

Education mediated by technology: from inclusion to training

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Submitted on: 10/06/2023. Approved on: 11/07/2023. Published on: 03/04/2024.

ABSTRACT

Education is a continuous process that must be initiated within the family and systematized by the school. Throughout the development of humanity, the teaching and learning system itself has evolved together, particularly, together with technological tools which are in constant development. In this regard, despite being mutable, the importance of technologies in education is undeniable, especially in current times when the internet and devices allow simultaneous communication. Therefore, EMT (Education Mediated by Technology) fulfils a strong need of the moment, uniting, through technological resources and the appropriate methodological strategy, teachers and students in favor of the construction of knowledge. It is a supply model that still has critics, however, it is undeniable that projects such as Canal Educação, which uses this methodological strategy, contributes very effectively to the improvement of education in the state of Piauí. Rethinking and reevaluating not only the tools available for education, but also their use, is extremely important for expanding offers, with the possibility of maintaining the quality of teaching.

Keywords: education; mediation; technology.

INTRODUCTION

In recent years, a high production of knowledge has taken place, every day humanity is impacted by a new discovery and, clearly, this has been driven by technological development. It is undeniable that technologies have always been present in the daily lives of humankind, mainly because the concept of technology is closely linked to its own era. A clear example is the application of the concept of technology in education, as just as augmented reality is an educational technology, chalk and the mimeograph, today largely rejected in schools, were important technologies in their time.

Discussing technologies in education is accepting that technology is constantly changing and evolving. However, this technology is only efficient if it has pedagogical intention, otherwise it will be nothing but beautiful, sometimes complicated words uttered on school premises. In this context, schools, governments and education professionals must be clear that technology is a means, a facilitator, but it needs to be aligned with efficient methodological practices adapted for their audience.

When speaking of education, it is also nearly impossible not to talk about social disparities, especially in Brazil, where education must be thought of and implemented as an instrument of social transformation, not segregation.

Therefore, when introducing technology into education, care must be taken to ensure that social disparities do not rise among students, given that each student's understanding, as well as their access to education, needs to be taken into account when defining learning strategies.

This article aims to promote a reflection on how technology applied to educational mediation provides the transformation of social contexts today, a reality that is made quite evident in the state of Piauí, which relies on a solid educational (pedagogical and technological) structure aimed at overcoming geographical and human capital barriers, which often harms the teaching and learning process, especially in some inland municipalities.

Being it a literature review, this paper establishes a dialogue with other authors who have already researched the object of study, in addition to making analytical considerations of the process developed in Piauí, suggesting improvements to the project, and concluding that *education is a social transformation*.

Social discrepancies in Brazil is an eye-catching issue even for those who hold no interest in this matter. Unfortunately, only a few minutes analyzing some Brazilian communities and municipalities suffice for one to see numerous forms of inequalities. This is mainly related to the fact that the country's history was developed over intense social disparities, which spanned centuries and remain solidified until today. Global inequality, as a situation, is understood as changes engendered in the form of social organization from local to global (Menezes *et al.*, 2022).

Diversas categorias de indivíduos encontram-se, por vários fatores, compreendidos como excluídos: idosos, homossexuais, mulheres, pessoas com deficiências, índios, população de rua etc. É inegável que os processos de segregação desumanizam esses “desfilhados” (Castel, 1998) e que as camadas segregadas tornam-se invisíveis para a sociedade (Costa, 2008); e/ou são percebidas como inferiores e como objetos de temor (Menezes *et al.*, 2022)¹.

As social inequality is not uniform, one must understand that vulnerability exists at different levels within vulnerable groups, thus there is inequality within inequality. An example of this is a school on the outskirts, which serves a low-income population; among the students are those who, aside from being low-income, are also subject to domestic violence. According to Castel (1998), Lavrador (2005) and Leal (2009), it can be understood that a concept, which addresses so many social groups and so many different phenomena, is too comprehensive and needs to be used in a critical manner. These authors reinforce that the concept of social inequality is used here because it marks the concrete, historical and structural character of contemporary capitalist societies.

¹ Translation: “Several categories of individuals are, for various reasons, deemed excluded: elderly people, homosexuals, women, people with disabilities, indigenous people, homeless people, etc. It is undeniable that the processes of segregation dehumanize these “disaffiliated” people (Castel, 1998) and that the segregated layers become invisible to society (Costa, 2008); and/or are perceived as inferior and as objects of fear” (Menezes *et al.*, 2022, editorial translation).

Still in regard to social inequalities, it is observed that they are clearly visible in the Brazilian education system, with strong differences not only between public and private schools, but also between public schools themselves, a fact that often reduces the efficiency of the teaching process, since this fragility is clearly amplified by other factors, such as low family engagement in child education.

Se a educação é importante para dimensionar a desigualdade, é também importante entender que ela se encontra atravessada pela ideologia neoliberal, que deposita no indivíduo a capacidade de romper os limites e dificuldades (Gracindo; Marques; Paiva, 2005). Com isso, a educação acaba por implementar mecanismos que estimulam a competição e o desempenho meritocrático, sem se preocupar com as condições em que a competição é estabelecida (Godoi, 2022, p. 23)².

In analyzing the words of the author, it is important to reflect that education, in fulfilling its mission (teaching), cannot reinforce the differences that are so widespread among students, hence the importance of educators knowing their students, having a vision, even if not totalitarian, of their social context, so that in the learning situations proposed in their classes there is no segregation or expansion of the inequalities present in the classroom and/or school.

Paulo Freire (1996) reports on the need for critical reflection on pedagogical practice, being extremely necessary to take into account the recognition of the students' cultural identities and their social context, bearing in mind that the teaching process must take place as sensitivity, emotions and small everyday gestures are observed.

Understanding education as one of the main factors of social transformation is having a critical view of its reality and understanding the possibility of social mobility, which can occur in the school context (Godoi, 2022), mainly, with regard to income, to the needs and limitations of its students. This is not an easy task due to changes in social aspects, with the possibility of them rising or falling, considering that this mobility alternates over time and with the advent of certain circumstances, for example: income concentration grew strongly in the 1980s and reached its peak in 1989; it fell from the 1990s onwards, with more intensity from the beginning of the 2000s until 2015, then it reached its lowest; it rose again from 2015 onwards (GINI index, 2022).

Emediato (1978, p. 207)³ states that, “[...]segundo a teoria liberal, a educação foi sempre considerada uma via para a mobilidade social e a chave de progresso individual e social”. This reinforces the fact that, after the capillarization and better systematization of education in Brazil, there was a significant improvement in Brazilian social indicators. To achieve this, it is important that education follows the changes in society itself.

² Translation: “If education is important to measure inequality, it is also important to understand that it is crossed by neoliberal ideology, which gives individuals the ability to break limits and difficulties (Gracindo; Marques; Paiva, 2005). Thus, education eventually implements mechanisms that encourage competition and meritocratic performance, with no concern for the conditions under which competition is established” (Godoi, 2022, p. 23, editorial translation).

³ Translation: “[...] according to liberal theory, education has always been considered a route to social mobility and the key to individual and social progress” (Emediato, 1978, p. 207, editorial translation).

“Uma pedagogia transformadora é uma pedagogia que combina a forte inserção na realidade com a capacidade de imaginar novos cenários” (Streck, 2009, p. 98)⁴.

As Freire (1979, p. 14)⁵ states: “o homem deve ser o sujeito de sua própria educação. Não pode ser o objeto dela”. In this context, the educator, using the knowledge of their students in the learning process, leads them to be active subjects of their own education, making them instruments for transforming the environment in which they live. Thus, social transformation is not an exclusive responsibility of education.

TECHNOLOGICAL MEDIATION: CONCEPT, APPLICABILITY AND RESULTS.

Undertaking transformative education, in addition to understanding the students’ reality in their personal and social context, involves knowing how to use numerous technological tools for the learners’ integral development, as previously mentioned. Technology, from the inclusion of paper and pencil in education, to the application of the metaverse, becomes an important learning resource when there is pedagogical intentionality.

It cannot be denied that information and communication technologies, and EMT itself (Education Mediated by Technology) were a vitally important way of offering classes during the Covid19 pandemic.

Discussing technological mediation applied to education is being aware that this structure combined with appropriate methodology is capable of transforming countless realities. Initially, it is necessary to differentiate Distance Education from Education Mediated by Technology, the latter is distinguished by being in-person, since the classroom environment has students, a mediator and a kit, through which students follow the classes in real time, taught by a teacher in a studio, and they can interact with their teacher through hardware, such as a camera and microphone.

Clearly the models described above, whether distance or technology-mediated education, still face many barriers, mainly a lack of resources for their implementation and the suspicious eyes of some professionals.

⁴ Translation: “Transformative pedagogy is pedagogy that combines strong insertion in reality with the ability to imagine new scenarios” (Streck, 2009, p. 98, editorial translation).

⁵ Translation: “human beings must be the subject of their own education. They cannot be its object” (Freire, 1979, p. 14, editorial translation).

A inclusão digital é um processo que fomenta apropriações tecnológicas, nas quais os sujeitos são compreendidos como produtores ativos de conhecimento e de cultura, em uma dinâmica reticular que privilegia a vivência de características nucleares na sociedade contemporânea, como a interação, a autoria e a colaboração. Inclusão digital pressupõe o empoderamento das pessoas por meio das tecnologias, a garantia à equidade social e a valorização da diversidade, suprimindo necessidades individuais e coletivas, visando à transformação das próprias condições de existência e o exercício da cidadania na rede (Marcon; Carvalho, 2018, p. 272-273)⁶.

Souza Neto (2018) highlights that the challenge of teaching through ICTs and digital resources did not take place only because of the teachers' difficulty in accepting them, or their resistance, their challenge was rather teaching using the resources available in communities and institutions. But overall, the acceptance rate among students is a reality.

Os aprendizes dessa geração cercados por tecnologias podem não se adaptar com os modelos antigos de aprendizagem, que possuem um modelo em que o professor está no centro da aprendizagem, que ainda utiliza repetições e memorizações nas avaliações. As metodologias ativas são modelos inovadores que podem potencializar as experiências que os educandos têm com as tecnologias que eles utilizam (Ferreira Júnior; Santos, 2022, p. 8)⁷.

It was the acceptance by a large portion of the students that allowed the State of Piauí to implement one of the largest technological mediation programs in Brazil, Canal Educação, operated by company Oros Soluções Educacionais. This program allows schools in several municipalities in the state (including rural areas) to hold real-time classes the teachers of which are trained in specific areas of knowledge. This action minimizes the shortage of teachers in some areas, which is a reality in most of the 224 municipalities in Piauí.

This is a solid structure that serves Secondary Education in three shifts, Youth and Adult Education (EJA IV, V, VI and VII) and professional and technical education with 8 courses. This represents a milestone in the state's capillarity in terms of technical training. Previously, these courses were only offered in the largest cities and today, with technological mediation, they are present in all municipalities in Piauí.

Today, Piauí has 7 studios in operation, producing content from 7am to 10:30pm, serving 466 schools, 4129 classes and 34,329 students in Secondary Education, EJA and technical courses, in addition to teacher training and preparation for the ENEM (university entrance exam).

⁶ Translation: "Digital inclusion is a process that fosters technological appropriations, in which subjects are understood as active producers of knowledge and culture, in a reticular dynamic that privileges the experience of core characteristics in contemporary society, such as interaction, authorship and collaboration. Digital inclusion presupposes the empowerment of people by means of technologies, the guarantee of social equity and the appreciation of diversity, meeting individual and collective needs, aiming to transform the conditions of existence and the exercise of citizenship on the network" (Marcon; Carvalho, 2018, pp. 272-273, editorial translation).

⁷ Translation: "Learners of this generation surrounded by technology may not adapt to old learning models, in which teachers are at the center of the learning process, and still use repetitions and memorization in their assessments. Active methodologies are innovative models that can enhance the students' experiences with the technologies that they use" (Ferreira Júnior; Santos, 2022, p. 8, editorial translation).

Canal Educação also serves higher education audiences by means of a partnership with UAPI (Universidade Aberta do Piauí), currently with 180 centers, offering a Bachelor course in Administration. The course is authorized by Piauí State Board of Education Resolution CEE/PI No. 073/2016 and led Piauí to be the only state in the federation offering higher education in all its municipalities.

Training teachers for education using technologies remains a challenge, mainly because there is still a lot of reluctance among a group of teachers who minimize the contribution of technologies to the educational process and who even see these resources as competition. Mercado (1998, p. 4) claims that teacher training signals an innovative curricular organization that, by going beyond the traditional form of curricular organization, establishes new relationships between theory and practice.

FINAL CONSIDERATIONS

Therefore, educating is a complex activity, involving many subjects, but not all of them always assume their rightful responsibilities. This is the case with many families who cooperate and burden school. Thinking about a more effective education means understanding that teachers, students and the community must adapt to the constant demands of society and this often implies understanding the reality of students trying to promote intervention through guidance.

Thus, we found the importance of clearly understanding the role of technology in education, that its use requires pedagogical intentionality and the ability to adapt from teachers, students and the community. However, such resources cannot be used to increase segregation, given that society already faces many social inequalities.

It is also clear that the Technological Mediation Program, implemented in Piauí for more than 10 years, configured as a learning and social transformation strategy, which, through its actions, has largely contributed to the Piauí residents' learning in primary and higher education is important.

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