THE PSYCHOSOCIAL IMPACT OF REMOTE TEACHING MEDIATED BY DIGITAL TECHNOLOGIES: CHALLENGES AND OPPORTUNITIES IN EDUCATION IN TIMES OF CRISIS

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ABSTRACT

This article aims to analyze the psychosocial impact of remote teaching mediated by Digital Technologies (DTs) in the context of Language courses of the State Secretariat of Education and Sports (Seduc-AM) in Manaus during the Covid-19 pandemic. The rationale for this study lies in the need to understand how the rapid transition to remote teaching has affected both pedagogical practices and the emotional well-being of teachers and students. The methodology used was a qualitative and exploratory research, focusing on a case study. Questionnaires were applied and interviews were conducted with teachers who work in the state education system. The data obtained were analyzed based on the content analysis technique proposed by Bardin (2010), resulting in two main analytical categories: the challenges faced during remote teaching and the opportunities for pedagogical innovation offered by DTs. The results revealed that, although the transition to remote teaching has brought significant challenges, such as the increase in workload and inequality in access to technologies, It also offered opportunities for the diversification of pedagogical practices and the development of new skills. The research highlights the importance of continuous training and adequate technical support for the effective integration of DTs in education.

Keywords: Remote Teaching. Psychosocial Impact. Digital Technologies.

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INTRODUCTION

This article is part of a research extension based on my master's dissertation that discussed the main challenges of teachers in the Amazonas state network with the use of Digital Information and Communication Technologies (DICTs) as learning resources in facing the COVID-19 pandemic. The SARS-CoV-2 virus has posed unprecedented challenges to the education system, leading to the rapid implementation of remote teaching mediated by digital technologies. In this context, teachers in the state network of Amazonas faced a series of obstacles when using DICTs as learning resources. In addition to the technical and pedagogical challenges, it is essential to consider the psychosocial impact of remote teaching for both educators and students. Isolation and social distancing, implemented as quarantine measures to prevent the spread of the virus, have their benefits. However, these measures also accentuate exclusion, injustice, and inequalities, leading to psychosocial and other health problems (SANTOS, 2020; PAZ, 2020).

Corroborating SANTOS 2020, Joshi says:

> "Teachers must adapt to new teaching methodologies and develop digital literacy skills, which can be challenging for some. Over-reliance on technology can also cause problems such as fatigue due to excessive screen time and decreased face-to-face social interaction, affecting students' mental health and well-being." *(JOSHI, 2023, p.1).*

This study aims to explore in more depth the issues related to mental health, emotional well-being, social interaction and development of teachers' socio-emotional skills in the face of the new educational reality.

Education has been heavily impacted by global crises, such as the COVID-19 pandemic, which has forced the adoption of emergency teaching strategies in various parts of the world. In this context, remote teaching mediated by digital technologies has emerged as an immediate solution for the continuity of academic activities. However, the abrupt transition from face-to-face to remote teaching brought with it a series of challenges and opportunities, both for educators and students (SOUZA, 2020). Remote teaching, characterized by the use of digital platforms and other technological tools, has been the subject of debates in the educational field, especially with regard to the psychosocial impacts of this modality. For many students, adapting to this new format generated feelings of isolation, anxiety, and difficulties in establishing effective study routines (MENDES; ALMEIDA, 2021). In addition, factors such as the lack of adequate infrastructure and the increase in digital inequality have further aggravated the effects of the crisis on vulnerable populations (SANTOS et al., 2021).

On the other hand, despite the challenges faced, remote teaching has also revealed a number of opportunities for education. The flexibility provided by digital technologies has allowed the development of new pedagogical practices, promoting student autonomy and encouraging the use of active learning methodologies (OLIVEIRA, 2022). The crisis also served as a catalyst for digital transformation in educational institutions, accelerating the adoption of technological innovations that were previously seen as complementary to the educational process (COSTA; PEREIRA, 2020). Given this scenario, it is essential to understand the psychosocial impact of remote teaching on the lives of students and educators. This article seeks to analyze the main challenges and opportunities presented by this educational modality in times of crisis, exploring how digital technologies can be both a facilitator and an obstacle to the teaching-learning process.

The transition to remote teaching mediated by digital technologies has brought to light not only pedagogical issues, but also significant implications for the emotional and social well-being of those involved. The adaptation difficulties faced by educators and students exposed a scenario of psychological vulnerability, especially in terms of mental health. According to Araújo et al. (2021), physical isolation, task overload, increased anxiety, and stress were some of the factors that contributed to the deterioration of the emotional state of many students, who were forced to deal with new learning dynamics, without the face-to-face support of classmates and teachers.

The psychosocial impact of remote learning also highlighted pre-existing socioeconomic disparities. The so-called "digital divide", which ranges from limited access to technological devices to the quality of internet connection, was one of the biggest challenges faced by low-income communities, accentuating educational inequalities in the country (SILVA; MOURA, 2020). Many students, especially those in more peripheral regions, suffered from a lack of basic infrastructure to keep up with online activities, which directly impacted their academic performance and motivation. In addition, the physical distancing imposed by remote teaching has led to changes in social interactions, which are fundamental for the psychosocial development of individuals. The absence of daily interaction in schools, interpersonal exchanges with classmates and teachers, was perceived as a significant loss for the construction of social bonds and the feeling of belonging to a group (CARVALHO, 2020). As Prado and Lima (2021) state, the school, in addition to being a space for formal learning, is also a place where social interactions play a crucial role in the formation of identity and the development of socio-emotional skills.

On the other hand, some opportunities emerged from this challenging scenario. The acceleration of the integration of digital technologies into the educational process has

paved the way for new, more dynamic and student-centered forms of learning. The use of digital platforms, interactive tools and the possibility of personalizing learning were shown to be positive aspects, enabling greater flexibility and autonomy in the teaching-learning process (PEREIRA; SOUSA, 2021). In addition, remote teaching forced a reflection on the role of the teacher, who went from a mere transmitter of knowledge to a mediator, facilitator, and advisor of the educational process (BARROS, 2020).

In this sense, remote teaching mediated by digital technologies presents itself as a multifaceted phenomenon, which involves both challenges and opportunities. Although it has the potential to expand access to knowledge and promote digital inclusion, its implementation requires a series of adjustments, especially with regard to psychosocial support and the infrastructure conditions necessary for all students to enjoy a quality education. As Oliveira (2022) points out, the experience with remote teaching during the pandemic served as a watershed for the future of education, indicating that the use of digital technologies must be complemented by pedagogical strategies that take into account the emotional and social impacts on students' lives. In view of these issues, this article seeks to deepen the discussion on the challenges and opportunities of remote teaching mediated by digital technologies, focusing on its psychosocial impacts. Based on a critical analysis of the existing literature, it is intended not only to map the problems faced during the period of emergency remote teaching, but also to highlight the lessons learned and the potentialities that can be explored in the future of education.

METHODOLOGY

This study is characterized as a qualitative and exploratory research, carried out in the form of a case study, inserted in the field of Education. The choice for the qualitative method is based on the search for an in-depth understanding of the psychosocial impacts of remote teaching mediated by digital technologies, with the main focus on the subjective experience of the participants, their perceptions and meanings attributed to the phenomenon in question (MINAYO, 2010).

The research was conducted within the scope of the stricto sensu Graduate Program in Educational Sciences at the Universidad Columbia del Paraguay, more specifically in the research line "Languages and Technologies in Education". The context of the investigation is closely related to the transformations that occurred in the educational scenario during the COVID-19 pandemic, a period in which emergency remote teaching was widely implemented. The qualitative approach was selected because it is the most appropriate for the analysis of complex phenomena, such as the psychosocial impacts of remote teaching,

which involve subjective, emotional, and social issues (DENZIN; LINCOLN, 2011). By adopting the exploratory character, the study aims to investigate areas that are still underdeveloped in the field of technology-mediated education, especially with regard to psychosocial aspects, providing a more detailed understanding of the challenges and opportunities emerging in this context. It involved the participation of ten teachers from the areas of Languages (Portuguese Language, Literature and Writing, Modern Foreign Language, Art and Physical Education), all linked to the State Secretariat of Education and Sports (Seduc-AM) and working in the face-to-face modality in the city of Manaus.

To better understand the dynamics of this group of professionals, it is important to highlight that teachers who teach in the classroom are distinguished from other educators by the active interaction they promote with students during classes. These teachers seek to improve the content taught, adopting more adaptable, creative and dynamic pedagogical strategies, which enhances the teaching-learning process. In order to achieve the objectives of the research, a questionnaire was sent to all Language teachers working in person at Seduc-AM in Manaus. Then, interviews were conducted with four of them, who agreed to participate in this second phase of the investigation, providing a more in-depth analysis of their practices and perceptions.

To analyze the perception of teachers from the State Department of Education and Sports (Seduc-AM) who work in Language courses in Manaus about the contributions and experiences provided by Digital Technologies (DTs), this research established the following specific objectives: a) To identify the use of Information and Communication Technologies (ICTs) as learning tools and the most effective strategies applied to remote teaching; b) To detect the strategies adopted by teachers as emergency responses to the use of ICTs as a methodological instrument during the pandemic; c) To verify the changes in the way of teaching Languages from the incorporation of technological resources and if there were effective contributions in this process with the adoption of DTs. To achieve these objectives, two data collection instruments were used: a questionnaire applied to teachers in the empirical field of the research and, then, interviews with those who were willing to participate in this second stage. Participation took place voluntarily and collaboratively.

The analysis and interpretation of the data was based on the use of the content analysis technique proposed by Bardin (2010), which guided the organization and interpretation of the information collected. From this qualitative analysis, it was possible to understand the contributions of Digital Technologies in teaching practice and, through an exploratory approach, to identify the main challenges faced and the most common strategies adopted by the teachers who participated in the study. Continuing the proposed

analysis, it is important to contextualize the study within the state of the art on the psychosocial impact of remote teaching mediated by digital technologies. Understanding the impacts of this emerging modality of teaching requires a solid foundation that explores the multiple dimensions of the phenomenon, including both pedagogical transformations and emotional and social implications for teachers and students. Remote teaching mediated by digital technologies, intensified during the COVID-19 pandemic, has been the subject of studies aimed at understanding the challenges and opportunities emerging from this form of teaching, which has significantly changed educational practices and interpersonal relationships in the school environment.

Recent research indicates that the use of Information and Communication Technologies (ICTs) in the educational context is not new, but the pandemic has forced a rapid adaptation to remote teaching, bringing to light complex issues related to unequal access to technology and the infrastructure necessary for its effective use (MORAN, 2020). This movement has generated a significant number of studies that investigate the role of ICTs as essential pedagogical tools for the continuity of education in times of crisis, as well as their implications for the psychosocial development of students. According to Bacich and Moran (2018), ICTs can offer new pedagogical opportunities, promoting active methodologies and more autonomous learning, but it is necessary for educators to be prepared to integrate these technologies effectively into the curriculum. However, the intensive use of digital technologies in remote teaching has also generated profound psychosocial impacts, both in students and teachers. The literature points out that the abrupt transition to remote teaching intensified feelings of anxiety, stress, and social isolation, mainly due to the loss of physical contact and face-to-face interaction, fundamental elements for the construction of bonds in the school environment (MENDES; ALMEIDA, 2021). Several studies highlight that the lack of adequate structure at home to follow school activities, combined with technological stress, contributed to an increase in the level of anxiety among students (ARAÚJO et al., 2021). This scenario highlighted the importance of emotional and psychological support in the school context, as well as the need to better prepare teachers to deal with the emotional challenges of their students during remote teaching.

Still, some research suggests that Digital Technologies (DTs) offer opportunities for pedagogical innovation that can transform the teaching and learning experience. From an optimistic perspective, remote teaching allowed students to access content more flexibly, at their own pace, which benefited those who found it difficult to keep up with the pace of face-to-face classes (SOUZA, 2020). In addition, digital platforms and interactive tools, such as

quizzes and educational videos, made it possible to create a more engaging learning environment, promoting greater participation by students who, in the classroom, tended to be more passive (SANTOS et al., 2021). However, for these opportunities to be fully exploited, it is crucial to consider the pedagogical challenges that remote teaching has imposed on teachers. The literature on the subject highlights the need to reconfigure traditional pedagogical practices to incorporate ICTs in a meaningful and interactive way, which requires teachers not only to have technical skills, but also the ability to create teaching strategies that are adaptable to the digital context (PIMENTEL; OLIVEIRA, 2020). Researchers such as Freire and Souza (2021) argue that the pandemic catalyzed a change in the attitude of teachers, who started to adopt active methodologies, such as gamification and project-based learning, to engage their students in a more dynamic and participatory way.

In addition to the pedagogical aspects, research has also pointed to the relevance of DTs in the development of new forms of interaction and collaborative knowledge construction. The use of collaborative tools and distance learning platforms, such as Google Classroom, Zoom, and Microsoft Teams, has not only enabled the continuity of teaching, but has also promoted the creation of learning networks that transcend the physical space of the school, offering students the opportunity to interact with classmates and teachers in a more global and digitized way (CASTRO, 2021). Although remote teaching has proven to be a necessary emergency solution, the literature suggests that it has also brought with it a profound questioning of the role of digital technologies in the future of education. Studies indicate that the pandemic has accelerated the process of digital transformation in the educational field, and many experts argue that the hybrid model, which combines face-to-face teaching with online activities, will be a strong trend in the coming years (MORAN, 2020). In this sense, DTs are not seen only as temporary tools for crisis situations, but as elements that can transform education in the long term, as long as the issues of access and equity are adequately addressed (CUNHA; GONÇALVES, 2021).

Therefore, by investigating the psychosocial impact of remote teaching mediated by digital technologies, this study not only explores the challenges faced by teachers and students during the pandemic, but also the opportunities for pedagogical innovation that arise in this scenario. The qualitative analysis of the collected data aims to contribute to a deeper understanding of these issues, providing subsidies for the formulation of educational strategies that effectively integrate ICTs in the teaching-learning process, while taking into account the psychosocial impacts of this transition.

RESULTS AND DISCUSSION

The results of this study highlight a series of challenges and opportunities related to the use of Digital Technologies (DTs) in remote teaching, with a direct impact on pedagogical practice and the psychosocial well-being of teachers and students. Based on the answers of Language teachers from the State Department of Education and Sports (Seduc-AM) in Manaus, it is possible to identify both positive and negative aspects resulting from this transition to emergency remote teaching.

One of the main challenges reported by teachers was the psychological impact of social isolation, which brought feelings of anxiety, stress, and emotional overload. These factors were particularly intensified by the need to adapt quickly to the new teaching model. Many teachers stated that, in addition to becoming familiar with digital tools, they had to adjust their pedagogical practices without the necessary prior preparation. According to Mendes and Almeida (2021), emergency remote teaching generated a significant increase in stress levels among educators and students, mainly due to the lack of technological training and the accelerated adaptation of teaching methodologies. In addition, the difficulties related to unequal access to technologies among students were another critical point highlighted in the teachers' answers. The digital divide has emerged as one of the main obstacles to inclusion and success in remote learning. Several studies corroborate this issue, pointing out that disparities in access to the internet and appropriate technological devices have compromised the continuity of learning, especially in less favored regions (UNESCO, 2020). This reality was especially evident in Manaus, where many students faced limitations in accessing remote content, which directly impacted engagement in educational activities.

The difficulty of maintaining student engagement in the virtual environment was also a recurring challenge. Teachers reported that many students showed demotivation and apathy in the face of remote classes, which made the teaching-learning process difficult. This data is in line with the study by Carvalho (2020), which indicates that the lack of face-to-face interaction and the absence of a face-to-face routine compromised the development of students' social and cognitive skills.

Despite the challenges, the survey results also point to significant opportunities in the adoption of Digital Technologies (DTs) as pedagogical tools. Many teachers reported that the use of digital platforms and interactive tools made it possible to implement new teaching methodologies, which were previously less explored in face-to-face classes. The use of resources such as educational videos, quizzes, and gamified activities provided a more dynamic and flexible learning environment, promoting greater autonomy among students.

According to Bacich and Moran (2018), DTs enable the adoption of active methodologies, such as the flipped classroom, which encourage students to be protagonists of their own learning process. The data indicate that, for some teachers, remote teaching encouraged a reflection on the need for innovation in pedagogical practices. This change in mindset is in line with the research of Freire and Souza (2021), which suggests that the pandemic has accelerated the use of more creative and interactive methodologies in teaching, leading teachers to explore new ways to engage students, even at a distance. Some teachers highlighted that the flexibility provided by remote teaching allowed students to review the content at their own pace, which was seen as a benefit for those who need more time to assimilate the information.

However, the effectiveness of these innovations depends on an adequate technological infrastructure and continuous training of teachers for the efficient use of digital tools. Several authors, such as Moran (2020), emphasize that digital transformation in the educational field requires constant investment in training and technological support, in order to ensure that DTs are effectively integrated into the school curriculum. The transition to remote learning has also directly impacted the psychosocial well-being of teachers. Reports indicate that many educators felt overwhelmed by the need to quickly adapt their pedagogical practices and learn to use new technological tools. This scenario generated an increase in the workload, as teachers had to dedicate more time to preparing classes and monitoring students at a distance. Mendes and Almeida (2021) suggest that this context of uncertainty and continuous adaptation contributed to the emotional exhaustion of many teachers, who were forced to deal with new demands without adequate support. However, some teachers reported that the experience of remote teaching also brought professional growth, as it forced the acquisition of new digital and pedagogical skills. The development of these skills, as evidenced by Castro (2021), will be a significant advantage for the future of education, especially considering the possibility of hybrid teaching models, which combine face-to-face with remote.

Regarding the teaching of Languages, the teachers indicated that the use of DTs brought important changes in the way of teaching. Digital tools have allowed the creation of interactive activities, such as videos, online debates and real-time collaborative activities, which have diversified the pedagogical approach. Although these changes were seen as positive, there was a perception that social interaction, a central element for the teaching of Language subjects, was impaired. The lack of direct contact made it difficult for students to develop oral skills and exchange experiences, which are fundamental for learning these subjects (SANTOS et al., 2021). However, the flexibility offered by DTs has made it possible

for students to have more control over their learning process, which in some cases has resulted in deeper and more personalized learning. This is in line with the findings of Souza (2020), who point out that the use of digital resources can facilitate the personalization of teaching, adapting the pace and style of learning to the individual needs of students.

As previously addressed by Melanias (2023), the research focused on the challenges faced by teachers in the Amazonas state network in the use of Information and Communication Technologies (ICTs) as learning resources, especially during the period of the Covid-19 pandemic. The main objective of the research was to analyze the perception of teachers regarding the contributions and experiences provided by Digital Technologies (DTs) in remote teaching. Among the specific objectives, the identification of the best strategies applied in remote teaching, the analysis of the emergency methodologies adopted by teachers, and the verification of changes in the way of teaching languages with the use of these technological tools (Melanias, 2023) stood out. The analysis of the data, obtained through questionnaires and interviews, was conducted using the content analysis technique proposed by Bardin (2010), which allowed the organization of the results into two main categories, one of which dealt with the experience of teachers in times of pandemic.

The results of this study reinforce the complexity of the psychosocial impact of remote teaching mediated by Digital Technologies. While the transition to remote learning has posed significant challenges related to the access, engagement, and emotional well-being of students and teachers, it has also opened up opportunities for pedagogical innovation and the development of new skills in the use of technologies. The experience lived during the COVID-19 pandemic highlights the importance of preparing the education system for the effective integration of ICTs, both in the present and in the future, especially considering the perspective of blended learning as a permanent trend (MORAN, 2020).

CONCLUSION

The present research brought to light a detailed analysis of the psychosocial and pedagogical impacts of remote teaching mediated by Digital Technologies (DTs), especially in the context of Language courses offered by the State Department of Education and Sports (Seduc-AM) in Manaus during the Covid-19 pandemic. The study allowed us to comprehensively understand how teachers faced the challenges imposed by this emergency transition and how DTs influenced both their pedagogical practices and the emotional well-being of all those involved in the educational process. The data collected showed that the rapid and forced adoption of remote teaching brought significant challenges to teachers, especially with regard to adapting to new technological tools and

managing a virtual teaching environment. Many teachers have reported a significant increase in their workload and emotional stress, stemming from the need to learn and implement new pedagogical strategies without adequate time for training. This situation highlighted an important gap in the preparation and support offered to educators, which directly impacted the quality of teaching and the well-being of teachers. Another crucial aspect revealed by the survey was the inequality in access to technologies among students, which exacerbated the already existing educational disparities. The lack of adequate devices and a stable internet connection compromised the ability of many students to effectively participate in the proposed activities. This scenario brought to light the urgent need for public policies that guarantee equity in access to technologies and that promote adequate support for all parties involved in the educational process.

Despite the challenges, the survey also highlighted several opportunities that have arisen with the integration of DTs into remote teaching. Digital tools have allowed the diversification of pedagogical practices, providing teachers with the possibility of using more dynamic and interactive methods. The creation of virtual learning environments, the application of multimedia resources, and the realization of collaborative activities were seen as positive points that enriched the educational experience, allowing for greater student engagement and participation. However, the research pointed out that, in order for DTs to be effectively integrated into the educational process, it is essential that there is continuous training for teachers and adequate technical support. The ability to adapt methodologies and explore the potential of digital technologies depends directly on the preparation and support offered to educators. Thus, investing in training and technical support must be a priority to ensure that digital technologies fulfill their role in an effective and beneficial way for all.

In addition, the survey revealed that the pandemic has accelerated a digital transformation that can have a lasting impact on the future of education. The experience of emergency remote teaching served as a catalyst for the review and innovation of pedagogical practices, driving the adoption of more flexible and adaptable methodologies. Hybrid teaching, which combines face-to-face and remote, has emerged as a promising trend that can contribute to the creation of a more inclusive and diverse educational environment. The adaptation of pedagogical content to the digital environment has also brought new forms of interaction and knowledge construction. Collaborative tools and distance learning platforms have provided opportunities for more globalized and connected learning, enabling the exchange of experiences and collaboration between students and

teachers from different locations. This aspect highlights the potential of DTs to expand the boundaries of the traditional classroom and to promote a more interconnected education.

It is critical that educational institutions and educational managers are aware of the ongoing challenges related to the use of DTs, including the need to ensure equity in access and to provide the necessary support for the adaptation of teachers and students. Creating an educational environment that makes the most of digital technologies requires an ongoing commitment to training, infrastructure, and the development of pedagogical strategies that integrate these tools effectively. In summary, the research showed that, although remote teaching mediated by Digital Technologies was a necessary emergency solution during the pandemic, it also presented significant opportunities for pedagogical innovation and for the transformation of the teaching-learning process. The experience lived during this period can serve as a basis for the development of a more resilient and adaptable educational model, which combines the best of face-to-face and remote teaching to meet the needs of students and teachers in the future.

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