

IMPLEMENTATION OF REMOTE LEARNING: TEACHERS AND FAMILIES PERCEPTIONS IN EARLY CHILDHOOD EDUCATION

IMPLEMENTAÇÃO DO ENSINO REMOTO: PERCEPÇÕES DOS PROFESSORES E DAS FAMÍLIAS NA EDUCAÇÃO INFANTIL

IMPLEMENTACIÓN DE LA ENSEÑANZA EN LÍNEA: PERCEPCIONES DE DOCENTES Y LAS FAMILIAS EN LA EDUCACIÓN INFANTIL

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ABSTRACT: The paper investigates the implementation of remote learning in early childhood education in the municipal public system of Sobral during the pandemic. It investigates teachers' understanding and perceptions of the guidelines for remote learning, the discretionary actions of these street-level bureaucrats to adapt the guidelines to the contexts of their schools, and analyses families' perceptions of the ability of remote learning to meet their needs and demands. The study relied on data collected from a survey applied to the universe of preschool teachers and semi-structured interviews with 16 teachers and 16 caregivers. The analyzes reveal that, according to the teachers' perceptions, the remote teaching implementation processes were characterized by an adequate flow of information and training and by decentralization of decision-making. However, amongst the families, the perception that remote learning could not meet their demands was predominant.

KEYWORDS: Implementation of educational policies. Street level bureaucrats. Early childhood education. Educational inequalities. Pandemic.

RESUMO: *O objetivo geral do artigo é investigar a implementação de atividades remotas na educação infantil, na rede pública municipal de Sobral durante a pandemia da Covid-19. Como objetivos específicos, investiga a percepção dos professores sobre as diretrizes para o ensino remoto, as ações discricionárias destes burocratas de nível de rua e analisa a percepção das famílias sobre a capacidade de o ensino remoto alcançar suas necessidades. O estudo contou com dados coletados a partir de um survey, aplicado ao universo de professores que atuavam na pré-escola, e entrevistas semiestruturadas com 16 professores e 16 responsáveis de crianças matriculadas na pré-escola. As análises revelam que, embora os professores caracterizem os processos de implementação do ensino remoto a partir do fluxo de informações e treinamento*

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satisfatórios e por decisões descentralizadas apoiadas pela gestão das escolas, na percepção das famílias, as atividades remotas não foram capazes de suprir suas demandas.

PALAVRAS-CHAVE: *Implementação de políticas educacionais. Burocrata de nível de rua. Educação infantil. Desigualdades educacionais. Pandemia.*

RESUMEN: *El artículo investiga la implementación de actividades remotas en la educación infantil, en la red pública municipal de Sobral durante la pandemia. Investiga la comprensión y percepción de los docentes sobre las pautas para el aprendizaje a distancia, las acciones discrecionales de estos burócratas de nivel de calle, y analiza las percepciones de las familias sobre la capacidad del aprendizaje a distancia para satisfacer sus necesidades. El estudio contó con datos recolectados a partir de una encuesta aplicada al universo de docentes que laboraban en clases de preescolar y entrevistas semiestructuradas a 16 docentes y 16 tutores. Los análisis revelan que, según los docentes, los procesos de implementación de la enseñanza a distancia se caracterizaron por un flujo satisfactorio de información y capacitación y por la descentralización de la toma de decisiones. Entre las familias, predominaba la percepción de que las actividades remotas no fueron capaces de satisfacer sus demandas.*

PALABRAS CLAVE: *Implementación de políticas educativas. Burócrata de nivel de calle. Educación Infantil. Desigualdades Educativas. Pandemia.*

Introduction

The pandemic and social distancing measures imposed drastic actions in the area of education. Students experienced periods of school closures for classroom activities that were more prolonged in Brazil and Latin American countries (UNESCO, 2021a). Faced with the health crisis, educational systems and schools began to offer remote education, without adequate time for planning and necessary adaptations. In this scenario, preschool children had less access to remote education and accumulated greater learning losses than older students (STRINGER; KEYS, 2020; UNESCO, 2021b).

In Brazil, we have some studies that have mapped the formats adopted by networks, structural and technological barriers to implementing remote learning, as well as the different formats and speed of responses achieved between public and private network schools, and between state and municipal networks (BARBERIA; CANTARELLI; SCHMALZ, 2021; CAMPOS; VIEIRA, 2021; FUNDAÇÃO CARLOS CHAGAS *et al.*, 2020). Within public networks, we observed a variation in the time for response and implementation of remote learning: state networks offered a faster response than municipal networks (BARBERIA; CANTARELLI; SCHMALZ, 2021). Surveys also indicate that remote learning strategies reflect school infrastructure, teachers' ability to deliver remote learning, and access to

technological resources by families from different socioeconomic backgrounds (FUNDAÇÃO CARLOS CHAGAS *et al.*, 2020).

However, we have few studies that have sought to understand how the implementation of remote teaching occurred, addressing, beyond structural and technological barriers, the complexification of decision-making processes, related in particular to street-level bureaucrats (teachers), in the emergency/crisis context as a result of the Covid-19 pandemic. Finally, the scarce studies of remote teaching implementation conducted in Brazil have focused on primary and/or secondary education (OLIVEIRA *et al.*, 2021; LOTTA *et al.*, 2021). Little is known about the implementation of remote teaching in early childhood education or for young children, who bring specific challenges, such as: difficulty to engage, less autonomy and concentration ability of children and, consequently, greater demand for support from guardians. (ABUHAMMAD, 2020; DONG; CAO; LI, 2020;).

The general objective of this paper is to analyze the implementation of remote activities in Early Childhood Education, in the municipal public network of Sobral, Ceará, during the year 2020. The article seeks, as specific objectives, to investigate: a) what is the understanding of teachers about the guidelines for remote teaching in the network for early childhood education; b) the perception of teachers about the feasibility of implementing the proposal of the municipal department of education; c) the adaptations made by teachers for the context of their schools; d) the perception of families about the guidelines for remote activities and the ability of these to meet their needs and demands. To address the proposed issues, the study relied on data collected from a survey applied to the universe of teachers who, in 2020, worked in preschool classes (approximately 190 teachers) and semi-structured interviews with 16 teachers and 16 guardians of children enrolled in preschool.

The article is divided into five parts, including the introduction. In the second part, the article discusses characteristics of implementation processes in emergent contexts and studies that have observed barriers and limitations to the implementation of remote teaching. The third section describes the methodology of the study and the data collected. The following sections present the analyses of the perceptions of teachers and caregivers of children enrolled in preschool about remote teaching. The last section presents the study's final remarks.

Implementation of educational policies in the pandemic emergency context

The Covid-19 pandemic and the social distancing measures led to the closure and interruption of face-to-face activities in schools. Even with the great variation in response time, in a short period of time and on an emergency basis, networks and schools were forced to adopt remote teaching, in which interactions, previously face-to-face, were replaced by technology-mediated interactions (BARBERIA; CANTARELLI; SCHMALZ, 2021; FUNDAÇÃO CARLOS CHAGAS *et al.*, 2020).

Beyond the structural and resource issues for implementing remote learning, the moment of crisis also imposes organizational challenges to the implementation of public policies, especially for street-level bureaucrats (BNR in the Portuguese acronym), in the case of the present study, teachers. This is because, the crisis context brought by the pandemic would increase the complexity and uncertainty conditions in which BNRs make decisions and, therefore, contribute to the increase of discretionary actions (LOTTA *et al.*, 2021).

According to the literature focusing on public policy implementation, even in a context of normality, street-level bureaucrats make discretionary decisions. Such actions would be inevitable, since BNRs act in complex and uncertain situations for which, norms, guidelines and instructions, are not able to encompass all possible alternatives and situations (LIPSKY, 2019; LOTTA, 2019). Moreover, in general, BNRs make decisions in work contexts permeated by high demand and scarcity of resources (limitations of time, access to information, and training/training) and under ambiguous and contradictory pressures from higher levels of the hierarchy (pressures for increased efficiency and responsiveness) and from users (pressures for individualized and resolute treatment) (CAVALCANTI *et al.*, 2018; LIPSKY, 2019).

For Matland (1995), public policy implementation processes depend on the level of policy ambiguity and conflict. For the author, a context of policy ambiguity can be characterized by a lack of clarity of goals and objectives and/or the means to achieve them. With regard to the means, such contexts are characterized by greater uncertainty about the roles of the various actors involved in the implementation process, about the technology that will be used to achieve the goals, or about how to use it. Moreover, the context of high ambiguity would affect the ability of central agencies to monitor the policy and decrease the likelihood that it will be uniformly understood by actors in different implementation contexts. Therefore, the context of ambiguity may be followed by more room for discretion.

Thus, in the moment of crisis such as the Covid-19 pandemic, we can expect increased ambiguity. Uncertain conditions become more present as the BNR starts to make decisions in

more extreme situations regarding lack of resources, increased demand, and the need for rapid decision making. Moreover, previous protocols and experiences would no longer be able to guide BNR actions and, consequently, the crisis context, as indicated by Matland (1995), would bring more room for actors' discretion at the tip of the implementation process (LOTTA *et al.*, 2021). As a result, policy outcomes will depend more strongly on the "micro-implementation" environment, which may vary with respect to local organization, beneficiaries' pressures on NRBs, and available resources.

Some studies have explored the implementation of educational policies at the time of the pandemic in the Brazilian context, focusing on NRBs. The study by Lotta *et al.* (2021), conducted in several areas of public policy, showed that urgent and poorly planned responses led to greater centralization of decision-making and increased the ambiguity and uncertainty of the context in which policies are implemented. The BNR, who began to exercise their work remotely, including the professors, were alienated from the decision making process and from the possibility of contributing to the construction of solutions for the new context. The centralized solutions, without knowledge of the local context, plus the lack of training and a short period of transition to the remote format, contributed to an increase in teachers' feeling of unpreparedness and, consequently, brought difficulties, especially in serving the most vulnerable users.

The study of Oliveira *et al.* (2021), when investigating the implementation of remote teaching in the Minas Gerais State network, from the Non-Presential Study Plan (REANP), identified some issues similar to the study of Lotta *et al.* (2021): a centralized action, which was not able to generate adherence among street-level bureaucrats (teachers) and a linear design, which does not include strategies and actions to reach specific audiences and contexts (special education, quilombolas, indigenous, and youth and adult education). In addition, the study identified an absence of clear communication with families and of training or preparation of teachers to use digital information and communication technologies.

With regard to the implementation of remote teaching in early childhood education and/or for young children, studies conducted in other countries, even if not using the field/analytical framework of political science implementation studies, have identified some barriers, such as: personal barriers (lack of training and qualification of teachers, inadequate communication); technical and/or financial barriers (lack of internet connection and equipment), logistical barriers (lack of preparation of families, incompatibility with family routine, dissatisfaction or distrust of remote teaching, inability of remote teaching to reach the

needs of students). In addition, these studies list difficulties related to the specifics of early childhood education, such as young children's inadequate self-regulation for engaging in remote teaching (ABUHAMMAD, 2020; DONG; CAO; LI, 2020).

Although the findings are in line with some evidence from studies on remote teaching implementation regarding teachers' working conditions during the pandemic, and help us understand the context of uncertainty for decision-making, such studies little discuss the organizational context of the bureaucracy (teachers' relationship with the central and/or mid-level bureaucracy and the policy beneficiaries), either from how these actors at the edge of the implementation process understand and interpret the norms and rules for remote teaching, or from an investigation into the discretionary action of street-level bureaucrats.

Study context and data collected

The present study was conducted in the public network of the municipality of Sobral/CE. The network is recognized by several publications in the academic field and in widely circulated newspaper articles as being an effective network for its good practices and results in elementary education. In addition, a previous study conducted in Sobral indicated that, also in early childhood education, the network is able to promote learning at an accelerated pace, regardless of the family's socioeconomic profile or the children's color/race (KOSLINSKI; BARTHOLO, 2020). However, a study conducted in 2020 and 2021, during the pandemic, observed that as schools closed for classroom activities, learning inequalities among students attending preschool increased, indicating the loss of ability of schools to promote equity (FUNDAÇÃO MARIA CECÍLIA SOUTO VIDIGAL, 2021).

The present study used data from a larger survey entitled: "The impact of the Covid-19 pandemic on preschool children's development." The research was conducted in four stages of data collection; stage 1) questionnaire of teachers working in the preschool; stage 2) questionnaires of guardians of children enrolled in the preschool; stage 3) semi-structured interviews with teachers and guardians; stage 4) collection of data on children's development. Table 1 presents the intended sample and the response rate for stages 1 and 3, which were used for the analyses of the article:

Table 1 – Study instruments and sample

Stage	Instruments	Sample	Collected	Reply rate
1	Teacher Questionnaire	188	178	94,7%
3	Interviews: Teachers	16	16	100%
	Guardians	16	16	100%

Source: Prepared by the authors

The questionnaires of stage 1 were sent to the universe of teachers (188 in total) who worked in pre-school in the municipal network of Sobral in 2020. The teachers had the possibility of answering the questionnaires by telephone or through an online form.

The in-depth interviews (stage 3), were conducted by telephone, between March and June 2021, with a subsample of the study. Although they were conducted in the first half of 2021, the interviews had as a time reference, the remote activities implemented in the preschool in 2020. Eight schools were chosen, according to the type of school unit: Early Childhood Education Center (CEI in the Portuguese acronym), integrated schools at the city's headquarters, and integrated schools in the districts. Within each school, 2 caretakers were chosen (16 in total), being 1 caretaker of children enrolled in Infantil IV in 2020 and 1 caretaker of children enrolled in Infantil V in 2020.

The main empirical material used in this article was the interviews conducted in stage 3 of the study. The interview script included the following topics, as shown in Chart 1:

Chart 1 – Interview script

Script	Topics
Teachers	SECTION 1 - Understanding/perception about SME-Sobral's guidelines for pedagogical activities in 2020 SECTION 2 - Communication with families/children SECTION 3 - Perspectives for 2021
Guardians	SECTION 1 - Routine at home during school closure SECTION 2 - Relationship and communication with the school SECTION 3 - Activities offered/proposed by the school SECTION 4 - Perception about remote activities and perspectives for 2021

Source: Prepared by the authors

The teacher questionnaires were also used to triangulate some of the results obtained through the in-depth interviews, making it possible to understand if some of the observed trends applied to the universe of preschool teachers in 2020.

Teachers' understanding and perception of remote teaching and discretionary actions

The analyses of the teachers' interviews first sought to explore what the teachers' understanding of the guidelines for remote teaching aimed at early childhood education was. That is, if there was convergence and/or divergence on the format and technologies that should be used, strategies for communicating with guardians/children, content, and activity planning. Next, we sought to understand teachers' perceptions about the feasibility of implementing the network's remote teaching proposal. We sought to map, mainly, perceptions about the training received and the resources available to implement remote teaching, and whether they felt prepared to follow SME-Sobral's guidelines. We also observed teachers' discretionary actions, i.e., how they adapted the guidelines to fit remote teaching to the specific realities and needs of the audience attending their schools/classes.

The teacher interview script featured initial questions about the guidelines received from the Municipal Education Secretariat (SME in the Portuguese acronym) for the implementation of remote teaching. Even with general and unstructured questions, teachers' reports showed great convergence on: (i) the beginning, frequency and duration of training meetings for remote teaching held with the SME (monthly meetings) and within the school unit (weekly); (ii) the content worked in the training meetings; (iii) strategies to contact families and to maintain the link with children and guardians etc.

When asked more specifically about the continuing education offered to teachers, 12 of the 16 interviewees mentioned monthly meetings, conducted by the SME, and 11 interviewees referred to weekly meetings, which took place at the schools. Regarding the meetings held at the school, teachers reported that the agenda of the meetings focused on passing on the SME guidelines and the necessary adaptations to the local context, the contents of the activities, the methodology, strategies and resources to be used to reach more families and the feedback from guardians on the performance of the proposed activities.

The municipality does monthly training with the teachers. And with this training, the teaching staff and the administration make another evaluation and we conclude what will be sent to the student. I am a kindergarten teacher, and every month I have a training course. Last year we had it and this year it continues, we are always oriented about what we are going to work on (Teacher, School 4, Early childhood education stage IV, 2021).

There were... hum... meetings to discuss the contents that were going to be worked on. We had them at school. At school, we had orientation from our coordinator. At the secretariat, we had monthly [...] (Teacher, School 1, Early childhood education stage V, 2021).

[...] We had weekly planning sessions, weekly meetings with the school's pedagogical coordinator, where we analyzed what we had to work on and the best way to send the activities. We had all this support and follow-up from the pedagogical coordination. [...] (Teacher, School 6, Early childhood education stage V, 2021).

Our coordinator also always sat down once a week to do this movement. What is going to be done, what are the contents, commemorative dates? So, there was always this orientation (Teacher, School 7, Early childhood education stage V, 2021).

In several reports, there is the suggestion that both meetings were articulated and already existed before the pandemic. Moreover, the statements about the frequency of meetings converge with the data obtained from the questionnaires sent to the universe of teachers who worked in pre-school in the municipal network of Sobral: 97.5% reported that, during the pandemic, they participated in the training offered by the Municipal Department of Education and 94.3% of the training with the school management.

The teachers' response also indicates great convergence regarding the creation of WhatsApp groups, mentioned spontaneously by 10 interviewed teachers.

However, we observed less convergence in the teachers' reports when asked about the receipt of support material during the period of absence. The reports include mention of textbooks (3), school kits for the children (1), material made available to the teacher by the school (1), and the indication that no material was made available at school for the teacher:

So, on the support issue, it was only the textbook for the students, given to the parents on the day of delivery of the food kits (Teacher, School 2, Early childhood education stage V, 2021).

No, only orientation. We used the material at home, from home. We had material at home and, if necessary, we got it from school, but it was not necessary. In my case, it wasn't necessary, I had a lot of material at home and it could be used (Teacher, School 8, Early childhood education stage IV, 2021).

The school doesn't have much access, right? Of material, right? But the little that the school had, they shared with me. I would get in touch with my principal, with my coordinator, and she would share with me. (Teacher, School 7, Early childhood education stage IV, 2021).

We used the pedagogical material we had already received at the beginning. Since the first month was in person, the children had the material at home that they had received in their kit of support materials, such as colored pencils, crayons, gouache paint (Teacher, School 6, Early childhood education stage V, 2021).

When asked about the possibility of complying with the guidelines of the Municipal Secretariat of Education, most respondents said yes (11) and a small portion said only partially (2). No respondent indicated the impossibility of complying with the guidelines. When asked if they considered the continuing education offered by the SME/school to be sufficient to develop their pedagogical work, most teachers said yes, two said it was partially sufficient, and one said it was not sufficient.

It was like that, because we cleared up all the doubts. All the doubts that our teacher didn't know, our coordinator and director cleared up the doubts (Teacher, School 1, Early childhood education stage V, 2021).

Yes, she helped a lot, because then you have a north, right? You are oriented and you will research on top of what was released (Teacher, School 4, Early childhood education stage IV, 2021).

I think that for us, teachers, it worked out, it was not that bad. We had to learn how to teach these classes, right? And they oriented us a lot, and we also researched, ran after, you know? To learn how to teach these classes, right? (Teacher, School 8, Early childhood education stage IV, 2021).

The convergence of the reports indicates that, even in a context of uncertainty and change in the protocols of care for children in early childhood education, the flow of information allowed for an alignment and understanding by the teachers of the remote teaching guidelines. Moreover, according to the teachers' perception, the training activities offered by the Municipal Secretariat of Education (SME) and the management of their schools, were sufficient for them to feel prepared to follow the new action protocols for remote teaching. In this respect, the Sobral context differs from those observed by the studies of Lotta *et al.* (2021) and Oliveira *et al.* (2021) in which there does not appear to have been a good flow of information about the guidelines or sufficient training for teachers to feel supported and/or prepared for remote teaching.

If perceptions about the training and training were convergent and positive, reports about the material resources available to deal with the crisis situation and the new care protocols did not follow the same direction. For the most part, teachers report not having had extra resources to deal with the crisis situation and used kits and books distributed to families before the pandemic, resources already available in the schools, or their own resources.

From the teachers' interviews, we also tried to identify some discretionary actions by teachers (BNR), or adaptations of the guidelines to fit the specific context of their schools. It is interesting to note that the teachers' speeches show that the SME guidelines already left room for adaptations to the local context and/or mention that the guidelines received and the remote

activities to be sent to families/children were discussed and adapted together with the school management (pedagogical coordination and school management). Moreover, although the teachers were not asked directly, 11 of the 16 interviewees mentioned having received support or feeling supported by their school management:

They had references such as, for example, which media were more targeted to use with parents. The parents that didn't have internet contact, how should we react with guidance, which would be printed didactic materials, but that could always be passed on by phone, even though we don't have... because not all parents - especially in our community, which is a very poor community - have access to the internet. You can have a cell phone, but you don't have access to the internet. So, we would make printed materials and contact them to let them know if the activity was done, how the student was doing (Teacher, School 3, Early childhood education stage V, 2021).

[...] because we worked together with the coordinator, and as a team, it was the coordinator, plus me and three other teachers. So we worked on the activities as a team. So, it made our work much easier. [...] Because we had the coordinator all the time guiding us, every week, we had planning (Teacher, School 1, Early childhood education stage V, 2021).

We would get together, the coordinator with the teachers, and we would plan the activities that would be done for the students. [...] They gave us all the training, sent us some material by e-mail, if we needed it. They oriented us on how we should deal with these activities (Teacher, School 8, Early childhood education stage IV, 2021).

Through the interviews, it was possible to observe several discretionary actions by teachers, i.e., adaptations of the guidelines to the context of their schools, classes, and children, such as: (i) producing printed material with their own resources for students without cell phones/computer/tablet or internet, (ii) selecting books that could replace printed material for families without the possibility of reproducing materials at home; (iii) triggering networks to establish contact with poorly participating or absent families; (iv) offering gifts to children who participated in the proposed remote activities; (v) home visits by the teacher to rescue absent students; (vi) food and hygiene support for the most vulnerable families and taking advantage of the moments when materials are picked up to sensitize families to the increased participation of the child; (v) making the contact hours with families more flexible.

There was the supply of food kits, there was the supply of gifts for the children who were doing the activities [...] When I couldn't get them, not even by phone, I would go out, go to the house. Even working outside, I could arrive at six o'clock at night, I would receive this conversation at night (Teacher, School 1, Early childhood education stage V, 2021).

And I only had a little bit of difficulty, because sometimes some students didn't have the equipment, you know? And also the internet. So, I had to have other strategies, right? I did the homework myself in our homework notebook, with my own money. (Teacher, School 7, Early childhood education stage IV, 2021).

[...] For example: - he calls Maria and we know that Maria lives close to Joana. "Maria, have you heard from Joana? Go there and say that the aunt wants to call, wants to talk to them" [...] We have a teacher who lives in the neighborhood and even has a grocery store, she always gets in touch with the students who don't have WhatsApp. Then, we end up hearing from other people, so they also know that we care about them (Teacher, School 8, Early childhood education stage V, 2021).

With my students, we always try every month to do this survey with the parents. Some parents spend the day working, like single mothers, who spend the day working and had no way to guide their children. What was proposed? - So, you don't have time during the day? You review the activity in the evening and we make the corrections. (Teacher, School 3, Early childhood education stage V, 2021).

It is precisely this, the cell phone, the condition of being able to print. So, this is the complaint. So much so that this year...this year we pre-selected some books from the school, their own books, that they received to deliver this material to facilitate the activities, understand? At home. So that they don't have to copy or print (Teacher, School 2, Early childhood education stage IV, 2021).

Although in some moments it is not possible to identify if the decision was only the teacher's, or a school decision, some speeches clearly indicate that the school management was in charge of the initiatives or articulated with the teachers' discretionary actions:

We prepared our classes and the parents would give us feedback. But then we realized that with classes every day the children could not give feedback, because the parents were working, using their phones and this was hindering a little bit the children's learning and the feedback. So, it was defined with the coordination and direction of the school to be worked on three days: Monday, Wednesday, and Friday (Teacher, School 7, Early childhood education stage V, 2021).

Then, there was a certain moment in which the school also had another...another idea to also send the photocopied material to these families that could not access the internet and the videos on WhatsApp. So, I also made materials with written activities to be sent to these parents who didn't have access, you know? Then, all children, even those who had access, could participate in this material of written activities (Teacher, School 5, Early childhood education stage IV, 2021).

The school itself, along with the municipality, has the baskets, right? [...] The management always provides us with the most needy families that seek the school. They need some hygiene material or even food. So, during this search that they do at school, the management itself talks to them about the activity,

how are the children doing, and how are they doing? (Teacher, School 5, Early childhood education stage IV, 2021).

Again, unlike what has been observed in other work on educational policy implementation in the context of the Covid-19 pandemic in Brazil, we did not observe in Sobral a centralization of the decisions of the new protocols to deal with the crisis situation. As indicated by Matland (1995) in context of greater ambiguity, policy implementation and outcomes depend more strongly on the micro-implementation context and local organization. In the specific case of the Sobral context, we observe the school management (direction and pedagogical coordination) playing the role of a mid-ranking bureaucrat (MUYLAERT, 2019). According to teachers' reports, we noticed that principals and pedagogical coordinators played a central role in the link between SME decisions and teachers' practices contributing, in particular, to the flow of information about the new guidelines for remote teaching. In addition, they supported teachers in their discretionary actions, i.e. in adapting the guidelines to the specific context of the school and their classes, and in designing strategies to reach more vulnerable families and children.

Guardians' perceptions of the scope and limits of remote learning

The analyses also sought to understand families' perceptions of the remote activities offered by schools/teachers and, more directly, whether the actions were able to meet their specific demands/needs. The analyses explored parents' perceptions about: (i) the guidance received from teachers for the effectiveness of remote teaching; (ii) satisfaction with the remote activities offered by schools/teachers and what else they believed could have been offered to help families and children in this crisis context.

When asked about communication with the school during the period when the teaching units were closed, of the 16 interviewees, 15 said they had kept in touch with the school. Most of those interviewed (10) said they had received guidance on how to forward the pedagogical activities. Another 5 say they have not received any, and 1 did not know.

However, when asked if the information was sufficient to carry out the activities proposed by the teachers, the guardians positioned themselves as follows: 6 said it was sufficient, 3 said it was partially sufficient, and 6 that the guidance was not sufficient and 1 did not know. In addition, 10 of the 16 interviewees said they had had difficulties following the school/teacher's guidelines, another 4 said they had not faced any difficulties, and 2 did not say anything. Among the difficulties mentioned, 5 parents said they were not prepared to conduct

this process with the child (lack of patience, low education); another 4 pointed out difficulties caused by the child itself (lack of interest, tiredness, irritability, lack of concentration); 1 of them said that the teaching material was insufficient to perform the tasks; another 2 pointed out difficulties with the work routine; 3 mentioned difficulties with technology (bad internet, family with more than one child and only one available cell phone); distance between home and school (1); and the distance between home and school (1).

My difficulty was the issue of time, because I spend the whole day working. So, there were nights... I work at the mall, so, there were weekends that I also worked, but, like last year, we also spent a good period outside the store, working even just at home... in some moments, I managed to reconcile this (Guardian, School 2, Early childhood education stage IV, 2021).

Woman, well... I don't find it very difficult, no, the homework, no. [...] I think it's more ... difficulty of concentration, right? Because it's not in the classroom, right? It's at home, when he studies these things... when one child arrives, another one arrives, and that takes his concentration away (Guardian, School 8, Early childhood education stage V, 2021).

I faced it, yes, because I have two children and it was only one cell phone. And then, I had to choose between one and the other, because they were both at the same time. Do you understand? (Guardian, School 4, Early childhood education stage IV, 2021).

They were activities very focused on learning, alphabet, vowel, numbers, symbols. They were very good activities to develop. I don't particularly consider myself a person who is prepared for this, so, it turns out that I could never complete all the activities with her (Guardian, School 5, Early childhood education stage IV, 2021).

The study also investigated whether guardians believed that schools could have done anything more to assist families and children during the period of social isolation and school closures. Among the 16 respondents, 10 said yes, that more could have been done and 6 believed that schools had nothing more to do. Among the forms of help for children and families, the following were mentioned: in-person tutoring for children with more difficulties; tutoring, without specifying whether in-person or not; focus on guidance to mothers on how to teach their children at home; more online classes; sending teaching materials (books, handouts) home; support for more vulnerable children (does not specify what kind); delivery of individual school kits.

I think we should talk more with the mothers, especially the mothers who have more... I know the principal says "if you have any questions, you can come here" but there are many mothers who end up not coming and I think we should have more incentive, focus more on teaching mothers, how mothers

should teach their children, because, well, an alphabet activity is something, I know, normal, of course, we know, but for us to teach a child is a very challenging practice for us. It is not by chance that a teacher has to go to university, get a degree, be trained to be able to practice that profession (Guardian, School 5, Early childhood education stage IV, 2021)

I think so. Although they have sent all the material, I think there should be more online classes for the difficulties that the child is having with the teacher and the student. So that the teacher gets to know the student better, and the student gets to know the teacher better (Guardian, School 3, Early childhood education stage IV, 2021).

Ah, 2020, no. It's great. The schools, what they could do for us, they did, right? In my point of view (Guardian, School 1, Early childhood education stage V, 2021).

With these activities that they send remotely, right? They send someone to see how the child is at home, if they are doing their homework (Guardian, School 8, Early childhood education stage IV, 2021).

Although the teachers indicated that the Municipal Secretariat of Education's guidelines were clear and likely to be put into practice, and that decisions about the remote teaching format were not centralized, relying on local adaptations supported by the schools' management, the reports of those responsible indicate several constraints to achieving remote teaching in early childhood education.

It is interesting to note that, according to the teachers' perception, the main obstacle to the effectiveness of remote teaching was related to access to technology (cell phones, tablets, computer and/or internet), mentioned by 12 teachers, and then the families' lack of interest, mentioned by 7 respondents. These data converge with what was observed in the questionnaires: the main problem for communication with families indicated by teachers was the lack of access to the internet, mentioned by 67.7% of respondents. However, the predominant hindrances in the families' speech were related to the family's difficulty in inserting remote activities in their routines and a feeling of inability or lack of information to carry out the activities proposed by the schools. The guardians indicated that they needed a more individualized assistance to carry out the activities. Even though they maintained contact with the schools, the families indicated several other activities that could have been offered.

Finally, although they presented mostly positive views regarding the training and guidelines received for remote teaching, teachers, like the guardians, also indicated that remote teaching was not enough to meet the demands of families and children:

Well, for us, it was, we, as a teacher, but we know that for the children, for learning, no. It's not enough, right? (Teacher, School 5, Early childhood education stage V, 2021).

So, for the moment it was valid, but for our work, for me as a teacher, the support I received was enough, but for the children's learning, it wasn't enough? (Teacher, School 6, Early childhood education stage IV, 2021).

The above reports converge with teachers' perceptions about the impact of the pandemic on children's learning, captured from the questionnaires: most teachers said they agree or strongly agree with the statements about the impact of school closure on children's development regarding: (i) interpersonal relationships (69.9%); (ii) oral expression (70.3%), (iii) spontaneous writing (82.6%), (iv) motor development/body expression (70.2%) and (v) skills related to quantity, time, space and relationships (75,8%).

Final remarks

The present work proposed to carry out an analysis of the implementation of remote teaching in Early Childhood Education, in schools of the municipal public network of Sobral/Ceará, in a context of crisis and increased uncertainty. The analyses sought both to map the perception about remote teaching of teachers, the street-level bureaucrats, and the families of the children enrolled in preschool.

Studies of public policy implementation with a focus on street-level bureaucrats, particularly in contexts of crisis and greater ambiguity, indicate that information flow is a critical issue. This aspect, as well as greater centralization of decisions, was observed in the analyses on the implementation of remote teaching in elementary and secondary schools by Oliveira *et al.* (2021) and by Lotta *et al.* (2021). However, even in a context of greater ambiguity, enhanced by the characteristics of early childhood education, the Sobral network used channels of communication and teacher training that already existed before the pandemic. We observed convergence in the teachers' understanding of the network's guidelines and perception that the training/training obtained was sufficient to develop the pedagogical activities in the remote format. In addition, principals and pedagogical coordinators played a key role in the flow of information and support to teachers. On the one hand, decisions about remote teaching were not centralized, and on the other hand, implementation in the local context of schools was not characterized by solitary teacher decisions, but by a discretionary action agreed upon and supported by school management, who acted as mid-ranking bureaucrats.

The context of implementation of remote teaching, in Sobral, is close to the context described by Matland (1995) as one of low conflict among the actors involved and high ambiguity. For the author, in these contexts, we observe an experimental implementation, since there is uncertainty about the best means or technologies to achieve the desired goals. However, it can also represent an opportunity for central management to increase its knowledge about change processes within the specific policy area. This requires a monitoring system capable of accounting for innovations and tested solutions. It was not possible to observe in the Sobral context if the network was able to accumulate learning about the innovations that occurred during the pandemic, or if it generated learning for the moment when the schools reopened for classroom activities. This would be a topic of great importance to be investigated in future studies.

Finally, even with all the specificities of the implementation processes observed in the Sobral public school system, we registered a perception from the guardians that remote learning was not able to meet their specific needs. This perception is shared by the teachers, who presented little encouraging perspectives on the effect of remote teaching on the children's cognitive, motor, and socioemotional development. The teachers' negative prognosis was confirmed by the results of research that observed a major impact of the pandemic on learning and increased inequalities in preschool in Sobral (FUNDAÇÃO MARIA CECÍLIA SOUTO VIDIGAL, 2022).

On one hand, the evidence on the implementation of remote teaching and the impact of the pandemic on learning show the limitations of remote teaching, already observed in other contexts (BARTHOLO *et al.*, 2022; ENGZELL; FREY; VERHAGEN, 2020), and indicate the importance of strengthening the family-school relationship and intersectoral policies at the time of crisis, especially to reach the most vulnerable public. On the other hand, the results support the argument about the importance of quality early childhood education. In the impossibility of its operation in a face-to-face manner, with meaningful interactions and concrete experiences, early childhood education loses its potential to boost children's development and reduce educational inequalities. Finally, if we observe these effects in Sobral, we can hypothesize that the impact of the Covid-19 pandemic is even greater in contexts less favorable for the implementation of remote education. The evidence from this study alerts us to the importance of educational policy planning at the time of school reopening, to the need for active search programs (in kindergarten and preschool) and learning recovery programs focused on more vulnerable children.

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