Systematic Review Study on the Impact of the Pandemic on Literacy: Experiences of Parents and Teachers*

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With the COVID-19 pandemic, it was necessary to carry out public health measures, including the adoption of remote teaching and modification of the educational practices and experiences of parents and teachers. Thus, the objective of this study was to conduct a systematic review and analyze the impact of the pandemic on the learning of schoolchildren in the early years of literacy, according to the experiences and practices of parents and teachers. This systematic review is based on the PRISMA method (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) and the guiding questions of the PICO strategy (Population, Intervention, Comparison, Outcome). The PubMed, LILACS, Scopus, SciELO, Embase, and Web of Science databases were used. The selection criteria involved the descriptors elementary school AND COVID-19, elementary school AND pandemic, and elementary school AND SARS-CoV-2. A total of 130 studies were selected, and after applying the criteria, only six studies were analyzed. The studies used interviews and questionnaires aimed at parents, teachers, and students and were carried out in various countries: one in Saudi Arabia, two in Indonesia, one in the United States of America, one in Canada, and one in China. The studies were classified as Evidence Level 4 (clinical outcome studies). As common points, most parents were stressed, overloaded, and unprepared to support their children during remote learning. Teachers also mentioned difficulties, such as the lack of support and training, which affected their practices. Further studies should be carried out to verify the educational and social impacts resulting from remote teaching.

Keywords: pandemic, elementary school, COVID-19, online learning

Introduction

With the worsening of the world health crisis due to the coronavirus pandemic, COVID-19, in March 2020, the World Health Organization (WHO) recommended that governments adopt public health measures, such as physical distancing and social isolation (Sampaio, 2020). Thus, Brazil suspended face-to-face classes, replacing them with virtual activities and the adoption of emergency remote teaching through online classes (Sampaio, 2020). However, the academic impacts and implications of this change are still unknown.

Arruda (2020) points out that the relationship between the COVID-19 pandemic and the need for

emergency public policies led to the isolation of 90% of the world's student population in 2020. School is one of the places with the highest probability of contamination because it is a place of great socialization and mobility for individuals of different age groups. The author highlights the exceptional nature of the global educational situation and the implications of adopting emergency remote education actions, emphasizing that the isolation measures led to the deconstruction of the social dimension of teaching and learning.

An important issue to be considered regarding the use of technology in remote teaching was mentioned by the U.S. Department of Education (2017), that is, teachers may not feel completely empowered or confident in using technology for continuous learning purposes in the classroom and beyond, leading to an inappropriate use of technology. The study also indicated relevant questions about the implementation of technology as a learning tool, arguing that such a process "requires time, support and collaboration" and the need to provide educators with practical pedagogical opportunities to develop an understanding of how technological tools can be actively incorporated into their teaching (Beyerbach, Walsh, & Vannatta, 2001).

Studies have also indicated that the use of technology in the teaching process can be hampered by the lack of time for teacher preparation and pedagogical support for the creation and implementation of lesson plans, in addition to the potential overuse of screen time by school-age children (Beyerbach et al., 2001; Fontenelle-Tereshchuk, 2021a).

According to United Nations Educational, Scientific and Cultural Organization (UNESCO, 2020), the crisis caused by COVID-19 resulted in the closure of classes in schools and universities, affecting more than 90% of students in the world. Some countries, such as Italy, which was heavily affected by COVID-19, adhered to the closure of schools despite offering little guidance to schools, principals, and teachers. Despite this, it was through the teachers' initiative that school programs were implemented through online platforms (Nozaki & Freitas, 2021).

Other countries, such as Japan and Singapore, focused on disadvantaged groups after school closures to ensure educational continuity during remote teaching. This is similar to the case of Portugal, which adopted an approach that favored the disadvantaged population (Iwabuchi et al., 2022; Tan & Chua, 2022).

According to Moher et al. (2009), a review is an evaluation of a clearly formulated question that uses systematic and explicit methods to identify, select, and critically appraise relevant research and to collect and analyze data from the included studies.

Thus, this study is justified by the need to gather recent data on the different experiences and practices of parents and teachers that occurred during the pandemic to provide information to help professionals in the areas of education, health, and education. Thus, the objective of this study was to carry out a systematic review and analyze the impact of the pandemic on the learning of schoolchildren in the early years of literacy based on the experiences and practices of parents and teachers.

Materials and Methods

This is a systematic review study. As a research strategy, the PRISMA method (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) was chosen, which recommends the use of the following steps: (I) identification, (II) selection, (III) eligibility, and (IV) inclusion (Moher et al., 2009, Urrútia & Bonfill, 2010).

The guiding question for conducting the search strategies aimed at studies with substantial scientific evidence was elaborated based on the research theme and guided by the PICO strategy (Population, Intervention, Comparison, Outcome): (1) Population was considered: 1st- and 2nd-year elementary school students I (initial literacy series); (2) intervention: studies that described strategies and methodologies used by parents and teachers during the pandemic; (3) comparison: quality of learning during the pandemic; (4) results:

to verify if the pandemic caused damages in academic learning and if it made possible the adequacy of the educational system; (5) period: publications carried out between 2020 and 2022; and (6) language: Portuguese and English. In this way, the following question was established: "What were the main strategies and methodologies used by parents and teachers to minimize the effects of the pandemic on the learning of children in the early grades of elementary school I?"

To search for the articles, the descriptors and synonyms listed in the PubMed indexing vocabulary, Medical Subject Headings (MeSH terms), and Health Science Descriptors Library (DeCS) were selected in Portuguese and English (Table 1). Literature searches were organized based on combinations of descriptors and synonyms using the "AND" bullet operator, and the number of studies identified (Stage I) in the bibliographic survey in each one of the selected and accessed electronic databases: PubMed/Medline, LILACS, Scopus, SciELO, Embase, and Web of Science databases. The selected descriptors were "elementary school" AND "COVID-19" AND "learning"; "elementary school" AND "pandemic" OR "COVID-19" AND "learning". (Table 2). The date of the last literature search was from April 2020 to April 2022.

Table 1

Descriptors and Synonyms Chosen for the Bibliographic Search

Portuguese		English	
Descriptors	Synonyms	Descriptors	Synonyms
Ensino Fundamental	Ensino Básico	Elementary school	Education primary
	Educação Básica		Junior schools
COVID-19	Doença por coronavírus 2019	COVID-19	COVID-19 virus infection
	Doença Viral COVID-19		COVID-19 pandemics
SARS-CoV-2	Coronavírus da Síndrome Respiratória Aguda Grave 2	SARS-CoV-2	SARS-CoV-2 virus
			Severe Acute Respiratory Syndrome Coronavirus 2

Table 2

Total Articles Selected From the Search Strategies and Database Chosen for Bibliographic Research

Database	Search strategy	Number of articles selected
PubMed/Medline	("Elementary school") AND ("COVID19") AND ("learning")	54
LILACS	("Elementary school") AND ("COVID19") AND ("learning")	10
Scopus	("Elementary school") AND ("COVID19") AND ("learning")	2
SciELO	("Elementary school") AND ("pandemic" OR "COVID19") AND ("learning")	4
Embase	("Elementary school") AND ("COVID19") AND ("learning")	59
Web of Science	("Elementary school") AND ("COVID19") AND ("learning")	1
Total		130

Selection Criteria

The inclusion criteria were as follows: (1) studies published from April 2020 to April 2022 and between September 15, 2021 and August 4, 2022; (2) full articles and freely available for viewing and downloading; (3) articles published in journals; (4) articles published in the Portuguese and English languages; (5) articles related to teaching methodology and strategies used by parents and/or teachers during the COVID-19 pandemic; (6) articles that include typical schoolchildren from the 1st and 2nd years of elementary school I (initial literacy series) in their sample; and (7) types of studies that entailed research with levels of scientific evidence 1a, 1b, 2a, 2b, 3a, 3b, and 4, proposed by the American Speech and Hearing Association (ASHA) (Robey, 2005).

Exclusion criteria were (1) articles that were not related to the theme or that were outside the theme of learning and the pandemic; (2) articles whose context, theme, or sample was not aimed at the initial grades of elementary school I; (3) duplicate articles; (4) articles with other subjects and/or populations (mental health disorders, obesity, special education population audience, inequality, food, sleep, physical activity, visual or hearing impairment and their relationship with COVID-19); and (5) articles with biological topics (e.g., transmission of COVID-19 and/or on vaccination).

Data Analysis

The titles of all the studies found were analyzed, followed by the abstracts and a full reading of the most relevant texts.

The data collected through the identification (I) and selection (II) stages were analyzed in the eligibility stage (III). Initially, the titles of all selected studies were investigated. Then, the abstracts of the remaining articles from the first stage were analyzed according to the previously established inclusion and exclusion criteria. In the inclusion stage (IV), after studying the titles and abstracts, the texts that left doubts about the eligibility criteria were read in full. Figure 1 represents the details of the selection process of publications included in the systematic literature review according to the PRISMA method (Moher et al., 2009).
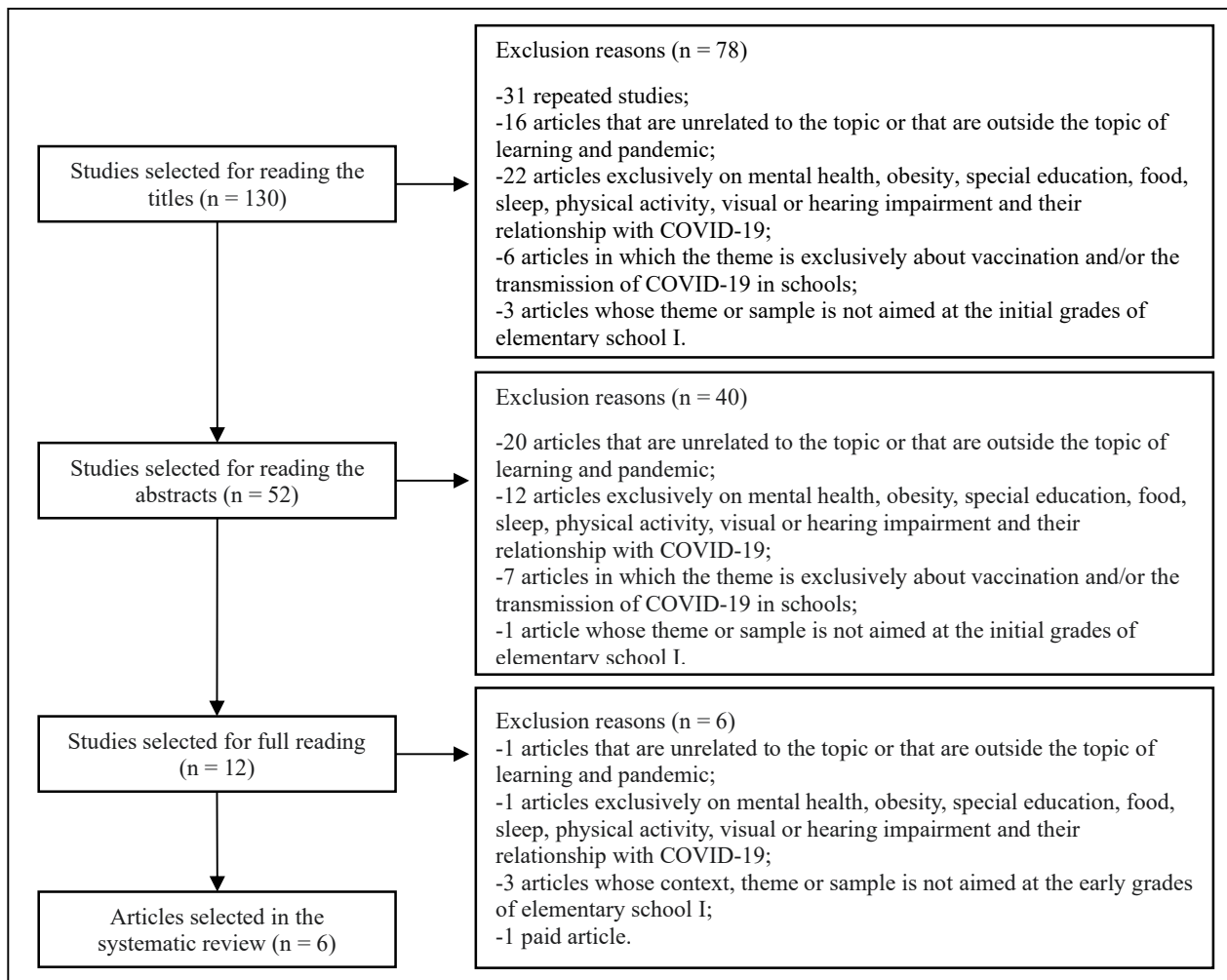

Figure 1. PRISMA search strategy and flowchart of the review steps.

Results

After reading 12 articles in full, six articles were selected because they fit within the stipulated criteria of the inclusion stage (IV). In Table 3, it is possible to analyze the articles that were included in this research according to the protocol form, containing information about each analyzed study.

The six selected articles were published between 2020 and 2022 and classified at Evidence Level 4 (focusing on measures that describe or reflect on how the research subjects feel). Regarding methodological quality, all works made use of questionnaires, structured surveys, interviews, and focus groups to study the experiences of parents and teachers regarding learning during the COVID-19 pandemic. The sample of the systematic review ranged from case studies (participants: two principals, eight teachers, six students, two parents) to larger groups with 867 parents-child pairs. There were no clinical trials with randomized samples.

The article by Cui et al. (2021), carried out in China, showed that students and parents were enthusiastic during the initial phase of online learning, but after a while, it was observed that parents had many complaints, and their children were overwhelmed. In addition, as one of the main complaints, parents indicated the lack of interaction with children and between child and teachers during online teaching. They also mentioned concern about their children not understanding the content taught, especially when students needed to watch videos. Another point mentioned was the overload of responsibilities distributed to parents, in which parental assistance was required to be given to their children during and after online classes. The authors reported that some parents had difficulties accompanying their children, as they did not have the educational level or knowledge to provide the necessary support. Additional highlights included the relationship between screen time and children's vision, concern that teachers' explanations were not detailed enough, and concern about students' interest and attention during online classes. Finally, the study highlights that there was a drop in the level of satisfaction and motivation of parents and students with online teaching during the pandemic as time passed.

Another article selected was that of Fontenelle-Tereshchuk (2021a), carried out in Canada and using interviews. Despite the relatively short period of social isolation and the adoption of remote teaching for two months (May and June 2020), parents highlighted several difficulties in its implementation. The parents in this study felt overwhelmed when trying to balance their professional obligations with the responsibility of supporting their children's emotional and academic needs. They also pointed out that, despite not having pedagogical skills, they had to implement the curriculum at home. They also indicated that they realized that their children needed much support to complete the educational tasks alone; however, in the case of primary school-age children, the lack of strong pedagogical, social, and emotional support does not work well. Furthermore, schools assumed that students would use technology independently, which they did not.

The study by Dike, Parida, and Stevanus (2020) presents the impacts of the pandemic during the adoption of remote learning, from March to the end of 2020, in Indonesia. The authors indicated that the microstrategies created by the school were more pragmatic and managed to respond to the real learning needs of students. As a learning approach, learning tasks were delivered to students via WhatsApp class groups, which was also the channel of interaction with teachers. Additionally, the authors highlighted that even for those who did not have access to the internet, alternative actions were taken, such as assigning tasks over the phone or having students and/or parents pick up activities at agreed times at the school.

Table 3

Protocol Sheet With the Characteristics of the Studies Included in the Systematic Review

Authors	Title	Level of evidence	Casuistry	Objective	Material used	Data obtained
Cui et al. (2021)	Experience and attitudes of elementary school students and their parents toward online learning in China during the COVID-19 pandemic: Questionnaire study	Level 4	867 parents-child pairs in the first phase and 141 parent-child pairs, respectively, in the second phase; 59 children aged 48 months to 11 years and their respective parents	To investigate the experiences and attitudes of elementary school students and their parents toward online learning in China during the pandemic	Questionnaires with 16 items	Parents and children are enthusiastic in the initial phase and later discourage. Main parental complaints: disappointment regarding timely interaction in online courses; concern with children's vision and attention and with the fact that students do not understand the course, increased responsibilities, and concern with teachers' explanations.
Fontenelle-Tereshchuk (2021a)	Homeschooling and the COVID-19 crisis: The insights of parents on curriculum and remote learning	Level 4	Case study with parents of children	Article based on a case study focusing on perceptions of experiences of 10 parents of elementary school children during school lockdown in Alberta, Canada	Structured survey of 8 questions; individual semistructured questionnaire with 10 questions; focus group interview with 3 open questions	Parents in this study suggest that little attention was given to curriculum design as a teaching and learning plan and that most teachers did not fully utilize available technology to provide sufficient and/or quality instructional time that learning resources needed. Teachers were scarce and often disengaged during this remote learning process. In addition, parents cited that children needed parental support in addition to the support offered by the school.
Dike, Parida, & Stevanus (2020)	Micro strategy and character educational transformation in elementary school during the COVID-19 pandemic of Sintang District, West Kalimantan Province	Level 4	Case study carried out in two schools in Ef. 2 directors, 8 teachers, 6 children, and 2 parents were chosen	Map a realistic case-by-case framework of learning during the pandemic period in Sintang	Observation and in-depth interviews with teachers, students, and parents	The school offered a special policy with attention to guidance aimed at maintaining and guaranteeing students' fair learning and service equality during the pandemic. Many activities and guidelines were passed on via WhatsApp groups, easily accessible to most parents. More severe cases of students who did not have a cell phone or internet could go to school to get the material.

Alkinani (2021)	Acceptance and effectiveness of distance learning in public education in Saudi Arabia during COVID-19 pandemic: Perspectives from students, teachers and parents	Level 4	100 students, 50 teachers, and 50 parents from different educational institutions	Investigate the perception and acceptance of students, teachers, and parents, their attitudes and beliefs about distance education	Three questionnaires	The results showed that students are comfortable with remote teaching and receive sufficient support from schools and instructors. Teachers, on the other hand, showed many difficulties in preparing online classes. However, parents showed negative attitudes toward the benefits and values of distance education and preferred conventional learning styles in elementary schools.
Klosky, Gazmarara, Casimir, & Blake (2022)	Effects of remote education during the COVID-19 pandemic on young children's learning and academic behavior in Georgia: Perceptions of parents and school administrators	Level 4	Qualitative exploratory study with 8 school administrators and 26 parents of children from kindergarten to 3rd grade in 2 schools	Explore the effects of remote teaching on young children's learning in Georgia during the early COVID-19 pandemic from the perspectives of school administrators and working parents	Online surveys, virtual interviews and focus groups	Most parents and all school staff reported that children suffered learning losses as a result of the many challenges associated with attending school remotely. Many children attended remote classes in impaired environments not conducive to learning.
Susanti, Rachmania, & Perdana (2020)	Digital literacy of teachers in online learning at elementary school in Bandung City	Level 4	Qualitative method study, with a case study approach to reveal experiences in elementary school	This study reveals digital literacy in learning activities using mediated communication between primary school teachers and students in Bandung City during the COVID-19 pandemic	Data collected through interviews	The first period of home learning, the learning process was fraught with limitations due to a lack of preparation. Many teachers are still not used to using devices as media. Some teachers felt guilty because of limitations in materials for children.

Unlike previous studies, Dike et al. (2020) indicated that, despite the differences in access, it was possible to maintain equality in education and mentioned as a positive point that parents also learned to manage time and have discipline in monitoring, supervising the learning process and presenting the various study assignments weekly.

The study by Alkinani (2021), carried out in Saudi Arabia, used interviews to verify items such as the benefits of online learning, teachers' perceptions of online learning, comparison between teachers' and students' perceptions and acceptance of e-learning and findings of parental attitudes and perspectives toward online education. As a positive aspect of online education, the results indicated the ease of access and sharing of materials and resources among their peers and/or teachers, although not all students were able to download the materials. Another positive point was related to the flexibility of time and space, motivation regarding teacher feedback, and that online learning "would fit all types of learning styles", despite the inability to gather in one place.

Regarding the opinion of teachers, the study indicated the lack of training on online teaching and the fear of unemployment since the platforms required fewer employees. Most did not prefer online education due to the various technical problems experienced. However, despite the challenges, the teachers were satisfied with the classes taught.

Most teachers and students had a positive perception and a high level of acceptance of e-learning, especially regarding the benefits (flexibility of time and space, sharing of materials, better communication and interactions between students and teachers, adequate learning styles, and quick feedback/comments).

Additionally, in a study by Alkinani (2021), parents reported that most children accessed online educational content provided to them at least once a day and used online messaging platforms (for example, WhatsApp, Telegram) and other social media apps for online learning. They mentioned that the presence of a responsible person was necessary during online classes. Parents also had few positive perceptions of online education, highlighting the burden and responsibility assigned to them and the adverse impact the online learning of their children had on their professional lives. They also reported increased stress due to having to monitor their children's attitudes to ensure that they attend classes and maintain focus during class.

Klosky, Gazmararian, Casimir, and Blake (2022) also carried out a study to verify the effects of remote teaching in the United States (USA) based on interviews with principals and parents of preschool and elementary school students. For most parents and all school staff, children suffered learning losses as a result of the many challenges associated with attending remote learning. It was also indicated that many home environments were often noisy and chaotic and not conducive to virtual learning. Parents and staff reported a decline in academic behavior, such as lower attendance (defined as not logging into the educational platform), less participation in classroom activities, and a lower rate of completion of schoolwork. Parents described frequent struggles to persuade their children to stay on task.

Parents and school administrators often cited lack of community internet/Wi-Fi access, lack of digital devices, and/or low technology literacy as barriers to virtual learning. Administrators reported that kindergarten teachers, in particular, were inexperienced in using virtual learning platforms, as they were not typically used to instruct younger children.

Klosky et al. (2022) also pointed out that students with disabilities and/or learning differences experienced additional difficulties with remote learning, and virtual learning simply became unfeasible, as the therapies and educational adaptations necessary to meet the learning needs of special education students were not accessible.

Susanti, Rachmaniar, and Perdan (2020), in a study carried out in Indonesia, also indicated that some teachers felt guilty for being limited in their ability to provide material to children. Teachers reported that online learning does not occur optimally, especially in terms of students' absorption of subjects.

Thus, four of the six studies analyzed here highlighted the negative impact of remote teaching, such as the overload of students and the stress of parents during remote teaching, difficulties in the interaction between children and between child and teachers, and difficulties in reconciling employment and the responsibility of monitoring their children, in addition to concerns about the increase in screen time experienced by children (Alkinani, 2021, Cui et al., 2021, Fontenelle-Tereshchuk, 2021a; Klosky et al., 2022).

The concern about screen time, mentioned by the parents in the study by Cui et al. (2021) and Fontenelle-Tereshchuk (2021a), is supported by the literature, which recommends that children of primary school age should not be exposed to technology for more than two hours a day (Martin, 2011). In addition, concern about children's mental health was also mentioned, corroborating studies that indicated an increase in children's levels of stress, anxiety, and emotions, which can be triggered by the complex use of screen time, social isolation, perceived loss of academic progress, and about how the general mental health of children may have been affected by the pandemic (Fontenelle-Tereshchuk, 2021b; Statistics Canada, 2020).

Only two of the six studies analyzed highlighted the positive impacts of remote learning (Alkinani, 2021; Dike et al., 2020), including that the use of technology was seen positively by students, the ease of access to materials, the adequacy of available time, and the spaces and types of learning. However, it is important to highlight that the authors minimized the impacts of those who did not have access to technologies, since not all students were able to download the materials.

Contrary to all the studies analyzed here, only Dike et el. (2020) mentioned that the barriers to online learning were overcome and that parents improved their perception of their children's learning, improving the management and monitoring of remote activities.

Thus, it is worth noting that the studies analyzed here presented different perspectives on education during the pandemic and different experiences in different countries. The studies also shared that it was possible to verify that remote teaching resulted in significant challenges for parents, students, and teachers who had to deal with an unprecedented and emergency situation. Thus, the impacts of learning and socialization failures can be verified in the years that follow.

Conclusion

It was concluded that of 130 articles, only six followed the inclusion and exclusion criteria of this study. All selected studies used interviews and questionnaires aimed at parents, teachers, and students and were carried out in Saudi Arabia, Indonesia, the United States, Canada, and China. The studies were classified as Evidence Level 4 (clinical outcome studies), with the use of interviews, questionnaires, and discussion groups on the impacts of the pandemic for teachers and parents.

As common points, parents mentioned that the pandemic period proved to be quite challenging. Most parents were stressed, overworked, and unprepared to support their children in remote learning. They also indicated that remote learning was not as effective as face-to-face, classroom-based learning, especially for children in the early literacy years. Furthermore, some parents did not have a level of learning compatible with the needs of remote teaching, and they felt extremely frustrated for not being able to give the necessary support to their children.

Teachers also mentioned difficulties regarding remote teaching. They indicated that a lack of support and training affected their practices. They also mentioned difficulties in preparing online classes and fear of unemployment. However, most felt satisfied with their performance, with proposals for innovative teaching, even if limited by technological issues and/or training in the use of these online tools. Finally, it should be noted that a portion of the population studied did not have access to the internet and/or computers and had to rely on the schools' initiative in printing materials. Further studies should be carried out to verify the educational and social impacts resulting from remote teaching.

Acknowledgements

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