

## LEARNING METHODOLOGIES IN DISTANCE EDUCATION: DIVERSITY AND CHALLENGES

### *METODOLOGIAS DE APRENDIZAGENS NO ENSINO A DISTÂNCIA: DIVERSIDADE E DESAFIOS*

### *METODOLOGÍAS DE APRENDIZAJES EN LA ENSEÑANZA A DISTANCIA: DIVERSIDAD Y DESAFÍOS*

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**ABSTRACT:** With technological advances, digital tools have become present in all segments of work and the same has happened with education. New technologies associated with distance education (EAD) projects increase the ability to access a professional training program. As a result, new teaching methodologies are used by teachers in order to bring better quality knowledge to their students. The democratization of teaching and the growth of new technology, methodologies and distance learning processes become more applicable and flexible to those who want to study. The objective of the study is to know how learning methodologies contribute to this evolution. The methodology carried out is based on exploratory research from which a survey of Thesis, dissertation and scientific articles that bring to the discussion the causes of dropouts and dropout in EAD, between the years 2002 and 2022.

**KEYWORDS:** Technologies. Challenges. Opportunities.

**RESUMO:** Com o avanço tecnológico, as ferramentas digitais se tornaram presentes em todos os segmentos de trabalho, e com a educação aconteceu o mesmo. Novas tecnologias associadas a projetos de Educação a Distância (EAD) aumentam a capacidade de acesso a um programa de formação profissional. Com isso, novas metodologias de ensino são utilizadas pelos professores com o objetivo de levar um conhecimento de melhor qualidade a seus alunos. Com a democratização do ensino e o crescimento das novas tecnologias, as metodologias e processos EAD se tornam mais aplicáveis e flexíveis a quem queira estudar. O objetivo do estudo é de conhecer como as metodologias de aprendizagem contribuem para esta evolução. A metodologia fundamenta-se na pesquisa exploratória, na qual se realizou o levantamento de trabalhos de tese, dissertação e artigos científicos que trazem para discussão as causas de desistências e evasão na EAD, entre os anos de 2002 e 2022.

**PALAVRAS-CHAVE:** Tecnologias. Desafios. Oportunidades.

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**RESUMEN:** *Con el avance tecnológico, las herramientas digitales se han hecho presentes en todos los segmentos del trabajo y lo mismo ha sucedido con la educación. Las nuevas tecnologías asociadas a los proyectos de educación a distancia (EAD) aumentan la posibilidad de acceder a un programa de formación profesional. Como resultado, los docentes utilizan nuevas metodologías de enseñanza para brindar conocimientos de mejor calidad a sus alumnos. La democratización de la enseñanza y el crecimiento de nuevas tecnologías, metodologías y procesos de aprendizaje a distancia se vuelven más aplicables y flexibles para quienes quieren estudiar. El objetivo del estudio es conocer cómo las metodologías de aprendizaje contribuyen a esta evolución. La metodología realizada se basa en una investigación exploratoria a partir de la cual se extrae un levantamiento de Tesis, disertaciones y artículos científicos que traen a la discusión las causas de las deserciones y abandono en la EAD, entre los años 2002 y 2022.*

**PALABRAS CLAVE:** *Tecnologías. Retos. Oportunidades.*

## Introduction

With the available technologies, especially the Internet, it is possible to teach through the distance learning model. For education to have reached the importance it has today, distance learning (DL or EAD, in the Portuguese acronym) was essential, a model strongly associated with the development of public policies aimed at expanding scientific production in the area and democratizing access to technological education.

Distance education is a technological system of bidirectional (multidirectional) communication, which can be massive, based on a systematic and joint action of didactic resources and the support of an organization and tutors, who, physically separated from the students, provide them with independent learning (ARETIO, 2001, p. 39, our translation).

From this teaching possibility, there is the extinction of the obstacles of time and space, which have kept many people from attending universities. As technologies expand, making it possible to study at a distance, training opportunities are created for a large number of people, turning distance learning (DL) into a form of democratization of education. According to Otto Peters (1973), quoted by Nunes in 1992, Distance Education or Distance Learning is a rational method of sharing knowledge, skills and attitudes, applying organizational principles and the division of labor.

Norms were established for Distance Education in Brazil through the Law of Directives and Bases of National Education, Law n. 9.394, of December 20, 1996 (BRAZIL, 1996), Decree n. 2.494, of February 10, 1998 (BRAZIL, 1998a), Decree n. 2.561, of April 27, 1998 (BRAZIL, 1998b) and by the Ministerial Ordinance n. 301, of April 7, 1998 (BRAZIL, 1998c).

On April 3, 2001, Resolution n. 01, from the National Education Council, established the norms for the *lato* and *stricto sensu* post-graduation courses (BRAZIL, 2001).

In this scenario, distance learning has been growing in recent years and assuming an important role in the educational area, especially in higher education, especially by people who would find it difficult to get a degree. By 2020, students in distance learning courses will account for 44%, against 56% in face-to-face courses, of the private undergraduate higher education network.

According to the Anísio Teixeira National Institute for Educational Studies and Research (INEP in the Portuguese acronym), between 2009 and 2019, there was a 378.9% growth in distance learning degree enrollments, from 330,000 in 2009 to 1,590,784 in 2019 (data from 10/23/2020). The private network holds 82.9% of distance learning enrollments in the state of Rio de Janeiro. The jump in enrollments in distance learning courses from 2009 to 2019 was 351%.

Therefore, this article aimed to investigate the active methodologies that are being used to promote meaningful learning for students of higher education.

In this way, it was necessary to conceptualize the active methodologies and their relevance, and to verify which active methodologies are used in educational institutions, their characteristics, as well as the benefits, types, and how to apply active methodologies in DL. The theoretical foundation of this work was made through bibliographic research.

## **Theoretical reference**

### **Distance Learning**

Throughout history, DL has been changing its course until it gained a competitive advantage and became increasingly used. According to Mill (2018 p. 199), "DL is a modality, a way of teaching and learning that permeates all levels of the Brazilian educational system (basic or higher education) and can be articulated with other teaching modalities. In addition, there is a commitment to learning because they are geographically distant from their tutors and classmates. Students in distance learning courses develop certain skills that are not seen in the classroom model, such as autonomy in their studies, because they have the opportunity to adjust the times and places that are appropriate to their needs.

Teaching-learning in Distance Education emerges as an innovative process, both in terms of pedagogical mediation and in terms of technology, being more dynamic and fostering new learning theories. In this sense, the teaching

activity in DL is challenging: new ways of teaching, new means of interaction between teacher and students, new strategies, new theories of learning, etc. (MILL, 2018, p. 545, our translation).

Interactivity and collaborative work among students are fundamental characteristics in DL; this interactivity happens between teachers/tutors and students through technology, which makes the nomenclature distance indicate a physical separation between them, being overcome by interactivity and mediation. For the teacher to teach effectively and for the student to learn effectively, it is important to apply effective methodologies.

Well-planned challenges help mobilize the desired intellectual, emotional, personal, and communicational competencies. They require research, evaluating situations, different points of view, making choices, taking some risks, learning by discovery, moving from the simple to the complex [...] (MORAN, 2015, p. 18, our translation).

Therefore, the teacher who implements a planning on the types of active methodologies that should be applied in the classroom aims at positive results in the development of his students.

### **Active Methodologies**

The main character here is the student, and he is also the most responsible for the learning process. This teaching model aims to encourage the academic community to develop the ability to absorb content in a participatory and autonomous way. According to Berbel (2011, p. 4), "Active methodologies have the potential to awaken curiosity, as students insert themselves into theorizing and bring new elements, not yet considered in classes or in the teacher's own perspective." In this teaching model, the teacher becomes a supporting figure in the teaching and learning processes, allowing students the protagonism of their learning; therefore, the active methodologies are important, making the student more autonomous in the construction of their own knowledge.

**Figure 1** – Student as the center of the learning process



Source: Garofalo (2018, p. 01)

In Figure 1 we can observe the role of the student in the process of active methodologies, where this student has several opportunities to develop their learning, as well as we see the teacher as a facilitator of this moment of knowledge. For Moran (2018, p. 4), "the active methodologies emphasize the protagonist role of the student, his direct involvement, participatory and reflective in all stages of the process, experimenting, designing, creating, with guidance from the teacher". The active methodology presents certain processes to be carried out in the classroom, as well as having these activities extended to the students' homes. Thus, some examples of active methodologies used in the teaching and learning process in educational institutions will be presented.

### **Flipped classroom**

The concept of the flipped classroom aims to provide the student with content in a different way than the traditional model, with a process of assimilation of the subject at home; this occurs with the content posted on an ODL platform. After studying, the student will seek help from the teacher, who has mastery of the subject. This modern form of management is inserted among the active methodologies of distance learning.

[...] the possibility of a differentiated curricular organization that allows the student the role of subject of his own learning, recognizing the importance of the mastery of the contents for a wider understanding of reality and maintaining the teacher's role as mediator between the elaborated knowledge and the student (SCHNEIDER *et al.*, 2013, p. 71)

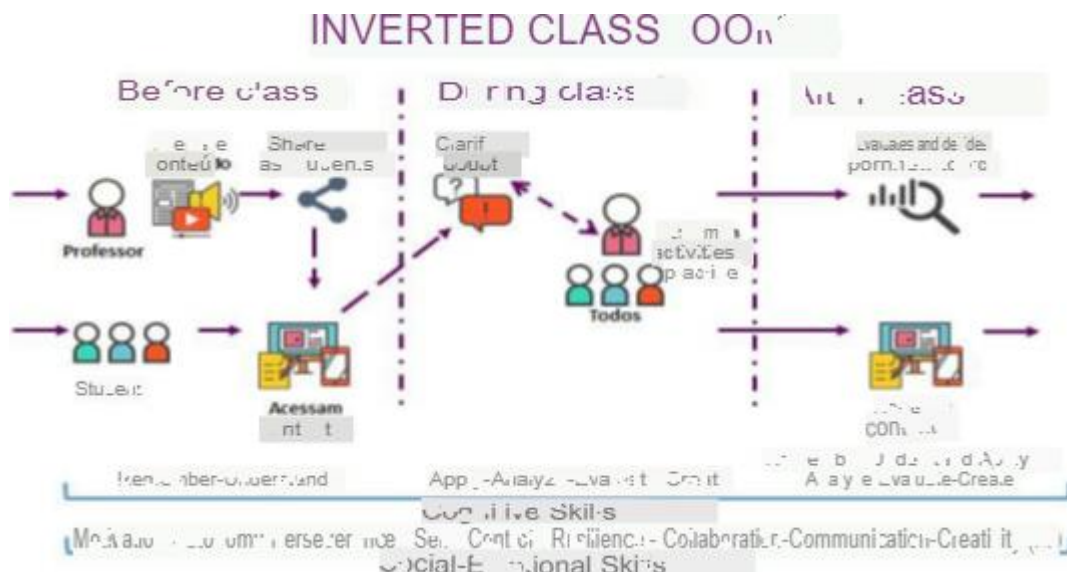
A Flipped Learning Network<sup>3</sup> (FLN), an entity that propagates flipped learning, communicates that:

Flipped learning can be understood as a pedagogical approach in which the lecture class moves from the dimension of collective learning to the dimension of individual learning, transforming the remaining classroom space into a dynamic and interactive learning environment in which the facilitator guides the students in the application of the concepts and their creative participation on the subject (FLN, 2018 apud SCHMITZ, 2016, p. 42).

The teacher's role is to be a mediator, to monitor, guide, and answer questions, as well as to encourage debate among the other students in the class, while the student is responsible for presenting the content, presenting his knowledge of a given subject. Here the student receives in advance the material to study what will be applied in class. This material can be made available through technologies such as social networks or the Virtual Learning Environment (VLE). The student aims to prepare and study a specific topic, raising some questions to start the discussions in class. Schmitz (2016) presents, in Figure 1, a synthesis of the model of the flipped classroom with Active Learning Methodologies, i.e., a flexible environment that allows synchrony of actions within the student's needs.

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<sup>3</sup> Flipped Learning Network is the non-profit online community for educators using or interested in learning more about the flipped classroom and flipped learning practices. Its website address is: [flippedlearning.org](http://flippedlearning.org)

**Figure 2** – Basic layout of the flipped classroom

Source: Schmitz (2016, p. 67)

In this figure it can be seen that the student has access to the class content before going to the University, reading the material, watching the videos, and writing down any doubts. During the class, he discusses with his teacher and classmates the subjects already seen at home.

Of the various digital technologies available, the use of cell phones, websites and applications make a difference in the realization of hybrid methodologies. Sites like YouTube or applications like WhatsApp can help as tools to promote the flipped classroom methodology. Besides these, the use of games in education, called gamification, is an option that can improve learning and student motivation.

## Gamification

It is the application of game strategies in day-to-day activities, in order to increase student participation. Learning occurs through the games themselves, with no distinction between practice and theory. In a pedagogical process, Gamification means adopting the logic as well as the rules and a game design, which can be analog, electronic and digital, to make learning more attractive, enjoyable, motivating and enriching (ZOUHRLAL *et al.*, 2015, p. 110). It can provide the teacher with support to relate the experience of playing to the curriculum: he does not need to be an expert, but can assess specific experiences with ease. According to Lee and Hammer (2011, p. 2): "it is not intended to teach with games or through games, but to use elements of games as a way to promote student motivation and engagement." "Games and game technologies increasingly transcend the traditional boundaries of their

medium, as evidenced by the growth of serious, pervasive games as an industry and field of research." (PEREIRA, 2017, p. 6). It is based on the use of digital game elements in situations different from its original proposal. This practice still relies on the constant presence of the inherent characteristics of the game, such as competition, instant feedbacks, evolution, and reward.

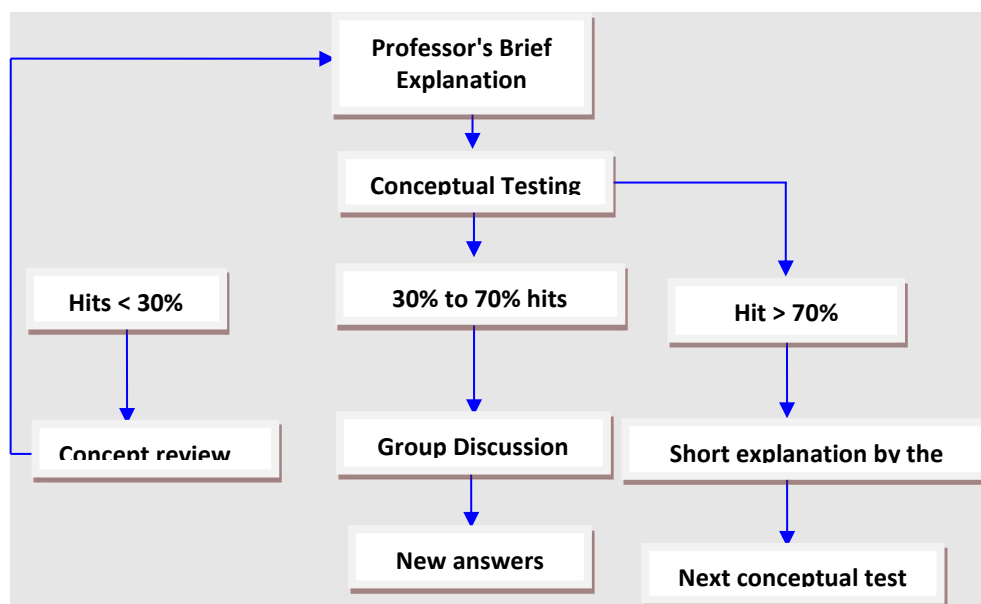
### **The Peer instruction methodology**

The goal of Peer Instruction is to take the focus away from the simple transfer of information between teacher and student by encouraging the student to search for primary information in his readings and then participate in class discussions with his peers. Peer Instruction has been used all over the world, especially by teachers in university courses. However, the use of IpC is still not widespread in high school in Brazil (MULLER, 2013).

The Peer Instruction method seeks to make students search for information, through reading, and then discuss it with their classmates in class. They must have studied some of the proposed content before coming to class. In class, the teacher gives a quick presentation of the topic (already studied at home), lasting 7 to 10 minutes, and then applies the questions. The teacher notices whether the subject was understood or not through the questioning and discussions, thus integrating the student in the construction of knowledge.

This method makes the student seek the primary source of knowledge by reading prior to class material already made available by the teacher, generating an active participation of the student in his own process of learning the content, so we consider this an active teaching methodology. For Araújo and Mazur (2013), "these teaching methods have been little used in Brazil and are unknown to the vast majority of teachers". Figure 3 shows how the Peer Instruction flowchart is composed, from the teacher's speech to the next activity to be performed.



**Figure 3 - Peer Instruction Flowchart**

Source: Adapted by the author from Mazur (1997)

We can observe an exposition in this flowchart, which can be dialogical or not, according to the teacher's option, where the focus is the interaction among students, developed in a collaborative environment, in which they discuss concepts and elaborate interpretations about a subject, and become agents in the teaching-learning process. Araújo and Mazur (2013, p. 367, our translation) describe PI as being:

[...] a teaching method based on prior study of materials made available by the teacher and the presentation of conceptual questions in class for students to discuss among themselves. Its main goal is to promote learning of the fundamental concepts of the content under study through interaction among students. Instead of using class time to transmit in detail the information contained in the textbooks, in this method, classes are divided into short series of oral presentations by the teacher, focused on the main concepts to be worked on, followed by the presentation of conceptual questions for students to answer first individually and then discuss with their classmates.

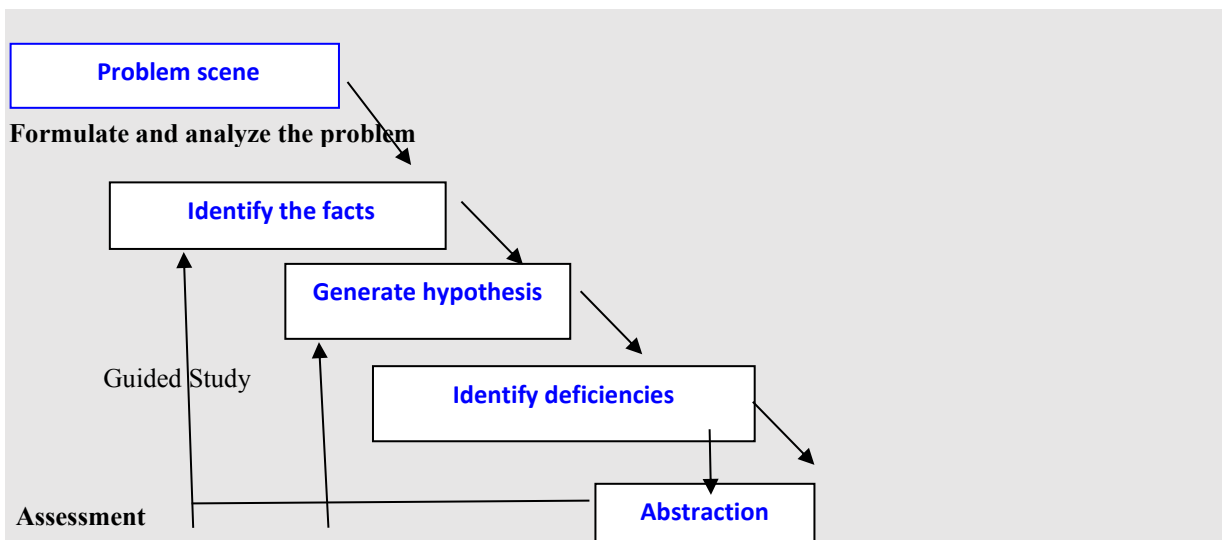
The student needs to assume an increasingly active role, deconditioning himself from the attitude of mere content receiver, effectively seeking knowledge relevant to the problems and learning objectives. Creative initiative, scientific curiosity, critical reflective spirit, capacity for self-evaluation, cooperation for teamwork, sense of responsibility, ethics and sensitivity in assistance are fundamental characteristics to be developed in their profile causing a direct participation of students in discussions about the main themes of the discipline, helping not only in learning, but also in that feeling of being alone constantly presented by the distance learning student.

### **Problem Based Learning - (PBL)**

Methodology where the student studies alone about a certain subject before the class. After that, he writes down all the doubts and difficulties he has had. The class, divided into groups, holds discussions about the problems presented. In this way, the participation of all students becomes fundamental. Therefore, the acquisition of knowledge is related to the way they learn about their own learning process. Students begin to observe their own progress in developing their skills and competencies. Team-based learning is an alternative teaching-learning method, in which a test or exam is given on the content available online or in the virtual learning environment (BOLLELA *et al.*, 2014).

Afterwards, they fill in the template with the results of the team discussion (BOLELLA *et al.*, 2014; KHOGALI, 2013). Figure 4 shows the scheme that illustrates the steps for implementing problem-based learning.

**Figure 4 – The Learning Cycle in Problem-Based Learning**



Source: Adapted from Hmelo-Silver (2004)

Problem-Based Learning is a didactic resource, an innovative pedagogical strategy that has been gaining many followers around the world. At the end, the teacher gives the answer key and the student measures his or her individual and group grades.

It is known that teaching and learning are complex and dynamic practices, and that only a single teaching method does not produce the expected results in learning for professional practice. Therefore, Problem-Based Learning should be considered as a tool to be used in the different modalities and levels of education, with the objective of helping teachers in their teaching task and students in the acquisition of knowledge.

## Adaptive learning

Online teaching method that uses video lessons as a strategy to motivate interactions in the learning process, and treat it according to the specific characteristics of each student. The student ceases to be a mere passive spectator and has the freedom to watch the classes whenever he wants, wherever he wants, and at his own pace of understanding. According to Aires and Pilatti (2016), adaptive learning is a form of personalized teaching, in which teaching adapts to the reality of the subject and not the other way around. Different information about students is collected and, as they progress or remain in the same content, the computer system, equipped with specific instructions, recommends new materials, according to their needs.

## Final remarks

The ways of encouraging learning presented in this article show the importance of teamwork: at times, the work can be developed individually, but most of the time it involves the interaction between students and teacher.

It is worth pointing out that active methodologies bring a way to teach theory in a different way and, at the same time, put into practice what has been assimilated from the concepts. Each learning presented has its very specific objectives for cognitive advancement, skills, abilities, among other positive possibilities for the development, whether personal or professional, of the student. There were also presented application strategies that can contribute to future studies.

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