the analysis of possible differences by country in the different dimensions of DigCompEdu

Country	N	Average range
Chile	989	2808,66
Ecuador	1560	3205,56
Mexico	656	2906,42
Peru	2515	3405,49
Dominican Republic	944	4192,71
Total	6664	

As can be seen, it is the teachers in Peru, followed by those in Ecuador, Chile and the Dominican Republic who have the highest self-assessment scores. In last place come those from Mexico.

With regard to the influence of gender, and in order to test the H0 that there were no significant differences when considering this variable, we applied the Wilcoxon W statistic (Table 11).

Table 11 Wilcoxon's W for the gender variable

	U Mann-Whitney	W Wilcoxon	Z	Sig.
A-Profesional engagement	5285855,5	12140108,5	-2,537	0,011
B-Digital resources	5205287,5	9593490,5	-3,592	,000
C-Teaching and learning	5166637	12020890	-4,069	,000
D-Assessment	5163780	12018033	-4,119	,000
E-Empowering learner´s	5068843	11923096	-5,335	,000
F-Facilitating learner´s digital competence	5312498,5	12166751,5	-2,187	0,029
Total	5231898,5	12086151,5	-3,213	0,001

The values obtained allow us to accept H1, so that there are significant differences, both in the total score found in the DigCompEdu framework as a whole, and in the different competence areas that make it up, with a significance risk of $p \leq 0.05$.

In order to find out in whose direction such differences were found, the rank test was applied. It should be noted that in the total score the scores were higher for women (with an average rank of 3,417.16) than for men (with an average rank of 3,264.76). Thus, with respect to the different competence areas, the differences were in direction of women over men in all areas, except in the one called "digital resources" (men=3,407.43 - women=3,238.86).

Regarding the possible influence of teachers' experience with technology on the level of DTC achieved, the Kruskal-Wallis H statistic was applied to analyse the H0 for no difference (Table 12).

The values found allow us to reject the H0 referring to the non-existence of significant differences and to accept the H1 suggesting the existence of such significant differences at a significance level of $p \leq .001$, both for the instrument as a whole and for the different dimensions that make up the DigCompEdu framework.

Table 12 Kruskal-Wallis H test for the significant influence of the time of use of the technologies

	H Kruskal-Wallis	df	Sig.
A-Profesional engagement	588,202	7	,000
B-Digital resources	516,658	7	,000
C-Teaching and learning	460,408	7	,000
D-Assessment	334,597	7	,000
E-Empowering learner´s	361,55	7	,000
F-Facilitating learner´s digital competence	545,585	7	,000
Total	634,348	7	,000

In order to find out in direction of which age band the significant differences found were in direction of, we again applied the range test, andTable 13 shows the values achieved for the instrument as a whole.

Table 13 Range test for the whole instrument regarding the influence of the time of use of the technologies on the level of CDD of the teachers Time of use of ICT in teaching

	Average range
I do not use technology as an educational tool	1278,33
Less than 1 year	1980,67
1-3 years	2853,15
4-5 years	3390,23
6-9 years	3556,43
10-14 years	3812,56
15-19 years	3999,9
20 years or more	4355,41
Total	6664

The results for the instrument as a whole, which were similar to those of the different competency frameworks and therefore the presentation of the results will not be redundant, clearly show that the more time teachers spend using technology as an educational resource, the higher the level of DTC they indicate they have in the "DigCompEdu" framework. Both globally and in the different competence areas.

With regard to the significance of the teacher's time spent using ICT in the classroom on the level of DTC, the Kruskal-Wallis H statistic was applied again, and the values obtained are shown in Table 14.

The values achieved allow us to reject all the H0 formulated referring to the non-existence of significant differences at a level of $p \leq ,001$, so it can be concluded that the time of use has an impact on the level of DTC that the teacher possesses. In order to find out in whose favour these differences were found, the average rank test was applied again (Table 15).

Table 14 Kruskal-Wallis H test for the significant influence of the percentage of use of technology in the classroom on CDD

A-Profesional engagement	383,941	4	,000
B-Digital resources	265,706	4	,000
C-Teaching and learning	605,22	4	,000
D-Assessment	555,317	4	,000
E-Empowering learner´s	391,416	4	,000
F-Facilitating learner´s digital competence	443,354	4	,000
Total	383,941	4	,000

Table 15 Average range test taking into account the time of use

	Average range
0-10%	1295,84
11-25%	2362,46
26-50%	3049,76
51-75%	3606,96
76-100%	3918,05

As can be seen in the table above, and with sufficient clarity, as the teacher indicates that he/she uses ICT more time in the classroom, he/she also indicates that he/she has a higher level of DTC.

Finally, in order to analyse whether there were significant differences between the teachers' ratings (A1: Newcommer, A2: Explorer, B1: Integrator...) at the beginning of completing the questionnaire and at its completion. We applied the Wilcoxon signed-rank test, obtaining a value of -11.506 significant at $p \leq ,000$. Consequently, it can be noted that there are significant differences between the initial and final ratings. And applying the Wilcoxon signed-rank test, the following score was obtained for the pretest: 954.71 and 930.38 for the posttest.

4 DISCUSSION

The first conclusion of the study is the reliability and validity of the diagnostic instrument used. This result is in line with those found in other studies in different European contexts (Barzabal, Gimeno, Martínez, & Rodríguez, 2022; Boté-Vericad, Palacios-Rodríguez, Gorchs-Molist, & Llorente-Cejudo, 2023; Cabero-Almenara, Barroso-Osuna, Gutiérrez-Castillo, & Palacios-Rodríguez, 2020; Cabero-Almenara, Barroso-Osuna, Rodríguez-Gallego, & Palacios-Rodríguez, 2020; Ghomi & Redecker, 2019; Hurtado-Mazeyra, Núñez-Pacheco, Barreda-Parra, Guillén-Chávez, & &turpo Gebera, 2022; Lucas, Bem-Haja, Siddiq, Moreira, & Redecker, 2021; Martín-Párraga, Llorente-Cejudo, & Barroso-Osuna, 2022). In summary, it can be said that it is a reliable and valid instrument

for measuring teachers' digital competence.

Finally, with regard to the reliability of the instrument, it should be noted that there are already studies that, in addition to considering that the instrument provides high levels of reliability, suggest that the framework can be reduced to three main dimensions: Professional competencies of educators, Pedagogical competencies of educators and interact and interrelate (Gallardo, Tomás, Bossio, & Freundt, 2023). This work opens up new avenues for reflection and research on the instrument.

On the other hand, the data found suggest that teachers consider themselves to have an intermediate level of digital competences. Although these levels are significantly different among the teaching staff of the different universities in the Latin American countries included in the study, they are all at the aforementioned level. These levels coincide with research carried out on university teaching staff in different contexts (Barzabal et al., 2022; Cabral, Guerreiro, & Mattar, 2021; Palacios-Rodríguez & Martín-Párraga, 2021; Torrego & Fernández, 2022), and specifically in those carried out in the Latin American context (Ferrando-Rodríguez, Mn, Gabarda, & Marín-Suelve, 2022) where the DigCompEdu framework is increasingly being used as a reference for training and research (Velandia, Mena-Guacas, Tobón, & López-Meneses, 2022).

This finding leads us to point out the need to establish training plans for university teachers in digital competences (Gutiérrez-Castillo, Palacios-Rodríguez, Martín-Párraga, & Serrano-Hidalgo, 2023), regardless of the different countries to which the teachers who participated in the research belonged, since in all of them, and for all dimensions, the scores achieved are at an intermediate level.

5 CONCLUSIONS

In the research, female teachers have a higher self-assessment in the DTC than male teachers. This was found both in the instrument as a whole and in the following competence areas: professional commitment, digital pedagogy, assessment and feedback, empowering students and developing student CD. In the framework "digital resources", it is the teachers who score best.

The findings coincide with those obtained in other research (Mañanes & García-Martín, 2022). However, it should be considered that the findings regarding this variable are not conclusive; thus, we find research where the highest ratings are made by teachers (Fernández-Sánchez & Silva-Quiroz, 2022; Hurtado-Mazeyra et al., 2022; Lucas, Bem-Haja, et al., 2021) and in others no such differences have been obtained (Marimon-Martí, Romeu, Ojando, & González, 2022; Sales, Cuevas-Cerveró, & Gómez-Hernández, 2020; Tondeura, Aesaertb, Prestridge, & Consuegraa, 2018; Usart, Lázaro, & Gisbert, 2021). This may lead us to conclude that the differences in this variable are rather random and highly contextual. As Fernández-Sánchez and Silva-Quiroz (2022, p. 330) conclude in their meta-analysis of DTC research: "When we investigate the studies on the relationship between gender and digital competence in teaching, we observe that there are diverse results, without reaching a global consensus".

The results found allow us to conclude that teachers' experience, assessed in terms of their years of professional experience and the time they spend using ICT in the classroom, has an impact on the increase in teachers' assessment of their level of DTC. This result is generally consistent with those found in other studies (Cabero-Almenara, Guillén-Gámez, Ruiz-Palmero, & Palacios-Rodríguez, 2021; Garcia, Lázaro, & Valls, 2022; Ghomi & Redecker, 2019; Guillén-Gamez, Cabero-Almenara, Llorente-Cejudo, & Palacios-Rodríguez, 2021; Lucas, Dorotea, & Piedade, 2021; Martín-Párraga, Llorente-Cejudo, & Barroso-Osuna, 2023).

Finally, it should be noted that teachers tended to give higher ratings at the beginning of the questionnaire than at its completion, which meant that the completion of the questionnaire led to a critical review of their actual level of training. These results coincide with those obtained in other studies and in other contexts (Cabero-Almenara, Barroso-Osuna, Gutiérrez-Castillo, & Palacios-Rodríguez, 2021; Cabero-Almenara, Barroso-Osuna, Rodríguez-Gallego, & Palacios-Rodríguez, 2020).

6 AUTHOR CONTRIBUTIONS

- J.C-A: Conceptualization, Funding acquisition, Writing – original draft
- J.J.G-C:Investigation, Resources, Writing – review & editing
- J.B-O:Data curation, Project administration, Writing – review & editing
- A.P-R:Formal analysis, Methodology, Software, Writing – original draft

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