A case of study of teachers' digital literacy in the South of Brazil: re-thinking teaching and learning in adult education during COVID-19

Estudo de caso no letramento digital de professores no Sul do Brasil: repensando o ensino e a aprendizagem na educação de adultos durante a COVID-19

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ABSTRACT

This article deals with the reality of education in the State of Rio Grande do Sul during the COVID-19 pandemic. We present explicitly the results of a public-private project called "E-Duca Digital". Also, we showed the results of this digital literacy initiative for teachers. Besides, we displayed an overview of the reality of the state's education. At the end, we also give an overview of innovation and the opportunities that the pandemic scenario's ended up generating.

Keywords: Innovation; Educational Innovation, Digital Literacy, Adult Education; Teacher Education;

RESUMO


Palavras-chave: Inovação; Inovação Educacional, Letramento Digital, Educação de Adultos; Formação de Professores;

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INTRODUCTION

The COVID-19 pandemic took the world by surprise at the beginning of the year 2020. Between its rapid start in China and spreading across the world, it was just 3 months. Driven by an almost borderless world, the virus has forced countries to make radical decisions about quarantines and lockdowns across the globe, in an attempt to prevent human loss and pressure on health systems. In southern Brazil it was no different, the first confirmed case was on March 10. Between this confirmation and the suspension of face-to-face classes at schools and universities in the State of Rio Grande do Sul, only 8 days passed. With the publication of a state decree number 55118 DE 03/16/2020, all schools in the Rio Grande x Sul needed to adapt to a new reality. Words such as ”hybrid education”, ”digital literacy” and ”online class platforms”, hitherto seldom used in the region, became, on an emergency basis, part of the school's daily life, as well as of its community (Carvalho, 2020).

In the specific reality of basic education in the State, in public schools, the Department of Education saw its contingent of students and teachers without any type of prior training in the use of online means for the continuity of classes. It was from this challenging scenario that the E-Duca Digital project (Educar-RS, 2021) emerged, a public-private partnership that aimed at the digital literacy of teachers and students from the state network. This public network has about sixty thousand teachers and almost one hundred thousand students, according to the latest available data. For this action, a multilevel education course was held-on the one hand, at the macro level was the government of the State of Rio Grande do Sul, at the meso level was a team formed by a local college and at the micro-level were the teachers of the State, in the position of adult learners.

For the analysis of this project, a combination of two different approaches will be used: participatory action research (PAR) (McIntyre, 2007) and transformative learning in adult education (Mezirow, 1991; 1998; 2000; Taylor, 2008; Taylor & Cranton, 2012). The first one is because this researcher is part of the private institution that is organizing, together with the State, the digital literacy project.

On the other hand, the and transformative learning in adult education frame is about the appropriation for state teacher of the tools and options that hybrid education offers, included in this digital literacy process, which ultimately culminates in fitting into
the premise of Paulo Freire on liberating education, since it allows students - in this context teachers from the state education network - to be appropriated of new technologies and innovations that put them in a position to maintain the quality of classes, even in problematic contexts such as the of COVID-19, which closed the classroom and put them online.

To better explain the intricacies of this project, this essay aims to answer the research question on Which new policies have the institutional contexts promoted to face the COVID-19 phase and which are still supporting innovative teaching? The context of comparison is the evolution of digital literacy in the state of Rio Grande do Sul, Brazil. This will be done by comparing official results and teachers' opinions about the process of this project. Thus, this work is divided into four chapters, namely: (i) the introduction, (ii) the situation of adult education in the Rio Grande do Sul, (iii) the presentation of the project and its results, and (iv) conclusions.

THE ADULT EDUCATION IN THE RIO GRANDE DO SUL

When you are comparing Brazilian representativeness it is very important to understand that the country is huge and very different in all its culture, population, and reality. To get a sense of the popularity of Rio Grande do Sul, the southernmost state of the country has a population of 11.5 million people (IBGE, 2021). Which, for comparison, is practically equivalent to the population of some European countries, being more populous, for example than Portugal or Greece (Eurostats, 2021). Precisely for these reasons, the choice was made to address in this essay only the reality of the State of Rio Grande do Sul and not that of Brazil as a whole.

In numerical terms, the state has about 160 thousand adult students in the "Educação de Jovens e Adultos" (EJA) modality, whose core is to serve adults over 18 on formal basic education, a kind of second chance adult education. This is a Brazilian model, based on the philosophy of Paulo Freire (1997), which offers education to people who, for some reason, were unable to finish school in normal time. From the standpoint of macro, this teaching model is governed by the law Guidelines and Bases of National Education (Law 9.394 / 96).

In the article he informs that it is a type of education for adults. EJA is offered in Brazil, at the meso level both by entities linked to the government (public schools), as
well as by government organizations (such as unions), in addition to private schools. At the micro-level, this type of teaching is offered by teachers through the concepts of andragogy, and for adult students who are, in the words of Law 9.394/9, have not had access or continuity of studies in "proper and ideal age".

In addition to EJA, in the state of Rio Grande do Sul there is also university education, again formal adult education, offered both by the national, state, and private schools. In higher education, education in the Rio Grande do Sul does not differ from most other countries, so it is unnecessary to go deeper into it. There is, however, a small part at the meso level, which is government aid, called FIES, an acronym in Portuguese for the Higher Education Student Financing Fund. This exists so that low-income students can attend a private college. This program of the Brazilian Federal Government has made it possible for these students to enter since the year 2000, thus making higher education more accessible to a portion of the population that would not be able to afford to attend a private college.

Leaving the sphere of formal education, there are several forms and courses of informal education being offered to adults by the most diverse institutions. In the macro sphere, there are, for example, training courses for specific professions offered by SENAC, an organization whose name comes from the Portuguese acronym for the National Service for Commercial Learning, which offers free courses aimed at placing adults in the labor market. It is a non-governmental organization, although it has subsidies from the state government. In this same field, there are other government investments, with SESI, one similar to the previous organization, but aimed at the industry. Apart from these two cases, there is a range in the meso level that offers continuing and professional education in private institutions. Finally, back to the macro level, the state government itself, through the meso level of public and vocational schools, also offers courses in this same sense.

A particular point of continuing education for teachers is the provision of both formal courses (at universities, federal and state public colleges, and private education) and informal. In the field of formal courses, the target at the micro-level is students who have already completed high school and intend to pursue a career as teachers. There are also, within formal education for future teachers, teaching courses, which qualifies them to teach in early childhood education. Finally, even within formal education, there is a range of postgraduate courses, which are offered at the most diverse colleges and
universities. At this point there are some affirmative actions, in private universities, offering scholarships to students who are studying for a degree instead of a bachelor's degree. It is necessary to explain here that, in the Brazilian context, undergraduate education is the term used for higher education courses that prepare students to become teachers. All Brazilian courses must have their curricular guidelines approved by the Ministry of Education and Culture, the acronym MEC, in Portuguese.

In another context, in terms of informal courses, there is a much wider range and sometimes even difficult to count. There are continuing education courses being given, for example, by universities (it is called university extension in Brazil), which are usually short courses, which even though they have specific certification do not confer a higher level of education to those who attend them. NGOs also offer courses for teachers, usually focused on specific areas, such as, for example, LIBRAS (Brazilian sign language). There is also, continuing at the meso level, the offer of free courses and continuing education through unions, both of teachers and entities, focused on specific and current themes. On a more macro level, the State Government offers its teachers continuing education. Besides, in 2020, due to the COVID-19 pandemic and the adaptations that it made necessary, a public-private partnership for digital literacy. This partnership, although late, since digital literacy has been spoken since the mid-1990s in the world, and in 2010 in Brazil, is deeply necessary (Gilster & Glister, 1997; Eshet-Alkalai & Chajut, 2009; Freitas, 2010; Buchholz, DeHart, & Moorman, 2020).

**THE DIGITAL LITERACY PROJECT**

For a better understanding of the project and the reality of education during the COVID-19 pandemic, in the State of Rio Grande do Sul it is easier to analyze both situations at the same time. Since, to understand the metrics and goals of the project, it is necessary to understand the reality of the state, as well as for the current reality of the state to make sense, it is necessary to observe the project that influenced it. The data contained in this chapter are part of December's report of the project E-Duca Digital (da Silva, Eizerik, Medeiros, Eizerik & Eizerik, 2020), and are not available online. Some of this data, such as access to videos on YouTube and Facebook comments, are possible for online verification, others are not in the public domain, but have been authorized by the project managers.
At a macro level, the State Government of Rio Grande do Sul, when the cancellation of presentational classes, through its Education Secretariat (SEDUC) saw the need to adapt its efforts to teach basic digitally literate teachers. With a network of more than 60 thousand teachers, they were at the most varied levels of digital literacy. For some, the simple fact of turning on a computer was already complicated, now it was necessary to also teach how to access Google's Virtual Classrooms and manage classes online. With the appointment of 8 general goals, the State Government entered into a partnership with Faculdade Monteiro Lobato and an innovation consulting company for the creation of the E-Duca Digital project (Termo De Fomento nº 904/2020).

Throughout the months of July to December 2020, the project was carried out online, serving the entire network of teachers and being subsequently offered to students. For the parameters to be reached, the government needed to take some measures, such as offering certifications to each module completed by the teacher and offering sponsored internet. It is necessary to highlight here the economic and social situation of the State of Rio Grande do Sul, a state indebted to the Federal Union and whose population with internet access reaches only 52% of the population (IBGE, 2021). Thus, in another public-private partnership, aiming to support students' access to online education, the government started to offer sponsored internet, which allowed students to access classes through their cell phone, without requiring greater use of internet bandwidth or even its existence.

The first goal of the E-Duca Digital project, still in July 2020, was to sensitize the school community about the phases of the SEDUC remote education project. This awareness took place through lives and webinars, which were transmitted through the YouTube platform, both recorded and live. In the table below (Table 1), it is possible to check the number of teachers accessing each of the awareness videos.
Table 1 – Video accesses.

<table>
<thead>
<tr>
<th>Video title</th>
<th>TOTAL</th>
<th>JUL</th>
<th>AUG</th>
<th>SET</th>
<th>OUT</th>
<th>NOV</th>
<th>TEN</th>
</tr>
</thead>
<tbody>
<tr>
<td>Media Education for Digital Citizenship</td>
<td>41,621</td>
<td>6,720</td>
<td>3,004</td>
<td>927</td>
<td>400</td>
<td>221</td>
<td>202</td>
</tr>
<tr>
<td>Strategies for Remote Lessons</td>
<td>76,900</td>
<td>13,824</td>
<td>5,117</td>
<td>1,469</td>
<td>591</td>
<td>310</td>
<td>241</td>
</tr>
<tr>
<td>Educational Technologies for Early Years</td>
<td>42,539</td>
<td>7,027</td>
<td>2,859</td>
<td>956</td>
<td>444</td>
<td>268</td>
<td>215</td>
</tr>
<tr>
<td>Technologies for Inclusive Education</td>
<td>48,260</td>
<td>8,019</td>
<td>3,678</td>
<td>1,122</td>
<td>552</td>
<td>354</td>
<td>241</td>
</tr>
<tr>
<td>Remote Lesson Planning</td>
<td>65,672</td>
<td>8,815</td>
<td>4,617</td>
<td>1,711</td>
<td>1,000</td>
<td>485</td>
<td>391</td>
</tr>
<tr>
<td>Technologies in Education</td>
<td>60,494</td>
<td>17,526</td>
<td>6,064</td>
<td>1,022</td>
<td>553</td>
<td>265</td>
<td>187</td>
</tr>
<tr>
<td>Inside Google Classroom - Tools and Possibilities</td>
<td>68,469</td>
<td>58,565</td>
<td>6,788</td>
<td>1,644</td>
<td>774</td>
<td>410</td>
<td>288</td>
</tr>
<tr>
<td>Educational Technologies in Practice</td>
<td>37,341</td>
<td>8,784</td>
<td>2,880</td>
<td>744</td>
<td>364</td>
<td>295</td>
<td>228</td>
</tr>
</tbody>
</table>

Font: da Silva, Eizerik, Medeiros, Eizerik & Eizerik, 2020

Concerning Goal 2, the goal was to guide schoolteachers for performing the first access and activation of the educational account @educar.rs.gov.br. This account was created in the year 2020, precisely to facilitate access to Google Classroom. Over the months of August, September, the project reached a total of 99.3% of teachers with an activated @educar.rs.gov.br account. This goal of the digital literacy project is closely linked to digital literacy since some teachers had never used email and had to learn its use from the basics. Therefore, this goal was necessary so that access to Google Classroom and virtual classes was possible.

Goal 3 is the pedagogical training for the use of virtual tools by teachers. In other words, it aims to train teachers in educational use for the pedagogical use of the Google for Education platform tools: Google Documents, Google Calendar, Google Drive, Google Presentations, Google Meet, Google Forms, and Google Classroom, as well as techniques for editing and publishing video lessons, project-based learning, and inverted classroom, gamified pedagogical activities, educational ICTs and STEAM practices. To
do this, was organized a virtual environment (classroom for all teachers), as well as online training and all the listed issues through video lessons broadcast live and digitally available for asynchronous access, providing practical activities undertaken by teachers within the Google Classroom platform. The themes addressed in this goal were the following:

1. Classroom with Google Classroom - Overview
2. Educational account management with Google Chrome + Gmail
3. Synchronous classes with Google Meet + Agenda + Jamboard
4. Getting started with Google Classroom
5. Exploring Classroom Features
6. Conducting Searches with Google Form
7. Reviews with Google Forms
8. Cloud Files - Google Drive
9. Creating exercises and teaching materials with Google Documents
10. Creating amazing classes with Google Slides
11. Manipulating calculations with Google Sheets
12. Exploring more Google Docs features
13. Exploring more Google Slides features
14. Exploring more Google Forms features
15. Exploring more Google Classroom features
16. Gamified activities
17. Problem-Based Learning
18. Flipped classroom
19. Educational ICTs - Resources for the Portuguese Language
20. Educational ICTs - Resources for a Foreign Language
21. Educational ICTs - Arts Resources
22. Educational ICTs - Resources for Physical Education
23. Educational ICTs - Resources for Natural Sciences, Chemistry, Physics, and Biology
24. Educational ICTs - Resources for History and Geography
25. Educational ICTs - Resources for Mathematics
26. Educational ICTs - Literacy Resources
27. STEAM Practice Webinar
28. Elementary Education Pedagogical Practices Webinar 1
29. Elementary School Pedagogical Practices Webinar 2
30. High School Pedagogical Practices Webinar
The table below (figure 1) shows a small overview of the teachers’ opinions about the relevance of the classes taught online. It is worth mentioning that videos on all of the above topics were given, in addition to doubts, totaling 70 videos posted between the months of July and December 2020. The total access to these videos was 1,000,497 views, thus reaching the goal mentioned above. Regarding these classes, it should be noted that not only were they seen by a much larger audience than expected, but their overall average was always above 9.0, in a metric up to 10.

Figure 1 – Relevance of the class in the perception of teachers (example)

To support training in digital literacy, several tutorial videos were created, in addition to online classes and webinars. These tutorial videos acted as a guide for teachers who might not be familiar with the digital universe. The tutorials ranged from the most basic, which taught how to access email or change the password, to the most complex ones, such as changing document ownership or self-correcting evidence using Google Forms. At the end of December, the project had 124 videos online and a total of 789,844 views.

In addition to the lives, webinars, and tutorial videos, the project also has tutoring that works on-call to answer questions from teachers. The mission of this tutoring is to provide support services to teachers, through chat, to answer questions related to Google for Education tools (Chrome and Gmail, Documents, Calendar, Drive, Presentations, Meet, Forms, Classroom, Editing and publishing of video lessons, covering the three
shifts: morning, afternoon and night, from 8 AM to 10 PM the tutorial help center has been in operation since August 2020, and will continue online at least until the end of February. In the figure below (figure 2) you can see a graph of the number of daily calls.

**Figure 2 – Visits per day**

![Graph of visits per day](image)

Font: da Silva, Eizerik, Medeiros, Eizerik & Eizerik, 2020

The tutoring service is one of the great differentials of the E-Duca Digital project, having answered more than five thousand calls and having an approval score of 4.2, in a metric up to 5. In the table below (Table 2) it is possible to see the details of these numbers.

**Table 2 – data on tutorial assistance**

<table>
<thead>
<tr>
<th></th>
<th>Aug / 20</th>
<th>Sep / 20</th>
<th>Oct / 20</th>
<th>Nov / 20</th>
<th>Dec / 20</th>
<th>Total or Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Conversations</td>
<td>3,107</td>
<td>1,924</td>
<td>1,112</td>
<td>479</td>
<td>535</td>
<td>7,157</td>
</tr>
<tr>
<td>Total Customers Served</td>
<td>2,309</td>
<td>1,337</td>
<td>840</td>
<td>340</td>
<td>398</td>
<td>5,224</td>
</tr>
<tr>
<td>Approval Percent</td>
<td>89.6%</td>
<td>86.6%</td>
<td>82.4%</td>
<td>76.4.1%</td>
<td>87.2%</td>
<td>84.4%</td>
</tr>
<tr>
<td>Average Quality of Service in (up to 5)</td>
<td>9</td>
<td>8.6</td>
<td>8.1</td>
<td>7.6</td>
<td>8.8</td>
<td>8.4</td>
</tr>
</tbody>
</table>

Font: da Silva, Eizerik, Medeiros, Eizerik & Eizerik, 2020

Finally, there are 4 other goals that are not directly related to digital literacy and adult education, dealing with management and consultancy goals. In summary, it is worth saying that this project was SEDUC’s answer to the needs of adapting to the times of COVID-19, and it worked within the established parameters. It is clear that a great effort was necessary since many teachers did not accept the idea that adaptation to the hybrid model was necessary, as can be seen on the SEDUC Facebook page. In any case, those
who did not resist the challenge, seem to present, according to the available data, an appreciation for the project and a learning experience that made them adapt from a moment of crisis to a moment of creation and adaptation.

Thus, although Brazilian law requires basic education to work in person, there were municipal, state, and national decrees that made online education necessary. And, in this context, there was a hybridization of teaching, with the mastery of certain online functions becoming almost mandatory since face-to-face classes remained banned for much of the year. Even so, when face-to-face classes became an option again, this occurred along with the obligation to continue teaching online. Thus, at this moment, the teaching of the State of Rio Grande do Sul is hybrid, and it should continue throughout the academic year 2021. It should be said that the academic year in the southern hemisphere has a different function, being directly linked to the civil year. Thus, in December 2020, the academic year 2020 ended, and from February the academic year 2021 begins, which will continue until the month of December.

**CONCLUSIONS**

First of all, the result of this research cannot be part of an equal comparison between this case in the South of Brazil and others around the world but can be used as a mirror to be contrasted with others. This reality had positive results and its functioning was praised, but this fact does not guarantee that in other cultures or scenarios the result would be the same.

In general terms, the pandemic and the restrictions caused by COVID-19 forced schools and education as a whole to be reinvented. When students used to be in classrooms run by teachers, this was moved to online reality. It was therefore necessary to create a range of new skills that were not yet required for teachers. In Brazil, specifically in the State of Rio Grande do Sul, this learning was not easy, it found resistance in some teachers and even in students. Although the students treating Digital Natives have to understand that they do not necessarily know how to study hybrid form (Prensky, 2010). In this case, both students and teachers ended up being forced to adapt to a reality where they should be more independent and autonomous, with a focus and responsibility on the protagonism of each one (Lopes & Ribeiro, 2018).
In the specific point of the project presented in this essay, the great conclusion is that overcoming the barriers of prejudice and the "fear of the new", what was seen was a great satisfaction of the teachers who, as adults, were ready to learn about new ways of teaching. Positive evaluations at this micro-level denote an audience that is ready to learn new things and adapt to new realities. It is true, however, that much had to be done in a short time, causing courses to have to be given intensively and the adaptation of the reality of the classroom to the hybrid classroom to be accelerated.

Furthermore, new digital literacy courses must be applied, especially to teachers who are less apt for the subject. In some cases, the non-participation of teachers was justified by the fact that the digital literacy course is not mandatory. At this point, it is possible to verify a serious flaw in the project at the macro level, since SEDUC did not make the course a requirement, even if such learning was absolutely necessary to the reality of the pandemic.

As a possible landmark in ovation in the state of Rio Grande do Sul, the classes of hybrid form, taken in pandemic times and taught by the project E-Duca Digital cannot and should not be abandoned. The greatest opportunity created by this scenario is precisely the use of technologies in favor of education, in order to make the content more pleasant and the learning even more significant (Ausubel, 1982).

In conclusion, after learning at the Würzburg Winter School, it is possible to conclude that the State of Rio Grande do Sul is at an interesting point concerning the adaptation of education due to COVID-19. The project presented in this essay shows quite good results that make possible a reflection that Brazil is like a series of countries within the same country, with the Rio Grande do Sul being a very advanced state in digital literacy. Finally, it is possible to conclude that a country can be both slow and ineffective in combating the pandemic and still have local and social policies that stand out in education.
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