

Emergency Remote Education: satisfaction and competences of teachers

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ABSTRACT – Emergency Remote Education: satisfaction and competences of teachers. The study offers an early vision of an incidental non-probability sample of 333 teachers from twelve Ibero-American countries, in connection with the satisfaction with Emergency Remote Education and competences perceived to address it. A validated questionnaire comprised of 28 items was applied. The nonparametric Pearson Chi-Square test is used to determine the association between variables and Cramer's V to establish their intensity. The competences perceived by teachers are highly statistically associated with the competences observed in their students for their work online, as well as teacher satisfaction with the ERE associated with student response. In conclusion, initial concerns of teachers are connected more to students than to tools or resources.

Keywords: Emergency Remote Education. Satisfaction. Competences. COVID-19.

RESUMEN – Educación Remota Emergencial: satisfacción y competencias de los profesores. El estudio ofrece una visión temprana de una muestra no probabilística incidental de 333 profesores de doce países iberoamericanos, en relación con la satisfacción con la Educación Remota de Emergencia y las competencias percibidas para abordarla. Se aplicó un cuestionario validado de 28 ítems. Se utilizó la prueba no paramétrica de Chi-Cuadrado de Pearson para determinar la asociación entre variables y la V de Cramer para establecer su intensidad. Las competencias percibidas por los profesores tienen una alta asociación estadística con las competencias observadas en sus estudiantes para su trabajo en línea, así como la satisfacción de los profesores con ERE asociada a la respuesta de los estudiantes. Se concluye que las preocupaciones iniciales de los profesores están conectadas con los estudiantes más que con las herramientas o recursos.

Palabras-clave: Emergency Remote Education. Satisfaction. Competencies. COVID-19.

Introduction

On January 30th, 2020, the World Health Organization (WHO) declared COVID-19 as a public health emergency of international importance. As of March 12th, 2020, more than 125.000 confirmed cases had been reported in 118 countries and more than 4.600 deaths (WHO, 2020). In 1665, the University of Cambridge closed due to an epidemic of the bubonic plague that battered England. In 2020, it has closed its doors again for the second time in its history (UNESCO, 2020). The big difference between those two historical moments is the technological context inside and outside educational institutions. There is a multiplication of the learning administration and management with an open code (Learning Management System, LMS), which somehow democratizes tools, makes them available to a greater number of users, and allows types of online interaction in the within the pandemic experience. Teachers and students interact by using technological platforms, social networks, mobile tools, online forums, videoconference systems, etc. Each technological tool provides possibilities, and they must be evaluated carefully before incorporating them into the teaching and learning process. Watters (2019) documents the failure of many dominant trends in educational technology in recent years, several of them thought or created as “the solution” for education at schools and universities.

So, before the pandemic, the presence of technology and its integration into “in-person” formation, which is identified as the new normalcy for more than a decade, it is worth asking how prepared teachers were for approaching education in the virtual modality, either synchronous or asynchronous. In terms of competences, how initially satisfied they were with this previous preparation to deal with the students’ response. Undoubtedly, the pandemic resulting from COVID-19 has caused disruption on a great scale in the educational environment, which has made it suddenly necessary to close educational establishments throughout the world. According to a report from UNESCO (2020), it has affected 1.570 million students in 191 countries. This unprecedented situation has made it necessary to look for accelerated formulas, improvised in many cases, to continue the lesson activity through emergency teaching and learning approaches.

This study, developed by the Multiculturalism, Innovation and Applied Technologies Investigation Group, offers a vision of the perceptions of Ibero-American teachers related to satisfaction with Emergency Remote Education (ERE), their competences, training received, institutional support, student online work, and the need and effects of teleworking, during the first weeks of ERE. In the following, the objects are presented.

Objects and hypothesis

Object 1. To determine if teachers’ sociodemographic characteristics (time of teaching experience, years of Internet use, type of establishment, country) are associated with their satisfaction with online

work, the perception of their competences, the training received, the institutional support, the students' online work, and the need and effects of teleworking.

Hypothesis 1. The satisfaction of teachers with online work is related to teaching experience, time of experience with Internet, type of establishment and country.

Hypothesis 2. The perceived competences of teachers for developing online classes are related to teaching experience, time of experience with Internet, type of establishment and country.

Hypothesis 3. The training received and assessment of their usefulness for developing online classes are related to teaching experience, time of experience with Internet, type of establishment and country.

Hypothesis 4. The usefulness of tools, platforms or software, and institutional support for good performance of online classes are related to teaching experience, time of experience with Internet, type of establishment and country.

Hypothesis 5. The satisfaction of teachers with the online work of students and perception of competences of students for only work is related to teaching experience, time of experience with Internet, type of establishment and country.

Hypothesis 6. The effects of teachers' teleworking on the quality of their work, with regard to the students and the dynamics of the home, are related to teaching experience, time of experience with Internet, the establishment type and country.

Object 2. To establish the variables that have a greater association with the dimensions of satisfaction, competences, and teacher training, starting with the cross of the dimensions' variables, such as institutional support and resources, online work of students, and the need for and effects of teleworking.

Hypothesis 7. Teachers' satisfaction with online work is associated with the variables that were affected; namely, the relationship with students, quality of work, and home.

Hypothesis 8. The training received to conduct online classes is associated with the perception of the usefulness of training and the usefulness of the tools received.

Hypothesis 9. Teachers' competences are associated with institutional support; and the usefulness of the tools received, with the competences and online work of students and the need for and effects of teleworking.

Theoretical Referential

New normal

Although the pandemic situation did not leave time for many teachers and students of all levels to be able to rise to the occasion of

approaching remote teaching, even before this ERE context, distance learning has been growing in popularity and validity (Luongo, 2018). The integration of face-to-face and online environments was configured as a new normal (Graham, 2006; Norberg; Dziuban; Moskal, 2011; Dziuban et al., 2018). Even Ross and Gage (2006) assert that this combination represents the new traditional teaching model. It is a new teaching paradigm that is here to stay, but it does not replace presence; therefore, the pandemic and its obligated preventive isolation forced institutions to adopt not only one modality, but to address a new way of understanding education in a historical context for education (Picón, 2020). Given the overwhelming presence of technology (Guitton, 2020), digital culture becomes part of the daily routine of schools (Cordeiro, 2017), thus, it is impossible to ignore the impact of the digital revolution (Nóvoa, 2019).

The forced use of technologies in this pandemic context and the accelerated implementation and contracting of learning platforms and videoconferencing systems, by educational institutions, bring a new transition scenario, from distance and face-to-face education, toward a more mixed education, which sets up “[...] an undeniable convenience and necessity in times subsequent to the pandemic” (Surma; Kirschnera, 2020, p. 1).

The teaching modalities that have been adopted by educational institutions since the beginning of the pandemic have proven that the classroom continues to be the cornerstone of society to appropriate culture and prepare people for adequate performance. It works as a communication and interaction system. It is physically isolated from external stimuli to enable students to concentrate on learning tasks designed by the teacher. The traditional or digital blackboard or the projection curtain are important focuses of attention, and a means of presenting information through words, numbers, images, videos, and various kinds of diagrams. The classroom gives rise to an economy of scale that arises from the interaction of the group supported by various technologies (Tiffin; Rajasingham, 1995; 2003; Nóvoa, 2019). In virtual spaces, we use the virtual classroom metaphor, which is another “classroom” that blends itself with the real one, giving, therefore, continuity to the classroom and virtual environments with technology (Astudillo, 2020); although “[...] the almost exclusive privilege of teachers meeting with their students and spending time providing them with detailed explanations, supervising their progress, and giving them feedback, is under great pressure” (Surma; Kirschnera, 2020, p. 1).

Teacher's role

The figure of the teacher continues to have its intrinsic value, which has not been compromised by technologies. It is an indispensable element in the educational process, only that “[...] in the remote mode, drawing up a pedagogical proposal requires a distinct accompaniment system, in which the didactic materials are not simple supplementary

means, but fundamental elements for the teaching-learning process” (Picón, 2020, p. 16). The teacher brings about a feeling of belonging; fosters a system of communication, interaction, and a working pace; offers support framework; establishes a relationship of mutual acceptance and respect, in a way that it stabilizes and consolidates the affective and educational bond with students (Silveira, 2018). New technologies have given rise to a recent inflection that does not threaten the figure and the role of the teacher or the face-to-face instance, but revitalizes it with a mixed, combined integration of online technologies (Astudillo, 2020).

The importance of the teacher is verified by Hattie (2012), who, after 15 years of research – which performed more than 900 meta-analyses corresponding to more than 60.000 investigations, what includes more than 240 million students –, concludes that the factors that most affect the learning and academic performance of students are as follows, in order of incidence: the teacher, the curriculum, teaching methods, the student, the family environment, and the educational institution, which have recently been ratified by Hattie and Larsen (2020). The teacher articulates the curriculum and the teaching method for students’ successful learning, and the pedagogical design itself encourages the development of academic competences in the student.

Perceived competence

The use of the competition concept has a polysemic character. According to Sá and Paixão (2013) it is used in psychology, sociology, linguistics, work science, and education science. At the same time, Climent (2017) identifies a set of 22 definitions of competences, published over four decades (from 1973 to 2013). In the context of this study, we will understand competence as a set of competences for successfully dealing with a complex demand, performing an activity or task, deciding and solving situations of varied complexity in dynamic contexts, integrating knowledge, competences and attitudes (Perrenoud, 2008).

We will approach this ability, to deal with complex situations, from the teacher’s own perception, as perceived competence, which is linked to the concept of judgments that individuals make about their personal capacity; how they evaluate their performance, so that they “[...] modify their behavior and attitudes towards tasks, and how they perceive their personal competence and expected success” (Simões; Ferrão, 2005, p. 25). The concept of self-efficacy, introduced in the early 1970s by Bandura, is associated with perceived competence. It is primarily defined as “[...] one’s beliefs in his or her own capacity and ability to complete or achieve something, complete a task (Bandura, 1997 apud Coban; Atasoy, 2019, p. 137).

If teachers have a feeling of competence and high self-efficacy towards the use of ICTs, they can use them effectively, and will be able to transform teacher-centered and text-limited classrooms into knowledge interactive and student-centered environments, enriched by tech-

nology (Coban; Atasoy, 2019); thus, they address the emerging complex context of ERE.

With regard to the digital competences of teachers, there are several competency frameworks that can be grouped into five areas: information (ability to retrieve and analyze digital information), communication (ability to interact with others and share resources through digital media); content creation (ability to develop and edit new digital content, and manage licenses and property rights), security (ability to offer data protection and digital identity security), and problem solving (ability to identify digital needs and solve conceptual problems through the media) (Ramírez; Mena; Rodríguez, 2017).

The possibility of mobilizing competences for using technologies efficiently and effectively, Beaunoyer, Dupéré and Guitton (2020) identify four factors that are affecting: technical means (the quality of the equipment that can be accessed, both in terms of hardware and software, as well as power and reliability of the Internet connection); autonomous use (the place where technology is accessed, and perceived freedom to use it as desired), social support networks (assistance from other experienced users), and experience (time dimension that allows people to be sufficiently familiarized with technology to retain the benefits of its use).

Satisfaction

Upon reviewing a set of definitions of professional satisfaction of teachers, Cantón and Téllez (2016) conclude that there is no unanimity. They highlight that the elements of the satisfaction construct can be understood as a positive emotional state that reflects an affective response, such as the result of comparing what reality encourages them to be and what they should be according to their expectations, which is associated with specific situations of their teaching work and the characteristics of their own personality.

Other studies on satisfaction have identified intrinsic and extrinsic factors, in addition to sources of job satisfaction and dissatisfaction. In the study, we focus on the sources described by Polatcan, Kiliñç and Cansoy (2019, p. 123): “[...] intrinsic rewards of teachers; school-based factors; and extracurricular factors. Teachers’ intrinsic rewards are related to their work with students and to following up on student development”. By the same token, Borup and Stevens (2016) had already identified a significant factor of satisfaction in that the effect of their efforts has a positive impact on student performance. The response and results of the students is one of the sources of satisfaction of the teachers. A positive relationship arises between teacher self-efficacy with regard to work and student response and job satisfaction (Türkoğlu; Cansoy; Parlar, 2017).

Method

Participants

The sample is not incidental probabilistic and has 333 valid answers, 219 (65.8%) female, 113 (33.9%) male, and 1 (0.3%) is identified as other. The age of the participants is distributed into the following ranges: from 20 to 30 years old 26 (7.8%), from 31 to 40 years old 74 (22.2%), from 41 to 50 years old 126 (37.8%), from 51 to 60 years old 84 (25.2%) and from 61 years old or older 23 (6.9%). With regard to the training level, participants with a doctorate level predominate (53.6%), after graduation (19.7%), master's degree (12.1%) and other types of training (14.6%) are identified. With regard to the degree area, 33.9% belong to the area of pedagogy, 23.4% to technological sciences, 15.5% to human and social sciences, 27.2% to exact sciences. With regard to the response date of the participants, 81.4% responded in April and 18.6% in May 2020.

Instrument

The survey consisted of two sections and 28 items, in addition to the sociodemographic data. The validation was carried out through the judgment of experts. Five doctors specializing in education at different educational levels and in the area of educational technology have participated in this stage of the study. The application was made by using Google Drive Suite forms and distributed by e-mail.

Dimensions and variables

The dimensions considered in the study are focused from the teachers' perspective (Chart 1), in connection with conducting face-to-face teaching in an emerging context of exceptional conditions brought about by the COVID-19 pandemic. In the sociodemographic dimension, variables have been selected related to the years of experience teachers have in teaching and using the Internet, and the type of main establishment in which they work and the country in which they live. The training dimension is limited to the need of carrying out online classes and the perceived usefulness of this training received. In the dimension of institutional support and the usefulness of the tools, the variables focus on online classes, since it is an emerging task that teachers have had to perform in teleworking conditions. In this telework dimension, variables were considered to verify if there has been a need to carry out ERE with students, up to the time when they respond to the survey, since the first term of the academic year is underway in most of the participating Ibero-American countries. In addition, decisions had not yet been made to establish a prolonged period of ERE at that time, but rather the strategy was implemented of repeatedly postponing the return to face-to-face classes. Toward that end, teachers did have the programming and development of activities in educational establishments with typically

used resources. Therefore, the other selected variables in this telework dimension will allow us to evaluate how it has affected the relationship with students, the quality of work and the dynamics of the home, since an unusual activity is generated that can have a bearing on personal, family and work well-being. Considering this context, we have incorporated the satisfaction dimension, with regard to online work and the response of students. With the competence dimension, we want to determine the teachers' perception of their own competences or abilities and those of their students for adequate performance in online classrooms.

Chart 1 – Dimensions and variables of the study

Dimensions	Variables
Sociodemographic features	Years of teaching experience; years of Internet use; type of establishment; country of residence
Satisfaction	Satisfaction with online work
Competences	Teachers have competences for the development of online classes
Training	Training received to take online classes
	Usefulness of the received training for conducting online classes
Institutional support and resources	Usefulness of the tools, platforms or software for developing online classes
	Institutional support: suggestions, materials or resources for good performance in online classes
Students' perception	Students' competences for online work
	Satisfaction of students' response to online work
Need and effects of telework	The need to carry out ERE with students
	If the relationship with students has been affected
	If quality of teachers' work has been affected
	If household dynamics have been affected

Source: Authors' elaboration.

Procedure

The survey was applied in twelve Ibero-American countries driven toward teachers of various educational levels to know the impact of the pandemic on their teaching work. The incidental non-probabilistic method was used to obtain the sample, with the participation of available subjects who are part of national and international academic networks. They constitute, then, a total of 333 valid responses. The data was calculated and analyzed with the Statistical Package for Social Sciences SPSS-25 software (IBM Corp. Released, 2017).

Results analysis

The results analysis is descriptive. The analytical indexes of absolute frequency and percentage of the variables were calculated, which are presented by crossing variables in tables and through statements. The nonparametric statistical test, Pearson's Chi Square (X²), is used to calculate the association among variables, which "[...] represents hy-

pothesis tests in which there are data at a nominal or ordinal level, and are free of assumptions regarding the makeup of the population” (Díaz, 2017, p. 23). The X² test allows for establishing whether or not two qualitative variables are associated, preliminarily fixed, both of which are independent, that is, there is no relationship between them. The purpose of this test is to contrast the hypothesis by using the Alpha 0.05 level of significance, which corresponds to a significance level of 5% generally used for research purposes, that is, a 95% confidence level. If the significance value is greater than or equal to 0.05, the null independence hypothesis is accepted of the two variables being compared, but it is rejected if it is less (Díaz, 2017).

Since X² tells us whether or not there is a relationship between the variables, but it does not tell us the intensity of their strength, we have calculated the association measurements (symmetric measurement tables) for all significant associations. The statistic applied to know the intensity of the association has been Cramer’s V. We have selected this statistic because it is a measurement value independent from the sample size. In the framework of social science studies, according to the recommendations of Fierro (2012) and Scott et al. (2017), the Cramer’s V coefficient can be interpreted in terms of the intensity of the association as follows: low or weak (0.07-0.20); medium or moderate (0.21-0.30); and high or strong, infrequently found (0.31-1.0), values that we will use as a reference to interpret the research results.

Results

We have grouped the results into two sections to establish a better comparative understanding in order to relate those sociodemographic variables, the experiences prior to the exceptionality emergence generated by the pandemic, the particularity of the establishment and the residence country from which teachers experience it, to the perceptions of those dimensions that are affected.

The results of the statistical tests conducted are presented below, which analyze each of the nine hypotheses that we put forward in the study.

Sociodemographic characterization and dimensions of the ERE

Hypothesis 1. Teachers’ satisfaction with online work is related to teaching experience, time of experience with Internet, type of establishment and country.

From the participating teachers, 63,1% have 13 years or more of teaching experience, and 80,7% have been Internet users for 13 years or more (Table 1). We found that most of the teachers participating in the study work at a public type establishment (48,0%), whereas 36,0% work at a private institution, and 16,0% of a mixed type, those that receive

public and private financing. Although, when we group those with some degree of private financing, they represent 52,0%. The distribution of participants by countries is 43,5% Brazil, 32,7% Chile, 9,6% Spain, 7,2% Mexico, and 6.9% corresponds to other countries.

Table 1 – Years of teaching and Internet use

Years	Teaching		Internet	
	n	%	n	%
1 to 7	46	13,8	13	3,9
7 to 12	77	23,1	51	15,3
13 to 18	52	15,6	80	24,0
19 or more	158	47,5	189	56,7
	333	100	333	100

Source: Authors' elaboration.

Generalizing the data, the satisfaction level, regarding their on-line work, is evenly distributed: 51.0% very satisfied and satisfied, and 49.0% very dissatisfied and unsatisfied. Upon analyzing satisfaction by country, teachers in Brazil show the highest level of dissatisfaction, of which 73.1% state that they are very dissatisfied and unsatisfied with the online work they have had to do (Table 2).

Table 2 – Teachers' satisfaction with online work by country

	Brazil (N:145)	Chile (N:109)	Spain (N:32)	Mexico (N:24)	Other countries (N:23)	TOTAL
Very satisfied	24.1%	9.2%	9.4%	20.8%	4.3%	16.2%
Satisfied	2.8%	65.1%	71.9%	54.2%	21.7%	34.8%
Dissatisfied	58.6%	21.1%	12.5%	12.5%	39.1%	37.2%
Very dissatisfied	14.5%	4.6%	6.3%	12.5%	34.8%	11.7%
TOTAL	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Source: Authors' elaboration.

Table 3 shows that the satisfaction association with online work was statistically significant and intense: low or weak for years of teaching experience ($X^2 = .010$; $CV = .198$); medium or moderate for establishment type ($X^2 = .000$; $CV = .297$); high or strong for country ($X^2 = .000$; $CV = .390$). According to the results of Table 3, the only high or strong association for satisfaction with online work is the country variable, whose association intensity is rarely found in studies in the area of social sciences (Fierro, 2012; Scott et al., 2017).

Table 3 – Analysis of dimensions linked to COVID-19 by sociodemographic variables Chi Square (X2) and Cramer's V coefficient (CV)

	Years of teaching experience		Years of internet use		Type of establishment		Country	
	X2	CV	X2	CV	X2	CV	X2	CV
Satisfaction with online work	0,010*	0,198	0,058		0,000*	0,297	0,000*	0,390
Competences for the development of online classes	0,463		0,668		0,411		0,011*	0,161
Training received to take online classes	0,001*	0,274	0,033	0,214	0,000*	0,239	0,467	
Usefulness of the received training for conducting online classes	0,476		0,003*	0,235	0,002*	0,226	0,018*	0,189
Usefulness of tools, platforms or software for developing online classes	0,024*	0,183	0,000*	0,245	0,000*	0,220	0,257	
Institutional support	0,013*	0,190	0,015*	0,189	0,000*	0,265	0,002*	0,169
Students' competences for online work	0,006*	0,194	0,046*	0,177	0,030*	0,160	0,018*	0,152
Satisfaction of students' response to online work	0,138		0,767		0,006*	0,166	0,012*	0,154
Relationship with students has been affected	0,145		0,220		0,015*	0,169	0,000*	0,234
The need to carry out ERE with students	0,515		0,663		0,006*	0,176	0,000*	0,250
Quality of teachers' work has been affected	0,066		0,616		0,001*	0,202	0,000*	0,251
Household dynamics have been affected	0,074		0,102		0,016*	0,168	0,000*	0,208

(*) p value is less than 0.05; therefore, there is an association between the variables.
Source: Authors' elaboration.

Hypothesis 2. The perceived competences of teachers for developing online classes are related to teaching experience, time of experience with Internet, type of establishment and country.

Most of the teachers indicate that they have adequate or partial competences for properly developing online classes (71,5%), and only 21,0% indicate that they do not possess such competences. Table 3 shows that the association by perceived competences of teachers for developing online classes was statistically significant and had low or weak intensity for the country (X2 = .011; CV= .161). Therefore, the perceived competence of conducting online classes is not associated with teaching experience, time of experience with Internet, and the type of establishment.

Hypothesis 3. The training received and assessment of their usefulness for developing online classes are related to teaching experience, time of experience with Internet, type of establishment and country.

A high number of teachers received training to conduct online classes (73.3%) and less than a third did not receive it (26.7%), which is associated with a medium or moderate intensity for years of teaching experience ($X^2 = .001$; $CV = .274$), years of using Internet ($X^2 = .033$; $CV = .214$) and establishment type ($X^2 = .000$; $CV = .239$). On the other hand, 66,6% agree on the usefulness of the training received, which is not associated with years of teaching experience, but it is moderate with years of Internet use ($X^2 = .003$; $CV = .235$), and establishment type ($X^2 = .002$; $CV = .226$); with a low or weak association only with country ($X^2 = .018$; $CV = .189$). The experience time with the Internet and the establishment type are the variables that have the greatest relationship with the training received and the assessment of its usefulness for developing online classes.

Hypothesis 4. The usefulness of tools, platforms or software, and institutional support for good performance of online classes are related to teaching experience, time of experience with Internet, type of establishment and country.

The usefulness of tools, platforms or software is valued positively by 86.1% of teachers, and 83.4% agree that they have received institutional support for good performance in online classes. The usefulness of the tools is associated in a medium or moderate way with the years of Internet use ($X^2 = .000$; $CV = .245$) and establishment type ($X^2 = .000$; $CV = .245$). In reference to years of teaching experience, the intensity is low or weak ($X^2 = .024$; $CV = .183$). Institutional support is weakly associated in a low way with years of teaching experience ($X^2 = .013$; $CV = .190$), years of Internet use ($X^2 = .015$; $CV = .189$) and country ($X^2 = .002$; $CV = .169$), and with a medium or moderate intensity for the establishment type ($X^2 = .000$; $CV = .265$).

Hypothesis 5. The teacher's satisfaction with the online work of students and competences perception of students for online work is related to teaching experience, time of experience with Internet, establishment type and country.

Although 72,0% of the teachers think that students have competences for online work, only 33,9% were satisfied or very satisfied with the students' response to online work. Statistically, the student competency variable has a low or weak association with all the variables that we are associating: years of teaching experience ($X^2 = .006$; $CV = .194$), years of Internet use ($X^2 = .046$; $CV = .177$), establishment type ($X^2 = .030$; $CV = .160$) and country ($X^2 = .018$; $CV = .152$). By the same token, satisfaction with the students' response has a low or weak association, only with establishment type ($X^2 = .006$; $CV = .166$) and country ($X^2 = .012$; $CV = .154$).

Hypothesis 6. The effects of teachers' teleworking on the quality of their work, with regard to the students and the dynamics of the home, are related to teaching experience, time of experience with Internet, the establishment type and country.

In the emerging context for educational institutions, 88,6% of teachers assert the need to carry out ERE with their students. The relationship with the students is affected by 28,5%; a majority group (47,2%) is in a neutral position and 24,3% states that the relationship with the students has not been affected. Likewise, the perception if the quality of work has been affected presents very similar results, slightly higher in itself 35,5% are affected, neutral 43,8%, and 20,7% are not affected. With regard to how it affects the home, an expressive result of 49,3%, shows that ERE activities have affected their home, 39,0% have a neutral position, and only 11,7% indicate that it has not affected them.

According to the values in Table 3, only one statistical association is given by type of establishment and country in the set of variables that make up this hypothesis. The intensity of the association for type of establishment in the four variables is low or weak (need to carry out ERE ($X^2 = .006$; $CV = .176$), relationship with students ($X^2 = .015$; $CV = .169$), quality of work ($X^2 = .001$; $CV = .200$), telework affects the dynamics of the home ($X^2 = .016$; $CV = .168$). On the other hand, the intensity of the association for the country in the four variables is medium or moderate ($X^2 = .000$; $CV = .250$), relationship with students ($X^2 = .000$; $CV = .234$), quality of work ($X^2 = .000$; $CV = .251$), telework affects the dynamics of the home ($X^2 = .000$; $CV = .208$). The teaching experience and the time of teachers' Internet use are independent from the effects on the quality of telework, the relationship with the students, and the dynamics of the home. Although there is an association with the type of establishment, this is low or weak, and the country variable has the highest intensity of association.

Satisfaction, competences and teacher training

The second object that we have put forward seeks to establish the variables that have a greater association with the dimensions of satisfaction, competences, and teacher training, starting from the association with the variables of the dimensions: institutional support and resources; students' online work and the need for and effects of teleworking in an ERE context.

Hypothesis 7. Teachers' satisfaction with online work is associated with the variables that were affected, namely, the relationship with students, quality of work, and home.

We have already seen the frequency and percentage in the results relative to the foregoing hypotheses that satisfaction in connection with the online work of teachers is distributed with certain homogeneity among the teachers, which highlights the high level of dissatisfaction of the Brazilian teachers (Table 2). Considering the set of results of Table 4, satisfaction with online work has a medium or moderate association with most of the variables. We wish to highlight the high or strong intensity of association, as previously indicated, rarely found in studies in the area of social sciences in the variables, with regard to students affected ($X^2 = .000$; $CV = .394$), quality of work affected ($X^2 = .000$; $CV = .456$), dynamics of the home affected ($X^2 = .000$; $CV = .394$).

Table 4 – Analysis of the association between dimensions linked to COVID-19, through Chi-square (X2) test and Cramer's V coefficient (CV)

		1	2	3	4	5	6	7	8	9	10	11	12
		Satisfaction with online work	Competences for the development of online classes	Training received to take online classes	Usefulness of the training received for conducting online classes	Usefulness of tools, platforms or software for developing online classes	Institutional support	Students' competences for online work	Satisfaction of students' response to online work	Relationship with students has been affected	Need to carry out ERE with students	Quality of teachers' work has been affected	Household dynamics have been affected
2	X2	.000*											
	CV	.180											
3	X2	.000*	.013										
	CV	.325	.180										
4	X2	.000*	.135	.000*									
	CV	.283		.448									
5	X2	.000*	.000*	.000*	.000*								
	CV	.322	.192	.353	.448								
6	X2	.000*	.221	.000*	.000*	.000*							
	CV	.270		.314	.288	.253							
7	X2	.000*	.006	.001*	.000*	.000*	.000*						
	CV	.272		.240	.237	.258	.238						
8	X2	.000*	.000*	.014*	.000*	.000*	.000*	.000*					
	CV	.322	.000	.193	.227	.246	.212	.338					
9	X2	.003*	.385	.059	.002*	.036	.110*	.003*	.098				
	CV	.206			.264	.175		.218					
10	X2	.000*	.300	.000*	.002*	.000*	.001*	.136	.331	.168			
	CV	.394		.275	.199	.191	.174						
11	X2	.000*	.002*	.003*	.001*	.000*	.000*	.000*	.000*	.000*	.035*		
	CV	.456	.177	.219	.207	.247	.192	.212	.224	.426	.176		
12	X2	.000*	.368	.003*	.000*	.000*	.000*	.002*	.012*	.000*	.087	.000*	
	CV	.394		.218	.259	.191	.217	.167	.160	.344		.359	

(*) p value less than 0.05 therefore there is an association between the variables

Source: Authors' elaboration.

Hypothesis 8. The training received to conduct online classes is associated with the perception of the usefulness of the training and the usefulness of the tools received.

With regard to training for conducting classes online, 26,7% indicate not having been trained for such purposes, which presents a high or strong association with the usefulness of training received (X2=.000; CV=.448). Likewise, the association with usefulness of the tools (X2=.000; CV=.353). The variable training for conducting online classes is highly associated with the usefulness of the training and the usefulness of the tools received.

Hypothesis 9. Teachers' competences are associated with institutional support and the usefulness of the tools received, with the competences and online work of students, and with the need for and effects of teleworking.

Teachers have mostly (80,7%) been users of Internet for 13 or more years. Only 21% indicate that they do not have appropriate competences for proper development of online classes. Teachers value institutional support for performance in online classes (83,4) and resources made

available (86,1%). Variable teacher competences show a low or weak association with the usefulness of the tools received ($X^2 = .000$; $CV = .456$), and there is no association with institutional support. Although most of the teachers think that students have competences for online work, they nevertheless have low satisfaction with how students responded to online work. The association of teachers' competences with students' competences is high or strong ($X^2 = .006$; $CV = .456$). Faced with the change of scenario in educational institutions due to the pandemic, 88,6% of teachers state that they have had the need to carry out ERE with their students, which is highly or strongly associated with ($X^2 = .000$; $CV = .426$) the quality of work affected. In summary, the teachers' competences are associated with the students' competences and the quality of work affected.

Discussion and conclusions

Context of Emergency Remote Education

The large majority of teachers (86,0%) have over 7 years of teaching experience, and 96,1% of using Internet. According to Huberman (2007), they are no longer considered beginning teachers since they have more than 6 years of teaching experience. The study was applied in twelve Ibero-American countries geared toward teachers of different educational levels. The response frequencies were concentrated in Brazil, Chile, Spain and Mexico, which allows us to have a varied spectrum of teachers who have faced ERE in an early stage. It is a historical context for education worldwide (Picón, 2020; Johnson; Veletsianos; Seaman, 2020; UNESCO, 2020), from a double perspective: the scenario created by the COVID-19 pandemic, and the abundant availability of technologies before the pandemic (Guitton, 2020), that can be added to new developments and offers of learning platforms and communication systems composed by institutions to give rise to ERE.

The study reflects the perception of the teachers' response to the crisis caused by the closure of educational institutions worldwide, in a similar period of time. An extraordinary situation was brought about, in which a period of determined duration was not visualized at the stage covered by this study. So, it is worth questioning teachers' preparation for addressing this ERE, which cannot be compared with virtual or Distance Learning (DL) modalities, since they involve differentiated methods and processes (Picón, 2020); the traditional student profile is different from the distance education one, and both, teachers and students, have different abilities. Therefore, it is a mistake to equate ERE with DL (Arruda, 2020). In addition, the ERE introduced new tools and added uncertainties about Internet access and connectivity (Green; Burrow; Carvalho, 2020).

The study was focused on teachers based on the results of the meta-analyses of Hattie (2012) and Hattie and Larsen (2020), who identify

the teacher variable as the one which statistically influences student learning the most, followed by the curriculum and teaching methods. All of these Variables are linked to the sphere of the teacher, who must know his or her own competences, as well as the curriculum and define teaching methods in an ERE context.

The institutional gaps identified by Luongo (2018) between teachers, who design and/or teach an online course with teachers and opt for traditional face-to-face education, can be reduced in the new teaching practices after the pandemic (Surma; Kirschner, 2020), starting from the assessment of the experiences acquired by teachers, students and educational institutions in online communication and training, since almost all institutions changed to emergency teaching and learning approaches (Johnson; Veletsianos; Seaman., 2020). One of the potentialities of the online environment valued by the identified teachers by Limongelli, Sciarrone and Temperini (2011) and Borup and Stevens (2016) is the possibility of personalizing learning spaces, in accordance with the characteristics of students.

In the initial weeks of the ERE, teachers positively valued the usefulness of tools, platforms or software and concurred that they have received institutional support for good performance in online classes, which were limited to administrative measures in the early stages of the pandemic, like making tutorials available and some resources, and videoconferencing new services. The main responsibility of responding to students falls on individual teachers, who use their personal resources (equipment and Internet connection), and a significant part of the time was not traditionally used for work purposes. However, since the ERE is not equivalent to the DL, in a perspective of extending the ERE in time, Luongo (2018) identifies the appreciated lack of institutional support as one of the greatest obstacles to incorporating the DL.

Teachers' competences

The positive perception that most teachers have with regard to the perceived personal competence for properly developing online classes in the first weeks of ERE may be explained in the sense that teachers have been more easily involved in challenging actions (Simões; Ferrão, 2005) than required by the ERE. Although the majority of the teachers have 13 years or more of teaching experience and experience as Internet users, they are not statistically associated with perceived competence, and the country variable has with a low intensity.

We verified that the training received and the assessment of its usefulness for the development of online classes in the initial stage of the ERE are associated with the teaching experience and the type of establishment, irrespective of the country; therefore, the mitigation strategies that they propose to implement correspond to an Ibero-American and international reality, which, according to the study by Beaunoyer, Dupéré and Guitton (2020), must be oriented to increase digital liter-

acy and effective communication through greater comprehensibility and acceptability of messages. For Luongo (2018), teachers need time for training, for practicing with new materials and technologies, testing and evaluating new teaching strategies. The time required for this training, the alteration of the personal dynamics of teachers and students and the urgency of certain changes becomes a critical variable. Johnson, Veletsianos and Seaman (2020), in their study conducted during the first weeks of the pandemic at public and private postsecondary institutions in the United States, out of a total of 897 participating teachers, almost half reported having reduced the volume of work by students (including eliminating assignments or tests) and in turn, an increase in the number of hours dedicated to academic work during the confinement by teachers.

An interesting finding of the study is that the competences perceived by teachers have a high statistical association with the competences that they perceive their students to have for online work. The ERE has demanded teachers to make adjustments, without the time required for proper planning (Luongo, 2018). Many are using new teaching methods and, in turn, point out the need for guidance to work from home ((Johnson; Veletsianos; Seaman 2020). Training to conduct online classes is highly associated with the usefulness of the training and the tools offered, whose usefulness can be associated with expected success (Simões; Ferrão, 2005).

Satisfaction

Satisfaction is highly associated with the dimensions that were affected during the ERE: the relationship with students, the quality of work, and the dynamics at home, whose high intensity of statistical association (Table 4), as we have already indicated, is seldom found in studies in the area of social sciences (Scott et al., 2017). The affective elements are central to the pedagogical relationship, which take place in a dialectic of authority-affection (Silveira, 2018). Although the high degree of satisfaction is distributed evenly among the participating countries, on the other hand, a high level of dissatisfaction is observed among a majority of teachers in Brazil with the online work they have had to do. In the study carried out in Brazil by *Nova Escola* in May 2020, only 32,0% of the 9,557 participating teachers evaluate the ERE experience as positive (Nova Escola, 2020). Teachers' positive perceptions of their competences are a variable with high potential to improve their job satisfaction (Polatcan; Cansoy; Kiliç, 2019). The ability of online teachers to communicate with students and create a sense of community can affect their perceived satisfaction. Asynchronous online communication allows higher levels of interaction that are not possible in a face-to-face environment where there is limited class time for comments (Borup; Stevens, 2016). Toward that end, teachers and students are required to have effective communication and interaction competences in online spaces.

As we have already indicated, an important finding in this context of ERE is the association between the competences of both teachers and their students have for the online work; as well as the association of satisfaction with the students' response, which coincides with this association between teacher satisfaction and student response identified in the studies by Borup and Stevens (2016) and Türkoğlu, Cansoy and Parlar (2017). Clearly, student participation has decreased (Flores; Gago, 2020) compared to the period before the ERE. In turn, students' satisfaction and motivation are related to the preparation for participating in online activities (Yilmaz, 2017). Although the study by Iqbal, Aziz and Farooqi (2016, p. 336) concludes that "[...] student performance did not show a significant correlation with teacher job satisfaction", the new ERE context is exacerbating pre-existing digital inequalities; Internet traffic load; and the households reality does not affect everyone in the same way (Beaunoyer; Dupéré; Guitton, 2020) in each country and in large global geographical areas. The UNESCO (2020) report brings to light that the percentage of households with an Internet connection shows low connectivity in Africa, as well as in Latin America and the Caribbean, which barely reaches 17% and 45%, respectively. Internet access and use prior to COVID-19 was not necessarily a priority or a need (Beaunoyer; Dupéré; Guitton, 2020), as it turns out to be in an ERE context.

The rapid transition to ERE in different latitudes has had several similar impacts, namely, negative on learning, participation and mental well-being of students (Petillion & McNeil, 2020). Fears of the unknown arose and required an abrupt change, creating anxiety for academic personnel and students (Green; Burrow; Carvalho, 2020). The gap in learning opportunities and student performance has increased due to the lack of adequate conditions at home (Flores; Gago, 2020).

Projections

With regard to projections, there is a critical need to consider and document individual experiences during the ERE both of teachers and students, in addition to replicating the study to determine the existence of changes in teachers' concerns and conducting purely quantitative research on a large scale. Although we appreciate certain regularities in the Ibero-American context reflected in this study and the results of other latitudes contributed to the discussion by various authors, the particular problems and learning gaps need to be qualitatively studied in depth to contribute to decision-making and search for solutions.

The new normality of incorporating technologies into education, which was already identified before the ERE, is providing us with a significant empirical experience that we can theoretically systematize around the elements required to bring about a clear interaction and communication between the actors of education, in addition to developing and offering flexible teaching and evaluation methods to adapt to the diverse realities faced by our students face, by being able to correct

the gaps that have emerged due to decreasing student participation, and reducing their learning opportunities. As Nóvoa (2019) indicates, we are experiencing times of profound transitions in education and for the next 20 to 30 years, we will see a complete metamorphosis of the school¹.

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