

**TEACHERS, DIGITAL TECHNOLOGIES AND SCHOOL INCLUSION:  
CHALLENGES OF SPECIAL EDUCATIONAL POLICY IN A BRAZILIAN  
MUNICIPALITY**

***PROFESSORES, TECNOLOGIAS DIGITAIS E INCLUSÃO ESCOLAR: DESAFIOS DA  
POLÍTICA DE EDUCAÇÃO ESPECIAL EM UM MUNICÍPIO BRASILEIRO***

***MAESTROS, TECNOLOGÍAS DIGITALES E INCLUSIÓN ESCOLAR: RETOS DE LA  
POLÍTICA DE EDUCACIÓN ESPECIAL EN UN MUNICIPIO BRASILEÑO***

Fabiane da Silva FERREIRA<sup>1</sup>

Andressa Santos REBELO<sup>2</sup>

Mônica de Carvalho Magalhães KASSAR<sup>3</sup>

**ABSTRACT:** The purpose of this article is to know the teachers' conceptions about the use of digital technologies in pedagogical activities, in a context of diversity in a region of Brazil that implemented the national policy of inclusive education. The methodological procedures consisted of consulting documents and conducting semi-structured interviews with teachers who work in regular classes and specialized educational classes, with children in the literacy stage. The school is distinguished for receiving a large number of special education students, because it includes a specialized support center, and students who have Spanish as their mother language, because it is located close to the border between Brazil and Bolivia.

**KEYWORDS:** Digital technologies. School inclusion. Special education.

**RESUMO:** Este artigo objetiva conhecer as concepções dos professores sobre o uso das tecnologias digitais nas atividades pedagógicas, em um contexto de diversidade, em uma região do Brasil que implantou a política nacional de educação inclusiva. Os procedimentos metodológicos consistiram em consulta a documentos e realização de entrevistas semiestruturadas com docentes que atuam em salas comuns e em salas de atendimento educacional especializado, com crianças na etapa de alfabetização. A escola se distingue por receber grande número de alunos da educação especial, por possuir um centro de especializado de apoio à inclusão, e atender alunos que tem o espanhol como língua materna, por localizar-se perto da fronteira entre Brasil e Bolívia.

**PALAVRAS-CHAVE:** Tecnologias digitais. Inclusão escolar. Educação especial.

<sup>1</sup> Federal University of Mato Grosso do Sul (UFMS), Corumbá – MS – Brazil. Master's Degree from the Postgraduate Program in Education. ORCID: <https://orcid.org/0000-0002-4076-625X>. E-mail: [fabianesilvaopositivo@outlook.com](mailto:fabianesilvaopositivo@outlook.com)

<sup>2</sup> Federal University of Mato Grosso do Sul (UFMS), Corumbá – MS – Brazil. Professor at the Postgraduate Program in Education. Doctorate in Education (UFMS). ORCID: <https://orcid.org/0000-0003-1873-5622>. E-mail: [andressarbl@gmail.com](mailto:andressarbl@gmail.com)

<sup>3</sup> Federal University of Mato Grosso do Sul (UFMS), Corumbá – MS – Brazil. Professor at the Postgraduate Program in Education. Doctorate in Education (UNICAMP). ORCID: <https://orcid.org/0000-0001-5577-6269>. E-mail: [monica.kassar@gmail.com](mailto:monica.kassar@gmail.com)

**RESUMEN:** El objetivo de este artículo es conocer las concepciones de los maestros sobre el uso de las tecnologías digitales en las actividades pedagógicas, en un contexto de diversidad, en una región de Brasil que ha implementado la política nacional de educación inclusiva. Los procedimientos metodológicos consistieron en la consulta de documentos y la realización de entrevistas semiestructuradas con maestros de clases regulares y especializadas, con niños en fase de alfabetización. La escuela se destaca por recibir una gran cantidad de alumnos de educación especial, por tener un centro especializado de apoyo a la inclusión, y estudiantes cuyo español es su lengua materna, ya que se encuentra cerca de la frontera entre Brasil y Bolivia.

**PALABRAS CLAVE:** Tecnologías digitales. Inclusión escolar. Educación especial.

## Introduction

Several works seek to analyze the production on digital technologies<sup>4</sup> in Brazilian education (ARANHA, 2013; MEDEIROS, SILVA; MILL; OLIVEIRA, 2014), without, however, deepening the knowledge about the productions that focus on their use in and by the school. Löbler, Pretto and Bolzan (2013) demonstrate that it is possible to consider that the initiative to introduce digital technologies in public schools is well received by students, as well as by teachers and proponent politicians. However, there are problems with the available technological resources, infrastructure and some improvisation.

A polysemic concept, innovation is not always present in pedagogical work, even if digital technologies are used (FERREIRA, 2020; SILVA, 2019). This fact arises when technologies come to the scene in education as models to be followed (HABOWSKI; CONTE, 2020), the absence of creative actions and forms of engagement with the immediate environment and with the world, especially when students "seem to position themselves, predominantly, as receivers"; which suggests that the appropriations of these technologies in learning seem to be mediated by elements of a "traditional and hierarchical school culture" (FERREIRA; CASTIGLIONE, 2018, p. 1, our translation).

By suggesting a scenario marked by the reproduction of the usual relations of banking education (FREIRE, 2005; 2009; BRIGHENTE; MESQUIDA, 2016), based on the pedagogy of transmission, there are "limits to the usefulness of the *digital native* category" as decontextualized expectations, as it is disregarded the transforming potential of digital

---

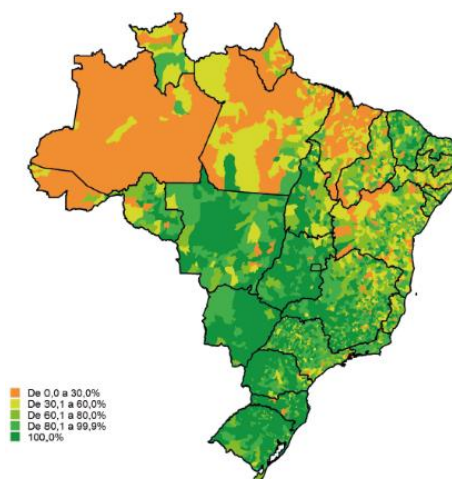
<sup>4</sup> We will use the term "digital technologies" for what educational literature calls Information and Communication Technology (ICT), Digital Information and Communication Technologies (DICT) and New Digital Information and Communication Technologies (NDICT).

technologies (PÚBLIO JUNIOR, 2018; FERREIRA; CASTIGLIONE, 2018, p. 1, author's highlights, our translation).

The limits also widen if the inequalities of access to digital technologies are considered. There are differences between the access policies to them in public schools, according to administrative dependence. Despite having the largest number of elementary schools, the Brazilian municipal network has the least technological resources, such as a digital whiteboard (8.8%), multimedia projector (52.9%), desktop (34, 3%) or portable computer (20.4%) for students or even internet available for their use (21.1%). The schools in the state network are better equipped with technological resources and outperform the private network (with or without profit) in five out of nine evaluated items: digital whiteboard, multimedia projector, desktop computer for students, internet for students; and internet for teaching and learning. They do not outperform: laptop for students, tablet for students, internet; and internet for administrative use (BRASIL, 2020).

Overall, Brazil has a high percentage of internet access in elementary schools, however, some regions still have low coverage. The states with the lowest proportion of internet access are Acre, Amazonas, Maranhão and Pará (Figure 1) (BRASIL, 2020).

**Figure 1** – Percentage of elementary schools by municipality with internet access



Source: Brasil (2020)

As indicated, depending on the region of the country, schools are, more or less, minimally equipped with internet. The regions with the highest proportion of internet access are those in the Center-South region of Brazil.

In addition to the precariousness of access to digital technologies, specifically in Special Education, there are discussions about the imprecision of the concept of assistive technology and its impacts on teaching practice (BORGES; TARTUCI, 2017); and the

mismatch between the demand for enrollments and the offer of Specialized Educational Assistance (SEA) offered in specific school spaces for this purpose, implemented in Brazil in the form of a Multifunctional Resource Room (SANTOS *et al.*, 2017), a privileged locus, in the recent years, to receive and store technological resources to serve Special Education students (REBELO, 2016).

Aware of the specificities of different educational networks, this article aims to understand the conceptions of teachers in the common room and in the specialized educational service room (Multifunctional Resources Room) about the use of digital technologies in a school in a Brazilian municipality. Attention is focused on those who work in the literacy stage. The methodological procedures are explained below.

### **Theoretical-methodological options**

For data collection, documents were consulted and semi-structured interviews were carried out, based on a previously elaborated script<sup>5</sup>. Teachers from common classrooms and specialized service rooms of a school belonging to the municipal education network of Corumbá (MS)<sup>6</sup> participated in the research, which is among the Brazilian regions that have between 80.1% and 99.9% of its schools in elementary school with internet access. The school was chosen for the diversity of its students, especially for two reasons: it houses a multidisciplinary center for specialized care for Special Education students from the municipal education network, which would characterize it as an institution that has favorable conditions to develop the process of school inclusion; and concentrates a large number of enrollments of students whose mother tongue is Spanish, due to the fact that the school is located a few kilometres from the border between Brazil and Bolivia.

The interviews were granted between September 2019 and March 2020. Considering the attention to the literacy stage, the inclusion criteria for granting the interviews were: working in the investigated school in the 2nd year of elementary school or in the resource room with assistance to these students, and, within this criterion, agree to participate in the study. In total, ten teachers were interviewed through audio recording: three main classroom

---

<sup>5</sup> The broader research is linked with a Certificate of Presentation for Ethical Appreciation - CAAE 82496418.0.0000.0021 on Plataforma Brasil.

<sup>6</sup> Corumbá has a population of 103,703 people, with an estimated population of 112,058 people in 2020 (IBGE, 2020). Enrollments are concentrated in the municipal administrative area, especially in the early years of elementary school. According to data from the School Census of Basic Education, in 2019 the municipality had 25,459 enrollments (14,360 in the municipal area) and had 63 educational establishments, of which 35 were in the municipal network (INEP, 2019).

teachers; three from specific areas of knowledge; a former teacher from the specialized assistance room who is currently a second-year classroom teacher; and three teachers from multifunctional resource rooms, as shown in Table 1.

In this teaching network, graduates in Pedagogy work in the early years of Basic Education, teaching the largest number of subjects, and are considered the main teachers and/or responsible for the classes. Teachers with teaching degrees in other courses work at this school stage, teaching subjects such as Physical Education and Spanish (teachers in specific areas).

The Table shows the acronyms used in this article to represent the participants.

**Table 1** – Number, function and identification of professors participating in the research

Number of participating teachers	Occupation	Acronyms
3	Main classroom teachers	PR1/PR2/PR3
2	Area Teacher (Physical Education)	PEF1/PEF2
1	Area teacher (Letras-Portuguese and Spanish)	PLPE1
1	Former SEA teacher, current classroom teacher	Ex-PAEE1
3	Teachers in the multifunctional resource rooms	PAEE1/PAEE2/PAEE3

Source: Research data

The collected data were grouped into axes, considering the digital technologies: 1. Means to educate and facilitate the teaching-learning process; 2. Means of information and disinformation; 3. Formation of learning communities; 4. Tool to include students; 5. Complement to schooling. To choose the axes, we considered the literature that addresses the theme and topics identified as relevant from the perspective of teachers. For the analyses, the statements were considered in relation to the surrounding thought, especially disclosed in the specialized literature, as it is assumed that individual discourses are not totally individual; they bring conceptions and ideas that circulate in society and in teacher education, since otherness is understood as constitutive of the subject in an inalienable way (ARÁN, 2014). It is assumed that the discourses emerge in the adherence and clash with different present conceptions of society (BAKHTIN, 1992), so that the discourse movement is interconnected and intertwined with/in the “life” movement (BAKHTIN, 1992), education and society.

## Common room and multifunctional resource room teachers' views on the use of digital technologies

### Means to educate and facilitate the teaching-learning process

All professors participating in the research see digital technologies as a means to educate, as they understand that they facilitate teaching and learning. According to PLPE1, which teaches Spanish and Portuguese classes, its use by students causes behavioral differences. The teacher understands that digital technologies become an attraction:

*[...] mainly in behavior, it's different... At least, when I speak Spanish, there are things they don't pay attention to... I'm explaining, explaining, but if you put it there, on video, on **media, they pay more attention because it's media, it's an electronic thing that they're used to.** There's so much appeal in that video that you couldn't get [the same result] just in the classroom. [...] For example, let's talk about colors... I'm talking more like this about my pre and first graders... You throw a media there and pretty quickly they sit down, look and interact. [...] I would say: "amarillo" and keep raising my arm to show it. **The technology comes automatically, the child sits and she listens, it's another life** (PLPE1, our translation).*

Ex-PAEE1, who worked in the Specialized Educational Assistance, also talks about the possibility of giving classes from the computer. Realizes the use of digital technology in a profitable way, as it can replace the manual work of "cut and paste":

*[...] before, if I wanted to work on something related to the city, I had to look for figures. I was always cutting out pictures, as I always had to have visual material for deaf students. And where would I find magazines, books, photos so I could work? **With technology, just open the computer and show it. I no longer need to keep cutting and pasting** (Ex-PAEE1, our translation).*

The Physical Education teacher (PEF1) reports a situation in which, according to him, the use of technology can facilitate the teacher's work and contribute to the apprehension of content. It is optimistic about digital technologies:

*[...] **everything became easier**, before you went to a geography class, the teacher had to go there with the world map, with several maps, carrying the work he required... The Geography teacher with a pile of maps placed on the board of the room and began to explain. Today you just have a notebook, a datashow and you put there and several images and everything else, so **the student learns more and the teacher's job is even easier with the use of technologies. Technology today is everything.** The world today is technological. Before, we had to go to the library and get those books and keep looking for content. Today we have everything you need in the palm of our hand on our cell phone: news, games, live programs... So, taking into account education, how many books are on the internet, are they cataloged on the internet? **The internet and technology come to help and, from now on, this will be the direction of education.** We can already see that in*

*schools there are digital boards, books, there are schools that already use tablets, schools that are private, each student already has his tablet, his notebook (PEF1, our translation).*

The PR3 teacher expresses herself in a generic way, stating that the students have a lot of access to the internet, and that is why they know the subjects to be worked on. She also addresses the need to use digital technologies in the teaching-learning process, indicating the teacher's mediation role:

*As they have a lot of access to the internet, when you talk about a subject they even know something. They already know, but they need the teacher to teach them the right way. How is it used, what is the use. For that, there's the teacher, because otherwise you didn't need to. They went on the internet and taught themselves (PR3, our translation).*

The set of testimonies can be analyzed under different aspects. On the one hand, it is possible to identify the belief in a possible direct relationship between “exposure to content” and “apprehension of knowledge”, almost like a magical relationship. In some of these testimonies, the teacher appears as a secondary figure (it is up to the teacher to teach the correct way [...] because otherwise he did not need to). From this perspective, the technical aspect is strengthened in the face of the pedagogical one, indicating, in a way, the resurgence of the technical perspective (SAVIANI, 1985), in which the teacher becomes just an “instructor” of an almost autonomous process of the students, that are led to the acquisition of “self-regulated” learning behaviors (WANG; SHANNON; ROSS, 2013).

On the other hand, the speeches also bring the perception of the image (figure, drawing, film, maps) as a power in the teaching-learning relationship, which can signal the appreciation and incorporation of the use of different languages in the classroom, a fundamental aspect for the inclusive education (FERNANDES; FREITAS-REIS; ARAÚJO NETO, 2020; SANTANA; SOFIATO, 2019).

*From the moment we talk about technology, it's a different class, you try to get this child involved. Often, you are not able to develop that same activity with a manual game, a puzzle. From the moment we take her to the computer, using the internet, searching, even doing a survey, we observe that the child is more interested in school. Often not all of them have access at home, it's new, it's something new, so they're interested. They are very curious to learn, to seek (PAEE2, our translation).*

*[...] For example, if I say: “over there in Italy”, there is this type of construction... Because the deaf understand differently. For him to understand something, you need to show the same thing over and over in different contexts. So, have you ever thought about bringing all this? On the computer, you click, teach, the student searches and sees what's there, just a*

*click. He has more autonomy, more knowledge, because it's much easier (Ex-PAEE1, our translation).*

When considering the construction of inclusive education, it is noteworthy that digital technologies were not mentioned as a means or tool to achieve one of the major problems pointed out by the literature and by teachers at school, which is the lack of dialogue between professionals who work with the same children, especially among classroom teachers and those who work with specialized service rooms (ARAÚJO *et al.*, 2019). This relationship requires the construction of cooperative/collaborative work, which, according to the teachers (PAEE1, PAEE2; PAEE3), took place in person. Data were collected prior to the onset of the coronavirus pandemic (COVID-19). In this new context, collaborative work could be mediated by digital technologies, as recent research indicates impacts on the schooling of Special Education students (SHIMAZAKI, MENEGASSI; FELLINI, 2020; SOUZA; DAINEZ, 2020)<sup>7</sup>.

### Means of information and disinformation

Access to “content” is generally identified as “access to information”. PR2 recalls a practical example of the use of digital technology during its class and highlights the experience with one of the students in the 2nd year of elementary school:

*Technology can be used as a pedagogical resource, because you do a search, you go to Google and you have everything you want to know. Sometimes even the students say: “I’m going to see the weather forecast, teacher”. And they take my cell phone, which I lend them. **There is a student who is very up to date, well informed**, he is the son of a couple of teachers, he watches the newspaper with his parents. Then he says: “teacher, I’ll see how the weather will be for tomorrow” [uses the teacher’s cell phone]. It is already information that he reads and passes on to other students: “tomorrow it will be so hot, bring your little bottles...”. **He is well informed through the internet and television**, as he watches the newspaper. I say: did you watch the newspaper? What news today on this subject? It’s a very useful tool (PR2, our translation).*

Would access to free content be a guarantee of access to information and improvement of the educational process? PAEE3 aligns its speech with the discourse of the need for a critical education of the media (KELLNER; SHARE, 2008), by talking about encouraging children to use reliable and responsible websites. It also warns of false news and information transmitted on websites and social networks. The teacher's observation is supported by

<sup>7</sup> Due to emergency measures to provisionally close schools to contain the spread of the virus, in "just over three weeks, nearly 1.4 billion students were out of school in more than 156 countries" (WORD BANK, 2020, p. 1).



fragments of speeches present in documents such as the Common National Curriculum Base (BNCC) and international reports, which draw attention to the fact that “Just access to technology does not automatically translate into better learning results, and it will be necessary to measure to learn what, how and when it represents a gain” (UNESCO, 2013, p. 29, our translation):

*It is necessary to research, observe the sources. Today there is a lot of information that ends up misinforming those who use them. I always try to pass it on to my students through a known source. So that they don't start replicating anything, because there's a lot of news that isn't true... It's necessary that you know how to use it, encourage children to use trustworthy sites. With responsibility* (PAEE3, our translation).

The speeches of these teachers (PAEE3; PR2) also refer to the pillar of lifelong learning for all (UNESCO, 2015; UN, 2016), when they treat digital technologies as a means of information and the pillar “learning to know” (UNESCO, 2013):

[...] ICTs as a means of information, access to knowledge and the review (evaluation and selection) of various sources, as a possibility of knowing the global world and as a tool for building new knowledge (collective) (UNESCO, 2013, p. 26, our translation).

The phenomenon that has been identified as *misinformation*, “a term chosen by UNESCO (United Nations Educational, Scientific and Cultural Organization) to exemplify how contemporary society has dealt with communication and information” (SAYAD, 2019, p. 9, our translation) has drawn the attention of educators and national and international institutions, which emphasize the need for attention to the “media formation” of the population (SPINELLI; SANTOS, 2019).

For Sayad (2019, p. 9, our translation), the phenomenon of disinformation has been responsible “for the wearing of a significant layer of the civilizing and republican veneer of nations that believe that the fate of what is 'public' should be dictated through representative choice of its citizens”. Regarding this issue, Dalmazo and Valente (2018, p. 169, our translation) state that facing this situation will only be possible with a set of mechanisms, “from technical resources to investment in education and digital literacy”, especially when considering the challenge of not losing sight of respect for freedom of expression.

In the speech below, the PEF2 of Physical Education says that the computer should not be central in the teaching and learning process, but rather used as a tool. Digital technologies must be used in different spaces:

*I believe the computer is not central. I believe it is **one more tool that can help** in the development of students. That they can research, **have greater autonomy in knowing how to use the instrument, knowing how to carry out search**. I think it would be another important instrument in the education process, in its development. Both for teachers who can use this space to work with students and for students who can have **this experience in the computer room and in other spaces also to develop themselves** (PEF2, our translation).*

## Formation of learning communities

The Physical Education teacher (PEF1) emphasizes the role of communication through digital technologies, which provides interaction with other ways of working and access to other ideas for the development of pedagogical work.

*It is necessary to seek **new experiences**. Not to remain in the same. So, we search the internet, see that class that attracted us, which I found interesting and bring to the children's daily lives. So, it's that **exchange of knowledge**. I look on the internet and see that I found this activity attractive, I will bring it to my daily life at school* (PEF1, our translation).

The teacher, indicating a process of “learning to learn” and “learning to continually renew” (UNESCO, 2013), expresses pillars of lifelong learning for everyone, especially with a focus on “learning to live together”, “learning to knowing”, “learning to do” (UNESCO, 2013), when talking about the exchange of knowledge that digital technologies can provide.

PR3 also recognizes the ease of accessing new information to sources for research in planning her activities, highlighting its pragmatism:

*[...] **today it's more practical for you to research**, it's a practice, it's something faster for you. If I want to know a subject, I go there and do some research; and **I have several sources for me to research and come to a common sense**. I research, **accessibility is greater*** (PR3, our translation).

In a way, when interacting with a “new class”, the teacher also interacts, even if indirectly, with other teachers who intend to share their experiences. In this way, digital access enables sharing, exchanges and creative constructions, collective or not, both for those who expose their experiences and for those who access them, leading, in a remote and veiled way, to a kind of “learning community”. Afonso (2001) explains that, initially present in organizational literature, the concept of “learning communities” came to be understood as a group of people in intellectual interaction with the purpose of learning.

Despite the possibility of building pedagogical alternatives, there were statements that pointed to the objection of some teachers to the use of digital technologies, which may be

related to the heterogeneity of teacher education (VIEGAS; GOULART, 2020). PAEE1, from the multifunctional resource room, talks about blockages and resistance and emphasizes that this makes teaching work difficult. Adding that computer resources are essential for teachers and students:

*[...] there are many people who have difficulty, adults even, in using the computer. I know several **teachers who have this block, resistance, so everything gets more difficult.** I'm curious, I didn't know how to use some programs, so I looked at my sister who was teaching me so much. We make mistakes, we learn, but you cannot give up. And it's something you love when you can see that you can develop so much on the computer. **It makes our life easier. Information technology is there for both the teacher and the student, for our learning** (PAEE1, our translation).*

### Tool to include students

Research carried out in the region where this study was developed has denounced constant situations of stigmatized representations about Bolivians produced on the Brazilian side (COSTA, 2015; 2016). This vision is built doubly:

There is a double alterity of the Bolivian on Brazilian soil: at the same time that he is seen as a national (foreigner) “other”, he is represented as an indigenous “other”, doubling, to a large extent, the social stigma that falls on the group (COSTA, 2015, p. 38, our translation).

In dialogue with Bourdieu, Costa (2016, p. 89, our translation) also analyzes the social reproduction of “asymmetrical power relations between Brazilians and Bolivians on the border” and the way it takes place, under a “pedagogy of exclusion, of which the school it is one of the main vectors, as a reproducer of the legitimate monopoly of physical and symbolic violence”.

In this context, the linguistic issue becomes an indicator of difference and activities of valuing the “other's language” may come into the agenda:

*[...] I really take advantage of the video room **to put everything in Spanish. Everything I spend there has to be in Spanish.** I download it at home or ask the professor responsible for the Computer Laboratory to download it, when I can't, to have all the resources in Spanish, **because I think it's important, because it has to be “what I want in my language”.** It's a facility that attracts their attention. Placed **media, attracts attention**, even from the most disorderly ones. I think that's what the **younger generation** wants to learn through technology. They don't want to be just inside the classroom. I use it a lot (PLPE1, our translation).*

Apparently, when used to teach Spanish (spoken by many Bolivian students at school), digital technologies make it possible to use and enhance this language. Indeed, PLPE1 of Portuguese and Spanish sees the use of digital technologies as a means of enabling inclusion. In his narrative, he addresses inclusion as a right, stating that in order to be included, students need to interact with the digital environment.

*I believe that **because there is inclusion, this right is already there. To include is the student to interact in the digital environment.** It has to include, then, because of the fact that here at the school there is already this moment for the students to be there. That's why I'm talking to you, it's important for them to be included in the digital medium. If not? We've already boarded, because we insist that the students are there, learning (PLPE1, our translation).*

The speeches of these teachers also point to the use of digital technologies as essential and inevitable for the schooling of Special Education students:

*[...] I use it mainly because I work with visually impaired students, I use programs with a screen reader, which is NVDA [NonVisual Desktop Access] and also Dosvox, which are used by blind students, so in the laboratory there is a computer where these specific programs for these students are installed (PAEE2, our translation).*

Ferreira (2020), in dialogue with different authors, draws attention to the fact that, despite the recognition of the constant presence of digital technology in schools, researches such as Rodrigues (2017) or Santos (2019) indicate little investment, either in maintaining the proper functioning of resources in the school, as well as in the continuing education of teachers.

Digital technologies were also seen as a means for achieving school inclusion due to their accessibility. Ex-PAEE1 who worked in the multifunctional resource room, teaching Brazilian Sign Language (Libras), uses websites in order to facilitate access to content and signs that are undergoing constant change. Points out that technological resources catch the attention of students:

*[...] in the SEA room there was always a computer and a notebook. A notebook for each room and a computer for each room. I've always used it with my students, especially in recent years, there are Libras websites, there's a lot you can look at, **the child learns more, you hold their attention more. They learn faster.** In recent years I started to have problems with my hands and I started to use the computer and the notebook more to show different signs, to keep up, because Libras is constantly changing the signs, so **you have to be always up to date** (Ex-PAEE1, our translation).*

## Complement to schooling

Despite the importance attributed to digital technology, there was the identification of the perception that, in view of situations of inequality of access, it should be treated as a complement to pedagogical activities: “[...] **it is just a complement**, because not all children have access, as there is no computer at home. Public school, you know...” (PR3, our translation), or as another alternative in the teaching-learning process, as PEF2 argues in Physical Education, even when access does not exist:

*It also depends on the way the teacher works, because **there are institutions that sometimes do not have a computer room**, but the teacher can transmit this content to students in other ways as well. It's important, but even with the absence of the computer room, we can work (PEF2, our translation).*

The speech seems to indicate that, given the absence of digital technologies, teachers need to use other instruments to develop motivating activities for students.

PR2 also understands digital technologies as a complement to the use of other teaching materials: "The technologies are important to have a differentiated activity, because in these books, which they adopt, the texts are very long and [...] there are almost no grammar". The teacher uses them to complement the preparation of the content to be worked on: “So, **we do research to have a grammar class**, on the basics: gender, number and degree of the noun, adjective, verb” (our translation). In this way, presents critics to the type of book adopted, with the possibility of digital technologies filling identified gaps.

## Final considerations

Although this study was concluded a few days after the start of the adoption of isolation measures due to the COVID-19 pandemic, it is worth mentioning this situation, since the use of digital technologies has gained a privileged focus in this context. Recent reports inform that the current connectivity infrastructure in Brazil does not allow millions of simultaneous accesses and it is not possible to expand it quickly (EUROPEAN UNION, 2020). Another problem identified in the Brazilian literature is the lack of infrastructure to study at home. Even for those who use a computer, there are still problems regarding accessibility on Brazilian websites (INSTITUTO, 2020).

Considering the various ways in which teachers conceive digital technologies in their work, these professionals may have different purposes when using them, giving them different meanings. When provoked about the material conditions of access and use of digital

technologies at school, teachers are silent, which can be seen in the following statement: “the teacher can transmit this content to students in other ways as well. It's important, but even with the absence of a computer room, we can work” (PEF2, our translation).

On the other hand, attempts to overcome this emerge, when teachers are motivated and aware of the potential of using digital technologies, when they use them as a way of valuing the foreign student's culture; or to introduce the learning of other languages (Spanish and Libras), in the case of some research participants. Contreras (2002) states that teaching, as a work linked to culture and ideology, is a specific context that allows not only the identification with perspectives, claims and purposes for its performance, but also allows access to different cultural and ideological conceptions about the world and life. This opening has the potential to transform teaching into a privileged place, since the very characteristic of their work is found in the germ or possibility of critique of ideological impositions, enabling access to alternative views of the world and life.

The use of digital technologies in a context of diversity shows us the numerous challenges to be faced by Brazilian teachers and schools. These challenges point to a critical post-pandemic moment, as digital technologies have been important for the realization of remote learning and will be essential in the process of returning to face-to-face activities for students, including Special Education students.

**AGRADECIMENTOS:** National Council for Scientific and Technological Development (CNPq) and Coordination for the Improvement of Higher Education Personnel (CAPES).

## REFERENCES

AFONSO, A. P. Comunidades e Aprendizagem: um modelo para gestão da aprendizagem. *In: CONFERÊNCIA INTERNACIONAL - TIC NA EDUCAÇÃO CHALLENGES, 2., 2001, Braga. Anais [...]. Braga, Portugal: Centro de Competência Nónio Séc. XXI Universidade do Minho, 2001. p. 427-432.*

ARÁN, P. O. A questão do autor em Bakhtin. **Bakhtiniana, Rev. Estud. Discurso**, São Paulo, v. 9, n. esp., p. 4-25, jul. 2014. DOI: <https://doi.org/10.1590/S2176-45732014000300002>

ARAÚJO, I. M. S. *et al.* Atendimento educacional especializado e o ensino regular: interlocuções docentes com vistas à inclusão. **Revista on line de Política e Gestão Educacional**, Araraquara, v. 23, n. 2, p. 441-452, maio/ago. 2019. DOI: <https://doi.org/10.22633/rpge.v23i2.12651>

BAKHTIN, M. M. **Estética da criação verbal**. São Paulo: Martins Fontes, 1992.

BORGES, W. F.; TARTUCI, D. Tecnologia Assistiva: concepções de professores e as problematizações geradas pela imprecisão conceitual. **Rev. Bras. Ed. Esp.**, Marília, v. 23, n. 1, p. 81-96, jan./mar. 2017.

BRASIL. Instituto Nacional de Estudos e Pesquisas Educacionais Anísio Teixeira. **Censo da Educação básica 2019**: resumo técnico. Brasília, DF: INEP, 2020.

BRIGHENTE, M. F.; MESQUIDA, P. Paulo Freire: da denúncia da educação bancária ao anúncio de uma pedagogia libertadora. **Pro-Posições**, Campinas, v. 27, n. 1, p. 155-177, abr. 2016.

CONTRERAS, J. **A autonomia de professores**. Trad. Sandra Trabucco Valenzuela. São Paulo: Cortez, 2002.

COSTA, G. V. L. Os filhos da fronteira em Corumbá-MS: os estudantes de origem boliviana nas margens da nação. *In*: BAHIA, J.; SANTOS, M. (Org.). **Um olhar sobre as diferenças: a interface entre projetos educativos e migratórios** [recurso eletrônico]. São Leopoldo: Oikos, 2016.

COSTA, G. V. L. Os bolivianos em Corumbá-MS: conflitos e relações de poder na fronteira. **Mana**, Rio de Janeiro, v. 21, n. 1, p. 35-63, abr. 2015. DOI: <https://doi.org/10.1590/0104-93132015v21n1p035>

DELMAZO, C.; VALENTE, J. C. L. Fake news nas redes sociais online: propagação e reações à desinformação em busca de cliques. **Media & Jornalismo**, Lisboa, v. 18, n. 32, p. 155-169, abr. 2018. Available: [http://www.scielo.mec.pt/scielo.php?script=sci\\_arttext&pid=S2183-54622018000100012&lng=pt&nrm=iso](http://www.scielo.mec.pt/scielo.php?script=sci_arttext&pid=S2183-54622018000100012&lng=pt&nrm=iso). Access: 5 Dec. 2020.

EUROPEAN UNION. **Commission and European regulators calls on streaming services, operators and users to prevent network congestion**. 2020. Available: <https://ec.europa.eu/digital-single-market/en/news/commission-and-european-regulators-calls-streaming-services-operators-and-users-prevent-network>. Access: 13 Sep. 2020.

FERNANDES, J. M.; FREITAS-REIS, I.; ARAÚJO NETO, W. N. Uma revisão sistemática sobre semiótica, multimodalidade e ensino de ciências da natureza na educação do aluno surdo. **Revista Educação e Linguagens**, v. 9, n. 17, 2020. Available: <http://revista.unespar.edu.br/index.php/revistaeducuclings/article/view/110>. Access: 10 Dec. 2020.

FERREIRA, F. S. **As concepções dos professores da educação básica e da educação especial sobre o uso das TIC e da tecnologia assistiva**. 2020. 118 f. Dissertação (Mestrado em Educação) – Universidade Federal de Mato Grosso do Sul, Corumbá, 2020.

FERREIRA, G. M. S.; CASTIGLIONE, R. G. M. TIC na educação: ambientes pessoais de aprendizagem nas perspectivas e práticas de jovens. **Educação e Pesquisa**, São Paulo, v. 44, e153673, 2018. DOI: <https://doi.org/10.1590/s1678-4634201702153673>

FREIRE, P. **Pedagogia do oprimido**. Rio de Janeiro: Paz e Terra, 2005.

FREIRE, P. **Educação como prática da liberdade**. Rio de Janeiro: Paz e Terra, 2009.

HABOWSKI, A. C.; CONTE, E. Interações crítico-dialéticas com as tecnologias na educação. **Revista Ibero-Americana de Estudos em Educação**, Araraquara, v. 15, n. 1, p. 266-288, 2020. DOI: <http://doi.org/10.21723/riaee.v14i4.11993>

IBGE. Instituto Brasileiro de Geografia e Estatística. **IBGE Cidades@**. 2020. Available: <https://cidades.ibge.gov.br/brasil/ms/corumba/panorama>. Acesso: 4 nov. 2020.

INEP. **Sinopse Estatística da Educação Básica**. Brasília, DF, 2019. Available: <http://portal.inep.gov.br/web/guest/sinopses-estatisticas-da-educacao-basica>. Access: 29 Mar. 2020.

INSTITUTO RODRIGO MENDES. **Protocolos sobre educação inclusiva durante a pandemia da covid-19: Um sobrevoo por 23 países e organismos internacionais**. 2020. 56 p.

KELLNER, D.; SHARE, J. Educação para a leitura crítica da mídia, democracia radical e a reconstrução da educação. **Educação & Sociedade**, Campinas, v. 29, n. esp. 104, p. 687-715, 2008.

LÖBLER, M. L.; PRETTO, D.; BOLZAN, L. M. Percepção dos alunos a respeito da inclusão de tecnologias digitais no ensino público. **Novas Tecnologias na Educação**, v. 11, n. 3, dez. 2013.

MEDEIROS, T. J.; SILVA, T. R.; ARANHA, E. H. S. Ensino de programação utilizando jogos digitais: uma revisão sistemática da literatura. **Novas Tecnologias na Educação**, v. 11, n. 3, dez. 2013.

MILL, D. M.; OLIVEIRA, M. R. G. A educação à distância em pesquisas acadêmicas: uma análise bibliométrica em teses do campo educacional. **Educar em Revista**, Curitiba, Edição Especial, n. 4, p. 15-36, 2014.

ONU. Governo Federal do Brasil: Pátria Educadora. **Transformando nosso mundo: a agenda 2030 para o desenvolvimento sustentável**. Nova York, sede da ONU. Traduzido do inglês pelo Centro de Inf. das UN para o Brasil (UNIC Rio) e rev. pelo Ministério das Relações Exteriores do Brasil. 2016. Última edição: 11 fev. 2016.

PÚBLIO JÚNIOR, C. O docente e o uso das tecnologias no processo de ensinar e aprender. **Revista Ibero-Americana de Estudos em Educação**, Araraquara, v. 13, n. 4, p. 1092-1105, 2018. DOI: <http://doi.org/10.21723/riaee.v13.n3.2018.11190>

REBELO, A. S. **A educação especial no Brasil: indicadores educacionais de atendimento especializado (1973-2014)**. 2016. 200 f. Tese (Doutorado em Educação) – Universidade Federal de Mato Grosso do Sul, Campo Grande, 2016.

RODRIGUES, A. P. N. **O uso da Tecnologia Educacional e a Tecnologia Assistiva na escolarização de estudantes com deficiência no município de Corumbá (MS)**. 2017. 151 f. Dissertação (Mestrado em Educação) – Universidade Federal de Mato Grosso do Sul, Corumbá, 2017.



SANTANA, R. S.; SOFIATO, C. G. Ensino de Ciências para todos: uma experiência com um estudante com deficiência intelectual. **Educação**, Santa Maria, v. 44, 2019. DOI: <https://doi.org/10.5902/1984644434206>

SANTOS, J. O. L. *et al.* Atendimento Educacional Especializado: Reflexões sobre a demanda de alunos matriculados e a oferta de salas de recursos multifuncionais na rede municipal de Manaus-AM. **Rev. Bras. Ed. Esp.**, Marília, v. 23, n. 3, p. 409-422, jul./set. 2017.

SANTOS, Lídia M. **O uso de recursos de Tecnologia Assistiva para o ensino de Ciências e Matemática em salas de Recursos Multifuncionais**. 2019. 101 f. Dissertação (Mestrado em Educação em Ciências) – Universidade Federal de Itajubá, Itajubá, 2019.

SAYAD, A. L. V. Educação midiática e pensamento crítico: antídotos contra a “desinformação”. In: COSTA, C.; BLANCO, P. (Org.) **Liberdade de expressão: questões da atualidade** [recurso eletrônico]. São Paulo: ECA-USP, 2019. p. 09-17. Available: [https://www.palavraaberta.org.br/docs/Livro\\_liberdade-de-expressao\\_-\\_questoes-da-atualidade.pdf#page=9](https://www.palavraaberta.org.br/docs/Livro_liberdade-de-expressao_-_questoes-da-atualidade.pdf#page=9). Access: 10 July 2020.

SHIMAZAKI, E. M.; MENEGASSI, R. J.; FELLINI, D. G. N. Ensino remoto para alunos surdos em tempos de pandemia. **Práxis Educativa**, Ponta Grossa, v. 15, e2015476, p. 1-17, 2020.

SILVA, D. R. C. **Tecnologia de Informação e Comunicação (TIC) na educação inclusiva: formação de professores do Brasil e Espanha**. Relatório UFMS/PIBIC/CNPq. Corumbá, 2019.

SOUZA, Fl. F.; DAINEZ, D. Educação Especial e Inclusiva em tempos de pandemia: o lugar de escola e as condições do ensino remoto emergencial. **Práxis Educativa**, Ponta Grossa, v. 15, e2016303, p. 1-15, 2020.

SPINELLI, E. M.; SANTOS, J. A. Saberes necessários da educação midiática na era da desinformação. **Revista Mídia e Cotidiano**, v. 13, n. 3, dez. 2019.

UNESCO. Educação 2030. **Declaração de Incheon e Marco de Ação: para a implementação do Objetivo de Desenvolvimento Sustentável 4**. Paris: UNESCO, 2015.

UNESCO. Oficina Regional de Educación para América Latina y el Caribe OREALC/UNESCO Santiago. **Enfoques estratégicos sobre las TICs en educación em América Latina y el Caribe**. Santiago: OREALC/UNESCO, 2013. Available: <http://www.unesco.org/new/fileadmin/MULTIMEDIA/FIELD/Santiago/images/ticesp.pdf>. Access: 6 Nov. 2020.

VIEGAS, P. P. C.; GOULART, I. C. V. O estado da arte da produção acadêmica sobre o letramento digital na formação docente. **Revista Ibero-Americana de Estudos em Educação**, Araraquara, v. 15, n. 1, p. 125-145, 2020. DOI: <http://doi.org/10.21723/riaee.v15i1.12217>

WANG, C.; SHANNON, D. M.; ROSS, M. E. Students' characteristics, self-regulated learning, technology self-efficacy, and course outcomes in online learning. **Distance Education**, v. 34, p. 302-323, 2013.

WORD BANK. **Políticas educacionais na pandemia da COVID-19: o que o Brasil pode aprender com o resto do mundo?** 2 abr. 2020. Available: <http://pubdocs.worldbank.org/en/413781585870205922/pdf/politicas-educacionais-na-pandemia-da-covid-19-o-que-o-brasil-pode-aprender-com-o-resto-do-mundo.pdf>. Access: 13 Sep. 2020.

### How to reference this article

FERREIRA, F. S.; REBELO, A. S.; KASSAR, M. C. M. Teachers, digital technologies and school inclusion: challenges of special educational policy in a Brazilian region. **Revista Ibero-Americana de Estudos em Educação**, Araraquara, v. 16, n. esp. 2, p. 1307-1324, maio 2021. e-ISSN: 1982-5587. DOI: <https://doi.org/10.21723/riace.v16iesp2.15127>

**Submitted:** 15/12/2020

**Required revisions:** 28/01/2021

**Approved:** 03/03/2021

**Published:** 01/05/2021