Education and Pandemic: Covid-19 and its effects on learning

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ABSTRACT
The article relates to the COVID-19 pandemic and education, aiming to reflect on its implications for school learning in the pandemic context. It has interfered with the educational reality of students at all levels of education. Furthermore, it has also had an impact on the way modern society operates and lives since 2019. The concept of the COVID-19 pandemic and current educational thinking are developed in contrast to deficient educational systems, based on studies of the pandemic's occurrence and educational practices during and after the peak of pandemic events. In this context, potential classifications, and typologies of educational systems in response to the pandemic reality are explored in a general sense. The conclusion is dedicated to evaluating the implications and challenges resulting from the COVID-19 pandemic, which has left significant marks on learning and the educational process in our educational institutions.

Keywords: Pandemic, Education, Learning, Teaching.

1 INTRODUCTION

Education is a fundamental human right and its promotion and guarantee is the responsibility of the State through the implementation of public policies aimed at establishing quality educational practices.

The month of December 2019 ended with the alert of the World Health Organization (WHO) about cases of pneumonia in the city of Wuhan, Hubei province, People's Republic of China. It was a new strain (type) of coronavirus, which around seven classifications, caused more severe illness in humans than the common cold. It was SARS-CoV-2, which is responsible for causing the disease COVID-19.

In March 2020, COVID-19 was characterized by the WHO as a pandemic, establishing itself in several countries, mandatorily changing the way society should behave, changing everyday habits, entering systems already established in the life of society, such as work, leisure and also in education,

inserting social distancing precautions and remembering hygiene habits, such as washing hands frequently with soap and water, sanitizing them with 70% alcohol, being careful when coughing and sneezing, and using protective masks, which should cover the mouth and nose, in order to minimize the possibility of transmission and contagion of the disease.

Thus, classes had to be remote, with more virtual classrooms and fewer physical classrooms, using remote teaching as a means of continuing the practice of education, in an online teaching, which carried out the pedagogical processes through the use of electronic devices that students could access, such as smartphones, laptops and computers.

This article addresses the relationship between education and emergency e-learning of students during the COVID-19 lockdown period, and the impacts caused on the educational process, since technology and its use in education brought serious changes to pedagogical practice, to be completely assimilated by students and teachers as well.

Thus, this study aims to critically analyze the advent of the covid-19 pandemic, its influence on the educational process, and the implementation in many cases, of a kind of pseudo-education, where technological resources appear only as a means to facilitate the propagation of education, and not as an agent of actual learning, without taking into account social, educational, to the detriment of quality educational practices.

The text of the article specifically aims to evaluate the advent of the covid-19 pandemic and its implications on education and the teaching practices adopted, aiming to expose the need to implement public policies for the recovery of learning, to improve the quality of educational practices, shaken by the restrictions left by the pandemic, and also, to study and evaluate the social aspects, The aim of this study was to analyze the educational, scientific and cultural aspects of COVID-19 in education, in relation to the use of information and communication technologies (ICTs), working to identify the main challenges and opportunities for the establishment of quality educational practices, in a digital environment, which uses technological resources as "educational crutches", to the detriment of effective learning.

This article is justified by the fact that the covid-19 pandemic has left serious gaps in the educational process and the recovery of affected learning needs to be explained and discussed by society, in different educational contexts. However, it is necessary to understand that such discussions encompass social, educational, scientific and cultural aspects of the construction of quality educational practices.

In addition, it is important to identify the challenges and opportunities for building quality educational practices, which take into account the adoption of digital technologies, not as "educational crutches", but as effective and pedagogical support, with consistent methodologies that take into account social differences, intrinsic to human reality.

Methodologically, a qualitative, exploratory and descriptive approach is adopted in this research. The investigation is based on the analysis of scientific documents and materials obtained from sources available on the internet. The main objective of this research is to examine the impacts of the post-COVID-19 pandemic period in the area of education. In addition, the research addresses aspects related to the use of digital technologies in education and how these technologies affect the learning process, considering the teaching techniques implemented during the post-pandemic period.

1.1 THE PANDEMIC ON EDUCATION AND ITS INFLUENCE ON LEARNING

The covid-19 pandemic brought serious changes to education systems, especially in relation to classes, which had to be remote. And due to the speed with which everything happened, with virtual classrooms, the use of cell phones, tablets, video classes and all the technological resources available, those involved in the educational process had to adapt, or even get used to, or even more, "tolerate" the presence of technology in their lives.

The end of face-to-face activities decreed the use of forms manufactured in association by humans and algorithmic devices, leaving students with scars on their psychological organization, formulating ways of attention, guilt, desires, impulses, resentments, and emotions, as "the virus isolated and individualized" people.

According to Ribeiro and Paz (2016), the world has changed in a rapid and frightening way in the pandemic, and, as a result, values, customs, and ways of living have also changed due to the massive introduction of technologies. Because of such transformations, people began to have different interests and began to follow these changes, since the computer and other ICTs offered a different way of knowing until then.

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Thus, even in a period when the pandemic reality plagues only the most audacious dystopias of modern science fiction, the topics shown here have the function of reporting, in a more innovative way, on the ongoing change, considering global changes and digital societies.

The repercussions of digital growth and the speed of change in the world of research and society take place in many contexts. As Fortified; According to Alvim (2020), technological unfolding intercedes in the way we construct history. Alvim (2020) emphasize the dissemination of resources acquired in Artificial Intelligence and the probabilities they present for the course of history, driven by the absurd amount of digital information.

Technologies have influenced all sectors of society, and, therefore, in order for teachers to recognize and, more than that, use technologies to their advantage, they need to understand that the computer, the internet and the media are powerful allies in pedagogical practice, as they bring together visual and musical resources that can stimulate knowledge (Pereira; Saito, 2018; Medeiros et al, 2018; Parents; Bittar; Freitas, 2018).

> The reality is that there are still few technical texts on the influence of the pandemic on education. There is a need for exhaustive and in-depth assessments and research on the impact of ICTs in the classroom and education systems. They would give us clarity about the reasons for successes and failures, as well as the challenges we must face. There is also a lack of studies that analyze ICTs in relation to the social, political, and cultural transformations that they promote within our societies, and consequently, [that allow] to identify the educational responsibilities and challenges involved in order to promote greater social justice and democratic progress (Tedesco, 2020 apud Ribeiro; Peace, 2020, p. 16).

The citation points to a significant gap in research and analysis of the impact of the pandemic on education, highlighting the need for a more in-depth and exhaustive approach. Several points can be highlighted in the analysis of this quote. In the foreground is the scarcity of technical literature. Tedesco, 2020 apud Ribeiro; Paz, (2020) note the lack of technical texts and comprehensive studies on how the pandemic has affected education. This indicates that there is a pressing need for more in-depth research and analysis on this crucial topic.

In the background, the authors show the impact of ICTs in the classroom, highlight the importance of understanding how New Information and Communication Technologies (ICTs) have affected classroom dynamics and educational systems. This is crucial given the rapid advancement of technology and its influence on how education is delivered and received.

Thirdly, they draw attention to the evaluation of successes and failures. They suggest that research should not only focus on the positive or negative aspects of integrating ICTs into education, but also on the motives behind these results. This can provide valuable insights to improve educational practices.

Ultimately, they recall the social, political and cultural transformations. They point to the need to understand the broader impact of ICTs on society, including social, political and cultural aspects. This comprehensive analysis is important for identifying educational responsibilities and challenges related to the promotion of social justice and democratic progress.

Overall, they highlight the importance of more comprehensive and in-depth research on the impact of the pandemic and ICTs on education and society at large. This research can provide valuable information to guide education policies and promote a fairer education system that is adapted to the challenges of the 21st century.

1.2 KEY ASPECTS OF THE PANDEMIC ON EDUCATION AND ITS INFLUENCE ON LEARNING

It is well known that school institutions must evolve and also keep up with the country's development and social demands (Kasper, 2016; Alves; Tatsch, 2017; Pear tree; Saito, 2018). Thus, new information technologies are increasingly present in our lives, altering communication, work, decision-making, and ways of thinking and acting (Ribeiro; Peace, 2016). In this context, its relevance in the context of the Covid-19 pandemic cannot be denied.

Thus, according to studies by the Anísio Teixeira National Institute of Educational Studies and Research (Inep), released from July 2022, 99.3% of Brazilian schools suspended face-to-face activities during the Covid-19 pandemic.

The Abrinq Foundation (BRAZIL) brings the main information about an important study that reveals that the Brazilian average was 287 days of suspension of face-to-face activities during the 2020 school year, considering public and private schools.

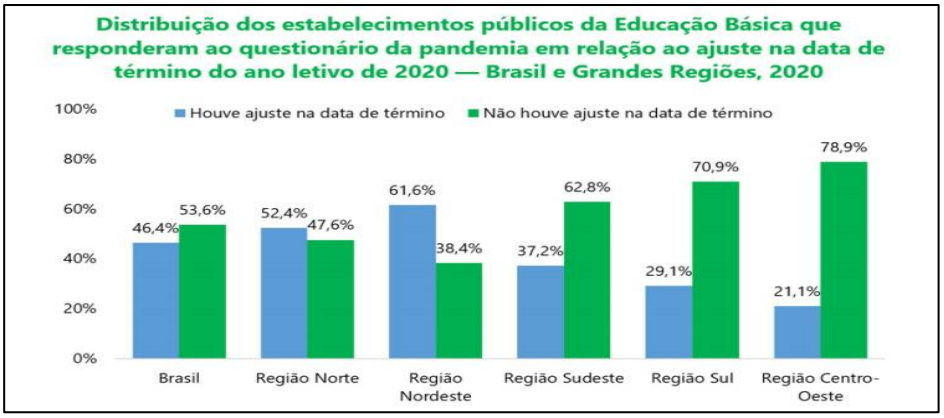
The survey, called Educational Response to the Covid-19 Pandemic in Brazil, points out that just over 53% of public schools managed to maintain the original school calendar last year. In private education, about 70% of schools were able to keep the forecast unchanged.

The survey was carried out between February and May 2021, with the second stage of the 2020 School Census. In all, 94% of the schools answered the questionnaire applied by Inep as a complement to the School Census. The percentage corresponds to 97.2% and 83.2% of the public and private networks, respectively.

The data show that 99.3% of Brazilian schools have suspended face-to-face activities. As a result, some of them also adjusted the end date of the 2020 school year, aiming to face the pedagogical consequences resulting from the suspension of face-to-face activities. Public schools felt a greater need to make this adjustment.

The observation of the measures to adjust the school calendar by the major regions of the country, even when considering only public schools, reflects unequal conditions of planning, execution and infrastructure of these educational establishments. In the North and Northeast regions, the use of adjustments occurred in most public schools, especially in the last of these regions, where more than 61.6% of the establishments made use of this strategy.

Conversely, in the Southeast region, just under one in five (37.2%) establishments reported having made adjustments on the end date of the 2020 school year. In the South (29.1%) and Midwest (21.1%) regions, on average, a quarter of the public basic education schools reported these adjustments in the school calendar.



Source: Ministry of Education (MEC) / National Institute of Studies and Anísio Teixeira Educational Research (Inep) / Directorate of Educational Statistics (Deed).

The percentage of Brazilian schools that did not return to face-to-face activities in the 2020 school year was 90.1%, and in the federal network, this percentage was 98.4%, followed by municipal (97.5%), state (85.9%) and private (70.9%) schools. In this context, more than 98% of schools in the country have adopted non-face-to-face teaching.

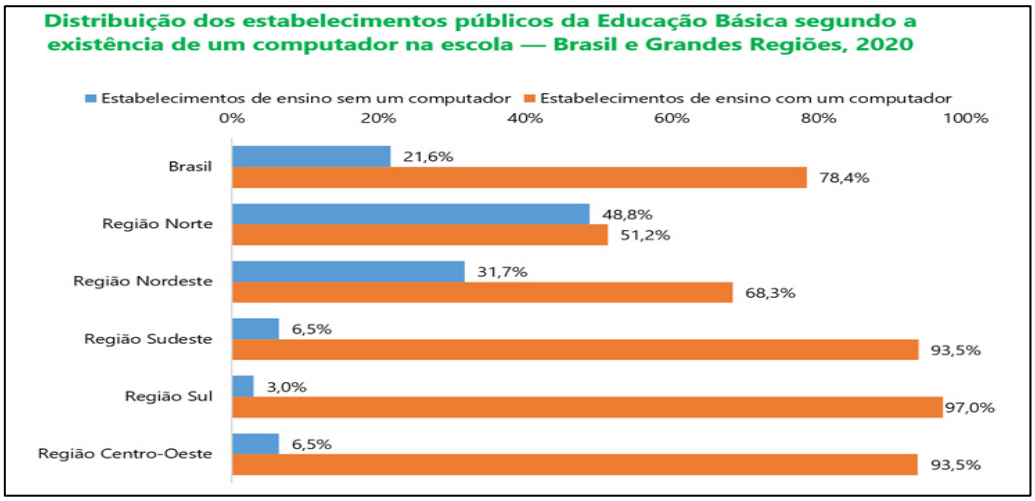
Holding virtual meetings to plan, coordinate and monitor activities was the strategy most adopted by teachers to continue their work during the suspension of face-to-face classes in Brazil. This is followed by the reorganization or adaptation of the lesson plan, with the aim of prioritizing specific skills and content.

In more than 2,600 public schools in Brazil, the suspension of face-to-face activities, due to inadequacies in school and home infrastructure, made it impossible to adopt non-face-to-face teaching and learning strategies.

Considering only those public educational establishments that reported not having adopted online classes, more than 88.4% of them are located in the North (1,185) and Northeast (1,172) regions. In this group of more than 2.3 thousand public basic education schools, no remote teaching-learning strategy was adopted during the 2020 school year, even though face-to-face activities had been suspended, an amount seven times higher than the total number of public schools in the remaining regions combined.

When it comes to free or subsidized access to internet at home, the survey carried out by Inep shows that 15.9% of the Brazilian state network has adopted measures in this regard; In the municipal network, the number recorded was 2.2%.

The existence of a computer in public schools of basic education, regardless of its use (administrative or by students), is one of the aspects that exposes the regional inequalities of school infrastructure. Of the 29,900 public schools that do not have a computer available, 26,300 are located in the North (10,245) and Northeast (16,104) regions, representing 80.5 of the Brazilian establishments in this condition.



Source: Ministry of Education (MEC) / National Institute of Studies and Anísio Teixeira Educational Research (Inep) / Directorate of Educational Statistics (Deed).

The same inequality is observed in the distribution of access to the internet network for the exclusive administrative use of public establishments. In the North region of Brazil, more than four out of five (81.5%) public schools do not have access to the internet for this form of use and just under three out of four are in the same situation in the Northeast region (73.8%), these being the regions with the lowest access to the internet, even if for exclusively administrative and non-pedagogical purposes.

However, the absence of this mode of use of the internet is the average reality of just over one third of the schools in the Southeast (38.2%), South (30.3%) and Midwest (36.9%) regions. With regard to strategies and tools for the development of teaching-learning activities, the availability of printed materials for collection at school is among the most used.

When it comes to live (synchronous) classes, it can be seen that 72.8% of state schools and 31.9% of municipal schools have implemented the strategy. In 2,142 cities, none of the municipal schools adopted this measure.

In all, 28.1% of public schools planned to complement the curriculum with the extension of the school day in the 2021 school year. In the private network, 19.5% of the schools opted for this alternative. In addition, 21.9% of private schools returned to classes with the concomitant realization of face-to-face and non-face-to-face activities, the so-called hybrid teaching. The strategy was also recommended by the National Council of Education (CNE). In the public network, 4% of schools have adopted this measure.

The improvement of connectivity in schools evidenced difficulties in most Brazilian schools, especially in public units, where it was possible to add technological unpreparedness to the lack of knowledge of how to teach through virtual means. The chaos was even greater for those who cannot count on devices (computer, tablet or cell phone) at home, much less with adequate access to the internet.

According to Professor Luiz Henrique Aguilar (UNICAMP, 2020), teachers, whether in elementary, secondary or higher education, did not know what to do in front of a computer. In a few months, they had to learn how to teach with technology. It has greatly impoverished the content of learning. "We're very unequal."

But this situation could be different. This is what the reality experienced by the municipal school system of Itajaí (SC) indicates. The experience of working since 2017 *with the Google for Education* platform in municipal schools allowed a differentiated practice for students and teachers from the 116 teaching units in the municipality, who were able to count on *Google Classroom* — a virtual classroom equipped with sharing materials and activities — during the pandemic period.

2 FINAL THOUGHTS

The article sought to emphasize that education must keep up with the social and cultural changes of society as a whole, however, it is necessary to recognize that new technologies and their inclusion in the most diverse sectors are a frequently demanded demand, especially in the field of education, and that the Covid-19 pandemic has influenced the way we do and think about education. Thus, in order for teachers to be able to integrate digital tools into their practice, they need to know how to use such resources. This is an urgent and necessary reality for educational institutions. In this context, in order for innovation to be present in the school context, teacher training needs to be continuous, as new tools emerge every day.

Therefore, the research sought to demonstrate that, in the context of the pandemic, the New Information and Communication Technologies (ICT) have proven to be powerful instruments, as they are capable of facilitating and contributing to the construction of learning, but it is necessary to pay attention to the way in which technologies were introduced in the school context, in an abrupt way, forcibly even obligatory, so to speak.

For the most part, the impacts of the pandemic on education in Brazil were mapped and confirmed by DataSenado, an agency linked to the Brazilian government, in qualitative research. The participants – Brazilians who have children or are responsible for children or adolescents in the school environment – pointed out the difficulties experienced in the last two years and what could be done to help in the recovery of learning.

Parents also saw how much the change in routine affected the learning of children and adolescents. For them, the 2020/2021 biennium was lost in terms of teaching. Although it was not possible, some even mentioned the failure of their children as a way out so that they could complete these two years in person.

In terms of barriers to the learning process, the lack of structure, both at home and at school, and the format of online classes were the most cited by parents during the pandemic. But there were mentions of providing support to families, with the offer of reinforcement for students who had difficulties.

Some limitations of online teaching are: difficulties in teaching skills, difficulties in receiving *feedback* from students, limited attention span and lack of discipline in following classes.

In addition, special attention is needed to the existing inequalities in the educational system, since students of low socioeconomic status had difficulties in accessing the technological resources necessary to follow the activities, unable to receive stimulation during this period.

The use of the internet and social networks in the school environment and in the teaching-learning relationship has been a reality since before the pandemic. Although the internet is present, for a better use of the content, it is necessary to help and guide an educator.

There is evidence in the literature indicating that a considerable period without stimulation has a negative impact on children's learning. An example of this impact is the phenomenon known as *Summer Learning Loss (SLL),* defined as a loss in school skills during the academic vacation period, which can be observed both in reading skills and in others such as mathematics. According to the researchers, the effect may be greater for low-income children, mainly due to the lack of resources and difficulty in accessing materials when away from the school environment.

Thus, it is possible that a period of absence of school stimulation brings negative impacts to academic learning, bringing negative consequences to the learning of preschoolers and schoolchildren because of social physical isolation during the COVID-19 pandemic.

What has been learned from the pandemic and inequalities in access to information and communication technologies is that inequalities, which are the main socioeconomic mark of Brazilian society, have marked the country's response to the pandemic and will necessarily mark the development of the next steps for both students and education systems.

During the pandemic, technology was how students were able to follow classes remotely. In this context, those who did not have access to material or the internet were left out. There are also criticisms raised about how efficient "hastily" distance education would have been.

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