Rethinking CALL Teacher Education after COVID-19: a Digital Literacies Approach

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Abstract

CALL teacher education has long been a concern in Applied Linguistics, yet it remains neglected among many language teacher educators and institutions. Despite the ubiquity of digital technologies, they are often avoided or forbidden in Brazilian education, where laws prohibit mobile phones in classrooms. The COVID-19 pandemic forced teachers to integrate various technologies into their teaching practices during lockdowns and to continue using them for blended

learning afterward. This chapter highlights the urgent need to rethink CALL teacher education in Brazilian universities, focusing on digital literacies through research at Universidade Federal Fluminense (UFF) in Rio de Janeiro. It presents findings from an action research project on pre-service teachers' perspectives in an elective discipline aimed at developing their digital literacies. Additionally, it reports on a mixed methods study of pre-service language teachers' views on online learning during the pandemic, addressing the challenges and possibilities of CALL in 'Emergency Remote Teaching' (ERT). The studies reveal that pre-service language teachers recognize the necessity to develop digital literacies and integrate technologies into teaching, as many universities lack specific CALL disciplines. Results underscore the need for innovative CALL teacher education practices to prepare future teachers to use emerging technologies effectively in post-COVID language teaching.

Introduction

Although many official documents in Brazil corroborate the relevance of digital technologies in education, they are not fully integrated into language teaching practices either due to lack of basic infrastructure, such as equipment and internet connection, or to lack of digital literacies for their pedagogical use for learning. This problem became even more evident during COVID-19, when teachers faced the challenge of using these technologies for teaching in what has been called 'Emergency Remote Teaching' (ERT). As many teachers had not been familiar with CALL, this led to misunderstandings and stressful experiences for both teachers and learners (Cardoso, 2021; Liberalli, 2020).

Thus, this chapter discusses the need to rethink CALL Teacher Education (CTE) in Brazil based on two studies conducted at a public university in Rio de Janeiro. First, it introduces an overview of CTE and digital literacies. Then, it presents the results of two studies related to CTE, as well as pre-service language teachers' views on online language learning during the pandemic. Finally, it proposes a digital literacies approach for rethinking CET practices with the effective use of digital resources for language teaching and learning.

CALL and Digital Literacies in Language Teacher Education

Language teaching has always integrated some type of technology into its practices, having relied on different technologies for each method or approach used throughout its history (Finardi & Porcino, 2014). Kessler (2018) acknowledges the varied opportunities emergent technologies, such as social media, artificial intelligence, and virtual and augmented reality, offer to enhance and promote authentic language learning. However, he also admits that although students today expect their teachers to integrate these technologies into learning, "many language teachers are unfamiliar with the extensive body of research and practice produced by professionals in the field of computer-assisted language learning (CALL)" (Kessler, 2018: 206).

This reality was observed in a study that investigated the curriculum for undergraduate and graduate programs of language teacher education at seven public universities in Brazil (Gomes, 2019). Results showed that few courses addressed CALL or digital literacies in mandatory disciplines in their regular curriculum and some universities offered elective disciplines on the topic. However, this does not guarantee that all future

language teachers will develop these literacies for critical integration of technologies into their teaching practices as they leave university.

Torsani (2016: ix) also recognizes that "the use of technology in language education is still fragmentary and peripheral" as many teachers and students often limit their digital knowledge to using technology in a passive manner rather than in critical and creative ways leading to enhancement of language learning experiences. The author argues that CALL should be integrated into second language teachers' education, having as its main goal the integration of technology into language pedagogy. Moreover, he sees the relationship between linguistics and technology as a symbiotic one, in which digital technologies may be a factor of change in the pedagogy of language teaching and learning.

Thus, the author recommends the integration of CALL into the language teacher education curriculum (CTE). For him, integration does not mean simply using technologies for teaching and learning, but something that cannot be separated from this process. In other words, technologies should not be applied to language learning as an additional element, but rather, as an integral part of the pedagogy of language teaching and learning. According to Torsani, second language teacher education should embrace CALL in its curriculum to develop teachers' CALL competencies and digital skills.

A similar view is shared by Pegrum, Hockly, and Dudeney (2022), who acknowledge the need for language teachers to understand and integrate a variety of digital literacies into the language curriculum. The authors argue that the transformations we have been facing during the past decades, such as sociopolitical changes, globalization, rise of superdiversity, physical and

digital mobility, and the spread of misinformation, disinformation and fake news, in addition to challenges such as climate change, terrorism, wealth gaps and pandemics, "make it imperative to develop the kind of literacies that can facilitate collaboration across languages and worldviews in face-to-face, digital, and blended contexts" (*ibid*: 3).

Thus, the authors present a Framework of Digital Literacies 3.0 to help language teachers and educators "make sense of what digital literacies now mean, and how to operationalize them in learning designs which are appropriate to students' needs in the third decade of the 21st century" (*ibid*: 2). This framework contains four focus areas that comprise a great variety of literacies: (1) communicating, which includes print, texting, hypertext, multimodal, immersive, special, mobile, code and AI literacies; (2) informing, including tagging, search, filtering, information and data literacies; (3) collaborating, including personal, security, network, participatory, intercultural and ethical literacies; and (4) (re)designing, which includes attentional, critical and remix literacies.

In previous work, Dudeney, Hockly & Pegrum (2016) argue that for language teaching to remain meaningful, teachers must encompass varied digital literacies in their lessons and develop students' literacies. However, to do that, second language teacher education must include these literacies in language teaching and learning practices. Finally, the authors emphasize the need to incorporate activities into the language curriculum that work this wide range of literacies in the development of students' linguistic and technological competencies, as well as teachers' own technological competence and digital literacies.

Hence, language teacher education needs to rethink and redesign its curriculum to integrate digital technologies and literacies

and embrace CTE. It can also be argued that one of the many difficult lessons we have learned from ERT is that both CALL and digital literacies can no longer be neglected in language teacher education curricula and practices.

Methods and Process

This chapter presents the results of two studies conducted with pre-service language teachers in Brazil investigating their perspectives on CTE and the use of digital technologies for teaching and learning before and during COVID-19. Both studies have been approved by the ethics committee at UFF. The participants signed an informed consent to participate in the study and all names were substituted by pseudonyms or numbers.

The first study comprises an action research that focused on pre-service teachers' perspectives on CTE in an elective discipline aimed at developing future teachers' digital literacies. The discipline was planned, implemented, and evaluated as part of the action research cycle (Tripp, 2005) and consistently redesigned from 2017 to 2021, according to participants' and researcher's evaluation. For this chapter, a micro study conducted in April 2020 is presented. This study was carried out at the beginning of the pandemic with students who had participated in the discipline from 2017 to 2019. The qualitative study investigated the contributions of the elective discipline to their practice as language teachers during ERT. Online interviews conducted by e-mail (Mann & Stewart, 2002) aimed at identifying whether and how the elective discipline had helped them develop the necessary digital literacies to navigate language teaching in ERT and the challenges and opportunities they were facing at that moment when they had to teach exclusively online.

Participants comprised six teachers who answered positively to the invitation sent by e-mail to the 26 pre-service teachers who had concluded the CALL elective discipline between 2017 and 2019. All of them were working as language teachers in private or public institutions in March 2020, when the pandemic was declared in Brazil and many schools and universities closed and classes had to be taught online for about two years.

The second study is a mixed methods study (Mann & Stewart, 2002) focused on pre-service teachers' views on online language learning at Brazilian universities during ERT. Participants comprised 40 undergraduate language students from six different universities in Brazil who studied exclusively online between 2020 and 2021 and answered the online questionnaire agreeing to participate in the study.

Research instruments comprised an online questionnaire and online interviews. The online questionnaire was designed in *Google Forms* consisting of 17 closed questions and nine open questions and shared on *Facebook* Communities of Language and Arts undergraduate students at Brazilian universities besides the student representatives at UFF from June to August 2022. Due to length limitations, only the results of the online questionnaire will be presented in this chapter.

The results of both studies were analysed in the light of Bardin's (2009) content analysis and the extracts taken from participants' answers to questionnaires and interviews were translated into English.

Results

The results of the first study indicate that all six teachers acknowledged the relevance of the elective discipline to their teaching

practices during ERT, highlighting the repertoire of digital lite-racies and technologies they had learned as the biggest contri-bution of the course. The excerpts below show participants' perceptions of the course:

> 'Today, I am more confident to use some resources both for research on the topic that my school was responsible for preparing and for preparing the didactic sequences.' (Jéssica)

> 'The course showed a range of digital resources that can be used in education, encouraging creativity and student participation, […] the discipline was essential to teach how to use these resources as allies in the teaching-learning process, especially at this moment when classes are being completely online.' (Laura)

> 'I feel very confident using the tools, even those that we didn't see in class, due to the basis that I acquired during the course. It gave me great relief to know how to use the tools and have a range of options to choose from and test, and I was able to share what I knew with my col-leagues.' (Míriam)

Although the teaching realities of the participants were quite differ-ent in terms of available resources and institutional support, most of them mentioned the challenges of ERT as being related to the lack of internet access or connectivity problems and the scarcity of formal CTE. Many participants mentioned being able to help their colleagues, who did not have any experience with CALL, due to the opportunity of taking the elective discipline. Another important concern shared by participants was the enormous digital divide existent in Brazil and that became more evident during the pandemic as many students (and teachers) did not have access to appropriate equipment and devices and/or good internet connec-tion to carry out their academic and professional activities.

Despite the challenges, participants were also able to perceive some opportunities related to ERT, such as the possibility to use different digital resources in online classes, which was not possible before as some institutions lacked infrastructure and technologies for language classes, and also the lessons learned from this period, showing the relevance of CTE, as illustrated in the extract below:

> 'When there are no connection issues (interrupted connection, audio dropping out, etc.), which unfortunately happens frequently, the classes have been interesting and fruitful.' (Laura)

The quote highlights the necessity of investments in basic technology infrastructure and digital literacies as a national public policy. Moreover, CALL teacher education is also urgent to enable language teachers to make effective use of digital technologies for teaching and learning in different scenarios and situations that go beyond pandemic times. These results reinforce the need to rethink CALL as part of the language teacher education curriculum in Brazil, which should include digital literacies as a core element in pre-service teacher education.

The second study was conducted in the post-COVID period and investigated the impacts of ERT from the perspective of pre-service language teachers. As digital exclusion was a topic of great concern during the pandemic, two questions in the online questionnaire aimed at identifying the main devices and type of internet connection used by students during ERT. Figure 1 shows the devices students used for ERT and, for this question, participants could indicate more than one option. According to the graphic, it can be inferred that, although many students used desktop or laptop computers, mobile phones were used by most students (90%) during ERT.
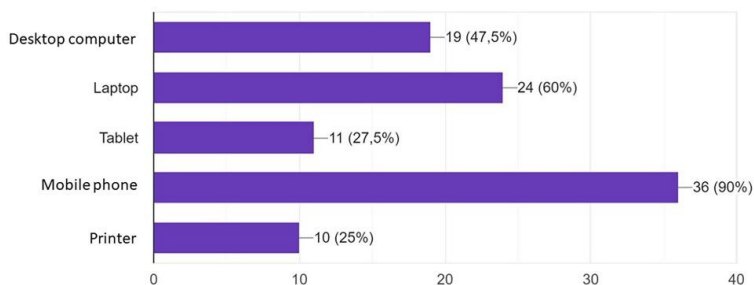
Figure 1: Devices used for online learning during ERT.
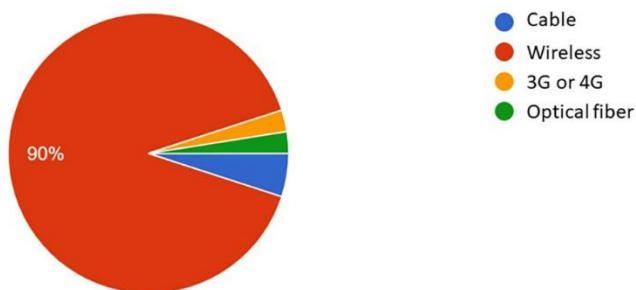*Source*: The author.

Figure 2: Type of Internet connection used during ERT.
Source: The author.

Figure 2 shows the type of connection students used for online activities during ERT and it shows that despite many problems related to bad internet connection, the most common type of internet connection used by students was wireless (90%).

Due to the concern related to massive digital exclusion, many public universities offered financial support programs to help students buy mobile phones, tablets, or SIM cards with internet connection. However, only 10% of students declared having received help to acquire digital devices to be able to participate in online classes during ERT. Also, few students reported having had difficulties in using the digital platforms and/or technologies used by their professors and institutions (37,5%).
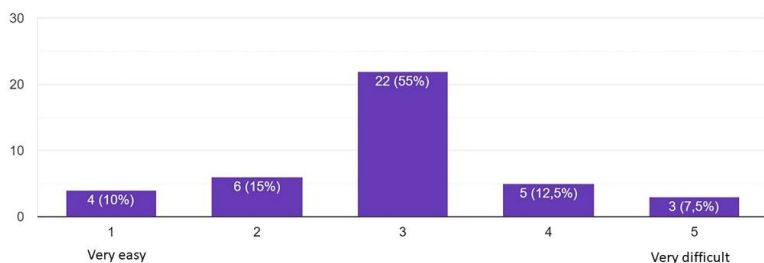
Figure 3: Participants' assessment of their learning during ERT.
Source: The author.

Participants were also asked to assess their learning experience during ERT using a Likert Scale of 5 points, being 1 very easy and 5 very difficult. As shown in Figure 3, most students (55%) considered their learning experience during ERT period as not very easy or very difficult.

Participants were also asked to indicate the main difficulties they faced during ERT. The content analysis of the open answers identified the main difficulties being related to: (1) lack of (adequate) equipment; (2) lack of quality internet connection; (3) initial difficulty in adapting to new online platforms; (4) fatigue due to long exposure to screens; (5) lack of appropriate environment for remote classes, which sometimes prevented them from using their cameras and/or microphones; and (6) lack of professors' preparation for online lessons and poor organization of materials in the Virtual Learning Environments (VLEs). Some of the answers that illustrate these difficulties are presented below:

> 'In remote teaching, we have many variants. Devices that are not very good, laptop that crashes during class. Internet that crashes or slows down, lack of an environment conducive to studying. Unfortunately for me it hasn't worked.' (P7)

'I was not familiar with some platforms; I didn't know how to use them and so I had difficulty doing some activities or simply stopped doing them.' (P18)

'I shared a tablet and computer with my sister during ERT. This made reading very difficult. One always had to give the device to another. In addition, there were issues with the internet and I missed some assessment activities because of that.' (P17)

'[...] many professors are not prepared to teach online, we are not only under the pressure of learning the subject at college, but also having to learn how to manage our time between work and study... [...] Some professors didn't know how to organize Moodle very well, so it was difficult to find/post activities and texts. [...]' (P4)

'Tiring period, a lot of time with the screen exposed in front of your eyes.' (P19)

Besides these difficulties, participants claimed their greatest difficulty during ERT as being related to: (1) internet connection problems; (2) lack of student participation, interaction and work with orality in online lessons; (3) exhaustion; (4) the lesson models used by some professors, which consisted of transposition of face-to-face classes to the online environment; (5) lack of concentration; (6) no clear separation between the family environment and the work/study environment; (7) lack of discipline; (8) excessive number of reading tasks; and (9) physical separation from professors and classmates.

Moreover, 32 students considered ERT as harming their physical or mental health, mentioning the following problems: (1) anxiety, low self-esteem, and depression; (2) backaches and vision problems; (3) headaches and mental exhaustion; (4) obesity; (5) burnout; and (6) insomnia. On the other hand, seven students reported feeling no negative impact. As justifications for their

answers, they mentioned ERT helped them keep their minds busy during lockdown and one of them mentioned having faced anxiety problems when returning to face-to-face classes at university.

Besides the problems aforementioned, most students (28) could also perceive positive impacts on language learning mediated by digital technologies citing as its main contributions: (1) greater contact with digital technologies and platforms; (2) greater range of features; (3) development of autonomy and independence; (4) possibility of rewatching recorded classes; and (5) possibility of interaction with native speakers via CMC. Only six students did not perceive any positive impact on their learning, mentioning online lessons as nonproductive and associating it with a mechanization of the teaching activity.

Finally, the last question in the questionnaire aimed at identifying whether students would like to continue using technologies for language learning after the pandemic, making use of CALL in their pre-service teacher education. Most students (70%) stated they would like to continue using digital technologies for language learning in face-to-face classes after the pandemic, 20% were not sure, choosing the option "maybe" and only one student (2,5%) reported not wanting to use digital technologies for language learning after COVID-19, probably due to negative experiences. Some of the technologies students mentioned wanting to continue using are illustrated in the extracts below:

> 'I would like to maintain the use of technologies for consulting materials and for communicating with colleagues and teachers, in addition to feeling less pressured with the online assessment system, which allows for greater flexibility and more time to articulate ideas.' (P1)

> 'I would like to be able to continue using all the technologies used so far (and perhaps new ones) to carry

> out research, assignments, presentations, composi-
> tions, tests, and various assessments, both written
> and oral.' (P6)

Although the questionnaire did not approach the development
of digital literacies during ERT, it is possible to identify different
literacies that were developed in that period in the extracts above,
such as those related to communicating, informing, and collabo-
rating as described by Pegrum; Hockly & Dudeney 2022. Addi-
tionally, many pre-service teachers acknowledged the relevance
of technology integration to language teaching and learning.

Furthermore, the results of the second study revealed that
most students and many professors were not familiar with CALL
before the pandemic and were 'forced' to use digital technologies
to continue their courses, leading to negative impacts not only to
their learning experiences but also to their mental and physical
health. Besides problems related to digital exclusion and appro-
priate infrastructure for ERT, the negative impacts may be related
to the fact that these technologies were not used properly in a
way to promote greater interaction among learners, professors,
and content and enhance language learning as it is the aim of
CALL practices.

Discussion

Despite having different objectives, both studies present pre-
service language teachers' perspectives on the use of digital tech-
nologies for teaching and learning languages and their teacher
education. The first study shows how the elective discipline has
helped them face the need to teach online using technologies dur-
ing ERT. Participants perceived the contributions and relevance of

the discipline for their teacher education and the applicability of what they had learned in the context of COVID-19. Concurrently, it is important to note that, as there is no mandatory discipline in the language teaching curriculum at the investigated institution, very few students enrolled in the elective discipline from 2017 to 2019, being prepared to teach and learn effectively with the use of digital technologies when COVID-19 started.

The second study shows language students' perspectives and experiences on ERT, evidencing the lack of CALL teacher education, as many professors had problems integrating technologies into their teaching, leading to negative impacts on students' learning and also physical and mental health. As many professors had no teacher education on CALL or online learning, many ERT experiences involved a transposition of face-to-face lessons to virtual platforms with most classes consisting of synchronous activities conducted on platforms such as *Google Meet* and *Zoom*, which may have impacted future language teachers negatively concerning CALL and online learning (Cardoso, 2021;Liberalli 2020). On the other hand, they were also able to identify positive impacts of ERT on their learning and future language teaching practices, such as using different technologies and how not to teach online.

Thus, the results of both studies evidence the need for innovative CALL teacher education practices so that future teachers can develop their digital literacies and integrate emergent technologies into future language teaching practices in meaningful and effective ways in the post-COVID era. Hence, a digital literacy approach, as suggested by Pegrum, Hockly & Dudeney (2022) can benefit pre-service language teachers as the development of these literacies is paramount for social practices in contemporary society.

Conclusion

As many Brazilian universities still do not have a specific discipline on CALL or technology-enhanced language learning in their curricula (Gomes, 2019), it is suggested that teachers and curriculum designers learn from the ERT experience during COVID-19 and adopt and integrate digital technologies not only to teaching and learning practices but also to the teacher education curriculum, rethinking CALL teacher education to promote innovative CALL practices through a digital literacies approach, developing future teachers' digital literacies throughout their course as suggested by Torsani (2016), Pegrum, Hockly & Dudeney (2022) and Gomes (2019).

As mobile phones were cited as an important technology for learning practices during COVID-19, we may also consider MALL (Mobile-Assisted Language Learning) practices in pre-service language teacher education (Kukulska-Hulme, 2018) as these devices have pervaded most of our social practices and are an inextricable part of our students' lives. As language educators, we need to rethink the use of these devices in our language lessons so that students can develop their mobile literacy (Pegrum, Hockly & Dudeney, 2022) and take advantage of these technologies for language learning, being able to incorporate B.Y.O.D. (Bring Your Own Device) practices, for example.

Furthermore, future language teachers acknowledge the relevance of digital technologies for teaching and learning practices and the urgent need to develop their digital literacies. This could be noticed in the fact that many language professors and students had not been familiarized with these technologies before COVID-19, misusing them in their practices and leading to both physical and mental issues during ERT.

Finally, the results of both studies evidence the great digital inequality and exclusion that is still alarming in Brazil and that was highlighted and even increased during COVID-19. This resulted in many students failing or quitting their studies due to lack of access to digital devices, internet connection, and even digital literacies. Thus, besides the need for innovative CTE practices, we need public policies in Brazil that not only promote both access to devices and good internet connection to all citizens but also ensure the development of digital literacies throughout their education.

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