National Digital Education Policy: literacy and citizenship for comprehensive education[1]*

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Abstract

The world was ravaged by the Covid-19 pandemic, causing: social isolation, school closures, increased educational and socioeconomic inequality and maintenance of structural duality. During this period, to reduce the impacts of the humanitarian crisis on Brasil education, non-face-to-face teaching was chosen. A fact that maintained educational regression, since most of the actors in the teaching-learning process were not familiar with techniques, tools and digital resources that mediate distance learning. In 2023, the National Digital Education Policy (PNED) was approved; therefore, we seek to identify how PNED can benefit digital literacy and the comprehensive training of high school students. To this end, a state-of-the-art qualitative integrative literature review was carried out, based on the concepts of Karl Marx, István Mészáros, Pierre Lévy, Ricardo Antunes, Ana Coscarelli, scientific research, PNED and others. The main conclusions of the research are that the policy in question is not the panacea for education in the information society, nor the solution to the unreformable, uncontrollable and incorrigible capital system in force; although its application can ensure contemporary rights necessary for the exercise of digital citizenship, it does not in itself lead to an integral human formation of the student if there is no action by a progressive teacher imbued with the transformative ethical-political function.

Keywords

National Digital Education Policy – Covid-19 – Digital literacy – Comprehensive education.

1- Data availability: The entire dataset supporting the results of this study was published in the article itself.

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Methods

This study constitutes an integrative literature review of a qualitative nature. In qualitative investigations, it is common to observe a continuous flow between observation, reflection and interpretation as the analysis progresses (Gil, 2002). Qualitative research aims to answer specific questions and concern itself with aspects of social reality that cannot be quantified (Gil, 2002; Minayo, 2001). In this context, the aim is to describe meanings, motivations, aspirations, beliefs, values and attitudes, addressing a deeper layer of social relationships (Minayo, 2001). The literature review was conducted in two distinct stages. The first stage aimed to understand the fundamental principles and objectives of the National Digital Education Policy (PNED), established by Law No. 14,533, of January 11, 2023. In the second stage, it was analyzed how the implementation of the PNED can impact positively digital literacy and the comprehensive training of high school students. For this, theoretical conceptions about integral human formation from authors such as Marx (1818-1883), Mészáros (2008), Manacorda (2007), Ciavatta (2014), Kuenzer (2016) and Freire (2021) were used. Furthermore, theories about digital literacy were considered, as discussed by Coscarelli and Ribeiro (2007) and Soares (2002). The analysis sought to demonstrate that the difficulties or impossibilities of accessing technologies, tools and digital resources for remote teaching are reflections of the dualistic structure existing between social classes.

As data sources, books available in the library of the Federal Institute of Roraima (IFRR) were consulted, as well as online scientific databases, such as the Scientific Electronic Library Online (SciELO), the periodical portal of the Coordination for the Improvement of Higher Education Personnel (Capes), Google Scholar, among others.

Non-face-to-face teaching as a necessary path, but impossible for everyone

Originating in the city of Wuhan, China, in 2019, Covid-19 proliferated, assuming intercontinental proportions and being classified as a global pandemic by the World Health Organization in early 2020. The rapid geographic spread of Covid-19 resulted in measures urgent and immediate, affecting several dimensions: cultural, economic, educational; and leaving a balance of 619,056 deaths in Brasil from 2020 to 2021 (Brasil, 2020b; Datasenado, 2022; Dias; Ramos, 2022).

In this sense, Brasil, through the Ministry of Health, issued Ordinance No. 188, of February 3, 2020, which recommended basic actions, including: isolation and social distancing (Brasil, 2020). Accordingly, the Ministry of Education (MEC) issued Ordinance No. 343, which was later added by Ordinances No. 345 and No. 346, all published in 2020. They deal with the replacement of face-to-face classes with digital classes. In this sense, the calculation of non-face-to-face activities was accepted for the purpose of complying with the minimum annual workload (Brasil, 2020a).

Even with the numerous recommendations for remote classes, in order to have non-face-to-face classes for poor Basic Education students, it is assumed that a national digital inclusion policy is necessary, also responsible for breaking two macro barriers: socioeconomic and lack of digital literacy. Regarding the first barrier, the number of people with per capita household income of up to R$497 per month reached 62.9 million Brazilians in 2021, which represents 29.6% of the country's total population (FGV, 2021b). Thus, there was an increase of 9.6 million people who joined the group of poor Brazilians during the pandemic period (FVG, 2021b).

Therefore, in addition to increasing the number of people less favored in terms of living expenses during the health crisis period, such people, due to estrangement and unilaterality (Manacorda, 2007), have to make difficult choices, such as, at a given moment, choosing between using digital tools for studying or purchasing priority foods. In this sense, Oscar Jara writes: "How to form critical citizens capable of influencing and promoting change[?] How to do this in a country like Brasil, where a large part of the population has more urgent concerns than learning, such as eating and living?" cited by Ciavatta (2014, p. 188).

The class condition of the subjects (or class fragment) defines the trajectory in professional school education (Marx, 1818-1883; Moura, 2014; Mészáros, 2005). In dialogue with these authors, research carried out in 2022 by the Federal University of Pernambuco (UFPE) shows that social, regional and income inequalities cause low social mobility – children of rich and poor tend to stay at their respective social levels (Pinotti *et al*., 2021).

Although before the pandemic (2015, 2017, 2019) the final years of primary and secondary education already reflected negative values in the Basic Education Development Index (Brasil, 2021; Dias; Ramos, 2022), the values declined even further in the period pandemic. On the contrary, labor becomes evolutionary/cumulative for the least favored, a fact influenced by the social organism (Manacorda, 2007, p. 18), a term referenced by Marx as capitalism in its various forms since the beginnings of humanity. The question is, what is the role of technology in the formation of the subject?

According to Moura (2014, p. 4), "technology has gained a central place in almost all social practices, in particular, in the educational and research process". However, it is clear that much needs to be done so that quality education, whether in person or not, can be accessible to everyone. It is discussed that it is necessary to know the techniques, but not just to serve as an alternative for work, but to contemplate other human dimensions; however, this is not what happens. Table 1 refers to some morphologies used by people according to the usability of digital technologies.

Table 1 – some morphologies used according to the usability of digital technologies

→ **Digital Immigrants:** refer to those born in 1980 who need to learn digital language (Prensky, 2001). → **Digital Natives:** refer to young adults born around 1984, who were born into a digital world and grew up using the Internet and other digital technologies (Prensky, 2001).
→ **Net Generation:** corresponds to people born after 1985 (Tapscott, 1998).
The terms Generation X, Y and Z were coined by Tapscott and Williams (2007). → **Generation X:** born between 1965 and 1976; → **Generation Y:** born between 1977 and 1997; → Generation Z: also called "Generation Next", identifies those born after 1998.
The classification is not based on the period of birth, but on the analogy of users' ability to be simultaneously in different places and spaces. People vary in terms of time and purpose for using the internet (White; Cornu, 20110). Residents: spend a significant part of their time on the internet. They use social networks, using social networks. → **Visitors:** use the internet to solve practical problems and disconnect.

Source: Adapted from Alves (2020)

Although Chart 1 serves as a theoretical-temporal reference to describe the relationship of the individual, whether a student or not, with the internet, it consists only of nomenclatures. It cannot be said, for example, that a student from Generation Z, also known as Generation Next, which identifies those born after 1998 according to Tapscott and Williams (2007) apud Alves (2020), is necessarily connected to the network, as social and structural inequalities can prevent this access.

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Furthermore, the negative consequences of Covid-19 for education are referenced by several studies that interact with each other. Above all, such studies lead to the understanding that the lack of digital techniques, tools and resources may have led to a qualitative decline in the education offered. One of the arguments used for this is that, although the pandemic was global, countries that had better digital skills and resources experienced smaller losses in the quality of education.

Consequences of Covid-19 for Brazilian education

In 2021, the DataSenado Institute transcribed the impacts of the pandemic on education, after hearing the reports of Brazilians who have children or are responsible for school-age children and/or adolescents. For the group interviewed, the impacts caused by the pandemic affected: the home (parents without time and/or knowledge to teach their children online activities); teaching (low performance; sociability – the lack of interaction with other children –); and education (since the lack of structure for learning mediated by technologies became a barrier to learning) (Datasenado, 2022). Parents/guardians recognized the lack of performance and delay of students, because:

> The lack of adequate equipment at home, such as computers and cell phones, was one of the main problems faced during the suspension of in-person classes. Many reported difficulty in providing internet and a cell phone or computer for all their children, especially when there was more than one child or adolescent needing to watch classes via live streaming. (Datasenado, 2022, p. 2).

Corroborating the research above, the Getúlio Vargas Foundation (FGV), using data from the Basic Education Assessment System (Saeb), in 2021, carried out a demonstrative estimate study in which it expressed the possibility of education going back up to four years for Portuguese Language and up to three years for Mathematics due to the pandemic (FGV, 2021a). It was possible to simulate a loss equivalent to the return to Brazilian proficiency in the assessment four years ago (between 2015 and 2017) in the Final Years of Elementary Education, considering the scenarios: without Covid-19, optimistic, intermediate and pessimistic (FGV, 2021a).

Furthermore, not escaping the historical racial subordination, "the most disadvantaged population groups, for the final years of Elementary School (5th to 9th grade) and High School, in both components (Portuguese and Mathematics), are males, brown, black and indigenous people, with mothers who did not complete Elementary School" (FGV, 2021a, p. 2). It is noteworthy that, considering.

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> [...] that students learn in non-face-to-face teaching in proportion to the hours dedicated to school activities, students in the final years of Elementary School have a loss of 34%, while High School students, of 33%. If a pessimistic scenario is considered, in which students would not learn anything with remote teaching, both cycles lose the equivalent of 72% in learning. (FGV, 2021a, p. 3).

In another analysis, the survey by the National Institute of Studies and Educational Research Anísio Teixeira (INEP), in May 2021, covered 94% (168,739) of all Brazilian schools. The school staff answered the questionnaire applied in the 2020 School Census – Educational response to the Covid-19 pandemic, which sought to understand the strategies adopted by schools to complete the 2020 school year (Brasil, 2021). The analysis of 97.2%

(134,606) and 83.2% (34,133) of the public and private networks, respectively, showed that 98% of schools in the country adopted non-face-to-face teaching strategies, resulting in an average of 279 days of class suspension in 2020 alone, surpassing countries such as Chile, Argentina, Mexico, Portugal and France (Brasil, 2021).

The census also reported that technological support (email, telephone, social networks and messaging applications) and equipment at school (computer, notebooks, tablets and smartphones) were used as alternatives for classes and communication with students; and synchronous and asynchronous teaching and learning methodology (Brasil, 2021). Regarding free or subsidized access to the internet at home,

> In the state network, 79.9% of schools trained teachers to use methods or materials from distance learning programs. In the municipal network, 53.7% provided training. In total, 43.4% of state schools provided equipment, such as computers, notebooks, tablets and smartphones, to teachers. In the case of municipal schools, this percentage is 19.7%. When it comes to free or subsidized internet access at home, the survey carried out by INEP shows that 15.9% of the state network adopted measures in this sense; in the municipal network, the number registered was 2.2%. (Brasil, 2021, p. 1).

Still addressing the problems of the pandemic, researchers from the USP Global Cities Program, a synthesis center based at the Institute of Advanced Studies at the University of São Paulo (USP), collected 19,221 responses from teachers from the São Paulo State Network in 544 municipalities. The approach sought to understand the impact of the new coronavirus pandemic on teachers, highlighting the anxieties and challenges that arise after a unique opportunity to promote such drastic changes as those that have occurred in the world in recent months (Grandisoli *et al.*, 2020). Approximately 70% of respondents are between 36 and 55 years old, with the majority working in Elementary School and High School (Grandisoli *et al.*, 2020).

In addition to the exhibition presenting relevant aspects of the most populous Brazilian city, the variables are described based on the educators. Among the indicators collected:

> Feelings of challenge, learning, and innovation account for approximately 30% of feelings related to the technology-mediated education model. • Overall, 62% of the feelings cited were classified as positive regarding the new educational model in progress. • There is a predominance of insecurity regarding working in this new model (approximately 51% of responses). • Despite this, 70% of respondents say they feel able to perform their functions via technology-mediated education. • Approximately 68% assess that they feel supported by the training processes in progress. • Despite the positive picture related to aptitude and training support, 85% of respondents perceive that students learn less or much less via technology-mediated education • [...]. (Grandisoli et al., 2020, p. 2).

As can be seen, the USP research shows that teachers, even as mediators of teaching through Digital Information Education Technologies (TDIC), also feel insecure when working in the digital teaching model, and there is no unanimous aptitude for performing their

functions in technology-mediated education, showing that the barriers of cultural literacy in cyberspace must also be broken by teachers, since: "teaching requires the recognition and assumption of cultural identity" (Freire, 2021, p. 41), which in contemporary times also reflects digital culture (Brasil, 2023).

The National Education Council itself (Brasil, 2020b) recognized the importance of creating and implementing public online teaching platforms to be used during and after the pandemic. As can be read:

> In order to have a look at the opportunities brought about by the current difficulties, it is recommended that educational managers make an effort to create or reinforce public online teaching platforms, as far as possible, which serve as a reference not only for the development of learning objectives in normal times but also in times of emergency like this one. (Brasil, 2020b, p. 1).

Therefore, it is understood that previous research aimed at parents, teachers and schools converge to demonstrate the difficulties of the actors – be they teachers, parents and/or students – regarding the use of technologies in the teaching and learning process, as well as the existence of structural barriers that prevent the acquisition of these technologies. Therefore, the PNED and its benefits for Brazilian education are analyzed.

The structuring axes and objectives of the PNED

Sanctioned by the current President of the Republic, Luiz Inácio Lula da Silva, Law No. 14,533, of January 11, 2023, establishes the PNED aimed at students, teachers, and citizens in general, especially the poor class. It is divided into four structural axes and objectives: digital inclusion; digital school education; digital training and specialization; and Research and Development (R&D) in Information and Communication Technologies (ICTs).

As provided for in art. 2 of the aforementioned law, the digital inclusion axis will observe priority strategies focused on the general population (Brasil, 2023), including training to acquire media and information skills; facilitating the development of and access to digital resource platforms and repositories; and fostering the digital educational content ecosystem, as well as promoting data policy, including mobile access for teachers and students (Brasil, 2023).

As for the digital school education axis, as provided for in art. 3rd, the objective is to ensure the inclusion of digital education in school environments at all levels and modalities, based on the stimulation of digital and information literacy (Brasil, 2023). Therefore, it is up to the State to provide; in school and outside it, digital literacy and the acquisition of skills for the social use of media, encompassing:

> I - computational thinking, [...]; II - digital world, which involves learning about hardware, such as computers, cell phones and tablets, and about the internet-based digital environment, such as its architecture and applications; III - digital culture, [...] IV - digital rights, which involves raising awareness about rights over the use and processing of personal data, [...] V - assistive technology, which encompasses products, resources, methodologies, strategies, practices and

> services that aim to promote functionality and learning, with a focus on the inclusion of people with disabilities or reduced mobility. (Brasil, 2023, p. 3, our emphasis).

Next, in art. 4, the digital training and specialization axis aims to train the Brasil working-age population, providing them with opportunities to develop digital skills for full insertion into the world of work (Brasil, 2023).

Among the priority strategies of this axis, the following stand out: identification of the digital skills necessary for employability; promotion of access by the working-age population to opportunities for developing skills required in specific areas of ICTs; implementation of a national network of courses related to digital skills within the scope of professional education and Higher Education (Brasil, 2023).

The R&D axis in ICTs, listed in art. 5, aims to develop and promote accessible and inclusive ICTs. Some of its priorities are: encouraging scientific, technological and innovation research activities aimed at the development of accessible and inclusive ICTs; contemplating national and international partnerships for the emergence of new technologies and applications aimed at digital inclusion (Brasil, 2023).

Three things are worth highlighting: the first is that the various theses and dissertations on the Capes platform reaffirm the existence of the information society. They even label it e-gov and use gamification to make it more attractive (Fernandes, 2015); the second issue is summarized in the words of Ricardo Antunes (2018) in the book O prélige da servidão: o novo proletariado deserviços na era digital [The privilege of servitude: the new proletariat of services in the digital era], which described how the new group of workers (the new proletariat, known as informal or digital, in the service sector) is a victim of precariousness and reification (Antunes, 2018).

Last but not least, when searching for the scope of digital literacy in the Capes Sucupira database, 533 works (including theses and dissertations) are found, which in a broad approach demonstrate the importance of this component for education, work and citizenship. Therefore, this article recognizes that the contributions of the new National Education Policy bring benefits and contemporary concepts of modern Law – digital literacy, digital culture, digital citizenship, etc. However, as Lévy (1999, p. 11) states, "My optimism, however, does not promise that the Internet will magically solve all the cultural and social problems of the planet", nor will it guarantee the formation of the Gramscian unitary and humanist school, much less comprehensive education (Manacorda, 2007; Moura, 2014; Mészáros, 2008), since the path to a contemplative education – comprehensive, polytechnic and omnilateral education (Moura, 2014) – depends mainly on the action of the teacher. It is about the relationship between teacher, student, comprehensive education and digital literacy that we will address next.

The teacher in the digital literacy action for comprehensive learning

Without disregarding that, according to Paracelsus apud Mészáros (2008, p. 10), "learning is our very life, from youth until almost before death", we start from the

definitions of the following terms: the nature of teaching work; the accepted definition of digital literacy; and the concept of integral human education. Based on this, this section demonstrates that it is possible to provide quality education in non-classroom teaching, on the fringes of the information society. However, it is worth highlighting that the integral education of the student is not limited to digital skills alone.

The teacher, like other working classes, suffers from structural changes, as sometimes he is expropriated of his intellectual character to serve as instructor for technical education (Fordism/Taylorism), and sometimes he seeks to inflate the number of students trained for preparatory education (Moura, 2014). Therefore, the nature of that professional is that of a worker who sells his services (Moura, 2014), but who can transform himself through the freedom of his pedagogical knowledge, as long as it is based on progressive, liberating and dialogical ethical-political ideas according to Freirean concepts, for example.

It is worth remembering that for Freire's liberating education (2021, p. 96) "teaching requires understanding that education is a form of intervention in the world, it requires the conviction that change is possible". This thinking can be achieved through praxis, and not through the "formation of flexible subjectivities: pragmatists, presentists and fragmented" (Kuenzer, 2016, p. 12) that aim exclusively at preparing for the market. Far from it, one must educate for life and for a reading of the world (Freire, 2021), because "educating is - quoting Gramsci - putting an end to the separation between Homo faber and Homo sapiens; it is rescuing the structuring meaning of education and its relationship with work, its creative and emancipatory possibilities" (Mészáros, 2008, p. 9).

Given the concepts of the desired guiding model of education, the theoretical-conceptual conception of comprehensive education characterizes it as one that seeks to encompass all aspects or dimensions of human life (physical, intellectual, aesthetic, moral and work-related), integrating general and professional training (Ciavatta, 2014; Kuenzer, 2016; Manacorda, 2007; Mészáros, 2008; Moura, 2014). Furthermore, comprehensive education includes subjective aspects, such as "psychosocial, affective, aesthetic and playful" (Frigotto, 2012, p. 265).

In this understanding, Mészáros (2008) states that education must be continuous, permanent and for life, not for the market; nor for the maintenance of the capital structure that favors the bourgeois class. For,

> In the face of the specific positive of the dominant class, which therefore consists in the reality of the appropriation of pleasure, culture, etc., thanks to the work of others, the positive of the worker consists, in turn – as we have already indicated – in a possibility or, more concretely, in his abstract availability of pleasure, culture, etc., and in his direct and conscious opposition to the present state of affairs. (Manacorda, 2007, p. 85).

As it is a broad concept with several dimensions, comprehensive education goes beyond the simple use of digital technologies through digital literacy. According to Coscarelli and Ribeiro (2007, p. 4), "Digital Literacy is the name given to the expansion of the range of possibilities for contact with writing, also in a digital environment - both for reading and writing". It is through language, widely disseminated through the use of

digital technologies, that dialectics, socio-discursive interaction are promoted and, above all, the contemplation of human dimensions in the information society is achieved.

In this sense, various electronic devices or equipment are used, such as cell phones, computers, tablets and the Internet, that is, digital literacy is used for education 4.0, e-commerce (electronic commerce), e-learning (electronic teaching) and e-gov (electronic government). As can be seen, literacy is the social use of languages for various purposes: cultural, social, personal, leisure, social representation and democratic (Soares, 2006).

For Soares (2002), there are different types of literacy, which suggests that the word should be pluralized: there are literacies, and not literacy. In other words, different spaces of writing and different mechanisms of production, reproduction and dissemination of writing result in different literacies (Soares, 2002). One of the loci of production and reproduction of writing is in cyberspace. For Lévy (1999, p. 92), "cyberspace is the communication space opened by the global interconnection of computers and computer memories". For this author, "this world refers not only to the material infrastructure of digital communication, but also to the oceanic universe of information that it houses, as well as the human beings who navigate and feed this universe" (Lévy, 1999, p. 92).

Therefore, training for education in the digital age is intrinsically linked to the need to understand this cyberspace. Given that, with the advent of digital culture, there is the possibility of a greater spread of scientific and non-scientific thoughts, pseudoscientists, spontaneous sociology, vulgar knowledge, as cited by Bachelard and mentioned by Dourado (2018), and even fake news - a name that represents false news.

In this understanding, the application of the New PNED may imply greater interaction in cyberspace. To this end, it is necessary for teachers averse to interactive teaching models to reflect on the thinking of Paulo Freire, who describes: "the very act of thinking correctly implies the availability of risk, the acceptance of the new that cannot be denied or welcomed just because it is new, just as the criterion for refusing the old is not only chronological" (Freire, 2021, p. 36). Furthermore, teachers must recognize that in today's information society, studies, work and citizenship are mediated by digital tools and resources. For example, a) for education: e-books, audio books, scientific articles, subjects, research, Virtual Learning Environments (VLE), among others; b) for citizenship: e-title, e-gov (electronic government), integrated digital public services platform accessed by computer, notebook, tablet or smartphone, public consultations; c) for work: Income Tax, INSS online, etc. In short, the lack of digital literacy affects comprehensive education, but digital literacy alone does not guarantee comprehensive education. Borges and Silva (2005, p. 2) relate that the information society was imposed on everyone, but

> The Information Society will only become a reality in Brasil when the population has developed the skills necessary to access and use information, which is increasingly available on the Internet. This understanding needs to be taken into account by digital inclusion programs.

The PNED aims to enhance standards and increase the results of public policies related to the Brazilian population's access to digital resources, tools, and practices, with priority given to the most vulnerable populations (Brasil, 2023). With this law, the obligation of

the State to offer digital rights, digital literacy, and computational thinking was added to art. 4 of the 1996 Law of Guidelines and Bases of Education (LDB) (Brasil, 1996). However, teaching performance is essential, and must follow the path of comprehensive education, especially for the poorest population.

Final considerations

The research sought to analyze how the implementation of the PNED can have a positive impact on digital literacy and the comprehensive education of high school students, even in the face of the repercussions of the pandemic. Based on the analyses carried out on the impacts of the Covid-19 pandemic on Brazilian education and the subsequent implementation of the PNED, it can be inferred that, although the PNED represents a significant advance in the contemporary educational context, it cannot be seen as a single solution to the challenges faced by the information society, especially the structural problems that affect education, from social and economic inequalities to limitations in access to technology and digital skills. The pandemic has exacerbated these disparities, highlighting the urgent need for inclusive and comprehensive policies to mitigate the negative impacts on student learning and development.

A The PNED emerges as an institutional response to these challenges, outlining structural axes that aim to promote digital inclusion, train teachers and students, and foster research and development in educational technologies. However, the research findings suggest that the mere implementation of digital policies is not enough to guarantee a quality and comprehensive education. It is essential to recognize that human development and the construction of knowledge go beyond the technological domain.

In addition, the role of the teacher as a transformative agent and mediator of the teaching-learning process is central to promoting a truly comprehensive education. In this sense, the PNED must be complemented by teacher training strategies and pedagogical practices that value not only digital literacy, but also critical reflection, creativity, and civic awareness. In addition, it is necessary to consider the socioeconomic conditions of students and their families, ensuring equitable access to technological resources and promoting digital inclusion policies that address existing structural inequalities. Only in this way will it be possible to move towards a truly democratic, inclusive education oriented towards the integral development of individuals.

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