

Brazilian Digital Learning Strategies During the COVID-19 Pandemic and Their Impact on Socio-Educational Gaps: An Exploratory Study on Manaus, Rio de Janeiro, and São Paulo

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Brazil: Brief demographic and political considerations

The Federative Republic of Brazil is located in South America and shares its borders with all nations in the region, except Chile and Ecuador. The country displays at the same time a highly diverse population—composed mainly of Indigenous Americans, the descendants of African enslaved people and European settlers—and remarkably unequal wealth distribution. The study National Continuous Household Sample Survey (*Pesquisa Nacional por Amostra de Domicílios* - PNAD), launched in 2019 by the Brazilian Institute of Geography and Statistics (*Instituto Brasileiro de Geografia e Estatística*-IBGE), highlighted that the average monthly income of the wealthiest 1% of the Brazilian population reached, in 2018, the correspondent of 33.8 times the income of the poorest 50% (Canzian, 2019). According to the projections made by IBGE, approximately 213,554,459 people live in Brazil, 84.72% of whom reside in urban areas (IBGE, 2021a). Nearly 52 million people, or 24.2% of the population, are between 0 and 17 years old (IBGE, 2021b). In the 2019 PNAD, 42.7% of Brazilians declared themselves White, 46.8% Brown, 9.4% Black, and 1.1% Asian or Indigenous (IBGE, 2021c).

The results of the 2018 presidential election showed that 55% of the electorate assumed that Jair Bolsonaro could lead the country towards new paths, especially regarding the lobbied reforms that would put Brazil's economy on the right track again. Usually in line with religious, conservative, and militaristic discourses, the politician had slight national presence and political representation (Almeida, 2013, p. 580) until running for the position of President of the Republic, under a small and equally unknown party, the right-wing Social Liberal Party (PSL). Immediately after being sworn in as president, he declared that his government would aim to "unite the people, rescue the family, respect religions and our Judeo-Christian tradition, combat gender ideology, conserving our values" (Phillips, 2019). The highlighted line of thought summarizes the essence of the conservative guidelines that have been adopted in different realms of the Bolsonaro administration. The government has also embraced a neoliberal approach inspired by the economic reforms implemented in Chile (Amorim, 2019) and suggested the retrenchment of the welfare dimension of the state (Mladenov, 2015). During the COVID-19 pandemic, this approach would inspire the management of an already decentralized national education system in which states and municipalities lead the implementation of schooling policies.

The Brazilian education system: A decentralized structure and its main challenges

Brazil's National Education Guidelines and Framework Law (*Lei de Diretrizes e Bases da Educação* [LDB]) defines two main levels of education: basic education (*educação básica*), subdivided in early childhood education (*Educação Infantil*), elementary education (*Ensino Fundamental*) and secondary education (*Ensino Médio*); and higher education (*educação*

superior) (LDB, 1996). Children are officially required to attend an education cycle of 14 years (Monroy, McNally & Trines, 2019). Whereas basic education is compulsory and provided free of charge at public schools, private institutions can also offer schooling according to the guidelines established by the Constitution and participate at all educational levels with government approval (OECD, 2015, p. 14).

The Ministry of Education (MEC), as a federal ministry, defines the guiding principles and coordinates national education policy for all education levels. In collaboration with states, municipalities, and other key stakeholders, such as the Ministry of Social Development, non-governmental organizations, unions, and the private sector, the MEC designs and implements national education policies under the LDB (*Lei de Diretrizes e Bases da Educação* No. 9.394, 1996). Municipalities are the main ones responsible for the provision and the quality of early childhood education and share with states the responsibility to finance and manage primary and lower secondary education (Brazil, 1988). States are also responsible for upper secondary education, being accountable for creating their education policy within the national framework set by the MEC, providing schools' infrastructure, equipment, student meals and transportation, and teacher training, recruiting, and payment (OECD, 2015). Tertiary education institutions, such as universities and higher education institutes, have institutional autonomy, although the federal government also delineates tertiary education guidelines.

The Brazilian Constitution expresses that education, a right of all and the duty of the state and the family, must be promoted and encouraged with societal collaboration (Brazil, 1988). According to this notion, fostering education must be a responsibility shared by governments—considering federal, state, and local levels—and society. Within this logic, Brazil's education system is largely decentralized to states and municipalities. The National Common Core Curriculum (*Base Nacional Comum Curricular* - BNCC) sets the main content and education modalities that states and cities must respect. However, since the LDB allows some flexibility in curricula, educational guidelines may encompass content relevant to regional and local characteristics of student society, culture, and economics (LDB, 1996). Schools must be in session for at least 200 days a year. The school year, which typically runs from February to December, can be adapted due to each state or municipality's weather or economic conditions (LDB, 1996). Although the primary language of instruction in public schools is Brazilian Portuguese, Indigenous communities are guaranteed use of their mother tongues and their learning methodologies (LDB, 1996).

Brazil is a country that faces diverse forms of inequality in different areas – education is no exception. In a highly decentralized system where most education responsibilities fall under states' and municipalities' jurisdictions, disparities are blatant regarding access, quality, and funding. One of the most cited reasons for those issues is the country's size: having the fifth largest population in the world, 48.5 million children were enrolled in basic education in 2018, 81% of whom attend public schools (Costin & Pontual, 2020). Although student learning has shown improvement in the last decades, the country still lags far behind wealthier nations in large-scale assessments. Moreover, most students in secondary education drop out before graduation, and teachers—drawn from among the lowest achievers—have few performance incentives (Diop, 2012, p. x). Many layers of complexity are added to this picture when other gaps, such as urban vs. rural and public vs. private, and marginalized groups such as indigenous communities and lower-income populations, are considered. Differences in outcomes between girls and boys are also a challenge that spills over from education to the labor market, especially for students from disadvantaged backgrounds (OECD, 2015).

Digital Learning Strategies in the three largest municipal networks

The suspension of school activities amidst the Covid-19 pandemic interrupted in-person classes in the middle of March and impacted 47.9 million students (INEP, 2019). The Ministry of Education did not propose a unified strategy or digital platform to be adopted by schools and other institutions during the pandemic; this responsibility fell under the auspices of states and municipalities, reinforcing the decentralization of the Brazilian system of schooling. The MEC's general guidelines posited that schools should remain closed until the situation could be considered stable and reopening was safe– which could be defined by each municipality or state (Verdêlio, 2020). Different education networks across Brazil had to hastily develop learning and teaching strategies to provide pedagogical content remotely. The study "Education Cannot Wait" (*A Educação Não Pode Esperar* - ENPE) surveyed 232 municipal and 17 state education networks and revealed that public schools tried to establish forms of coordination, to share good practices and support each other (Silveira, 2020, p. 5). Among the initiatives, the report highlighted the distribution of food for students and families, remote teaching strategies and tools adopted, and preparation for the return of in-person classes (Silveira, 2020, p. 5). The study also showed that the response time of education networks varied widely, according to their internal organization and ability to produce educational content.

Some of the networks claimed to have started providing online content right after the suspension of in-person classes; others began offering digital content throughout May 2020, and 18% of the surveyed networks had not yet adopted any distance learning strategies when the research was published, in August 2020 (Silveira, 2020, p. 5). Each network defined its guidelines regarding digital platforms according to the technological and material resources available in each state or municipality. This report considers the strategies adopted by the three largest municipal education networks in Brazil–Manaus, Rio de Janeiro, and São Paulo.

Manaus

The Manaus Department of Education is responsible for more than 245,000 students, having 496 schools and more than 13,000 civil servants, including teachers, pedagogues, and administrative staff (Marinho, 2020). The municipality anticipated the mid-year school recess for March amid the pandemic and the need for social distancing; classes resumed remotely on April 1st, after just 15 days of school recess. In partnership with the Amazon State Department of Education (Seduc-AM), Manaus created the project "Class at Home" (*Aula em Casa*), which provided daily activities through booklets and online classes to more than 450 thousand students served by the two departments. Additionally, Manaus' DOE reorganized the curriculum to meet the needs of students at each level and started broadcasting classes on public television networks and the internet (Marinho, 2020). The municipality developed multiple approaches to ensure that schools continued teaching, providing quality education, and preserving the entire school community (Seduc-AM, 2021). Among the main strategies adopted by Manaus, we can identify (*Aula em Casa*, 2020):

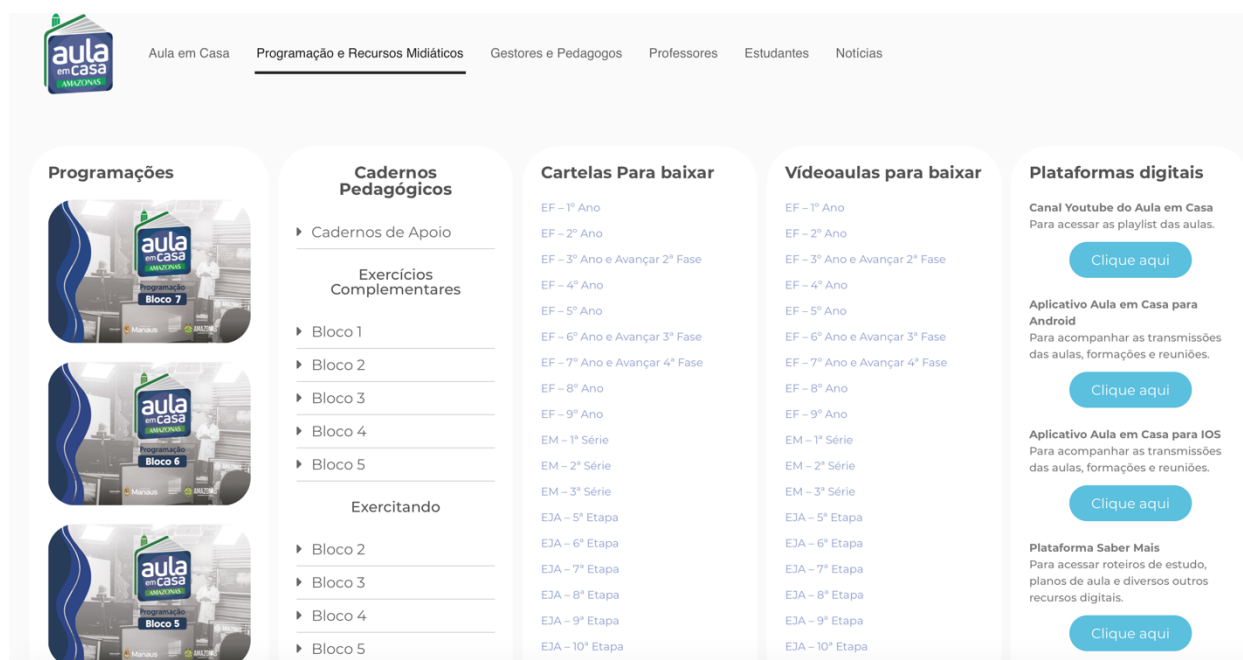
- Organization of content by grade and according to current curriculum proposals.
- Selection of video classes and other digital resources aligned with the school curriculum.
- Availability of digital resources online through digital platforms and messaging applications.
- Provision of offline digital resources through DVDs, external hard drives, and flash drives.

- Digital booklets for students and teachers containing various activities related to the curriculum.
- Informative material for students, families, and teachers.
- Teacher training events with didactic-pedagogical guidelines for curriculum organization and learning strategies during remote and/or hybrid teaching.

The municipality of Manaus also made a website available, to offer all the content in a simpler way, as seen in Figure 1.

Figure 1

"Aula em casa" platform. Students can access booklets, apps, and the YouTube channel where all classes are made available



Rio de Janeiro

The city of Rio de Janeiro has an educational network comprised of 1,542 schools and 641,141 students (SME Rio, 2020). Classes were suspended on March 13; however, since many children had school meals as their primary source of nutrition, school cafeterias remained open during lunchtime (PCRJa, 2020). A week later, the city government declared that schooling would resume through "Google for Education." The system would offer accountability related to the time students and teachers spent online; pedagogical materials would also be available through the Secretary of Education's social media channels (PCRJa, 2020). From that moment on, schools would be closed until further notice and the local government would deliver children's meals for families in need (PCRJa, 2020). Information and communication technologies needed to be expanded, aiming to reach teachers' and students' households that did not have the necessary tools to access the internet; booklets and other printed materials would also be made available to pupils in vulnerable settings (PCRJa, 2020). Later, the city government changed the strategy and decided to replace "Google for Education" with "Microsoft Teams" and added that other platforms would be used for specific purposes at the discretion of schools of educators. The information about Rio's digital strategies is summarized in the table below:

Table 1
Rio de Janeiro's digital strategies during the COVID-19 pandemic (2020-2021)

Platform	Provider	Description	Focus
MultiRio	The City of Rio de Janeiro's Government	Official website and social media channel (YouTube, Instagram, and Facebook), composed by school's complementary didactic material and audiovisual content with several resources of pedagogical support.	Elementary School Education; Parents' Orientation and Teachers' Training; Socioemotional Learning
SME App	The City of Rio de Janeiro's Government	This is an app that offers students media and audiovisual content which can be accessed through desktops and mobile devices.	Students, all levels of education.
Escola.Rio	The City of Rio de Janeiro's Government	The Platform provides school activities by expanding pedagogical alternatives and increasing educational experiences. Through the app, parents can access students' grades and attendance, the school calendar, and the lunch menu.	Teachers, parents, and students at all levels of education.
MATIFIC	External	Mathematics education platform.	Not specified.
Alfa e Beto	External	Digital games with a focus on literacy.	Pre to elementary school.
Microsoft Teams	External	The Secretary of Education offers this platform to teachers, students, and school staff, in order to enable interaction and communication through virtual classrooms.	Teachers and students, all levels of education.

Sources: MultiRio, 2020; RioEduca, 2020a; RioEduca, 2020b; PCRJ, 2020b; PCRJ, 2020c.

São Paulo

On March 23, the city of São Paulo decided to close its school network, comprised of 3,391 schools and more than one million students (PCSP, 2020a). The annual July school recess happened ahead of schedule, and all school services were suspended by April 9 (PCSP, 2020b). Starting on April 13, and while the suspension of in-person classes lasted, learning activities were carried out through printed materials delivered to students' homes (PCSP, 2020b). The booklets were designed so that children, adolescents, young people, and adults who studied in municipal schools in São Paulo could carry out activities with autonomy and help from family members (PCSP, 2020c). These materials also contained guidelines for parents and tips on organizing a study routine (PCSP, 2020c). Digital content based on the city curriculum was offered to complement the printed materials through a partnership with Google for Education; the virtual environment is managed by teachers (PCSP, 2020c). In addition, the city broadcasted classes through a television network, TV Cultura, to increase vulnerable students' opportunities to access school content (PCSP, 2020c). Teachers, managers, and technicians were trained in using Google Classroom tools through online courses and tutorials offered by the secretary of education (PCSP, 2020c). The return of students to in-person classes was dependent on the suspension of the emergency declared by the city of São Paulo. It was expected that students could go back to school in September 2021. However, a serological survey

conducted by the city government showed that 64% of students tested in the municipal network were asymptomatic for Covid-19 (PCSP, 2020d). Students only returned to in person classes in October 2021 (PCSP, 2021).

Remote learning strategies in the three largest educational networks: actors and challenges

To understand how the policies adopted in different parts of Brazil affected learners and learning outcomes and have contributed to widening the digital divide in the country, the researcher conducted an exploratory study with different actors based on semi-structured interviews. The interviewees for this inquiry were a teacher from a public school in Rio de Janeiro, a policymaker working in the secretary of education of Manaus, and a policy analyst working for a non-governmental organization focused on public education. The interviews were conducted in 2021 and centered on each interviewee's perspectives according to their professional standpoint. Based on the questions presented to the interviewees, some themes emerged in the analysis. Topics focused on how educational policies during the pandemic affected three specific groups: students, families, and teachers. The findings suggest that the lack of unifying guidelines from the Ministry of Education made states and municipalities develop strategies constricted by the scarcity of resources at their disposal. Another conclusion is that, despite regional variations, similar issues arose in different parts of Brazil. For instance, given the students' diverse socioeconomic backgrounds and schools' limited funding, digital platforms were hardly the best option for children and educators. Still, they organized to make the learning experience possible amidst a scenario of uncertainties and a lack of coordination from the central government. A last relevant finding was that the digital divide could not be understood independently of other gaps, such as those related to socioeconomic status. The research findings are discussed below, according to the data offered by the interviews.

Students

All the interviewees highlighted that one of the most affected groups was students. According to municipalities' and state governments' official discourse, keeping schools closed was essential to protect children. But these children did not stay at home; they were in the street working to help their families or simply loitering. One of the interviewees explained that all students had issues and losses. Parents took small children out of schools and children in elementary schools forgot what they learned in their first years of education. Older students in high school dropped out. Interviewees also emphasized how the suspension of classes impacts children differently, depending on their socioeconomic status, age, and geographical location.

Concerning the digital divide, the educators' perceptions confirmed that the situation is even more challenging when students' connectivity is considered. Their comments emphasize that not all students have access to devices, such as personal computers, tablets or smartphones, or internet connections in their homes. The situation worsens in the rural areas and the impoverished regions of different Brazilian states, especially those in the North and Northeast. In those regions, the percentage of public-school students who used the internet was 68.4% and 77.0%, respectively; in other parts of Brazil, the number ranged from 88.6% to 91.3% (IBGE, 2021d). One of the interviewees stressed that enhancing students' connectivity is a concern in national politics nowadays. However, the interviewee asks: "how will children access the internet in schools if they are closed? Will this connectivity get to students' homes? Even if the internet gets to them, families will have no means to offer the structure children need to learn." Considering all the difficulties the government and families faced to access digital learning, interviewees

emphasized that the digital divide added a layer of complexity to a series of already existing inequalities.

The socioeconomic divide was also evident in the gap between private and public schools. One of the interviewees mentioned that a common scenario in the three municipalities considered in the report was that children in private institutions mostly had socioemotional issues. However, because these schools reopened during the pandemic, these pupils commonly had the chance to take care of their mental health and recover lost pedagogical content. Students in public schools had the same issues but no support from the school or parents to treat their anxiety and other emotional disorders. These children, especially female students, had additional problems within their homes. Girls became responsible for housework and were unable to balance their studies and the obligations at home. They also had to face different forms of abuse, including physical and sexual violence. Regarding the students ready to access higher education, only 2,699,806 took the national examination tests to enter universities in 2020, a considerable difference from the two previous years, when almost four million students participated in the exams (Lesme, 2021).

For Brazilian children, schools are not only a place for learning but also to exert their citizenship. The interviewees stressed that schools' closure impacted different children's rights, centrally, food security and nutrition. When the pandemic started, the first concern of state and local government was related to children's meals since most of them depend on schools for their nourishment. Municipalities focused on offering meals to students and their families through vouchers, food parcels, and other meal distribution strategies. According to one of the interviewees, only after the municipalities' secretariats of education solved this issue, nearly a month after classes' suspension, did pedagogical concerns emerge as a priority. Students' food security remained an essential concern ever since.

The challenge of school attendance is also relevant when the analysis emphasizes children's age. One of the interviewees highlighted that having children from 6 to 10 years old in schools was no longer a significant issue among all the educational challenges faced by the country. In the last 15 years, Brazil adopted policies and programs that ensure these students' access to public institutions and have made slow progress in guaranteeing schools for all children. However, the pandemic reverted these advancements. A second interviewee works with young children in low-income families who have just learned how to read and write and argued that they could not keep constancy in their studies. Since most of them needed their parents' cellphones to access the internet, they could not have synchronous classes and interact with their teachers and classmates. The interviewee predicted that the time these children spent out of the classroom would impact their education significantly. They will have to relearn the fundamental pedagogical content, which will be challenging in a scenario with scarce support from the government and their families. UNICEF's report "Out-of-School Children in Brazil" (2021) confirms these opinions. According to the publication, while children aged 6 to 10 without access to education were an exception in the country, the change seen in 2020 could have a long-lasting impact on an entire generation. Students in the early years of elementary school face incomplete literacy cycles that can lead to school failure and dropout (UNICEF, 2021).

Teachers

Teachers and principals emerged as responsible for ensuring that education would not stop despite the suspension of in-person classes, and even without the support of federal or local governments. According to one of the interviewees, this interpretation was

common primarily because public officials believed that the situation would go back to normal in August 2020. The second semester would occur as usual, and the first term would be manageable with quick fixes. Another interviewee recalls that the secretariat of education in her city did not offer any specific guidelines in the first week after school closure. Teachers in her institution organized themselves and decided to use Google Drive to share materials with students. Facebook would be the platform to connect with parents; they also chose to use WhatsApp groups to be in touch with each other. Teachers working with specific grades started reuniting with their peers to reorganize classes and make sure that they followed the same pedagogical content. Their main concern was to guarantee that students were learning at a similar pace. Public officials only issued state and municipality digital learning guidelines weeks after teachers had already designed their own approaches to remote schooling.

When the secretaries of education started issuing digital strategies, teachers soon noticed that the suggested platforms would not suit students' needs. One of the interviewees argued that when the Rio municipality began training them to use Microsoft Teams, educators in her school identified that "it would be too much for their students" (personal communication, January 11, 2021) from the beginning. The platform would be challenging for pupils for different reasons. Younger students would not have the autonomy necessary to access the system; older students would not be disciplined enough to watch classes all day before a screen. And all the students would have something in common: the lack of equipment or good internet speed. Since the prefecture invested a lot in instructional videos on Microsoft Teams, they thought the platform would be mandatory for students and voiced their concerns. After some weeks of training, the municipality stated that it would be optional: schools could use any platform they wanted. The teachers in the interviewee's school unanimously decided that they would not use Teams for its unfeasibility. They opted for other strategies, such as using Google Drive and YouTube to share pedagogical content with pupils, and WhatsApp, to interact with children and clarify possible questions. However, the use of these alternative platforms would not happen without difficulties. One of them was the lack of contact with parents, who should supervise children's learning. The other was the idea that teachers were unwilling to use more complex platforms, not thinking of their students' well-being but refusing to engage with technology.

Two interviewees shared a common perspective: teachers in public schools are unprepared to work with technology and often refuse to learn new things. This situation is mainly due to two factors: the lack of training and the "intergenerational shock." The first relates to the fact that states and municipalities do not generally offer the structure or prepare teachers to engage in online teaching methods. One of the interviewees stated that teachers are commonly open to learning new strategies and engaging with technology. Still, there is a wide gap between the secretariats' expectations and what teachers can do with their limited time and resources. The intergenerational shock refers to the idea that some experienced teachers show resistance to working differently from what they are used to. Because they grew up in a different time, they do not see new technologies as a necessary tool to teach their students or perform their work. Other teachers do not oppose technology but have no interest in engaging with alternative ways of teaching in the online environment. To overcome these obstacles, municipalities adopted different strategies to involve teachers in the definition of policies and make them feel part of the strategies adopted locally. Some cities made computers and the internet available to teachers at public schools if they could not access the web at home. Others asked teachers to develop alternative approaches considering their preferences and

resources. The policymaker interviewed for this project explained (personal communication, February 2, 2021):

The pandemic is not an individual problem; it is everyone's problem. And it is not possible to solve it individually. I must use all tools available to create an atmosphere for exchange. That is what we did. When I organize my remote classes, there are difficulties; there are teachers without Internet connection. We go and try to help, see if we can support them in any way. Nobody was compelled to do so, and that was important. That is why I am talking about engagement and participation. It was all thanks to participation... We offered alternatives to everyone.

On top of all challenges related to the digital divide, the interviewees emphasized that 2020 was a year of many frustrations for professional educators. Aside from being constantly concerned with students' learning, health, and safety, teachers were disturbed by going back to school without the necessary sanitary protocols. Educators developed different pedagogical strategies, trying to offer alternatives to children, but they had an inadequate response from children and their families. They understand that the situation is difficult since students have neither their parents' guidance nor the equipment needed to access the online content. As one teacher puts it: "some children don't have what to eat; how can they possibly have access to online classes?" She concludes that these issues reflect families' lack of responsibility and, above all, the absence of support the government gives to families.

Families

All the interviewees pointed out that families were another relevant actor in understanding how the COVID-19 pandemic affected learning outcomes and widened Brazil's digital divide. Even before the pandemic, there was a significant deficit in the relationship with families. Brazilian children in public schools are affected by different issues, such as violence, emotional neediness, and negligence. While teachers usually have had difficulties creating a relationship with families, their work became more challenging. Aiming to understand the dynamics of students' homes and what issues influence pupils' learning, teachers developed strategies to bring families to schools. The teacher in a public school in Rio argued, "What I see is that many of these families have no interest in following their children's life in school" (personal communication, January 11, 2021). According to her experience, parents usually do not get involved or explain why they do not attend school meetings or are involved in their children's learning process. She added that the children who need family support the most in school do not have this kind of attention from their parents or other family members. The interviewee felt that teachers were the only ones caring for their students' education since principals seemed to neglect parents' lack of participation. Teachers were responsible for creating a connection with students and working with them, despite what happens at home. The pandemic, however, made things worse between families and schools.

Connectivity is a real challenge in Brazil, but the main problem is that households are usually headed by a mom whose cell phone is the primary source of internet connection for the whole family. These mothers do not have the means to pay for a better phone plan and have other priorities, such as providing food and housing to their families. One of the interviewees highlighted that some schools opted to send materials and additional information through WhatsApp and similar apps. However, this kind of communication was not always welcome. She recalled hearing from a mom (personal communication, February 22, 2021):

I have three kids and a telephone with a bad storage and a slow internet connection; please stop sending me these things. I don't want to receive anything from you [the school] anymore!

The relationship with families was also complex due to the lack of confidence in the guidelines and information provided by public officials. Children in public schools' parents do not trust school managers and teachers. One of the interviewees declared that impoverished families see schools as a place to leave children so they can work and do not see education as central in their kids' lives. Amidst all the challenges posed by the pandemic, parents started realizing that they were not precisely concerned with their children's education but with maintaining their work and afford to eat and survive.

Conclusion

Promoting student learning during the COVID-19 pandemic reinforced Brazil's perennial educational challenges and evinced the existing deficiencies in the country's schooling system. While there was a pressing need to alleviate a crisis scenario and attenuate the lack of coordination between states and municipalities, the Ministry of Education failed to establish recommendations to guide basic education schools and higher education institutions during these unprecedented times. The lack of clear guidelines resulted from the federal government's slow response to the pandemic: the MEC never proposed a unified strategy or digital platform to be adopted by schools and other institutions during the pandemic. While other nations in Latin America have quickly adopted preventive actions to reduce the spread of COVID-19, the Brazilian state refrained from supporting similar measures and offering local governments the tools to tackle the obstacles faced by municipalities and states. The responsibility fell under the activity of states and municipalities, strengthening the decentralization of the Brazilian system of schooling and transferring the onus to policymakers and educators on the local level.

Due to the lack of unifying guidelines from MEC, different actors involved in education had to improvise to make students get involved with classes and maintain the discipline they needed to succeed academically. Evidence from the interviews shows that teachers and school administrators were commonly unprepared to offer alternatives based on distance learning; parents were equally ill-equipped to guide their children through homeschooling and the use of technology. Considering the lack of access to the internet, computers, and other devices, families and teachers did what they could with scarce resources. Still, children were the ones who suffered the most. Considering the negligence shown by the MEC and the difficulties faced by states and municipalities, we can understand that the pandemic exacerbated the structural problems faced by the Brazilian system of public education.

One of the main conclusions of this exploratory study was that the digital divide could not be understood without considering other forms of inequality existent in Brazil. The interviews evinced that the lack of technological resources must be considered with other educational issues encountered by public schools, teachers, students, and their families. Further research on the impact of digital learning strategies could investigate how different gaps, such as the urban vs. rural, those found in the same region, within the same state, and in other Brazilian capitals, played a role in the design and implementation of distance learning strategies during the first years of the pandemic.

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