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Hybrid teaching in deaf education during the pandemic:

training challenges

Andrea Pestana Pinheiro[i] ⓘ
State University of Maranhão, São Luís, MA, Brazil

Lílian de Sousa Sena[ii] ⓘ
State University of Maranhão, São Luís, MA, Brazil

Ilka Márcia Ribeiro de Souza Serra[iii] ⓘ
State University of Maranhão, São Luís, MA, Brazil

Abstract

The year of 2020 was very important to (re)think Education in Brazil, since it was the year when the educational community had to resignify itself in the face of the new challenges imposed by the Covid-19 pandemic, requiring training to train teachers in the so-called "new" teaching modality. In this sense, this work aims to make a cut of what happened and is happening in the academic environment after the pandemic was decreed. The research in question investigates, under the bias of qualitative analysis, using questionnaires, the main difficulties encountered by teachers from inclusive high school classrooms and professionals from multifunctional resource classrooms, in the learning process of deaf students, with the use of technologies and the real need to train these teachers in terms of hybrid teaching. The theoretical bases guiding this textual construct were: Giroto (2012), Moran (2015), Moreira (2020), and Quadros (2003). The results point to efforts in the context of teaching deaf students, as changes in educational paradigms have re-signified and are resignifying agents, modes/means, instruments, and educational purposes, in addition to pointing out the need for innovations in educational practices.

Keywords

education of deaf; inclusive education; technologies; education training.

Ensino híbrido na educação de surdos durante a pandemia:

desafios da formação

Resumo

O ano de 2020 foi muito importante para (re)pensar a educação no Brasil, por ser aquele em que a comunidade educacional precisou se ressignificar perante os novos desafios impostos pela pandemia da Covid-19, necessitando de formações para a capacitação dos docentes na chamada "nova" modalidade de ensino. Nesse sentido, este trabalho tem por objetivo fazer um recorte sobre o que aconteceu e vem acontecendo no meio acadêmico após ser decretada a pandemia. A pesquisa em comento investiga, sob o viés da análise qualitativa, utilizando-se de questionários, as principais dificuldades encontradas pelos docentes de salas inclusivas do ensino médio e profissionais de salas de recursos multifuncionais, no processo da aprendizagem de estudantes surdos, com o uso das tecnologias, e a real necessidade de formação desses docentes frente ao ensino híbrido. Tem como bases teóricas norteando este constructo textual: Giroto (2012), Moran (2015), Moreira (2020) e Quadros (2003). Os resultados apontam

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esforços no contexto do ensino de estudantes surdos, visto que as mudanças de paradigmas educacionais ressignificaram e estão ressignificando os agentes, os modos/meios, os instrumentos e as finalidades educacionais, além de apontarem necessidades de inovações das práticas educativas.

Palavras-chave
educação de surdos; educação inclusiva; tecnologias; formação educacional.

Enseñanza híbrida en la educación de sordos durante la pandemia:
desafíos de entrenamiento

Resumen
El año 2020 fue muy importante para (re)pensar la Educación en Brasil, ya que fue el año en que la comunidad educativa tuvo que resignificarse frente a los nuevos desafíos impuestos por la pandemia de Covid-19, requiriendo formación para formar docentes en la denominada modalidad de enseñanza "nueva". En ese sentido, este trabajo pretende hacer un corte de lo que pasó y está pasando en el ámbito académico luego de que se decretara la pandemia. La investigación en cuestión indaga, bajo el sesgo del análisis cualitativo, a través de cuestionarios, las principales dificultades encontradas por docentes de aulas de bachillerato inclusivo y profesionales de aulas de recursos multifuncionales en el proceso de aprendizaje de los alumnos sordos con el uso de las tecnologías y la necesidad real de formar a estos profesores en términos de enseñanza híbrida. Estas son las bases teóricas orientadoras de este constructo textual: Giroto (2012), Moran (2015), Moreira (2020) y Quadros (2003). Los resultados apuntan esfuerzos en el contexto de la enseñanza de estudiantes sordos, ya que los cambios en los paradigmas educativos han resignificado y están resignificando agentes, modos/medios, instrumentos y propósitos educativos, además de señalar la necesidad de innovaciones en las prácticas educativas.

Palabras clave
educación de sordo; educación inclusiva; tecnologías; formación educacional.

1 Introduction

With new information and communication technologies (ICTs), it is implied that schools have more pedagogical resources to dynamize classes and enhance knowledge. The implication is due to the fact that public and private schools do not share the same physical and/or technological infrastructure. On the other hand, considering the use of ICTs for the dynamic aspect, knowledge is built on an interaction flow that digital and virtual environments provide, not focusing the transmitter role on one of the actors since teachers and students gradually build their knowledge and share it with others.

In this perspective, Moran (2015, p. 43) states that "[...] what technology brings nowadays is the integration of all spaces and times. Teaching and learning happen on a

2

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symbiotic, deep, constant interconnection between the so-called physical and digital worlds". As a matter of fact, the hybridization of educational spaces contributes to a human formation who lives in a connected world. It is the formation for the world beyond the life that the school plans to develop.

The active posture of the individuals is fundamental because learning does not occur uniformly. Each subject, within its own particularities, has its own rhythm that must be respected. It is possible to understand, as said by Vygotsky (1991, p. 55), that "[...] learning is more than the acquisition of the capacity to think, it is the acquisition of many specialized capacities to think about many things", thus, the contexts and situations are significant to the acquisition.

The use of ICTs, as previously said, provides interactions beyond space and time, overcoming these barriers, however, it is necessary that teaching, through those, explore significantly the pupils' abilities. Thus, hybrid teaching, being a novelty, especially in public schools contexts, teacher training becomes important for the "[...] empowerment of methodological knowledge which allows understanding and dealing with the differences that exist in school environments" (GIROTO; POKER; OMOTE, 2012, p. 16), also concerning technology.

Thus, this study aims to analyze the challenges found by Brazilian Sign Language (BSL) interpreters in the school education of deaf students on hybrid teaching in the first six months of the Covid-19 pandemic in Brazil.

The temporal cut focused on this research, between May and August 2020, shows the urgent need of having a competency to use digital technologies, due to the continuation of pedagogical activities. Following the words by Moreira e Horta (2020, p. 6), "[...] interaction on the digital arises to give another meaning and expand the concept of the interaction that already exists. This interactivity assumes participation, cooperation, bi-directionality, and multiplicity of connections between information and the actors involved". It recognizes, thus, how significant the contribution of digital learning environments is.

However, the interactive process of the teaching deaf in hybrid environments under the perspective of inclusion shows themselves as fragile, since, as punctuated by Quadros (2003, p. 96), "[...] professionals do not believe that through sing languages it is, indeed, possible to discuss the scientific and technological advances that are among the

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da Universidade Estadual do Ceará (UECE)

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topics worked by schools". Thus, the inclusion of deaf students in digital and hybrid education is a possible challenge as long as there are resources, effort, and commitment of the education professionals, public agents, students, and their families.

2 Methodology

This research has a qualitative approach since it aims to know the pedagogical practices done in physical and digital environments on a space cut located between two cities in the state of Maranhão, São Luís e Timon, in a period of six months after the decree of the pandemic in Brazil. Being an analysis of the sociocultural reality of the participants in different geographic points, there is no way of measuring the quantitative indicators, since the data reflects that are sometimes equal and sometimes different inside the investigated question problem.

In this sense, it is possible to understand, according to Zago (2003, p. 295), that one of the characteristics of qualitative research "[...] is to allow the building of the problem of the study during its development in different stages". Concerning the technical procedures, it was a field research, because besides being based on biographical studies, the data collection with teachers and interpreters were made through semi-structured questionnaires.

Concerning the interview technique, Gil (2008, p. 109) states that "Due to its flexibility, it is adopted as a fundamental investigation technique in different fields and it is possible to affirm that an important part of the development of Social Sciences in the past decades was thanks to its application". Thus, the semistructured interview was the main methodological procedure used in this research.

During the investigative work, in order to reach the study goals, we interviewed three BSL interpreters in São Luis and two BSL interpreters in Timon. To conduct the interviews and apply the semi-structured questionnaire, we used digital communication resources and platforms such as Google Forms. It is important to highlight that the challenges seen at the beginning of the study still exist once, after the end of the research, we were still in a pandemic context.

It is worth highlighting that the participants of this study are BSL interpreters because, in the emergency remote teaching context, they and only them, in Timon city,

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da Universidade Estadual do Ceará (UECE)

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were responsible for the monitoring of deaf students. At this moment, the teachers did not have contact with students due to reasons such as they had no knowledge of BSL and the students lacked technological support. The reality of the professionals from São Luís is slightly different because the teachers, though having had contact with deaf students, delegated to the interpreters the responsibility of the orientation about the curriculum contents.

The cities where data was collected, though geographically distant - Timon is 434 kilometers away from the capital, São Luís -, are close due to the inclusive characteristic perceived in the posture of the education professionals, especially of the BSL interpreters who excelled while conducting the interactive processes. Besides that, all the participating professionals had to learn to use the technological resources applied to education to teach both subject matters and the handling of digital resources.

Knowing the strategies used by the BSL interpreters and deaf education in digital and physical environments in the pandemic context was fundamental to understanding how structural and technological resources, as well as teacher training and socioeconomic aspects, influenced and still influence education positively or negatively, especially concerning teaching deaf students.

3 Results and discussion

In a scenario of association of elements for an education that takes place in loco and remotely, hybrid teaching consists of a scope of possibilities of teaching and learning, already consolidated in the educational context, such as in graduation and post-graduation courses that already existed for years, but also by the pandemic context that tackled the world and the replanning that many schools had to make to adapt to the needs. This blended (MORAN, 2015), or hybrid teaching, in the current contexts, joins flexibility and facility of organizing the contents.

According to Jardilino *et al.* (2022, p. 101), when affirming that "[...] new technologies linked to communication media, to the internet, and virtual spaces, previously considered as instruments of social/communication culture tools, now became central elements of learning and socialization of teachers, students, and their families", it is also considered that not all of them have a domain of those technologies as a cultural

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da Universidade Estadual do Ceará (UECE)

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element, using them only as tools. Similarly to what happens to any tool, not everyone has access to or expertise for its use.

Hybrid teaching and interactive processes are important in the process of inclusion of deaf students, especially in the context of physical distance. Having a deaf student in class means being aware that he/she has their own perception of the world different from hearers since their perceptive channel is visual. Thus, a truly inclusive classroom, besides having a sign language interpreter, needs to consider this student's particularities and their way of learning, as well as the care with the methodology to be used and the involvement of the pedagogical team.

Hybrid teaching is a methodology that aims the dissemination of knowledge in different formats of those traditionally systematized. This concept brings a possibility of understanding the joint use of technologies and tools of the digital universe or not, of online and offline environments. Thus, it might consist of an excellent resource for innovation and enhancement of learning and for the teachers and students to increase their knowledge using methods and resources that are suitable for all, considering the learning environments, and the way and time each person learns.

According to Pletsch, Pitanga de Oliveira, and Colacique (2020, p. 22), "[...] thinking inclusion and accessibility in cybercultural environments is beyond the guarantee of access to the consumption of contents shown in media, but also, and most importantly, to the resources to produce and broadcast knowledge and information made by the disable people". Thus, it is possible to notice the importance of enabling experiences in virtual learning environments that, truly, represent inclusion and production of knowledge.

For the teacher to provide the means of production to students, they also need to be ready to understand the changes within the teaching and learning process through technology since, according to Giroto *et al.* (2012), there is no way to avoid technological advancement and its effects in society. The authors also show that state schools, though receiving the resources, do not use them due to the lack of teacher training to the use of those resources, as well as of other technology resources that might dynamize hybrid teaching. Hybrid work enables the development of digital competences and students' protagonism in virtual or non-virtual environments.

6

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da Universidade Estadual do Ceará (UECE)

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This system helps, especially, the student's individual needs, since it enables the building of a personalized teaching/learning model both referring to the content and methods, combining online exercises and classroom activities besides fostering the competences of digital literacy, which happens on the dialogue among technology (software and hardware), students, and teachers. Those integrated forms help changes in school culture and digital culture since the technologies are structurally integrated for the didactic-pedagogical actions, going beyond the virtual teaching and learning proposals, as well as a digital transformation, in other words, the strengthening of learning mediated by technology, which reinforces the need of teacher training.

Moran (2015, p. 27) makes a prediction about blended pointing to a concept that is wider and already exists since:

> Hybrid means mixed, merged, blended. Education has always been mixed, hybrid, always combining many spaces, times, activities, methodologies, and audiences. This process now, with mobility and connectivity, is more perceived, wider, and deeper: it is an ecosystem more open and creative. It is possible to learn and teach in different ways, in all moments, in multiple spaces. Hybrid is a rich, suitable, and complicated concept. Everything can be mixed, combined, and it is possible to, by using the same ingredients, prepare different 'dishes', with very different flavors.

Considering these premises, it is necessary to enter the path of hybrid education/teaching, by breaking the paradigms of an offer of technological tools of a digital school. In other words, it is possible to understand digital technological devices are fuel to learning since it is through them that the teaching and learning practices, inside or outside the school environment, become more interactive and significant in students' lives.

In short, hybrid teaching, when contextualized to students' stimuli and interests and stimulated by teachers, breaks barriers and enables personalized learning, more engaged, without considering the cognitive and socioemotional competences and skills. To Sena and Serra (2021, p. 52), those competences "[...] are necessary because the digital has numerous possibilities of learning and forms of relationships that impact different sectors of society".

With the sustaining (which improves the traditional classrooms) or disruptive (which fosters a rupture in schools, substituting for a completely different paradigm) models, they serve, aligned to the technological advancements, to what must be the

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da Universidade Estadual do Ceará (UECE)

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legal duty of all networks, communities, schools, and teachers: the guarantee of the right to learn, with experiences and meanings that enhance all those contexts.

3.1 Knowledge and interaction

For years, school learning has been a subject of study to many researchers, whose studies contribute to a better understanding of how this process occurs. In this dynamic, it is fundamental to analyze the interactive process between teachers and students, since knowledge is also built during interactions. It is important, however, to highlight that being part of the same environment or space does not characterize a learning situation, an interaction between the parts is necessary for the learning to start.

School, among other social contributions, has the role of allowing knowledge exchange and interactive situations in a collaborative and empathetic environment. From the interactive situations, each person resignifies previously-internalized concepts. According to Vygotsky (2000, p. 325):

> It is possible to say that there is a learning process; it has its inner structure, its sequence, its triggering logic; and on the inside, in each studepathhead, there is a subterranean net of processes that are triggered and moves on the course of school learning and has their development logic,

From this approach about the learning process, the external actions that each person makes in their social environment have meaning based on the cultural context they are in. Thus, their inferences and interpretations are built from the outside to the inside and, later, return to the social. As Vygotsky (2001, p. 12) states, "[...] the development of the psychological foundations necessary for the teaching of base subjects does not precede this teaching but unfolds in a continuous interaction with the learning contributions". Thus, it is possible to observe the importance of social interaction to build learning, both in the development process and for the realization of knowledge. Therefore, it is possible to notice the great influence that the teachers have over this process of learning development.

The teacher-student interaction helps the development of learning strategies and strengthens the potential of those subjects involved in the dynamic. Concerning the

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ARTIGO Revista do Programa de Pós-Graduação em Educação
da Universidade Estadual do Ceará (UECE)

REDUFOR
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processes of development and learning, it is possible to notice that during the development of human beings there is a natural evolution from those who develop. This evolution does not simply occur from the physiologic, but also from the cognitive and psychological point of view. During this evolutive movement, learning happens and molds who we are and who we will be.

Developing a pedagogical work in technological environments, without the presence of a traditional physical classroom, is a fertile ground for the learning to be built both on the aspects of scientific knowledge and emotional and behavioral intelligence, since the visibility of those involved in the educational process has on this hybrid environments is immeasurable. It is believed, as said by Vygotsky (1991, p. 83), that "it is over the interactions between children and adults that young pupils identify the efficient methods to memorize - methods that became accessible to young people by those with higher memorization skills". Human mediation is, therefore, indispensable to the awareness, orientation, and building of knowledge in the virtual classrooms that were introduced abruptly, with no time to mature the idea of this type of pedagogical act on different teaching levels.

In a society immersed in technology, it is natural to expect technical knowledge about this topic, due to the frequency it is used, and how digital competences are very necessary to everyday life. However, technology does not contemplate the totality, nor are there investments in technological education during the teachers training in the primary education of state schools, the most democratic way of access to scientific knowledge. Technological products are part of society and there is no way to separate them from everyone's lives. In order for their use as interactive and learning tools to be productive, the process of developing strategies happens in parallel with the maturation of concepts and techniques by the teacher and the student, in order to develop learning beyond the school environment.

The challenges to be overcome every day are big because there are teachers who still feel unprepared to receive a deaf student in their classroom and, along with them, another professional. In 2020, those challenges doubled by the need for social distancing due to the COVID-19 pandemic, making teachers adapt from classroom teaching to hybrid teaching. Thus, it was possible to notice that, if the inclusion of deaf

9

EDUCAÇÃO & FORMAÇÃO
ARTIGO Revista do Programa de Pós-Graduação em Educação
da Universidade Estadual do Ceará (UECE)

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students already had complications, with the hybrid teaching, more steps were added to this path.

4 Analyses about teaching during the pandemic

The pandemic context brought a latent reality, revealing the lack and unpreparedness of most teachers on the use of digital technologies in education, which led to the urgency of handling and familiarization with those resources. To Silva (2001, p. 15), with the arrival of the cyberculture era, "[...] more than ever, the teacher is challenged to modify their communication in the classroom and education". It is known that, for inclusive education, this becomes a greater challenge. Thus, by asking how to make this inclusion happen, even remotely, some of the results and analysis of the data collected for this study are shown next.

The pedagogical work with deaf students, in Timon city, developed during the pandemic, considering the time cut in which this study is located, denotes that digital technologies were restricted to instrumental use since they consisted of a communication resource to schedule classroom classes and send videos. It is important to highlight that the classroom classes with interpreters followed the sanitary protocols recommended by the health authorities.

Following Moreira (2018, p. 14), "[...] technologies have a great potential to improve the pedagogical process and should be affirmed, inserted in a digital learning ecosystem, as a means to help students to think, solve problems, create, and collaborate with others". It was possible to notice how digital learning environments contribute to collaborative work once they are well coordinated. Questioned about the non-holding of online classes, the interpreters answered: "*Because, for more efficient learning, it is necessary to be on-site, but we always recorded videos to reinforce their learning*" (INTERPRETER 1); "*Because students have difficulties accessing the internet due to financial problems*" (INTERPRETER 2).

From the professionals' speech, it was possible to determine that financial difficulties undermine digital inclusion, and this is an issue that has an impact on all individual and social development. It was also noticed the lack of teachers' knowledge about the learning and use of digital technologies. By affirming that *for more efficient*

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da Universidade Estadual do Ceará (UECE)

learning, it is necessary to be on-site [...]" the interpreter evidenced the fragilities of the training courses because she does not know the possibilities that digital environments bring to education, besides showing herself tied to traditional methods since she understands that only with a physical presence it is possible to have significant learning.

It was possible to notice, therefore, that both teachers and students are apprentices in digital environments. However, the teacher, with the urgency to meet the goals planned by the schools, excludes, even unintentionally, those who "hinder" them to achieve their goals, in this case, deaf students. These, in turn, have their educational guardianship transferred to interpreters who, though more empathetic and compromised, are not able to promote digital inclusion. And, in many of the adopted practices with the digital environments, it was possible to notice only the transposition from classroom teaching to digital environments (SCHLEMMER; DI FELICE; SERRA, 2020).

Thus, both teachers and interpreters, for the need for training and negligence of the State, preclude students, deaf and hearers, from living a learning experience similar to the one described by Moreira (2018, p. 14) under the understanding that: "[...] technologies have a great potential to improve the pedagogical process and should be affirmed, inserted in a digital learning ecosystem, as a mean to help students to think, solve problems, create, and collaborate with others".

In São Luís, the teachers had training experiences concerning the use of digital technologies in the first months of the pandemic. In the first moment, there was a mobilization of the Education Secretary of the state to reach the High School audience, which generated the recording of classes in Portuguese and BSL for students who took the Enem (Exame Nacional do Ensino Médio) tests, a methodology which was extended to all the state via a YouTube digital platform.

All the participants of the interview recognized the importance of teaching mediated by technologies, but all of them highlighted the lack of technological education in their formations, which prejudiced them when facing the new teaching modality. When asked about their difficulties concerning the use of those platforms and resources, the interviewees answered:

> *Though it seemed to be intuitive and easy to handle, I had difficulty due to the lack of knowledge. I also need to know how to evaluate students, because we do not have immediate feedback, which hinders assessment.* (INTERPRETER X).

11

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ARTIGO   Revista do Programa de Pós-Graduação em Educação
da Universidade Estadual do Ceará (UECE)

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> *I need a longer period of adaptation because both planning and the realization of classes are different. I can affirm that, until now, I notice that deaf students are hampered because we do not have enough knowledge to make classes more inclusive and they do not have technological support.* (INTERPRETER Y).

> *I am searching for better ways of using technologies because I notice that I need more training and time to practice. We use video calls via Whatsapp and Google Meet and videos on YouTube, but these were not enough to make classes inclusive.* (INTERPRETER Z).

For Alves and Gomes (2020), the pandemic moment brought a real need to resignify, revaluate life and basic education, making it necessary an adaptation to a logistic and organizational pattern on the schools, resulting of an attachment to the physical world that no longer can be used as a reference. This attachment generates insecurity in the experiences with hybrid environments and led teachers to evaluate the quality of this teaching with deaf students as unsatisfactory and away from cognitive and linguistic development on the same molds of on-site.

In this sense, it is important for teachers to develop new competences for quality teaching, aligned with the students' contexts, in dialogue with the digital, which allows thinking of new inclusive and engaging pedagogies (SENA; SERRA; LIMA, 2022). Thus, the visual teaching modality and the interactive possibilities are more present and motivators to deaf and hearers students. Consequently, it is possible to notice the insecurity and unpreparedness of those professionals for hybrid teaching, being necessary methodologies that focus on the students and use digital technologies as procedures to make teaching and learning more attractive, regardless of the socialization space, beyond a joint work between teachers, interpreters, schools, and families for better development in face of those new educational challenges.

5 Closing remarks

The pandemic demanded to resignify all elements of the universe of access to knowledge in academic environments to remote or hybrid teaching. The results of this study showed BSL interpreters' efforts to reach practices that meet the needs of all students' heterogeneity - specifically in this study, deaf students - to the maximum.

In Maranhão, municipal and state schools with deaf students are inserted on the perspective of inclusive education, with teachers included in regular classrooms with a

12

EDUCAÇÃO & FORMAÇÃO
ARTIGO   Revista do Programa de Pós-Graduação em Educação
da Universidade Estadual do Ceará (UECE)

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BSL interpreter teacher. There is still a long path to advance on deaf education and their real inclusion because, though being fundamental to accessibility, only the interpreter does not guarantee an effective school inclusion.

Thus, this research also points to the difficult accessibility and permanence of students in the classes for different reasons, some, namely, due to the difficulty inherent to the triad education, poverty, and social inequality. Besides that, it showed the teachers' difficulties in issues such as the use and handling of technological devices or in their praxis, which showed a practice rooted in traditional precepts.

The developed strategies were not very effective in this remote/hybrid return due to the lack of teacher training and insufficient technological conditions from the students and the schools. However, in case it is considered the effort to continue the school year, it is possible to affirm that there was a success, due to the fact that adaptations were made so deaf students could continue to study. It should also be highlighted that the actions made during this pandemic moment allowed to reinforce that the referred schools and participating professionals continued to be active, even at this moment.

Considering this, by the progress of the actions mentioned above in this article, it is still not possible to forecast how such practices will affect the students' and teachers' school lives, but it should be highlighted how those actions are important and will have an impact on the pedagogic practices of the "new normal", the return of in-loco classes. In this sense, the current research fosters future studies about the impacts of emergency remote teaching on the affected deaf students' academic life, as well as the BSL professional interpreters' performance.

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13

EDUCAÇÃO & FORMAÇÃO
ARTIGO Revista do Programa de Pós-Graduação em Educação
da Universidade Estadual do Ceará (UECE)

REDUFOR
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14

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Andrea Pestana Pinheiro, State University of Maranhão
[i] https://orcid.org/0000-0002-8494-8346
Master's student in Inclusive Education at the Universidade Estadual do Maranhão, specialist in Letters and Libras at the Faculdade de Venda Nova do Imigrante, a bachelor's degree in Literature-Libras at the Federal University of Santa Catarina and a degree in History at the State University of Maranhão. Libras interpreter teacher by the State Department of Education of Maranhão and by the Municipal Department of Education of São Luís.
Author's contribution: Conceptualization, investigation and first writing.
Lattes: http://lattes.cnpq.br/7631802127878301
E-mail: pestanandrealmeida@gmail.com

Lílian de Sousa Sena, State University of Maranhão
[ii] https://orcid.org/0000-0002-1137-8194
Master's student in Inclusive Education at the State University of Maranhão – research line: Technological Innovation and Assistive Technology –, specialist in Brazilian Sign Language (Libras) and Higher Education Teaching at Faculdade Evangélica do Meio Norte and in Applied Linguistics to Portuguese Language Teaching from Faculdade Santo Agostinho and graduated in Letters-Portuguese from the State University of Piauí. Effective teacher at the State Department of Education of Maranhão.
Author's contribution: Conceptualization, investigation and first writing.
Lattes: http://lattes.cnpq.br/3712355223234046
E-mail: liliandisousa@gmail.com

Ilka Márcia Ribeiro de Souza Serra, State University of Maranhão, Department of Chemistry and Biology, Graduate Program in Aquatic Resources and Fisheries and Professional Graduate Program in Inclusive Education
[iii] https://orcid.org/0000-0003-1622-5434
Post-doctorate in Digital Technologies from the University of Coimbra. Adjunct Professor IV of Microbiology at the Department of Chemistry and Biology at the State University of Maranhão. Permanent professor of the Graduate Program in Aquatic Resources and Fishing and the Professional Graduate Program in Inclusive Education. It exercises the general coordination of the Nucleus of Technologies for Education of the State University of Maranhão, representing it with the Open University System of Brazil and the e-Tec Brasil Network of the Ministry of Education. Editor-in-Chief of the scientific journal *TICs e EaD em Foco.*
Contribuição de autoria: Metodologia e redação – revisão e edição.
Lattes: http://lattes.cnpq.br/9701947243565086
E-mail: ilka.tt@gmail.com

16

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