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ARTICLE

Digital teaching competence for inclusion and social cohesion in teaching processes: Chilean experience during COVID-19

Competencia digital docente para la inclusión y la cohesión social en los procesos de enseñanza: experiencia chilena durante el COVID-19

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Abstract: This study examined teacher digital competence training for inclusion and social cohesion in Chile during the Covid-19 confinement. The objective was to analyze how teachers are trained in ICT and how they use these tools to develop distance education processes. The methodology used was a quantitative approach through a descriptive design of a multiple-choice questionnaire. The findings indicate that ICT training occurs mainly as a spontaneous process of self-learning by the teacher and that their motivations for training in ICT respond mainly to the desire to improve their professional skills. Teachers highly value training processes to develop distance education processes around the use of technologies. The teachers who adapted their planning for the new distance education are those who carried out self-learning processes and have training in technological tools. Most teachers opted for a mixed approach in content delivery and complemented classes through video calling platforms with tools for asynchronous work. Regarding evaluation processes, teachers certainly know that clear and precise instructions are relevant in distance education.

Keywords: Digital competence, Social inclusion, Teacher training, Self-learning, Distance education.

Resumen: Este estudio examinó la formación en competencia digital docente para la inclusión y cohesión social en Chile durante el confinamiento del Covid-19. El objetivo fue analizar cómo los profesores se forman en TIC y cómo utilizan estas herramientas para desarrollar procesos educativos a distancia. La metodología utilizada fue un enfoque cuantitativo a través de un diseño descriptivo de un cuestionario de respuestas de opción múltiple. Los hallazgos indican que la formación en TIC se produce principalmente como un proceso espontáneo de autoaprendizaje por parte del profesor y que sus motivaciones para formarse en TIC responden mayoritariamente al deseo de mejorar sus competencias profesionales. Los profesores valoran altamente los procesos de capacitación para desarrollar procesos educativos a distancia en torno a la utilización de las tecnologías. Los profesores que adecuaron su planificación para el nuevo escenario de educación a distancia son aquellos que realizaron procesos de autoaprendizaje y poseen formación en herramientas tecnológicas. La mayoría de los profesores optó por un enfoque mixto en la entrega de contenidos y complementó las clases a través de plataformas de videollamadas con herramientas para el trabajo asincrónico. En cuanto a los procesos de evaluación, los profesores tienen claro que las instrucciones claras y precisas son un elemento relevante en la educación a distancia.

Palabras clave: Competencia digital, Inclusión social, Formación docente, Autoaprendizaje, Educación a distancia.

1. Introduction

The relevance of adequate training in digital competence for the inclusion and social cohesion of educational professionals acquired special meaning during the confinement period, as a result of the COVID-19 pandemic, due to the teaching of distance classes through, fundamentally, digital tools. It was an opportunity to assess to what extent teachers' digital competence was or was not adequate. Forero-Arango et al. (2022) note that weaknesses of ICT-supported teaching included technical difficulties and loss of face-to-face interaction. Lack of access to computers, low internet speed and quality, and technical challenges related to software for virtual learning platforms decreased the quality and efficiency of learning (Park & Awan, 2022). The socio-family context also played an important role (González, 2021). It is necessary to review to what extent the training in digital teacher competence is sufficient to sustain an adequate implementation of teaching strategies in a particularly challenging context such as the confinement during the COVID-19 pandemic (López-Martín, 2022).

This research reviews the work carried out by 125 teachers in Magallanes, Chile, regarding the deployment of teaching strategies implemented in distance classes during the confinement period. For this, training in information and communication technologies (ICT), understood as teaching digital competence, and the possible relationships between that training and the strategies themselves will be valued.

1.1. Digital competence in the global context

Digital competence is a topic that has gained importance in the world. One of the main challenges is linked to social digitalization, a broad phenomenon that includes, on the one hand, different sectors of the population and, on the other, different rhythms and needs of digitalization. In this context, one of the issues that has gained more strength is the phenomenon linked to citizen digital competence. The study on the importance of digital skills in large Spanish companies shows the need for better training of workers in these skills (Infante et al., 2016). The European Commission stated that digital competence must be assumed as the ability to use digital technologies safely, responsibly, and critically, whether to access information, learning, participation in society, or work (European Commission et al., 2022). However, digital competence is not only relevant in the European context, but efforts must be at a global level. Several reports, such as the one developed in 2020 by the World Economic Forum on the future of jobs, realize the importance of addressing it as a key skill for the near future (Zahidi, 2020). The World Bank (World Bank, 2019) highlights that digital competence is essential for success in today's labor market.

From education, multiple organizations highlight the role of digital competence. The United Nations Educational, Scientific and Cultural Organization [UNESCO] (2019) highlighted that digital competence is essential for education and lifelong learning, and European Schoolnet (2019) notes that it refers not only to the ability to use technology but also to reflect critically on its the impact on society. From this perspective, the initiative of the Universidad Nacional de Educación a Distancia (UNED) (2020) stands out, whose distance education approach has promoted the development of citizens' digital competences, offering students the opportunity to acquire flexible and accessible in technical-digital skills. The DigComp, as a reference

framework of the European Union, describes the digital skills needed for citizens to participate actively in the digital society; in education, it focuses on the development of digital skills in teachers to use these technologies effectively in teaching (European Commission et al., 2022). Moreover, CODE.org (2023) highlights teaching programming and digital skills to children and young people worldwide. Consequently, digital competence, being essential for success in the labor market, education, and daily life, is a major challenge for various actors around the world. Continuity is expected in the development of initiatives and good practices to promote and improve digital competence on the world stage. This addresses not only technical skills but also critical and reflective capacity on the use of technology in society. Betancur & García-Valcárcel (2022) show the need to implement teacher training plans focused on practice and methodological renewal, using agile and flexible formats adjusted to the particular conditions of the teaching teams.

1.2. Addressing digital competition in Latin America

Governments and non-governmental institutions in Latin America are promoting the development of digitalization in citizens, because of technological, economic, cultural, structural, geographical, educational, and other reasons; All of them are accelerated by the digital transformation Latin America is experiencing. The report prepared by Burdín (2022) for the Organización Internacional del Trabajo [OIT], concludes the need to strengthen these skills to improve employability and productivity in our region and provides a series of recommendations to improve education and training in digital skills. The Banco Interamericano del Desarrollo [BID] (Dalio et al., 2023) highlights the need to strengthen digital skills to stimulate economic growth and especially innovation in the region. Cabero-Almenara and Valencia (2019) conclude that there is a substantial advance in the incorporation of ICT in Latin American countries. However, the lack of policies in the implementation, monitoring, and evaluation of these initiatives is evident, which makes it necessary to establish progressive levels of incorporation of the programs.

1.3. Chile and the development of digital competence among citizens

Both the public and private sectors have promoted the development of digital competence in Chile. Some of the initiatives are the Plan Tecnologías para una Educación de Calidad, of the Government of Chile, which since 2007 sought to increase the technological equipment of schools and ensure their pedagogical use (Toro, 2010); the organization MetaRed Chile (n.d.) that seeks to identify teachers' digital skills; the project "Fortaleciendo las competencias digitales de docentes" led by UNESCO (2023) and the Ministry of Education of Chile, which aims to strengthen Chilean teachers in the face of the challenges of digital transformation in education and society; the "Red de Docencia Digital AP", proposed by the Alianza del Pacífico (Educarchile, n.d.) and implemented by Fundación Chile, which was created to generate capacities for pedagogical use in digital technological tools in response to educational needs exacerbated by the Covid-19 pandemic; the effort of the Fundación "Conecta Mayor"(n.d.) from the Pontificia Universidad Católica de Chile to provide senior citizens with technology that facilitates their integration into the digital world.

According to the study "Brechas en el uso de internet: desigualdad digital" by the Fundación País Digital (León & Meza, 2020), 80% of Chileans have access the Internet. 86.4% use it to obtain information in search engines; 47.2% to purchase goods

and services; 30.3% for educational activities and 34.4% for online procedures. Silva & Lázaro-Cantabrana (2020) propose a series of recommendations to promote the development of digital citizenship that are summarized in propertraining in digital skills during formal education and with projection throughout life, with innovative practices that promote the collaborative use of technology. There is a need to improve connectivity in schools, along with curriculum reforms and other initiatives to introduce ICTs, and to develop applications and online content aimed at groups with low connectivity, such as older adults, people with disabilities and speakers of indigenous languages. Finally, invest in professional development through connectivity subsidies focused on low-income households with school-age children, who attend the school system.

Chile is committed to strengthening the development of digital skills in the education sector, assuming the gaps evidenced in the education crisis caused by Covid-19. The Ministerio de Educación (2023) developed the "Política de Reactivación Educativa Integral" in 2022. Its objective was "promote a comprehensive and strategic response to the educational and socio-emotional well-being needs that have emerged in educational communities during the pandemic" (p.2), with a budget of more than 120 million dollars. This program faces, among others, the challenges of digital transformation aiming at "promoting technological resources, connectivity and the development of digital skills in educational communities, based on the strengthening of learning, pedagogical innovation and the continuity of educational processes" (p.21). As regards the Digital Transformation strategy, its main actions are linked to the provision of free internet access to national subsidized schools, including those areas without internet access; improve the current ICT infrastructure, implementing internet networks for students and teachers in all their lessons; 7th-grade students will receive personal computers equipped with educational software and data plans to guarantee ICT access; providing schools with Technology Kits for digital transformation (computers, audiovisual equipment, mobile devices, printers, among others) to optimize learning experiences.

1.4. Digital teaching competence

Perdomo et al., (2020) show that digital teaching competence refers to the ability of educators to effectively use digital technologies in the teaching process-learning to improve the quality of education and enhance student learning. The scientific literature provides an understanding of the challenges and opportunities faced by teachers when using information and communication technologies (ICT) in teaching processes, and considering what they experienced during the Covid-19 pandemic, it is indisputable that the use of technology played a fundamental role in giving continuity to the teaching-learning process of children and young people. However, a more comprehensive view of the process is required, for a proper plan regarding the incorporation of ICT in the educational context, which involves the training or development of digital teaching competences. Koehler & Mishra (2009) propose that, for integrating technology in education, each teacher must be trained in technological, pedagogical, and content knowledge. The same is proposed in the report "Education at a Glance" of the Organización para la Cooperación y Desarrollo Económico [OECD] (2019), where it is emphasized that digital teaching competence is crucial to develop in students, capabilities that allow them to enter the digital world and to develop the necessary skills in the 21st century. Rossi & Barajas (2018) show that the process of acquiring digital competence is complex, and teachers have difficulties in information

management, the didactic use of ICTs, the assessment of digital activity, and collaboration in virtual environments. Training needs to be more coherent and adapted to their needs, giving priority to collaborative work as a mechanism for acquiring digital competence.

1.5. Digital teaching competence from educational centers

Educational centers are fundamental in digital teacher skills training, through support and resources to improve teachers' skills in the use of digital technologies in teaching. Many educational centers generate professional development programs in digital teacher competence, offering workshops, trainings and resources to help educators acquire the necessary skills for teaching with information and communication technologies (ICT). The Instituto Nacional de Tecnologías Educativas y de Formación del Profesorado (INTEF) in Spain, together with school organizations, has been working for quite some time, a digitally competent education around three areas: Digital competence of students, teachers, and educational centers. The latter aims to align itself with international proposals such as the European DigCompOrg framework, which seeks to develop guidelines for schools to become digitally competent educational organizations (Ministerio de Educación y Formación Profesional, 2020).

Training in digital teaching skills should not be limited to adopting technological tools but should also address broader and deeper aspects of digital pedagogy. Teachers need to develop skills to design effective digital learning environments, adapt new and better pedagogical strategies, promote the active and meaningful participation of students, and evaluate learning in new environments, that can be digital.

This research aims to describe the characteristics of training in digital teacher competence and its possible relationship with the deployment of teaching strategies implemented in distance classes during the period of confinement during Covid-19; and explore links between such training and appropriate educational practice. In addition, it is hoped to find connections between variables that can explain how the training in digital teacher skills helped or did not shape educational practice in the emergency context.

2. Method

The methodology adopted was a descriptive quantitative approach based on using a questionnaire asking teachers about various issues that, in the case of the work presented, have to do with the ICT training of the teachers who participated and the strategies implemented for online lessons during the confinement.

2.1. Design

Participants

The questionnaire was answered by 125 educators who conducted classes in the First and Second Cycle of Primary Education (1st, 2nd, 3rd, 4th, 5th, 6th, 7th, and 8th grades), in public schools of the Commune of Punta Arenas, Magallanes, Chile. On a universe of 475 teachers, a non-probabilistic and casual sampling was made of teachers who, due

to the confinement during Covid-19, had to take online lessons and apply their digital teaching skills. Table 1 provides information regarding study participants.

Table 1. The participants * in the study.

Age	1º		2º		3º		4º		5º		6º		7º		8º		Total	
	W	M	W	M	W	M	W	M	W	M	W	M	W	M	W	M	W	M
20-30 years					14	01											14	01
31-40 years	38	04							06	03	04	04					48	11
41-50 years							22	05									22	05
51-60 years			14	01									01	02			15	03
61 years and over															02	04	02	04
																	125	

W=Women M=Men

2.2. Instrument

For data recording, a questionnaire was developed whose content came from different sources. On the one hand, part of a bibliographic review has been presented in the theoretical assumptions of this work. Reference was also made to the bibliographic review of online education in Galindo et al. (2020), which sets out didactic recommendations for adaptation to non-face-to-face education in emergencies. Likewise, the validated questionnaire on teaching and learning in online education, developed by Herrera, was consulted et al. (2022). As a result of this first elaboration phase of the questionnaire, the large dimensions on which the questionnaire items would be formulated were defined. These dimensions are as follows: the first concerned demographic data of the participating teachers; the second concerned data on ICT training; the third concerned the conditions of pedagogical practice carried out during confinement by Covid-19; the fourth, related to the teachers' perception of the students' experience during the classes; the fifth, linked to the assessment and projection of the educational experience at a distance implemented ; and the sixth, on teaching strategies implemented in online classes. From all these, only the second and sixth are used in this article. In the results section, you can contrast some of the items used in the second and sixth dimensions.

As Meneses (2016) recommends, this first questionnaire model was submitted to the review of three experts on the use of ICT resources in teaching practices (one of them from the country of origin of the study) seeking to validate the relevance of the dimensions and items included in relation to the object of research. An evaluation guideline (1 to 3) was prepared, with criteria of Understanding (understood), Pertinence (it is pertinent), and Discrimination (generates a diversity of responses). Additionally, space was provided for comments (e.g., alternative wording). As a result of the opinion of the experts, the instrument had some minor adjustments (Table 2), for example, verb times, lexicon, details of some indicators such as autonomous learning,

mode of teaching, digital tool grouping, virtual platforms, and some relationships between statements and indicators.

Tabla 2. Procedure of elaboration the instrument.

Phase I: **Theoretical construct validation**	**Objective**	**Process**	**Result**
I. To define theoretical construct. II. To determine dimensions according to the construct.	To define the theoretical construct regarding teaching and learning in emergency remote education. To determine dimensions according to the theoretical construct. To define each of the six dimensions that constitute the questionnaire.	To review theoretical bibliography. To define construct. To elaborate dimensions according to the construct. To define dimensions.	1. Demographic Data 3. Conditions of the pedagogical practice performed during confinement due to the Covid-19 pandemic 4. Perception of the experience of students during classes in confinement due to the Covid-19 pandemic 5. Assessment and projection of the distance learning experience implemented in confinement due to the Covid-19 pandemic *Dimensions used for the study* 2. Characterization of ICT training. 6. Teaching strategies implemented in distance classes during confinement.
Phase II: Triangulation of experts	**Objective**	**Process**	**Result**
I. Experts´ review on the use of ICT resources in teaching practices.	To validate the relevance of dimensions and items included in relation to the object of research.	Assessment guideline (1 to 3), with criteria of Understanding (understood). Relevance (relevant). Discrimination (generates a diversity of responses).	Adjustments related to: verb times, lexicon, details of some indicators such as autonomous learning, mode of teaching, digital tool grouping, virtual platforms, and some relationships between statements and indicators .
Phase III: Pilot study	**Objective**	**Process**	**Result**
I. Pilot study.	To review the questionnaire to incorporate all the observations made by a group of subjects who shared the characteristics of the actual subjects.	Verification involving 30 teachers with characteristics similar to the final participants, who were excluded from the actual application.	Adequacy to questions and statements. Correctness of item position or order of presentation.

A pilot study was subsequently conducted, involving 30 teachers with characteristics similar to the final participants, who were excluded from the final application, in order to revise the questionnaire to incorporate all the observations made by a set of subjects with similar characteristics to that of the actual participants. The instrument again underwent minor changes (table 2), related to the adequacy of some questions and statements, the correction of the item positions or presentation order. Therefore, the instrument´s internal consistency was guaranteed through the validation of the theoretical construct, expert triangulation, and pilot study.

2.3. Data collection and processing

Data collection took place during the second half of 2022. Participants were formally emailed to their institutional accounts with the necessary information to enable them to respond to the instrument through an online and self-administered electronic form. At the same time, to strengthen the data collection process, meetings were held with the authorities responsible for educational establishments to present the objectives of the study, which, in turn, sent the information to the respective directors of the public schools in Punta Arenas, Magallanes, Chile. With the answers, a database was built to implement statistical procedures using SPSS software, version 25.

3. Results

The presentation of the results is divided into two sections: the first analyzes the variable ICT training, understood as training in digital teaching competence, and the second, the relationship between this ICT training and the teaching strategies implemented in a non-face-to face mode during the period of the confinement. Multiple-choice questions were analyzed based on one and multiple-response preferences for the 125 cases.

3.1. Characteristics of ICT training, understood as training in digital teacher competence.

ICT training received for teaching.

The results show that self-learning is the option indicated by the largest number of teachers (71.2%) (Figure 1).

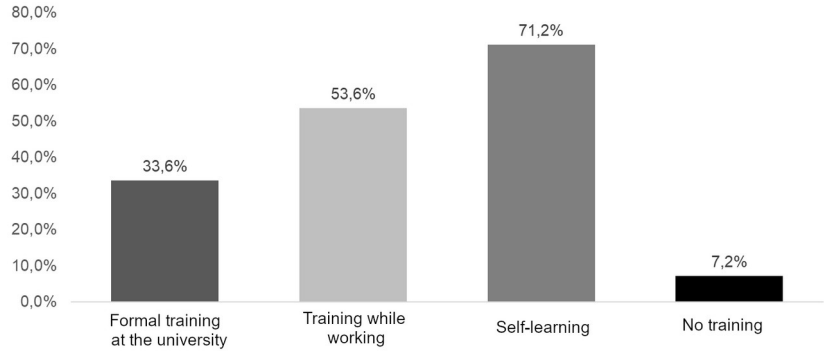

Figure 1. ICT training received for teaching according to response (multiple choice).

A detailed analysis of the responses shows that 52.8% indicated only one type of training received or none, and 48.2% had received more than one of the training proposed (Figure 2). In the case of self-learning, reported by 71.2% of teachers, the distribution was as follows: 28.8% received only this form of training; 8.8% added to this self-training ICT received during its initial stage; 17.8% had ICT self-training and ICT training at the professional exercise stage; and 16% were trained at the initial stage, in their professional exercise development and self-training (Figure 2).

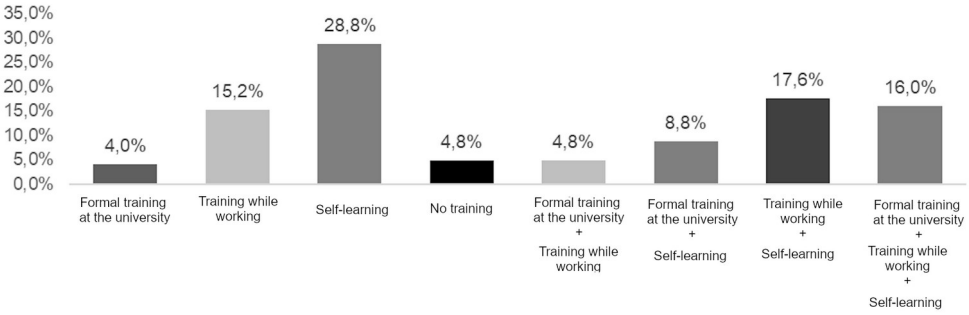

Figure 2. ICT training received for teaching according to case (teacher).

Approach to ICT training received

When asking regarding the focus of ICT training in education, the question with five possible answers found that 84.9% of teachers indicated that the type of ICT training received corresponds to the knowledge of technological tools to be used in lessons; 61.3% of technological tools in general; and 47.1% of tools for management tasks (Figure 3).

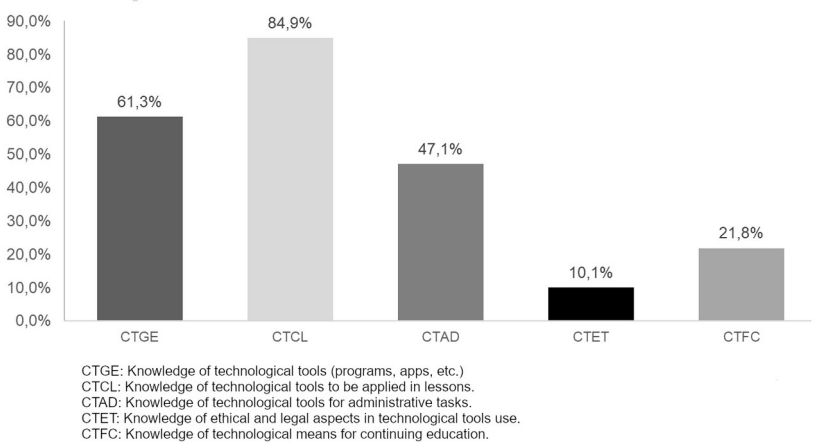

Figure 3. Type of ICT training received according to response (multiple choice).

The preference analysis shows that 17.6% indicate that the type of ICT training received corresponds to the knowledge of technological tools to be used in lessons; another 17.6% add to their training the general technological knowledge, followed by 12.8%, 10,4%, 7.2% and 4.8% which add preferences to the type of ICT training received

with respect to general technological knowledge, technology for administrative use, technology on ethical aspects, and technology for their continuing training, respectively; and other lower values (Figure 4).

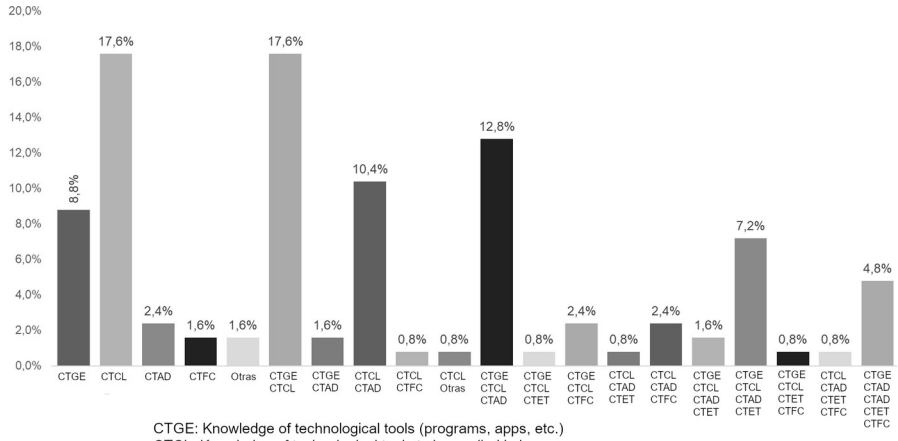

Figure 4. Type of ICT training received by case (teacher).

Motivation for ICT training received

The question on motivation for ICT training, with five possible answers, shows that 71,2% of respondents indicated that their motivation for ICT training was mainly due to their desire to improve their professional skills to teach their lessons (Figure 5).

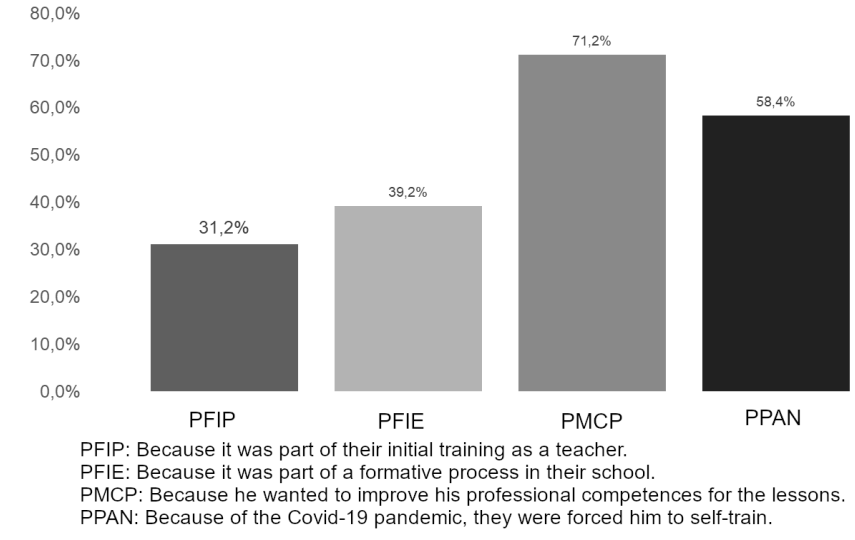

Figure 5. Motivation for ICT training (multiple choice).

When analyzing each preference, the highest percentages show that 16.0% had as motivation for ICT training to improve their professional skills to face classes; 14.4%,

effect of the pandemic; 11.2%, part of the training process in their educational institution, and 8.8%, part of their initial teacher training (Figure 6).

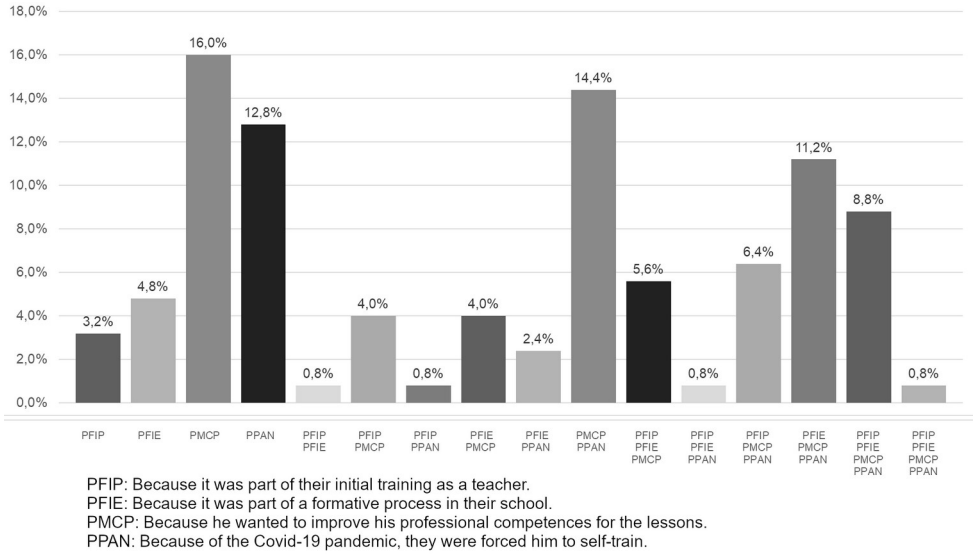

Figure 6. Motivation for ICT training (only preference).

Assessment of ICT training received in the educational institution

In relation to the assessment of ICT training given by schools during the confinement, 49.6% believe that it received adequate training to develop distance learning processes around the use of technologies. 28.8% maintain that they received training from their schools, but it was not adequate and, therefore, they had to learned through other means; 16.8% say they did not receive any training and that they were trained properly through different alternatives, and 4.8% said they did not receive any training and their self-learning did not meet their expectations (Figure 7).

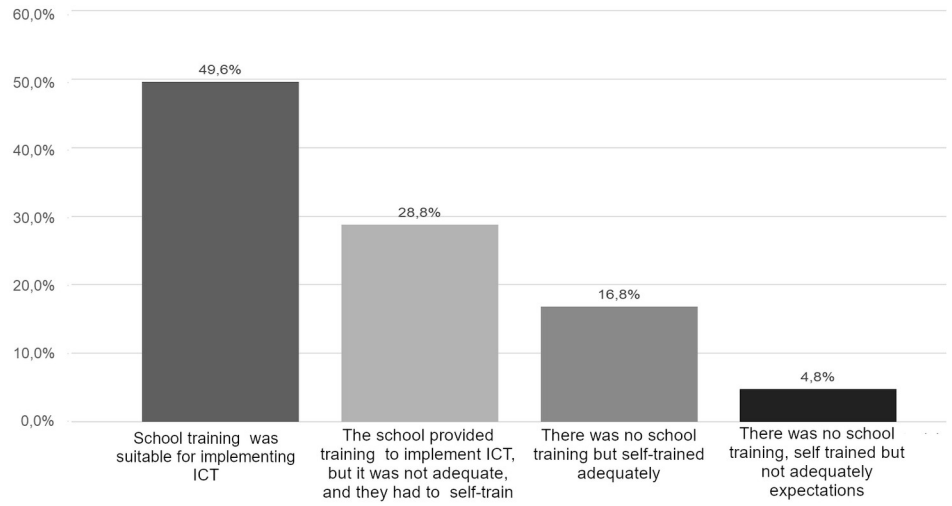

Figure 7. Assessment of ICT training (only preference).

3.2. Relationship between ICT training and the teaching strategies implemented during non-face-to-fce confinement.

Concerning the variables "ICT training received" and "Technical-pedagogical guidelines to support the process of lesson planning in emergency contexts", 72.4% report having been trained in ICT as a spontaneous process of self-learning; 54.5% do so in the professional teaching exercise (training courses); 32.5% for initial teacher training (subjects); and 6.5% did not receive training. After reviewing the guidelines received, 45.5% declared that they adapted the initial planning to curricular prioritization; 51.2% said they adapted it to curricular prioritization for a new scenario of distance education. 2.4% did not receive guidance for this process, and 0.8% maintained their planning.

Table 3. Distribución de porcentajes de respuestas sobre formación TIC en relación con las orientaciones recibidas.

			Formación TIC recibida				
			Formal training at the university	Training while working	Self-learning	No training	**Total**
Technical-pedagogical guidelines to support your classroom planning process in emergencies	Kept their planning.	(f)	0	0	0	1	1
		%	0,0%	0,0%	0,0%	0,8%	0,8%
	Adapted initial planning to curricular prioritization.	(f)	17	31	40	3	56
		%	13,8%	25,2%	32,5%	2,4%	45,5%
	Adapted initial planning considering curricular prioritization for online lessons.	(f)	23	34	47	3	63
		%	18,7%	27,6%	38,2%	2,4%	51,2%
	Did not receive technical and pedagogical guidance.	(f)	0	2	2	1	3
		%	0,0%	1,6%	1,6%	0,8%	2,4%
Total*		(f)	40	67	89	8	123
		%	32,5%	54,5%	72,4%	6,5%	100%

*Percentages and totals are based on (teacher) cases.

From these results, it appears that most respondents received ICT training in professional teaching or as a spontaneous process of self-learning, suggesting the importance of continuous training and self-training for skills development in this area. It is also noted that the majority chose to adapt the initial planning to curricular prioritization and adapt it to a new scenario of distance education, being those self-taught the ones who achieved this process the best (38.2%).

Table 4. Distribution of percentages of responses on type of ICT training in relation to guidance received.

			Types of ICT formation received					
			Knowledge of technological tools (programs, apps, etc.)	Knowledge of technological tools to be applied in lessons	Knowledge of technological tools for administrative tasks	Knowledge of ethical and legal aspects in technological tools use	Knowledge of technological means for continuing education	**Total**
Technical-pedagogical guidelines to support your classroom planning process in emergencies	Kept their planning.	(f)	0	0	0	0	0	0
		%	0%	0%	0%	0%	0%	0%
	Adapted initial planning to curricular prioritization.	(f)	29	45	22	1	6	54
		%	24,6%	38,1%	18,6%	0,8%	5,1%	45,8%
	Adapted initial planning considering curricular prioritization for online lessons.	(f)	43	54	30	10	19	61
		%	36,4%	45,8%	25,4%	8,5%	16,1%	51,7%
	Did not receive technical and pedagogical guidance	(f)	0	2	3	1	1	3
		%	0,0%	1,7%	2,5%	0,8%	0,8%	2,5%
Total*		(f)	72	101	55	12	26	118
		%	61,0%	85,6%	46,6%	10,2%	22,0%	100,0%

* Percentages and totals are based on (teacher) cases.

As for the variables "Type of ICT training received" and "Technical-pedagogical guidelines to support lesson planning in emergency contexts", 86.6% received training in the knowledge of technological tools to be applied in their lessons; 61% in technological tools (programs, apps, etc.); 46.6% in digital tools for administrative tasks; 22% in technological means for continuous training, and 10.2% in ethical and legal aspects in the use of these tools. When reviewing the second variable, and regarding those who adapt the initial planning considering the curricular prioritization for a new scenario of distance education, it is noted that those teachers who had training in technological tools are the ones who best achieved this process (48.8%).

Table 5. Distribution of percentages of responses on reasons for ICT training in relation to guidance received.

			Reasons for ICT formation				
			Because it was part of their initial training as a teacher.	Because it was part of a training process in their school.	Because he wanted to improve his professional compe-tences for the lessons	Because of the Covid-19 pandemic, they were forced to self-train.	**Total**
Technical-pedagogical guidelines to support your classroom planning process in remote emergency context	Kept their planning.	(f)	0	0	0	0	0
		%	0	0	0	0	0
	Adapted initial planning to curricular prioritization.	(f)	11	21	39	35	55
		%	9,2%	17,5%	32,5%	29,2%	45,8%
	Adapted initial planning considering curricular prioritization for online lessons.	(f)	27	28	47	36	62
		%	22,5%	23,3%	39,2%	30,0%	51,7%
	Did not receive technical and pedagogical guidance	(f)	0	0	3	2	3
		%	0,0%	0,0%	2,5%	1,7%	2,5%
Total*		(f)	38	49	89	73	120
		%	31,7%	40,8%	74,2%	60,8%	100,0%

*Percentages and totals are based on (teacher) cases.

Regarding the variables "Reasons for training in ICT" and "Technical-pedagogical guidelines to support the lesson planning in emergency context," 74.2% of respondents were trained because they wanted to improve their professional skills for their lessons, 60.8% due to the pandemic; 40.8% due to the usual training process in their school, 31.7% as part of their initial teacher training. When reviewing the second variable, and regarding those who adapted the initial planning considering the curricular prioritization for a new scenario of distance education, it is noted that those teachers who wanted to improve their professional skills for the classes best achieved this process (39.2%). In summary, the results show that the majority of respondents sought training in ICT to improve their professional skills for classes, and most received guidance to adapt their initial planning to curricular prioritization and the new scenario of distance education. Teachers are ready to train and adapt to new circumstances to deliver quality education in emergencies such as the pandemic.

Table 6. Distribution of percentages of responses on the type of ICT training in relation to content delivery.

			Tipos de formación TIC recibida					
			Knowledge of technological tools (programs, apps, etc.)	Knowledge of technological tools to be applied in lessons	Knowledge of technological tools for administrative tasks	Knowledge of ethical and legal aspects in technological tools use	Knowledge of technological means for continuing education	**Total**
Content delivery	Only through online lessons (Meet, Zoom, Microsoft teams, and others).	(f)	16	21	9	5	6	22
		%	13,6%	17,8%	7,6%	4,2%	5,1%	18,6%
	Only with platform activities (Classroom, Moodle, Edmodo, and others).	(f)	7	8	7	1	3	12
		%	5,9%	6,8%	5,9%	0,8%	2,5%	10,2%
	Through online lessons and with complementary activities in platforms.	(f)	49	72	39	6	17	84
		%	41,5%	61,0%	33,1%	5,1%	14,4%	71,2%
	Total*	(f)	72	101	55	12	26	118
		%	61,0%	85,6%	46,6%	10,2%	22,0%	100,0%

*Percentages and totals are based on (teacher) cases.

In the analysis of the variables "Type ICT training received" and "Content delivery," most respondents received training in the technological tools knowledge of for their lessons and administrative tasks. From these, 85.6% had training on technological tools to be used in their lessons. The review of the variable "content delivery", shows that 71.2% developed the training through online classes and complementary activities on platforms, being this mixed approach the most used for content delivery. Within this percentage, 61% report having received technological knowledge training for their lessonstools to be applied in classes. These data suggest that there is a variety of technology training received and used by teachers in their practice; that mixed approaches to content delivery were the most commonly used; and that the type of training is not linked to how they deliver their content. From the above, we learn that more attention should be paid to teacher ICT training in ethical and legal aspects of technology.

Table 7. Distribution of percentages of responses on the reasons for ICT training in relation to content delivery.

			Motivos para la formación TIC				
			Because it was part of their initial training as a teacher.	Because it was part of a training process in their school.	Because he wanted to improve his professio-nal compe-tences for the lessons	Because of the Covid-19 pandemic, they were forced to self-train.	**Total**
Content delivery	Only through online lessons (Meet, Zoom, Microsoft teams, and others).	(f)	9	10	16	14	23
		%	7,5%	8,3%	13,3%	11,7%	19,2%
	Only with platform activities (Classroom, Moodle, Edmodo, and others).	(f)	4	6	10	5	11
		%	3,3%	5,0%	8,3%	4,2%	9,2%
	Through online lessons and with complementary activities in platforms.	(f)	25	33	63	54	86
		%	20,8%	27,5%	52,5%	45,0%	71,7%
	Total*	(f)	38	49	89	73	120
		%	31,7%	40,8%	74,2%	60,8%	100,0%

*Percentages and totals are based on (teacher) cases.

Data from the variables "reasons for ICT training" and "content delivery" show that the main motivation for ICT training was to improve professional skills for lessons (74.2%); the pandemic context (60.8%); it was part of the training process in their educational institution (48.8%); it was part of their initial teacher training (31.7%). The analysis of the variable "content delivery," evidences that 71.7% report having developed training through online classes and complementary activities on platforms. It is interesting to note that the pandemic was a significant reason for ICT training for many respondents, as well as improving their professional skills and adapting to the circumstances and demands of the current educational environment. In this sense, the mixed approach is the most used for the delivery of content, and faced with this challenge, 52.5% of teachers who used this strategy sought to improve their professional skills for their lessons. In general, these data show a high participation of teachers in technology-related training processes, mainly due to the pandemic context, which demonstrates the importance of technology in the current educational field and the need for continuous training in the development of teachers´ digital skills.

Table 8. Distribution of percentages of ICT training responses in relation to the evaluation

			ICT formation received				
			Formal training at the university	Training while working	Self-learning	No training	**Total**
Considerations for planning the evaluation process.	Gave clear and precise instructions.	(f)	35	59	83	7	110
		%	28,2%	47,6%	66,9%	5,6%	88,7%
	Delivered feedback timely.	(f)	32	55	71	5	97
		%	25,8%	44,4%	57,3%	4,0%	78,2%
	Gave priority to the implementation of evaluations.	(f)	26	41	53	5	71
		%	21,0%	33,1%	42,7%	4,0%	57,3%
	Shared the rubrics in advance.	(f)	22	39	51	3	68
		%	17,7%	31,5%	41,1%	2,4%	54,8%
	Offered feedback to partial deliveries of the assignments	(f)	21	38	58	8	76
		%	16,9%	30,6%	46,8%	6,5%	61,3%
Total*		(f)	41	67	89	9	124
		%	33,1%	54,0%	71,8%	7,3%	100,0%

*Percentages and totals are based on (teacher) cases.

With regard to the variables "ICT training received" and "Considerations for planning the evaluation process," it is observed that the former corresponds to a of self-learning process (71.8%), professional teaching (54%), initial teacher training (33%) and 7.3% received no training. Regarding the second variable, 89% report having given their students clear and precise instructions, and 78.2% timely feedback. Among these results, 57.3% have privileged implementation evaluations, and 54.8% have shared headings in advance. Additionally, 61.3% reported that teachers offered feedback to partial deliveries of the assignments. Consequently, all the considerations for planning the evaluation process made by teachers are explained by a process of self-learning, and within this group, 66.9% consider clear and precise instructions, crucial in distance education.

As for the variables "Centre ICT training" and "Considerations for planning the evaluation process," the data show that 50% of teachers received adequate training to develop online learning with the use of technologies. 29% received training, but it was not adequate, so they had to train on their own; 16.9% did not receive training, which they sought voluntarily and was suitable for developing distance learning processes. Regarding the second variable, it is noted that most respondents considered that these were largely met. 88.7% indicated that the instructions were clear and precise. From this group, 44.4% received adequate training to develop technological distance learning processes in their respective schools. Note that those teachers who did not receive training had fewer considerations in planning the evaluation process than the rest.

Table 9. Distribution of percentages of center-based ICT training responses in relation to the evaluation.

			ICT training conducted at the centre during the pandemic				
			Received adequate training to develop online learning with the use of technologies.	Received training, but it was not adequate, so they had to train on their own	Did not receive training, which they sought voluntarily and was suitable for developing distance learning processes	Did not receive training, which they sought voluntarily and was unsuitable for developing distance learning processes	**Total**
Considerations for planning the evaluation process.	Gave clear and precise instructions.	(f)	55	34	17	4	110
		%	44,4%	27,4%	13,7%	3,2%	88,7%
	Delivered feedback timely.	(f)	49	32	12	4	97
		%	39,5%	25,8%	9,7%	3,2%	78,2%
	Gave priority to the implementation of evaluations.	(f)	38	22	8	3	71
		%	30,6%	17,7%	6,5%	2,4%	57,3%
	Shared the rubrics in advance.	(f)	33	23	9	3	68
	Offered feedback to partial	%	26,6%	18,5%	7,3%	2,4%	54,8%
	Deliveries of the assignments	(f)	30	27	16	3	76
		%	24,2%	21,8%	12,9%	2,4%	61,3%
Total*		(f)	62	36	21	5	124
		%	50,0%	29,0%	16,9%	4,0%	100,0%

*Percentages and totals are based on (teacher) cases.

4. Conclusions

Training in digital teacher competence has become crucial to promote inclusion and social cohesion in the educational field since it enables teachers to develop skills and knowledge to diversify their practice in the classroom. This process allows the development of skills to adapt more effectively to the dizzying changes that technology causes, and with it, to improve their educational practice, not only from the educational but also from the social and cultural contexts. The UNESCO (2022) states the need for a new social contract for education that allows students and teachers to think differently about learning and relations, for which training in digital teacher competence is crucial. At present, the importance of this training is undeniable, understood as a concrete tool to develop the skills necessary to teach and promote the responsible use of ICT in the classroom. Jiménez-Hernández et al. (2021) compiled different models used as training guides to facilitate the development of these skills and analyzed their characteristics, purposes, and dimensions, to support the importance of digital teacher competence training.

In the main findings of the present study, it is observed that the training in digital teacher competence occurs mainly as a of self-learning process, focusing on the knowledge of technological tools to be used in lessons; and that the motivations for training in ICT, respond mostly to the desire to improve their teaching skills. Mateus et al. (2022) conclude that the development of media competence in school students improves with the training they receive in the area, which largely involves teacher training in this area.

Another relevant finding is the high-value teachers give to training offered by their schools itself to develop distance educational processes around the use of technologies. Notwithstanding the above, and despite the existence of reference frameworks for the development of digital competences, it is necessary to review their scope to adjust to the real experience of teachers. Then it is essential to generate training processes in specific digital skills, based on the reality of the schools agreeing with aspects revised and confirmed by Portillo-Berasaluce (2022).

With regard to ICT training and the teaching strategies implemented during the non-classroom period, some teachers adapted their initial planning to online lessons. Those teachers carried out self-learning training on technological tools, motivated by improving their teaching skills The incorporation of projects or new methodologies in teaching processes does not guarantee success in terms of students' academic performance, therefore and as Marcano et al. (2017) indicate, it is crucial to strengthen digital competence work in the teacher training programs, and in continuing education.

Regarding the delivery of content, most teachers opted for a mixed approach (online classes and complementary activities on platforms), and in this group, most of them had training and knowledge of technological tools to be applied in lessons. In relation to the reasons for ICT training, most teachers wanted to improve their professional skills, resulting in a comprehensive approach, using video calling platforms, and asynchronous work. This approach and role of the teacher reinforces the idea of combining methodologies and conceives the student as the protagonist and

the teacher, as a guiding figure who actively participates in the construction of learning (Trujillo et al., 2016)

Finally, from the training in ICT and in relation to the evaluation processes, teachers at the time of planning them considered that clear and precise instructions are an important element in online education. In this, the school played an important role in providing adequate training. However, it is necessary to note the need to carry out formative evaluation processes, especially in an online context, where it is highly appropriate to design instruments to collect truthful information, on which timely actions will be taken in order to generate feedback, in accordance with the different findings found in the training process, accompanied by a pedagogical reflection on teaching practice (Sánchez et al. 2022)

In conclusion and with reference to the implications, limitations, and prospective of future studies, it is necessary to promote training in digital teacher competence., This training should be offered by the schools as a complement to the self-learning processes. The promotion of mixed approaches in the delivery of content, combining online classes, complementary activities in educational platforms, and adequate training for the evaluation process should be a strategic axis This research focused on the Chilean experience during the confinement during the Covid-19 pandemic and may not be generalizable to other contexts; as well as results that are based on teachers' perceptions and experiences may not fully reflect reality. However, digital teacher competence training research can improve social inclusion and cohesion in other contexts, not just in the education sector. At the same time, assessing the long-term impact of the digital teacher competence training programs offered by schools, teachers' motivations to train in ICT, and their influence on educational practice are opportunities for further research.

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