ORIGINAL ARTICLE

DISTANCE EDUCATION MOVES TOWARDS "EDUCATION WITHOUT DISTANCES"

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ABSTRACT

This work is an academic essay that aims to reflect on Distance Education (EaD) and its evolutionary trajectory over the years. To achieve the objective, we will first go through the definition of the concept of distance education and a brief account of its history. Next, we will present the different theoretical perspectives of distance education. In a third moment, we will talk about the impact of technological evolution on pedagogical approaches. Finally, in the final considerations, we will show the challenges to be faced so that the statement "Distance education moves towards education without distances" becomes a transformative reality and accessible to everyone.

Keywords: Distance Education. Technological evolution. Challenges and Transformation.

A EDUCAÇÃO A DISTÂNCIA CAMINHA NO SENTIDO DE UMA "EDUCAÇÃO SEM DISTÂNCIAS"

RESUMO

Esse trabalho é um ensaio acadêmico que tem o objetivo de realizar uma reflexão a respeito da Educação a Distância (EaD) e sua trajetória evolutiva ao longo dos anos. Para alcançar o objetivo iremos passar em um primeiro momento pela definição do conceito de educação a distância e um breve relato da sua história. Em seguida, apresentaremos as diferentes perspectivas teóricas da educação a distância. Em um terceiro momento, dissertaremos sobre o impacto da evolução tecnológica nas abordagens pedagógicas. Por fim, exibiremos nas considerações finais os desafios a serem enfrentados para que a afirmativa "A educação a distância caminha no sentido de uma educação sem distâncias" se torne uma realidade transformadora e acessível a todos.

Palavras-chave: Educação a Distância. Evolução Tecnológica. Desafios e Transformação.

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A EDUCACIÓN A DISTANCIA AVANZA EN LA DIRECCIÓN DE UNA "EDUCACIÓN SIN DISTANCIAS"

RESUMEN

Este trabajo es un ensayo académico que tiene como objetivo realizar una reflexión sobre la Educación a Distancia (EaD) y su trayectoria evolutiva a lo largo de los años. Para alcanzar este objetivo, en primer lugar abordaremos la definición del concepto de educación a distancia y un breve relato de su historia. A continuación, presentaremos las diferentes perspectivas teóricas de la educación a distancia. En un tercer momento, disertaremos sobre el impacto de la evolución tecnológica en los enfoques pedagógicos. Finalmente, en las consideraciones finales, expondremos los desafíos a enfrentar para que la afirmación "La educación a distancia avanza en la dirección de una educación sin distancias" se convierta en una realidad transformadora y accesible para todos.

Palabras clave: Educación a Distancia. Evolución Tecnológica. Desafíos y Transformación.

1. INTRODUCTION

This essay was developed to present a reflection on distance education and its evolution over the years, especially with the advancement of technology. The essay is organized into three sections. In the first section, we present the concept and a brief history of Distance Education (DE) in a global context. The term Distance Education (DE) has a long history, as highlighted by Barros (2003), who provides an overview of the origins of this teaching modality. The first recorded instance dates back to the 18th century, with correspondence courses. Since then, until the present day, DE has undergone a continuous process of evolution, driven by advances in information and communication technologies (ICTs). We observe that DE has expanded, particularly in the last decade, mainly with the widespread use of smartphones and the ease with which we can stay connected via the internet. This development has made it possible to broaden the scope of distance education, aiming to overcome the traditional barriers that geographically separate students and teachers.

In the second section, we discuss the theoretical perspectives of distance education. Throughout the development of DE, several scholars engaged with the subject have developed theories about distance education. In this essay, we will address the following theories: Peters' Industrialization Theory (1967), Delling's (1966), Wedemeyer's (1973), and Moore's (1977) Theories of Autonomy and Independence, Holmberg's (1995) Theory of Interaction and Communication, and Siemens and Downes' (2005) Theory of Connectivism.

In the third section, we discuss the technological evolution across various pedagogical

approaches, starting with Garrison's (1985) concept of technological innovation generation. However, it is important to note that we have moved beyond the original scope proposed by this author, who initially outlined three generations. Currently, it is possible to identify at least five distinct generations, while remaining mindful of the potential emergence of new generations in the future.

To conclude this work, we reflect that Distance Education (DE) is moving toward becoming a mode of instruction without geographical limitations. However, it is crucial to keep in mind the challenges that need to be overcome in order to make the statement "Distance education is moving toward a borderless education" a concrete reality.

2. DEFINING DISTANCE EDUCATION

We find various definitions of Distance Education (DE), and it is possible to highlight that all of them share common points. However, each author emphasizes a specific characteristic in their conceptualization. As we can observe below, the use of telecommunications technologies is a key feature emphasized in Chaves' (1999) definition:

> In the sense that the term assumes today (which we will refer to as the current sense), the emphasis is placed more (or solely) on the distance in space, with the proposition that this distance can be overcome through the use of telecommunications technologies and the transmission of data, voice (sounds), and images (including dynamics, such as television or video). It is important to note that all of these technologies now converge on the computer. (p. 34)

Litwin (2001) emphasizes spaces and times that are not shared. For this author, Distance Education (DE) "replaces the proposal of regular classroom attendance with a new approach, in which teachers teach and students learn through non-conventional situations, that is, in spaces and times they do not share" (p. 13). Moore and Kearley (2008) also consider the physical separation between teacher and student, but they primarily highlight the need for special design when developing courses. In the words of Moore and Kearley (2008),

> Distance Education is a planned learning process that typically takes place in a location different from the teaching site, requiring special course design and instructional techniques, communication through various technologies, and special organizational and administrative arrangements. (p. 2)

Based on the concepts presented above, we believe that the definition that most accurately aligns with the contemporary concept of Distance Education is that of Moore and Kearley (2008). This is because this educational modality presents distinct characteristics that require meticulous instructional planning, as well as techniques and tools designed to optimize the teaching-learning process.

Based on the conceptualization presented above, we are left with the question: How did Distance Education (DE) emerge? According to Barros (2003), the first signs of the use of distance education date back to the 18th century, when a correspondence course was offered at an institution in Boston (USA), which allowed DE to evolve worldwide. By 1930, there were "39 U.S. universities offering distance courses" (LITWIN, 2001, p. 15). Another significant milestone in the evolution of DE was the establishment of the British Open University in 1969 in England, with an innovative and pioneering proposal. It improved communication tools between teachers and students, as well as the reception and sending of educational materials, becoming a pioneer in the field of distance higher education. According to Litwin (2001), the Open University:

> (...) presented the world with a complex design, which, by using printed materials, television, and intensive courses during the recess periods of other conventional universities, managed to produce high-quality academic courses. [...] The Open University became a model of distance education. (p. 15)

Building on these historical milestones and others, Distance Education (DE) continued to evolve progressively. DE overcomes the traditional barriers that geographically separate students and teachers and is now a widely used teaching method worldwide, especially in recent decades. However, the mere availability of DE does not guarantee its success or effectiveness.

According to UNESCO (2020), through a mapping conducted by the Teacher Task Force during the COVID-19 pandemic, around 800 million students who had their classes suspended at the time did not have a computer at home, and 43% of these students lacked internet access. In the Brazilian context, for example, a 2019 study conducted by the Regional Center for Studies on the Development of the Information Society found that 39% of public school students did not have access to a computer at home, whereas in private schools, this percentage was 9%. Brazil's stark socioeconomic reality places a large portion of public school students at a disadvantage due to limited access to the internet and the technologies required for distance education.

Another critical element that cannot be overlooked is quality. According to Demo (2001, p. 21), education that assumes quality requires construction and participation, as it "needs years of study, curriculum, buildings, and equipment, but, above all, good teachers, creative management, and a constructive/participatory environment, especially constructive/participatory students" to be realized. These highlighted aspects are of utmost importance for reflecting on Distance Education (DE) and for making it a truly borderless educational modality.

3. THEORETICAL PERSPECTIVES

Just as there is a variety of concepts related to Distance Education (DE), as explained at the beginning of this work, we can observe that there are several theories that address this field. In this work, we will explore, in the following sections, the theories of "industrialization of teaching," "autonomy and independence," "interaction and communication," and, finally, the "connectivist"

theory, respectively.

Education, and consequently Distance Education (DE), is not detached from society; much of what happens beyond the walls of the school has an internal impact. In the 18th and 19th centuries, several transformations occurred in the economic, political, and social landscape of Europe. These changes became known as the Industrial Revolution. The Industrial Revolution created educational needs and demands for the expansion of education, both in traditional classroom settings and in DE. In DE, this phenomenon became known as the "Theory of the Industrialization of Teaching," proposed by Otto Peters (1967). In the early 1970s, Peters published the first articles on DE, the Industrial Society, and the Post-Industrial Society. He argued that DE would only make sense if it allowed for mass education, that is, the application of Fordism in DE (Preti, 2007).

According to Costa (2019), the "Theory of the Industrialization of Teaching starts from the premise that, while traditional and conventional education encompasses pre-industrial forms, distance education is characterized primarily by industrial conditions of teaching" (p. 66). This perspective refers to the traditional teaching model, which is highly structured and standardized. It is often associated with the idea that education follows a mass-production model, similar to that of industry, where students are seen as products to be manufactured in a uniform process.

We observe that Peters' theory of industrialization is still accepted in the field of Distance Education (DE). However, other theories have emerged over the years with the aim of defining, explaining, and grounding DE. Among these theories, we find the Theory of 'Autonomy and Independence,' with notable pioneers such as Rudolf M. Delling (1966), Charles Wedemeyer (1973), and Michael G. Moore (1977), among others. Rudolf M. Delling (1966) posits that the student is autonomous and independent, being the central element in DE (Gomes, 2004a).

According to Gomes (2004a), "Wedemeyer believes that human beings are endowed with an innate ability to learn independently (autonomously) and that such learning is not exclusive to school environments" (p. 93). Learning here should be individualized and free, that is, student-centered.

According to Moore (1977), the degree of autonomy and dialogue varies depending on the course program, which should be tailored to the needs of the students (Moore 1977 apud Gomes, 2004a). Michael G. Moore coined the term "Transactional Distance Theory" to describe the dynamics involved in the structure of Distance Education (DE) programs, the interaction between the teacher-tutor and the student, the use of media, and the student's autonomy in the distance learning process. He emphasizes that the extent of dialogue and the flexibility of the program structure varies from one program to another. This variation determines whether a program has a higher or lower transactional distance compared to another. In programs with high transactional distance, where interaction is limited, instructional materials are highly structured, offering specific guidelines. Therefore, in programs with a large transactional distance, it is up to the students to take responsibility for evaluating and making decisions about their study strategies. In summary, the greater the transactional distance, the more autonomy is required from the student (Preti, 2007).

In summary, we can say that this theory focuses on the teaching and learning process centered on the student, where education is considered an intrinsically individualized process. In this context, adults are empowered to make decisions about their own learning and the way they navigate it.

Another theory of Distance Education (DE) is the "Theory of Interaction and Communication" by Swedish scholar Börje Holmberg. This theory is grounded in the interaction and communication between teachers and students. Holmberg emphasizes that the student should independently make decisions regarding what and how to learn, but to achieve this independence, students must be supported by the teacher through guided didactic conversation. According to Gomes (2004b), Holmberg's concept of "guided didactic conversation" (1995) "advocates for the adoption of a 'conventional' style in establishing contacts between tutors, teaching material authors, and students, creating conditions for a guided dialogue aimed at promoting the desire to learn" (p. 111). The interaction generated through guided didactic conversation creates motivation and contributes positively and productively to learning. In summary, we can state that this theory emphasizes the importance of social interaction and communication in learning. It believes that students learn best when they are involved in discussions, collaborations, and idea exchanges.

In 2005, George Siemens and Steven Downes proposed a new theory called "Connectivism." Connectivism is a learning theory that emphasizes the connection of knowledge within complex, ever-evolving networks. Students learn through connections and networks, facilitated by technology. According to Siemens (2008), connectivism:

> *It is the application of network principles to define both knowledge and the learning process. Knowledge is defined as a particular pattern of relationships, and learning is defined as the creation of new connections and patterns, as well as the ability to maneuver around existing networks/ patterns. Connectivism addresses the principles of learning at multiple levels – biological/neural, conceptual, and social/external. This is a key concept that I will elaborate on more during the online course. What I am stating with connectivism (and I believe Stephen would share this) is that the same learning structure that creates neural connections can also be found in the way we link ideas and the way we connect with people and sources of information. A central force that governs them all. Connectivism focuses on the inclusion of technology as part of our distribution of cognition and knowledge (2008, p. 1-2).*

Knowledge is viewed as a specific pattern of connections, and learning involves creating new connections and patterns, as well as the ability to navigate through existing connections and patterns. A distinctive feature of connectivism is the emphasis on including technology as an integral part of our capacity to distribute cognition and knowledge. Knowledge is considered to reside in the connections we establish, whether with other people or sources of information, such as databases, for example. The theory assumes that information is abundant, and the student's role is to have the ability to find and apply knowledge when and where needed (Anderson, 2012). According to Anderson (2012), connectivism has its roots in the premise of a constructivist learning model, where the student is placed at the center, connecting and building knowledge in a context that encompasses not only external networks and groups but also their own experiences and personal preferences. Freire (2005) proposes that strategies be developed to enable active

participation of students, incorporating their experiences, desires, curiosities, and questions. This implies establishing a relationship of listening and dialogue, allowing students to feel like active subjects in their process of thinking.

Each of these theories has its own implications for educational design and the approach to different aspects of the learning experience. The choice of which theory to apply depends on the educational objectives, the context, and the preferences of the students. Often, an educational approach combines elements from various theories to meet the diverse needs of students.

4. TECHNOLOGICAL EVOLUTION AND PEDAGOGICAL APPROACHES

We cannot overlook the important role that technological evolution plays in the different pedagogical approaches within the context of Distance Education (DE), increasingly contributing to narrowing the gap between the learner and knowledge. According to Garrison (1985), "the essential nature of mediated communication to distance education emphasizes the need to understand the impact that new technologies have had on distance education delivery methods" (p. 235). Thus, to understand this impact of new technologies, Garrison (1985) proposed the concept of Generations of Technological Innovations. The author identifies three generations of technological innovation in Distance Education (DE).

The first generation is characterized by the use of printed materials distributed to students through correspondence. The second generation is referred to by Garrison (1985) as the Telecommunications Generation. This generation was driven by the use of mass communication media, such as radio, television, and the telephone. The third generation, named by Garrison (1985) the Computer Generation, was marked by the introduction of interactive technologies: first audio, followed by text and video.

As Gomes (2008) explains, the concept of "generation of technological innovation" should not be centered on the nature of the technologies themselves, but rather on their potential in terms of mediation. According to Paulo Freire (2005), the relationship between humans and the world occurs in a mediated manner. Education takes place through an interactional practice, where both the educator and the learner are agents of transformation in a dialogical and humanizing process. Technologies play a key role in the mediation of pedagogical content, in the mediation of the relationship between students and teachers, as well as in the mediation of interactions between students and institutional services.

In the first generation, content mediation occurs through printed materials, meaning it is a single medium. In the second generation, content mediation emphasizes audiograms and videograms, involving multiple media. In the third generation, content mediation becomes interactive multimedia in the form of CD-ROMs and DVDs (Gomes, 2008). According to Gomes (2008), broadly speaking, from the communication/interaction perspective, there is a consensus among different authors (Garrison, 1985; Nipper, 1989) regarding the first and second generations. However, with respect to the third generation, there are some noticeable differences. For Gomes (2008), Nipper's proposal

for the third generation values communication and learning as a social process, addressing not only technological but also institutional and pedagogical concerns. A similar thought is found in Anderson (2012), who asserts that technology and pedagogy are intertwined in a dance where "technology sets the rhythm and creates the music, while pedagogy defines the movements" (p. 120).

As technologies advanced, new generations emerged. In 2003, Gomes proposed the fourth generation of distance education, the e-learning generation, developed around network communications. "Multimedia and hypermedia on the Web expand their interactive potential into a collaborative dimension, leading us to characterize the e-learning generation as the generation of collaborative multimedia" (Gomes, 2008, p. 191). Thus, with the development of the Internet, which allowed, among other things, access to databases and virtual libraries, videoconferencing, synchronous and asynchronous communication via chats and emails, and participation in discussion forums.

Furthermore, we can also speak of a fifth generation known as the mobile learning generation (m-learning), which emerged with the advancement of mobile phones equipped with UMTS (Universal Mobile Telecommunications System) technology, transforming phones into portable computers (Gomes, 2008). Smartphones are becoming increasingly popular due to their versatility, functionality, and size. They have paved the way for a new era of wireless services, thanks to high-speed data rates, enabling quick access to the internet, audio, video, multimedia, and voice. This favors the mediation of content through connective and contextual multimedia. According to Aretio (2004), cited in Gomes (2008), m-learning refers to mobile learning with maximum portability, interactivity, and connectivity.

It is important to note that none of the generations has been abolished in favor of a new one that emerged over time. Instead, the repertoire of options available to instructional designers and distance learning students has actually expanded. Educators can choose and combine elements from these approaches to create distance learning experiences that meet the specific needs of their students and educational goals.

We maintain the conviction that technological advancement is relentless, and new generations of technological innovations are destined to emerge. History shows us that technological progress is continuous, with each moment bringing new solutions and challenges. Today, we are witnessing the impact of artificial intelligence, quantum computing, biotechnology, and other innovative fields. However, as we explore these frontiers, more questions arise: "What competencies, values, and meanings, what uses of the mind, feeling, memory, emotion (...) are 'basic' or part of the basic education at each historical moment?" (Arroyo, 2000, p. 183). How will education benefit from these advancements to enhance the learning process? How can we universalize internet access? Answering these questions is a key point to be considered when designing and implementing distance education.

5. FINAL CONSIDERATIONS

We can say that the statement "Distance education is moving towards education without distances" highlights progress toward a more accessible, flexible, and inclusive education made possible by technology. Distance education, driven by technology, has the potential to eliminate geographical, temporal, and physical barriers that typically limit access to education. With the internet, students can connect with teachers and educational resources from all over the world, making learning more accessible.

Thus, we can affirm that distance education is significantly evolving towards becoming a "distance-free education." However, it is essential to recognize that there are challenges that must be addressed to make this vision a reality for all students, regardless of social class. This includes issues such as the lack of internet access in certain regions and the need to ensure the quality of online education.

As we have previously emphasized, the implementation of public policies for digital inclusion is crucial to ensure that distance education benefits all individuals. As highlighted by UNESCO (2020) data presented at the beginning of this work, there is a need for considerable effort to universalize access to the internet. Additionally, of course, we must aim for high-quality distance education. Quality education is understood as one that enables effective mastery of the content outlined in the curriculum; fosters the acquisition of scientific or literary culture; and seeks to develop the highest technical capacity to serve the productive system. As Demo (2001) suggests, we also understand quality education as one that is concerned with promoting critical thinking and strengthening the commitment to transforming social reality, where all individuals have opportunities to continue their educational development.

Therefore, while distance education moves toward a "distance-free education," it is still necessary to work towards ensuring that this transformation is inclusive, equitable, and accessible to all, regardless of geographic location or social status. This requires investment in instructional design, technology, teacher training, student support, and continuous assessment to ensure that courses and programs meet quality standards and expectations, providing effective and meaningful education. Otherwise, we cannot truly speak of education without distances.

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