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Original articles

Use of technological resources by early childhood education teachers before and during the COVID-19 pandemic

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ABSTRACT

Purpose: to investigate the use of technology by early childhood education teachers in teaching before and during the COVID-19 pandemic, highlighting how they faced the challenges of remote classes.

Methods: a primary, observational, and cross-sectional study with convenience sampling and descriptive and inferential statistical analysis. 794 teachers from public and private schools answered a questionnaire about the situations experienced before and during the pandemic. The McNemar and Wilcoxon tests were used, and the level of statistical significance considered was less than 5% ($p<0.05$).

Results: most of the responses were from public school teachers. The use of non-tangible technological resources was not part of the participants' routine, and 83.2% had difficulty using them during the pandemic. 91.9% had difficulty monitoring their children's progress, virtually, and dealing with different family contexts.

Conclusion: the social isolation imposed by the pandemic led to the use of non-tangible technologies through resources that were not developed for educational purposes. The lack of equipment in the home environment and the lack of knowledge about the use of technological resources were the most decisive difficulties. Although most schools and city governments made platforms and programs available for classes, few had the necessary training. Monitoring children's progress virtually was challenging, as was dealing with the activities proposed for home, considering the different family contexts.

Keywords: Science, Technology and Society; Communication; Pandemics; Child Rearing; Child

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INTRODUCTION

One of the premises of Vygotsky's socio-interactionist view of human development is social interaction as the origin of learning and intellectual evolution[1]. In the school environment, interaction between children and between them and the teacher is one of the pillars for building meaningful learning. School is often the place where children establish contact with others of the same age, allowing them to exchange languages that relate to others, learn to respect them, and build principles of empathy and collaboration. In this sense, early childhood education has always been planned to be a space for building these relationships and learning. According to the Child Education Quality National Parameters (Parâmetros Nacionais de Qualidade da Educação Infantil)[2], children in this age group need consistent and interactive relationships, and professionals who work with them must rely on knowledge about how they learn and develop, acting in a way that best meets their needs.

By understanding the influence of social interaction on children's learning and development, the repercussions on the maturation of brain architecture become clear, since much of it depends on interaction with the world. During the first six years of life, children learn many fundamental linguistic and cognitive skills, which will establish themselves as fundamental pillars for academic success at school[3]. It is during this period that brain architecture is formed, based on the interaction of children's genes with the experiences, relationships, and environment in which they live. The complexity of the linguistic stimuli that children receive is a significant factor in the development of brain areas[4]. Before the age of two, language development occurs mainly through interaction with people who interpret their intentions, expand their utterances, and reformulate their speech. For this reason, the physical presence of caregivers during the first years is essential, regardless of whether they are parents or teachers, since both the family and school environments play an important role in child development.

The context imposed by the COVID-19 pandemic in 2020 abruptly and unexpectedly disrupted all assumptions about human development, forms of social relationships, and the pillars of early childhood education and other stages of education. Following the World Health Organization's declaration of a public health emergency on January 30, 2020[5], and a pandemic on March 11, social distancing was adopted by several countries as a way to contain the high rate of contagion caused by the SARS-CoV-2 virus. In Brazil, Law No. 13.979 (02/06/2020) led authorities to restrict activities to prevent contamination and spread of the virus, which invariably affected the practices of educational institutions. Thus, the suspension of in-person teaching in elementary schools and universities became a fact and the possibility of offering educational activities remotely was authorized.

The pandemic led educators and students to migrate to emergency remote learning without prior planning, and the methodologies of the in-person learning environment were adapted to the digital environment. Basic Education, which includes preschool, elementary, and high school, was never planned or even authorized to take place online before the pandemic, even though the Law of Guidelines and Bases of National Education allows for the possibility of teaching in this format to complement learning[6]. Until March 2020, activities using technological resources as a source of learning from early childhood education onwards were chosen by the school system and the teacher, in terms of modality, frequency, and objective. For all these students to have the possibility of continuing to have access to the content, it was necessary to seek and implement new strategies. At that time, the use of technology gained extraordinary ground and at an unprecedented speed.

In emergency remote teaching for early childhood education, following section VII of article 2 of CME Resolution No. 02/2020, units were instructed to prepare and make available, digitally, scripts for games and recreational, literary, musical, and cultural activities[7]. In this way, materials were sent and links and websites were published with information and suggestions of activities that could be done with the children, by family members, while they were at home. Furthermore, as a way of promoting activities that would guarantee the teaching-learning process, the activities were made available through social networks (WhatsApp and virtual meeting applications), without the systematic use of specific platforms[8].

In this context, it is of interest to understand the types of strategies and materials used, parental participation, the teacher's relationship with technology, the support received by educational institutions, and monitoring the evolution of students' learning, during the pandemic. The relevance of this topic lies not only in the fact that it provides insight into the reality experienced by teachers, during the pandemic, but also in the creation of strategies that minimize potential difficulties for educators, even with the return of in-person classes.

In this sense, this study aimed to investigate the use of technology by early childhood education teachers in teaching before and during the COVID-19 pandemic, highlighting how they faced the challenges of remote classes.

METHODS

The study was approved by the Human Research Ethics Committee of the Bauru School of Dentistry – University of São Paulo, SP, Brazil, with opinion number 4.078.315 (CAAE: 32199320.6.0000.5417). Participants received information about the procedures and digitally signed the Informed Consent Form, following the guidelines and standards regulating research involving human beings, resolution 466 of 12/12/2012.

This is a primary, observational, cross-sectional study, with convenience sampling. This design allows for collecting sample data at a given point in time[9]. Regarding the approach, it is quantitative, with descriptive statistical analysis, using absolute (N) and relative (%) frequency.

The research was developed during the pandemic period. In the state of São Paulo, in-person classes were suspended in March 2020, and the mandatory resumption of classes for all students at different levels of state, municipal and private schools, linked to the State Education Council, took place on October 18th, 2021[10]. From March 1st, 2021, classes were gradually resumed and students' attendance was optional for families, thus, teachers carried out in-person and online activities to meet the needs of all students.

Teachers who worked in early childhood education and therefore interacted with children up to five years and 11 months old (invited through Facebook, Instagram, and WhatsApp groups) and municipal departments in the state of São Paulo were invited to answer a questionnaire about the use of technology to support remote classes before and during the pandemic. 107 respondents, from other states or elementary school teachers, were excluded to make the sample specific to the state of São Paulo and contextualize the discussion for early childhood education. Therefore, the inclusion criterion was to work as an early childhood education teacher in the state of São Paulo, whether in the public or private school.

A questionnaire with multiple-choice questions, ranging from three to ten alternatives, was prepared by the authors and made available to participants via the Google Forms platform. The questionnaire was exploratory, aiming to understand the reality and situations experienced by educators. The topics covered and the respective answers are shown in Chart 1.

Chart 1. Topics and respective answers present in the questionnaire

Topics	Answers
Personal identification data	Name, date of birth, age, gender, identity card number and email ** Confidential data, except for age
Professional characterization data	Type of school (public; private; or both), age group in which you work as a teacher, time working in the profession
Physical technological resources used before the suspension of face-to-face classes	*TV, radio, camera, smartphone, computer, tablet*
Activities carried out using digital technological resources before and during the pandemic	**Before:** classroom activities such as animated shorts/films, use of social networks, gaming sites, other types of sites, such as educational ones **During:** sending activities home by email, social media, official channels, official city hall/school website, educational platforms, synchronous meetings via video call
Difficulties in using technological resources	Equipment availability, knowledge about possible uses of resources, digital training, preference for not using technological resources
Monitoring the progress of student learning during the pandemic	It was possible to follow, it was partially possible, it was not possible
Support received from educational institutions during the pandemic period	Provision of: virtual resources from the school/city hall itself; technological resources such as tablets, cell phones and computers; training on the use of technology; free internet access
Parental participation in distance activities before and during the pandemic	No support due to no tasks; no support, despite having tasks; some were supportive, some were not; they gave all the support possible

The data were tabulated in a spreadsheet using Excel® software and organized according to the questionnaire's questions. Statistical analysis described the data collected using absolute and relative frequencies. For this analysis, the statistical software Jamovi® version 2.3.18 was used.

Although this research is cross-sectional, the topics "Activities carried out through digital technological resources before and during the pandemic" and "Parents' participation in activities proposed remotely before and during the pandemic" (Chart 1) allowed the analysis of two moments. For these two topics, inductive statistical analysis, based on the comparison between the paired periods "before" and "during" the pandemic, was performed.

The response variables for the topic "Activities performed" were classified as nominal qualitative, with "yes" or "no" answers for the use of technological resources. To compare the proportions of responses between the two moments, the McNemar test, suitable for paired dichotomous variables, was used.

For the topic "Parental participation", which assesses the different levels of involvement of guardians, the response variables are qualitative ordinal. Thus, the Wilcoxon test was chosen for statistical comparison, since it is suitable for analyzing paired ordinal data. The statistical significance level considered for the McNemar and Wilcoxon tests was less than 5% ($p<0.05$).

RESULTS

The research took place between March and August 2021, a period in which emergency remote teaching was established in the state of São Paulo, and 794 early childhood education teachers from public and private schools answered the online questionnaire.

The results of the questions were organized into tables, which will be discussed below. Table 1 characterizes the sample of participating teachers, considering the type of school they worked in, their age group, and years of teaching.

Table 1. Characterization of the sample of early childhood education teachers

Variables	N	(%)
Type of School		
Public	680	(85.7)
Private	109	(13.7)
Public and Private	5	(0.6)
Total	794	(100.0)
Teacher age range		
Below 30 years	67	(8.4)
Between 30 and 39 years	317	(39.9)
Between 40 and 50 years	276	(34.8)
Over 50 years	134	(16.9)
Total	794	(100.0)
Years of Teaching		
Less than 10 years	363	(45.7)
Between 10 and 20 years	328	(41.3)
More than 20 years	103	(13.0)
Total	794	(100.0)

Captions: N = number of teachers in the sample; (%) = percentage of teachers considering the total sample.

Regarding the age range of the students with whom the teachers interacted, 552 (69.5%) of them worked with children between one year and seven months and three years and 11 months, 145 (18.3%) carried out activities specifically with babies up to one year and six months, and 141 (17.8%) with children enrolled in preschool, between four years and five years and 11 months. The total number of responses was higher than the number of responding teachers, as many carry out activities with children of different ages.

To understand the paradigm shift that teachers were forced to face after the suspension of in-person classes in the country and, more specifically, in the state of São Paulo, one of the questions in the questionnaire referred to the use of physical and digital technological resources, before and during the pandemic (Table 2). In this question, it was possible to mark more than one option. The relative frequencies were calculated from those who stated that they used technological, physical and digital resources.

Table 2. Percentage distribution of activities carried out using physical and digital technological resources before and during the pandemic

Variables	Before		During	
	N	(%)	N	(%)
Non-use of physical technological resources	24	(3.0)	-	-
Use of physical technological resources	770	(97.0)	-	-
Physical technological resources				
TV	703	(88.5)	-	-
Radio	593	(74.7)	-	-
Camera	522	(65.7)	-	-
Smartphone	357	(45.0)	-	-
Computer	320	(40.3)	-	-
Tablet	45	(5.7)	-	-
Non-use of digital technological resources	77	(9.7)	10	(1.3)
Use of digital technological resources	717	(90.3)	784	(98.7)
Classroom activities				
Animated shorts/movies	690	(96.2)	-	-
Use of social networks	46	(6.4)	-	-
Game sites	78	(10.9)	-	-
Other types of sites, such as educational sites	47	(6.6)	-	-
Sending homework assignments				
By e-mail	10	(1.4)	57	(7.3)
By social networks	25	(3.5)	757	(96.6)
Sending homework assignments through official channels				
Via the official city hall/school website	9	(1.3)	233	(29.7)
Via educational platforms	8	(1.1)	56	(7.1)
Synchronous meetings via video call	11	(1.5)	417	(53.2)

Captions: N = number of responses from participants considering more than one answer; (%) = percentage of responses.

The comparison analysis carried out using the McNemar test indicated, for the responses of teachers who used or did not use digital technological resources, a significant difference between the groups before and during ($p<0.001$) (Table 2), which suggests a significant change in the proportion of responses between the two moments.

Table 3 shows the occurrence of difficulties in using technological resources during the pandemic. Of the 784 teachers who answered this question, 652 (83.2%) stated that they faced more than one difficulty.

Table 4 presents teachers' perceptions on the issue of assessing children in activities proposed during the pandemic.

Table 3. Percentage distribution of difficulties in using technological resources during the pandemic

Difficulties	N	(%)
Did not have any difficulties	132	(16.8)
Had difficulties	652	(83.2)
Equipment available	423	(64.9)
Knowledge of possible uses of resources	306	(46.9)
Digital training	233	(35.7)
Prefers not to use technological resources	27	(4.1)

Captions: N = number of responses from participants considering more than one response; (%) = percentage of responses.

Table 4. Teachers' perception of monitoring children's progress during the pandemic

Resources	N	(%)
Unable to follow	258	(32.8)
Could partially follow	464	(59.1)
Could follow	64	(8.1)
Total	786	(100.0)

Captions: N = number of responses from participants considering more than one answer; (%) = percentage of responses..

Table 5 provides data on parental participation in activities proposed for the home using technological resources before and during the pandemic.

The comparison between the level of parental participation before and during the pandemic was carried out using the Wilcoxon test, which indicated a statistically significant difference ($p<0.001$), indicating greater parental support during the pandemic.

Table 5. Parental participation in proposed home activities involving technological resources before and during the pandemic

Variables	Before		During	
	N	(%)	N	(%)
No support due to no tasks	543	68.4	6	(0.8)
No support, despite having tasks	33	4.2	26	(3.3)
Some were supportive, some were not	195	24.6	730	(91.9)
They gave all possible support	23	2.8	32	(4.0)
Total	794	(100.0)	794	(100.0)

Captions: N = number of participant responses; (%) = percentage of responses.

DISCUSSION

With the COVID-19 pandemic declared in March 2020, most Basic Education Units across the country brought forward their vacations and recesses, waiting for the spread of the disease to recede or for safe conditions to be offered for their return. However, the holidays have passed and education networks have found the virtual space as an alternative[11]. Given this scenario, this study focused on the challenges that early childhood education teachers faced in emergency remote teaching with children in the early stages of development. Children are growing up in an increasingly technological environment, which can establish a new form of communication, depending on the time, content, and form of delivery[12]. The paradox of working with young children, whose interaction with technology must be viewed with caution, while at the same time encouraging remote development, was one of the themes of the investigation into the use of technology in teaching by teachers, both before and during the pandemic.

Regarding the sample characterization, the participants were predominantly employed in public schools.

This prevalence is explained by the fact that the research was disseminated not only through social media but also through the state and municipal departments of the state of São Paulo, which distributed the questionnaire on their internal lists. Thus, most of the responses obtained were from public school teachers.

Most participants were over 30 and under 50 years old. A study that profiled basic education teachers (early childhood education and elementary and secondary education) in Brazil between 2007 and 2017 showed that the average age of early childhood education teachers was 41 years old in public schools and 36 years old in private schools, relatively younger than in other stages of basic education[13,14]. In the sample analyzed, the age range coincides with this profile. The majority of the interviewees have been teaching for more than 10 years, which indicates a group with experience in early childhood education, but not necessarily with the use of non-tangible (digital) technological resources, such as the internet, for example[15], as will be observed below when analyzing the participants' responses to the subsequent questions.

Of the 794 respondents, most of them teach children under 4 years of age, whose developmental characteristics are between the final stages of sensorimotor development and the initial stages of pre-operational development. Those under two years of age, in particular, are in the process of integrating and adapting to the world through their perceptions and actions, displaying eminently practical intelligence. Cognitive development is associated with linguistic development, and the better children's language development, the more skilled they will be at communicating their thoughts, feelings, ideas, and intentions[16].

It is worth noting that before the age of two, there is no scientific evidence showing the benefits of digital media since children acquire language by interacting with people who understand their gestures and interpret their intentions. Due to the immaturity of their symbolic, memory, and attention skills, babies and young children do not learn from traditional digital media as they do from interactions with parents and other interlocutors, such as teachers. Those who are in the early pre-operational period, although no longer limited to the sensory sphere, are developing their symbolic skills through play and language and, in this context, interaction is essential for the development of both language and symbolic play[12].

The results of a study that analyzed the responses of 97 early childhood education teachers about teaching during the pandemic[17] indicated that the educational objectives adopted by teachers were to maintain the memory or proximity of school in children's daily lives at home and to maintain the bond with children and their families. They did not focus on progress in child development or learning, precisely because it was not possible to develop content that stimulated development based on real interaction, reinforcing the premise that remote teaching is no substitute for face-to-face teaching, especially at this educational stage.

One of the focuses of the questionnaire was precisely the use of technological resources before the pandemic. Technological resources are understood as a means that uses technology to fulfill its purpose. They can be tangible (physical), such as a computer, printer or other machine, or intangible (digital), such as a virtual system or application[18]. In the sample studied, before the pandemic, 97% of teachers used resources such as TV, radio, and camera, indicating that tangible technological resources were part of the routine in early childhood education. It is not new that audiovisual media in the classroom is used by teachers, particularly TV, as it serves as another form of language for work from an illustrative perspective[19].

The presence of media in Brazilian public schools has been influenced by several government policies. In the 1990s, the federal government created three main initiatives: TV Escola, DVD Escola, and ProInfo. The TV Escola project consisted of the creation of a television channel to broadcast educational programs, in addition to the purchase of televisions, video cassette players and tapes and satellite dishes for schools. The DVD Escola project involved sending DVD players and a box containing DVDs with the main TV Escola programs. In 1997, ProInfo, which promoted the construction of computer labs in several public schools in the country, was created[20]. These initiatives have enabled the use of technologies in schools over the past 30 years. However, the context of the pandemic has brought a panorama that teachers had not previously envisioned, which has required the use of non-tangible technologies, such as virtual platforms for remote teaching.

Regarding activities carried out using digital technological resources, there was a significant difference between the periods before and during the pandemic ($p<0.001$). Of the 717 responding teachers who reported carrying out activities before the pandemic, the vast majority showed short animations or films in the classroom, while less than 4% proposed sending activities home through school/city hall websites,

educational platforms or synchronous video calls. Although the guidelines of the National Common Curricular Base[21] include technological resources as an auxiliary learning tool in early childhood education, until mid-2020 their use was at the discretion of the school network and the teacher, regarding the modality, frequency, and objective. Digital Information and Communication Technologies (DICTs) in early childhood education have been used sparingly, due to the understanding that the achievement of a child's development occurs through the use and control of their own body and interactions experienced in person[22]. Concerning the development of communication in particular, although language is a skill of the human brain, for it to develop, the child must have communicative partners who give meaning to their productions, since it is precisely through these meanings that words come closer to those of adults.

However, the social isolation imposed by the pandemic forced teachers into a new reality and the use of non-tangible technologies became the norm in teaching children. The greatest incidence of this use during the pandemic occurred in activities shared on platforms or social networks such as WhatsApp and Facebook. Sharing through official websites and educational platforms has become more frequent than before the pandemic, although it is still less used than social media. In a study on early childhood education in times of COVID-19[17], most of the teachers interviewed indicated the use of WhatsApp and Facebook for interaction and sending files to families, highlighting that the technological resources used were not originally developed for educational purposes. The use of social networks as a means of communication and teaching strategy is due to the ease of access and less complexity of use when compared to educational platforms and videoconferencing for synchronous classes.

Teachers faced several difficulties during the pandemic, including the need to overcome their limitations in the use of DICTs and to adapt teaching and learning practices to non-classroom contexts, according to the specificities of their reality, such as the nature of the subject, age of students and stage of schooling[23]. In this sense, teachers were asked about their difficulties in using non-tangible technological resources regarding knowledge about the possibilities of use, availability of equipment, and opportunities for digital training.

One of the challenges brought about by the pandemic in the school context was the extent to which teachers were prepared for remote teaching, regardless of the age group of the students. Intending to analyze the main dilemmas experienced by basic education teachers during the period of suspension of in-person classes, a study[24] identified that mastery of digital technologies represented a significant challenge for these professionals. Adapting to the dynamics of online classes was reiterated by participants as a challenging situation, as was the lack of time for training in preparing materials and remote classes. Other reports included: the lack of equipment and a suitable environment for classes; the production of videos and the exposure of personal images; unstable connections; and the consequent difficulty in remote access.

The data obtained indicated that most teachers faced difficulties in using technological resources. The most cited difficulties were the lack of equipment at home and the lack of knowledge about the possibilities of using these tools, aspects that stood out concerning the digital training necessary for conducting remote teaching. Social isolation affected teaching practice, since teachers were forced to overcome the circumstances imposed by the pandemic, while at the same time lacking pedagogical support and access to DICTs[25].

Based on the analysis of the experiences of seven experienced teachers who acted as mentors in the context of the COVID-19 pandemic, a qualitative and exploratory study verified the challenges faced by these professionals. Among the main points, the following stand out: the proposal of educational activities through different technological tools that favored the development of students; learning to interact with students' families online, considering that some did not master reading and writing, and others were not digitally literate; managing the effects of the child's loss of ties with school; learning to teach remotely at the same time as teaching remotely; and the loss of space for dialogue with peers[26]. Similar challenges were also cited in a study[27] from Germany, a country with a high level of development, such as the lack of equipment, difficulty in accessing the internet, as well as the lack of motivation among parents and students.

Teachers were also asked about the support they received from their institutions during the pandemic. The number of responses to this question was lower than the total number of participants since they were not required to answer all the questions. Of the 643

responses obtained, the majority stated that virtual resources from the school itself or the city government were made available, such as platforms and programs for their classes. However, only a small portion reported having received training on the use of technology, provision of technological resources (such as tablets, cell phones, and computers), and free internet access.

The inherent weaknesses of remote teaching, access to DICTs, and their handling interfered with the quality of the teaching-learning process. Considering that the responses came from early childhood education teachers, most of whom work in the public system, it is important to emphasize that this level of education is the priority responsibility of municipalities. However, as established in the Brazilian Federal Constitution, this work requires the technical and financial cooperation of the Union. Many Brazilian municipalities faced weaknesses in their technical staff and problems with financial resources, which makes this cooperation essential.

Participants were also asked about the possibility of monitoring the development of the children. Assessment in early childhood education, according to the Law of Guidelines and Bases of National Education, should not aim at promotion, but rather at monitoring the development of children[6]. The assessment process at this stage of education is constant so that each student's progress is taken into account. Even before the pandemic, assessment in early childhood education already required teachers to take a broader view, focusing much more on child development than on content acquisition[28-30]. In this sense, monitoring children's progress by the responding teachers was a challenge during the COVID-19 pandemic. Most had difficulty monitoring their students' learning, while some stated that this was not possible. Play, socialization, and interaction practices were compromised by the regulations established by the World Health Organization to combat the COVID-19 virus, making it unlikely that socializing and interactive games would be carried out. Considering this context alone, the difficulties reported by the teachers can be understood.

There are no indexes for evaluating early childhood education, as their objectives are focused on monitoring child development. Although assessments of children's development during the pandemic could not be effectively carried out, this fact will only be understood more accurately over the years, as teachers can better assess possible deficits in students' learning.

The adoption of emergency remote teaching as a way to maintain school activities and social distancing led teachers to ask parents to participate in the proposed activities. Thus, teachers were asked about this support through the use of technological resources before and during the pandemic, and the answers indicated a statistically significant difference ($p<0.001$).

It is important to highlight the use of the term remote learning and not distance learning (DL). DL is a highly planned educational process, in which diverse teaching strategies are used to organize and promote spaces, interactions, and learning. Digital information and communication technologies, in this teaching modality, are essential for its maintenance and create conditions for more flexible learning spaces and times. Remote learning, on the other hand, is an emergency alternative to face-to-face teaching and is fully mediated by some technology (digital or not), mimicking the interactions and learning expected in the face-to-face modality[11].

There is a clear divide in the submission of tasks involving technology before and during the pandemic. In the previous period, most respondents did not submit tasks that used technological resources, such as indicating websites or educational platforms. Among those who sent, a minority indicated that the parents provided the desired support. With the pandemic crisis, quarantine was established all over the world, and in Brazil, it was no different. The government and the population needed to adjust to a new pace of life, which included the working from home of the productive population. Sudden changes have occurred, one of which is the continued coexistence of parents and children in the same environment. Parents with children aged 0 to 6 were interviewed and most reported that they did not have time to meet their children's demands and, when they did, they felt extremely overwhelmed[31]. Other difficulties highlighted by 147 parents/guardians of children in emergency remote education in public and private schools at different levels (infant, elementary, and high school) were difficulties with the internet, time management, and reconciling studies with children and work[32].

Although this study did not obtain information about possible difficulties parents had in assisting with the proposed activities, it does indicate the variability of family support, as most teachers indicated that some parents provided support, while others did not. Early childhood education teachers dealt with different family contexts to assist with the proposed activities at home. Remote learning has impacted family routines, as it

has placed parents with the responsibility of guiding the teaching-learning process, when they are generally not qualified to do so. A Canadian study conducted with primary school teachers and parents revealed that families faced challenges with the new situation. In addition to the burden of having to teach school content in conjunction with their various other roles, they also suffered from a lack of knowledge about children's learning development[33].

With the pandemic under control, in-person classes were resumed, and one of the lessons learned is that we cannot rely exclusively on emergency teaching strategies without planning. Teaching will never be the same again, and learning from the past is a way to plan for the future.

CONCLUSION

The social isolation imposed by the pandemic led teachers to use non-tangible technologies through resources that were not developed for teaching use. The lack of equipment in the home environment and the lack of knowledge about the possibilities of using technological resources were the most decisive difficulties for the practice of the teachers interviewed. Although most schools and cities have made platforms and programs available for classes, few have had the necessary training to use them. Therefore, monitoring children's progress virtually was challenging, as was dealing with the activities proposed for home, considering the different family contexts.

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Data sharing statement:

Other research data, which are not available in this article, will not be shared, as the data may identify participants.