

Challenges of Remote/Flexible Teaching in Professional Technical and Technological Education in the Context of the COVID-19

Desafios do Ensino Remoto/Flexível na Educação Profissional, Técnica e Tecnológica no Contexto da Pandemia da COVID-19

Desafíos de la Enseñanza Remota/Flexible en la Educación Profesional, Técnica y Tecnológica en el Contexto de la Pandemia del COVID-19

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Abstract

This article is the result of a systematic review on the challenges of Brazilian education in times of the COVID-19 pandemic and seeks to discuss remote/flexible teaching in Brazilian public schools, especially in the context of Vocational, Technical and Technological Education. The study proposes to discuss in the hybrid teaching perspective, pointed out by Bacich et al. (2015) and developed at the institutional level in the pandemic context during the process of readaptation and reorganization of schools in the use of digital platforms. For this, the choice was made by a qualitative research, through which we carried out bibliographic investigations, approaching the assumptions pointed out by Almeida; Dalben, 2020, which establishes the process of implementing flexible teaching adopted by Vocational, Technical and Technological Education, as well as Calejon & Brito, 2020 and Santana & Sales, which highlight the new methodologies and approaches used in the hybrid model and their importance in evaluation of pedagogical practices developed by education professionals during the COVID-19 pandemic. Among the results, we identified that Professional, Technical and Technological Education discussed the perspectives of the current moment

and the return in the post-pandemic and developed didactic-pedagogical plans and actions that aimed to mitigate the impacts caused by COVID-19 to students.

Keywords: Remote/flexible teaching; Pandemic, Integrated High School; Professional; Technical and Technological Education.

Resumo

O presente artigo é resultado de uma revisão sistemática sobre os desafios da educação brasileira em tempos de pandemia da COVID-19 e busca discutir acerca do ensino remoto/flexível nas escolas públicas brasileiras, especialmente no âmbito da Educação Profissional, Técnica e Tecnológica. O estudo propõe discutir na perspectiva do ensino híbrido, apontada por Bacich et al. (2015) e desenvolvido no âmbito institucional no contexto pandêmico durante o processo de readaptação e reorganização das escolas no uso das plataformas digitais. Para isso, a escolha foi feita por uma pesquisa qualitativa, através da qual realizamos investigações bibliográficas, abordando os pressupostos apontados por Almeida; Dalben, 2020, que estabelece o processo de implementação do ensino flexível adotado pela Educação Profissional, Técnica e Tecnológica, bem como de Calejon & Brito, 2020 e Santana & Sales, que destacam as novas metodologias e abordagens utilizadas no modelo híbrido e sua importância na avaliação das práticas pedagógicas desenvolvidas pelos profissionais da educação no período da pandemia da COVID-19. Dentre os resultados, identificamos que a Educação Profissional, Técnica e Tecnológica discutiu as perspectivas do atual momento e o retorno no pós-pandemia e desenvolveu planejamentos e ações didático-pedagógicas que objetivaram mitigar os impactos causados pela COVID-19 aos estudantes.

Palavras-chave: Ensino remoto/flexível; Pandemia, Ensino Médio Integrado; Educação Profissional; Técnica e Tecnológica.

Resumen

Este artículo es el resultado de una revisión sistemática sobre los desafíos de la educación brasileña en tiempos de la pandemia de COVID-19 y busca discutir la enseñanza remota/flexible en las escuelas públicas brasileñas, especialmente en el contexto de la Educación Profesional, Técnica y Tecnológica. El estudio propone discutir en la perspectiva de la enseñanza híbrida, señalada por Bacich et al. (2015) y desarrollado a nivel institucional en el contexto de la pandemia durante el proceso de readaptación y reorganización de las escuelas en el uso de las plataformas digitales. Para ello, se optó por una investigación cualitativa, a través de la cual realizamos investigaciones bibliográficas, acercándonos a los supuestos señalados por Almeida; Dalben, 2020, que establece el proceso de implementación de la docencia flexible adoptado por la Educación Profesional, Técnica y Tecnológica, así como por Calejon & Brito, 2020 y Santana & Sales, que destacan las nuevas metodologías y enfoques utilizados en el modelo híbrido y su importancia en evaluación de prácticas pedagógicas desarrolladas por profesionales de la educación durante la pandemia del COVID-19. Entre los resultados, identificamos que la Educación Profesional, Técnica y Tecnológica discutió las perspectivas del momento actual y el retorno en la pospandemia y desarrolló planes y acciones didático-pedagógicas que apuntaron a mitigar los impactos provocados por el COVID-19 en los estudiantes.

Palabras clave: Enseñanza a distancia/flexible; Pandemia, Escuela Secundaria Integrada; Educación Profesional; Técnica y Tecnológica.

1. Introduction

The first decades of the 21st century was marked by important historical facts that changed the course of society. Since the terrorist attacks on the United States in 2001, the adoption of the euro as a circulating currency in the countries of the European Union in the same year and the election of US President Donald Trump in 2016. However, nothing has marked world history as much as the emergence of the New Coronavirus in 2019, which became better known in its nominal abbreviation as COVID-19, or popularly, Covid or Corona; therefore, regardless of the nomenclature assumed, the disease has become a pandemic that haunts the entire world, especially countries with low rates of vaccinated population, including Brazil.

In this context, the pandemic has brought and still brings great challenges to governments and societies, especially in relation to the effects caused by the disease in regions with acute social inequalities and weaknesses in the living conditions of this part of the population. (Marques *et al.*, 2021).

In these last two pandemic years, the fragile planet earth felt the fury of a virus, which, initially, had its lethal potential unknown, but which now leaves no shadow of doubt of its real latency to humanity.

The COVID-19 pandemic has reached all segments of Brazilian society, such as commerce, industry, tourism, among

other diverse sectors of society in general that have suffered economic, health or even political impacts, are incomparable to the human loss of countless families. in our country and in the world. Not differently, the education of our country felt in its school spaces the solid astonishment of this disease and the breath of its consequences in the pedagogical and didactic relationships and in the teaching-learning process of the students, as well as establishing a new relationship between teacher and student.

From this perspective, to continue educational activities in the world in transition between the pandemic and its possible post-pandemic horizons, many institutions started to use the hybrid teaching model, with a portion of students in person at school and another part performing tasks in virtual learning environments (VLE).

These virtual environments provide a series of tools and supports for the teacher's remote work, however, they do not meet the needs of students in every way given the irreplaceability of the teacher's face-to-face pedagogical work, given that students need daily face-to-face monitoring for their cognitive development.

Although there are many challenges in accessing remote platforms, these online activities are very important to reduce the losses caused by the impossibility of fully face-to-face teaching. (Bezerra *et al.*, 2021). Understanding the importance of digital tools, especially remote platforms that allow access and minimize losses in teaching to students, many inquiries and questions have arisen about the teaching-learning process in the hybrid teaching model, considering that virtual environments of learning has become a reality in Brazilian educational institutions.

In this sense, this article sought to establish dialogues and establish spaces for discussion about the challenges of blended learning in Brazilian public schools, more specifically within the scope of the the Professional, Technical and Technological Education, taking into account the notes of Bacich, Transi Neto & Trevisani (2015) on hybrid education in Brazil, as well as documents, resolutions and institutional actions of the Professional, Technical and Technological Education related to the hybrid education model.

1.1. Hybrid education and the future of post-pandemic education

In recent months, the pandemic reality of COVID-19 has brought to the Brazilian population important reflections on the country's future in a post-pandemic world, especially with regard to the directions of Brazilian education in the face of the uncertainties of a scenario that, in the present At the moment, it still frightens and alerts the general population, although in this context there are many uncertainties about the direction of the Brazilian school in the current scenario. Thus, it is worth highlighting the importance of digital technologies in the process of interaction and communication, especially regarding the creation of new spaces and teaching methodologies (Calejon & Brito, 2020).

It is also important to emphasize that the role of the family in relation to monitoring their children's school activities has also changed. In the process of collaborating with these school-aged family members, parents were able to perceive the relevance of their role as a great motivator in the formation of future citizens connected to an increasingly globalized world (Calejon & Brito, 2020).

Facing the long path of returning to "normality", educational activities underwent changes in their interpersonal relationships, in their learning style and in teaching strategies to provide students with a more concrete and effective didactic space (Barreto & Rocha, 2020).

In the post-pandemic period, it will be necessary to articulate to the educational reality the use of educational technologies associated with the use of media and digital platforms, given that it is a path of no return in the educational system, as well as an accelerated trend during the pandemic. These technical and technological resources are important in promoting changes and advances in the technological educational reality.

Thus, the school needed to create spaces and tools for the use of online platforms that would provide students with a

moment of daily study, enabling a new approach to the educational process (Santana & Sales, 2020). It is worth noting that the school space also needed to focus its perspectives on the role that the teaching space should assume, since 90 (ninety) percent of teachers use cell phones for the development of their academic activities (Oliveira & Pereira Junior, 2020).

Still in this perspective, it is noteworthy that even with the advancement of the use of Virtual Learning Environments, Brazilian schools are currently returning with their classroom teaching activities, following the health safety protocols as a starting point. This means that the institutions were able to present in their didactic-pedagogical plans a hybrid teaching model, considering certain punctualities, such as certain comorbidities or specific situations of students and education professionals.

The term hybrid refers to mixture, mixed or mixed. Historically, Brazilian education has always had in its practices a mix of methodologies, approaches and theories that have brought different ways of teaching and learning (Bacich, Transi Neto & Trevisani, 2015).

Therefore, we sought to understand the broader meanings of the term, not only based on the relationship between face-to-face and remote teaching, in view of the need to establish dialogues on the subject, as well as to relate knowledge and learning to from the context of the COVID-19 pandemic.

The mix between face-to-face and online is not limited to the use or non-use of virtual teaching tools or platforms. This issue goes beyond the limits of what can be theorized on the subject, especially when one realizes the opportunities offered in this space, as well as the frustrations and challenges imposed by it (Bacich et al., 2015).

In online education there are physical distances and time distances, as learning takes place at different times that are not synchronized (activities that do not directly interact with students) and are applied to recorded video lessons, e-books, visual presentations, podcasts, etc. Another type of distance is created in the teaching and cognitive space and in the psychological and communication space called transactional distance (Moore, 2002)

It should be noted that the remote teaching in question was in line with the foundations of what can be understood as distance education (DE). This teaching-learning process takes place with technologies mediated by teachers and students separated by space or time (Moran, 2009).

In other possibilities, online education could provide students and teachers with a place for developing autonomy, creativity and strengthening interactive communication on the network (Santos, 2009). Returning to the hybrid teaching model, it is important to point out that the Professional, Technical and Technological Education, in its twenty-three campuses, continued to offer its students and employees the proposal of a flexible teaching or work regime.

In the year 2021, blended learning began to gain the pedagogical practices of teachers in school environments, while other areas of research began to carry out studies on this approach. Thus, with the advance of the pandemic, the re-signification not only of the teaching modality, but of all the complexity encompassed by the country's education system becomes impossible (Freitas & Lacerda, 2021).

In the context of the Professional, Technical and Technological Education, the academic community followed the guidelines, protocols and resolutions determined by the competent national authorities and by deliberative bodies of the institution itself, so, in the next section of this work, we will discuss the proposals and actions carried out tiba, as well as we will debate the challenges for Brazilian public education in a (post) pandemic society.

1.2. Flexible return at Professional, Technical and Technological Education: actions, challenges and perspectives

Since the beginning of the pandemic in the country, with its first case of COVID-19 on February 26, 2020, The Professional, Technical and Technological Education has been working hard to develop its academic teaching, research and extension activities, thus following the inaugural milestone of the regulations with MEC Ordinance No. 343, of March 17, 2020 (Brasil, 2020).

To mitigate the negative impact of the suspension of classes and maintain contact with students, colleges and universities started to use the little-known term "remote education" by a large part of the Brazilian population (Barros & Vieira, 2020). During this entire period of pandemic, the institution chose to carry out studies, planning and actions to minimize the educational impacts caused by the growing expansion of COVID-19 in school spaces.

However, it is worth noting that during this process of (re)organization and (re)adaptation of Brazilian public schools in general, many doubts and uncertainties were raised about the didactic-pedagogical practice, especially in relation to new educational approaches and methodologies. In this context, it is of fundamental importance to discuss the emergency policies adopted, which, many times, run into difficulties, including access to digital platforms. (Almeida; Dalben, 2020)

In the organizational context of the physical environment of the schools in general, the protocols for returning to face-to-face activities can be highlighted as part of the processo to employees (servants, outsourced and outsourced employees) and students.

In addition, gel alcohol, masks, individual bottles of water, as well as posters with instructions regarding the institution's biosafety standards were made available to Professional, Technical and Technological Education servers and students, and the aforementioned measures were intended to provide guidelines for mitigate the potential transmissibility of the new coronavirus in the school environment.

Flexible Remote Learning began to be recommended to replace face-to-face classes with non-face-to-face pedagogical activities mediated or not by means of digital information and communication resources and technologies that allow students to access, at home, support and guidance materials that allow the continuity of studies due to the pandemic situation of the new Coronavirus (Covid-19).

The hybrid teaching model represents one of the main contemporary approaches to/in education, as it encourages the integration between face-to-face teaching and online pedagogical suggestions, thus enabling a more dynamic learning environment (Lutz *et al.*, 2018).

This hybrid teaching model allows different forms of pedagogical activities by making the work of both the student and the teacher more flexible. Furthermore, students in APNPs can develop online tasks developing their intellectual autonomy, which puts them as protagonists of their own learning (Moran, 2015).

Despite the planning and institutional actions developed on campus, teachers and students faced great challenges in this hybrid teaching model, especially for students who demanded the development of their academic activities in Virtual Learning Environments.

The adoption of remote teaching can present two aspects, one positive and one negative. The bright side points to the social contact that the student can have virtually with teachers and other students, which reduces physical distance. However, activities carried out on online platforms can increase educational inequality in the school space (Almeida & Dalben, 2020).

Despite the knowledge that social inequalities can be determinant in the impacts caused by COVID-19, it is worth noting that the confluence between these and other markers can increase or reproduce certain specific impacts (Marques *et al.*, 2021)

Furthermore, for students residing in the rural area, the geographic location did not favor good Internet connectivity, especially for students who used mobile browsing data on their smartphones. Another point to be highlighted in this context is the low coverage of the fiber optic line available in the small cities, making it difficult to access a network with a minimally reasonable speed for the development of non-face-to-face pedagogical activities.

Education has never had such challenging moments, especially for teachers and education coordinators, because due to the pandemic, these agents carried out all their activities outside the school environment, in addition to keeping a physical distance from students (Silva, Faustino & Silva, 2020). This is because many institutions and academic communities still often

did not understand how the hybrid model worked and, with the COVID-19 pandemic, distance learning became necessary and immediate. Thus, hybrid education has configured a fundamental alternative that will perpetuate even after the pandemic. And numerous research shows that blended learning increases student satisfaction and engagement due to greater flexibility (Oliveira *et al.*, 2021). However, in view of this new educational model, the teacher needs new training, which often becomes a limiting factor, to facilitate effective learning (Castro *et al.*, 2015).

In this way, not only issues related to the technologies available for the development of blended learning are passive for discussion, but also the debate on ways to transform content and approaches involved in new methodologies with the objective of meeting the eminent educational demands of the school community (Luzzi, 2007).

With this, the Professional, Technical and Technological Education worked towards the promotion of pedagogical activities that minimized the physical and temporal distance between teacher and student, especially in the articulation of teaching plans that made possible a better educational adaptation to the social reality of each student, and this plan is still running.

It is worth remembering that in the writing of this article, the country still recorded a significant number of cases of COVID-19, as well as a slight, but considerable increase in the number of deaths in Brazil. According to the portal G1.com (accessed on February 22), on February 21, Brazil had a record of 333 deaths from Covid in 24 hours. In addition, there were 14 days that the moving average of deaths was above 800.

Based on data and significant cases of COVID-19, the Federal Institute of Education, Science and Technology of Espírito Santo established dialogues and proposed discussions through its Crisis Committee on the possibilities of maintaining the flexible model. In this regard, The Professional, Technical and Technological Education remained committed to the development of its pedagogical activities in hybrid education, holding meetings and lectures to debate the emergency pandemic situation that was plaguing Brazil, and which has been put into practice until now. Furthermore, directors, pedagogues, educational technicians and teachers carried out pedagogical plans to improve their educational actions in order to provide the institution's student body with democratic and quality education.

2. Methodology

This study was carried out through retrospective observational studies and retrieval and critical analysis of the literature. For this, as a methodology, the work used a systematic literature review (Depaepe; Verschaffel; Kelchtermans, 2013), as well as the document analysis procedure. It is worth mentioning that this type of study serves to conduct and guide the development of projects, indicating new directions for future research in the same or related areas.

3. Results and Discussion

Despite all the challenging situation that the country faced and its shadow that still hangs in the air, the writing of this work considers the various aspect faced by education in times of pandemic.

The results of this research point out the multiple scenarios faced by students and teachers of Professional, Technical and Technological Education, from the implementation of health protocols for the return of students to physical school spaces to the didactic/pedagogical implementation of the remote/flexible teaching model in country schools.

The study also reveals the adversities encountered by public school students in our country, especially in relation to the adversities suffered by the most socially vulnerable part of the population.

It is worth noting that, although the research has highlighted several proposals in order to reduce the damage caused by COVID-19, there are still issues that need to be widely discussed by different sectors of society, so that the educational

delay in Brazil in times of a pandemic can be addressed. as reduced as possible.

4. Final Considerations

Brazilian education has faced daily challenges with the emergence and spread of the new coronavirus, so this article proposed a discussion about the challenges of hybrid teaching in Brazilian public schools, specifically in Professional Technical and Technological Education in the context of the Covid-19. In this way, the need for a broad debate on the topic presented was reinforced, since, in the current world scenario, there are many uncertainties about COVID-19 and its consequences that can and still affect directly and indirectly the lives of students. and teachers in our country.

Furthermore, it sought to highlight the main actions carried out in order to fight against the coronavirus and highlighted the difficulties encountered in the development of the remote/flexible teaching, adopted all over the country.

So, Brazilian Educational System has developed a significant academic and administrative work to take and guarantee to its schools communities, in the broadest sense of the terms, the education that is public, democratic and of quality to the students of Espírito Santo and others. Brazilian states.

From the development of this research and given the importance of the theme, it is necessary to enable the academic community to dialogue on the challenges of Remote/Flexible Teaching in Professional, Technical and Technological Education in the context of the Covid-19 pandemic, in view of the experiences brought and the learning acquired at the EPT, therefore, I would like to suggest that as a researcher, the study on Active Methodologies in Vocational and Technological Education, as well as a careful analysis of the implications that the pandemic has brought to education in general terms.

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