

Pedagogical neotechnicism, innovation and the impact on teaching in Higher Education

Neotecnicismo pedagógico, inovação e o impacto na docência na educação superior

Neotecnicismo pedagógico, innovación e impacto en la docencia en la enseñanza superior

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Highlights

This documentary research discusses the presence of pedagogical neotechnicism in Higher Education.

The overcoming of so-called traditional teaching is often linked to simplistic views of innovation.

There is a strong tendency to hold faculty accountable for the success or failure of the pedagogical work.

Abstract

This article presents a mapping of two decades of Brazilian research, which served as the basis for reflections aiming to bring new and possible understandings of the intersections between neotechnicist elements (active methodologies, innovation, technologies) and their impact on teaching in Higher Education. The analysis of the material, conducted from a critical perspective, is organized around three axes: (i) the widely promoted need to overcome educational traditionalism; (ii) the pursuit of quality in education; and (iii) the attribution of responsibility to teachers for educational problems. We identified that literature values the mere insertion of new technological and digital elements as a didactic action, associating such practices with innovation without offering an epistemologically grounded discussion on what is understood as innovation in the educational field. The conclusion is that it is not the adoption of certain strategies that guarantees the success of the educational process, since technique does not override the pedagogical work of the teacher. We emphasize that teacher education cannot be reduced to technical training.

[Resumo](#) | [Resumen](#)

Keywords

Pedagogical Innovation. Higher Education. Teacher Education.

Received: 05.31.2024

Accepted: 03.27.2025

Published: 04.16.2025

DOI: <https://doi.org/10.26512/lc31202554157>

| Introduction

This study¹ is part of a project funded by the National Council for Scientific and Technological Development (CNPq), aimed at analyzing the presence of pedagogical neotechnicism in public Higher Education institutions in the state of São Paulo, Brazil, through an analysis based on publications and calls for proposals related to the so-called modernization and/or innovation of undergraduate programs. The scope of the project presented here focuses on the theoretical study phase, examining the teaching dimension in Higher Education through Brazilian publications from the past 20 years to map national discussions on the topic.

We start from the premise that there is an emphasis on adopting practices characterized as innovative in teaching, in contrast to traditional education, and we question what this pedagogical innovation refers to in the Brazilian educational context, which revisits technicism.

Technicism, a dominant rationality in Brazilian education in the 1970s, was characterized by the overvaluation and centrality of technique in the educational process. Under the pretext of solving teaching and learning issues, technicist approaches focused on standardization and uniformity, with performance and the pursuit of high achievement as their main objectives, reducing the teacher's role to merely applying strategies.

Although its assumptions were challenged within the educational field in the following decade, we identified its resurgence with the implementation of managerialist educational reforms in the 1990s (Hypolito, 2011), with significant modifications in its presentation. The technicism now relies on the argument of meeting market demands through the promotion of educational competencies, advances through the idea of innovation and a break with teaching considered outdated and inefficient, and is sustained by the adoption of predominantly technological and digital techniques and strategies, the so-called active methodologies. Freitas (2016) argues that this reformulation can be called neotechnicism.

Didactic approaches centered on active methodologies have been disseminated in connection with the expansion of digital technologies, based on the premise that techniques, when well applied, ensure learning regardless of the social, political, and cultural factors surrounding teachers and students. The methodologies are sometimes marketed as educational solutions, tied to the use of instructional materials, equipment, applications, and resources on which teachers and students become dependent for classes to take place. Considering this to be the strongest expression of neotechnicism incorporated into the discourse of modernization and

1 We thank the National Council for Scientific and Technological Development (CNPq) for funding the research project (Grant no. 404788/2021-1).

innovation in Higher Education, we pay special attention to its presence in the literature studied.

Recognizing the importance of using different resources and strategies to organize pedagogical work, as well as scientific and technological advancements when properly employed in the service of pedagogical planning, our critique is not directed at digital technologies themselves but at the central role they have come to occupy in contemporary education, undermining teacher autonomy and limiting student development to the demands of the neoliberal context. Through formatted and monitored resources, the logic of control is established to ensure an educational practice focused on efficiency, productivity, high performance, and relationship management, transferring the business logic to the educational sphere.

According to Libâneo (2022), active methodologies have a tradition dating back to the 19th century and can be linked to different ideological and epistemological assumptions; however, when aligned with neoliberal thought,

they play an important role in what is proclaimed as innovation in human and professional training: developing the individual's capacities for satisfactory job performance by mobilizing cognitive and socio-emotional resources, in addition to specific knowledge related to the task. It is clear that this approach assumes that professionals acquire cognitive and socio-emotional resources (such as interpersonal relationships) to adapt to the demands of the work context within the framework of competitiveness and meritocracy. (Libâneo, 2022, p. 112)

Such understandings, which have long been disseminated in Basic Education and private Higher Education, are now reaching public universities. Even with the critiques shared in academic production over the past 20 years regarding Higher Education teaching, these institutions seem to be gradually incorporating neotechnicist practices and discourses, justifying the urgent need for the modernization of their programs (Bianchetti & Sguissardi, 2017). Based on studies from the educational field, such as Araújo (2017), Freitas (2016), Libâneo (2022), and Veiga (2017), we present a mapping of research that addresses didactic elements of neotechnicism and their impact on teaching practices in Higher Education.

Considering that pedagogical practices are not neutral and are subordinated to educational purposes, which are political and ideological choices, the analyses were conducted from a critical perspective. As a result, the data were constructed and analyzed based on authors in the field who oppose neoliberal educational reforms that reduce teacher autonomy and authorship, such as Cunha (2022), Freitas (2016), Hypolito (2011, 2021), Libâneo (2022), Lima et al. (2020), among others.

| Methodology

Regarding methodological choices, we sought to develop a research protocol that would allow us not only to identify the literature produced in the field but also to generate new understandings by intersecting the themes studied. In this sense, the research is based on the principles of systematic review, as defined by Campos et al. (2023):

as the term itself indicates, it consists of systematically reviewing the literature that has already been produced and published. It can be understood as research that reviews other studies based on a system or protocol, in a systematic and rigorous manner. The systematic review relies on primary studies to address its research problem and, for this purpose, uses its own objectives, methodology, results, and conclusions. (p. 146)

It is worth noting that this type of methodological approach differs from traditional literature reviews, as its main characteristic is the critical and systematic analysis of what has been produced, identifying evidence in the studied works, establishing connections between them, and going beyond mere descriptive and panoramic survey activities. Consequently, one of the main contributions of systematic reviews is the possibility of developing interpretations that highlight gaps, opportunities, and proposals for new research (Campos et al., 2023; Ramos et al., 2014; Vosgerau & Romanowski, 2014).

Another characteristic of this type of study is adherence to rigorous, objective, and transparent research criteria. This not only ensures the reliability of the research but also allows for its reproducibility by other researchers (Campos et al., 2023; Ramos et al., 2014). From this perspective, following the contributions of Campos et al. (2023), we adopted a methodological protocol adapted through the following steps: (i) formulation of the research question; (ii) literature search; (iii) selection of articles; (iv) data extraction; (v) preliminary evaluation based on inclusion and exclusion criteria; (vi) synthesis for initial data characterization; (vii) assessment of evidence quality through dialogue with the literature; and (viii) writing and publication of results.

Considering that the objective of this study is to understand the connection between neotechnicism and teaching, as well as its impacts on Higher Education faculty, we are guided by the following research question: What can the scientific production of the last 20 years indicate about the impacts of neotechnicism on Brazilian Higher Education?

As a second step, we defined that the search for publications should be conducted in the Journal Portal of the Coordination for the Improvement of Higher Education Personnel (*Periódicos CAPES*), as it is a database that aggregates intellectual productions from different regions of the country and has been in operation for over 20 years. According to Fernandes and Cendón (2018), the justification for this choice lies in the portal's significance for Brazilian scientific production, as it is the largest collection of electronic scientific journals in Brazil and possibly in Latin America.

Following article selection, data extraction, and preliminary evaluation based on inclusion and exclusion criteria, we chose not to restrict the search by field of knowledge, which allowed us to access publications from journals in areas beyond Education, such as Health, Engineering, and Administration.

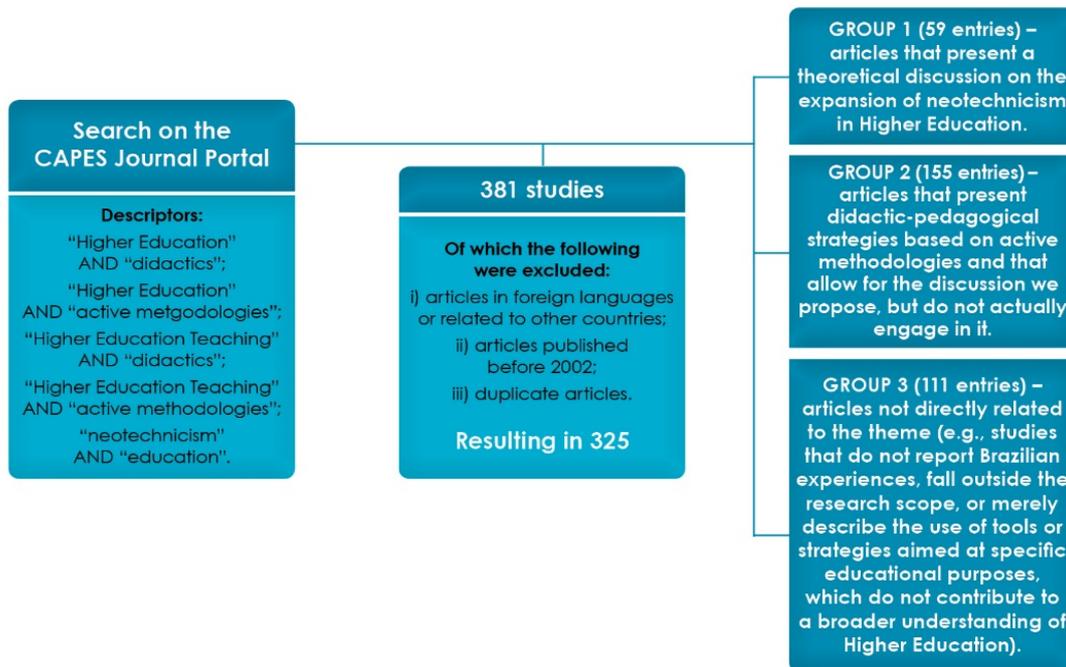
During these review stages, we selected descriptors based on two aspects: (i) the risk of low search coverage, and (ii) the need for descriptors that accurately represent the main topic while maintaining focus. Thus, we defined the following descriptors: “*Educação Superior*” AND “*didática*” [“Higher Education” AND “didactics”]; “*Educação Superior*” AND “*metodologias ativas*” [“Higher Education” AND “active methodologies”]; “*Ensino Superior*” AND “*didática*” [“Higher Education teaching” AND “didactics”]; “*Ensino Superior*” AND “*metodologias ativas*” [“Higher Education teaching” AND “active methodologies”]; “*neotecnismo*” AND “*educação*” [“neotechnicism” AND “education”]. The search results totaled 381 studies. To this initial group, we applied the following exclusion criteria: (1) articles in foreign languages or related to other countries; (2) articles published before 2002; (3) duplicate articles.

After this initial selection, we worked with 325 entries and categorized them as follows: Group 1 (59 entries) – articles that present a theoretical discussion on the expansion of neotechnicism in Higher Education; Group 2 (155 entries) – articles that present didactic-pedagogical strategies based on active methodologies and that allow for the discussion we propose, but do not actually engage in it; Group 3 (111 entries) – articles not directly related to the theme (e.g., studies that do not report Brazilian experiences, fall outside the research scope, or merely describe the use of tools or strategies aimed at specific educational purposes, which do not contribute to a broader understanding of Higher Education).

The separation of the studies into these three groups was carried out by reading the abstracts, aiming to identify key elements: theme, objective, theoretical discussion, methodology, and main results. When the abstract was insufficient, we turned to a full-text reading. This initial selection, which precedes the categorization of the analysis corpus, corresponds to the data characterization and synthesis stage, as described by Campos et al. (2023): it is “in the synthesis phase that the researcher aggregates, discusses, organizes, and compares in detail the studies deemed eligible for the research so that, at the end of this process, he/she can write the review in a structured, clear, and direct manner” (p. 161).

The stages of the selection process are represented in the flowchart in Figure 1 below

Figure 1
Flowchart of article selection



Source: the authors.

In this text, we present the contributions of the studies from Group 1, which consists of articles that provide theoretical support for the discussions they propose. After a full reading of all studies, we grouped them into thematic axes using thematic content analysis (Gomes, 2016). This approach initially involves immersing in the selected material to grasp its overall perspective, then identifying its particularities, and finally organizing, analyzing, and interpreting the content.

The comprehensive reading of the set of articles (Gomes, 2016) was guided by our research question. Through engagement with the literature, we sought to identify elements of neotechnicism present in the selected academic production to understand its impact on didactics and faculty practices in Higher Education. The set of 59 articles enabled discussions on the expansion of neotechnicism in Higher Education, and although not all of them are cited in the following analysis, reading the entire collection was essential for constructing the analytical axes, which are composed of representative and characteristic texts for each of the following axes: 1) Overcoming traditionalism; 2) Pursuit of quality; and 3) Teacher accountability.

Results and discussion

In most of the published studies, we identified similarities in the line of argument and in the choice of references supporting the reflections. Among them, we highlight the persistent claim that Higher Education is inefficient for professional training, disconnected from practical demands, and unengaging for students, thus reinforcing the need for innovation and for proposals that enable individuals to adapt to the social and market demands of the 21st century.

There was also a prevalent understanding that all reported educational problems—such as outdated content, lack of resources, disconnection between training and workplace challenges, and inefficient or inadequate teacher preparation—could be solved through improved management and the application of new techniques. In this context, institutions, particularly teachers, are seen as insufficiently engaged and held accountable for not adopting new technologies and methodologies in the classroom.

Through careful analysis of the material studied, we developed the three thematic axes mentioned earlier. In the following sections, we engage with these themes from a critical perspective, seeking to understand the possible relationships between neotechnicism, teaching, and faculty practices in Higher Education.

| Overcoming traditionalism

The studies within the “Overcoming Traditionalism” axis share a common emphasis on the idea that so-called traditional teaching is outdated and ineffective, with the use of new methodologies, combined with technologies, presented as the only, best, and/or inevitable alternative for modernization and as a counterpoint to conservative teaching.

The unanimous understanding of traditional teaching highlights its characteristics, such as vertical relationships between students and teachers, a didactic organization centered primarily on the teacher’s speech, and a pedagogical model defined as transmission-reception.

In overcoming traditionalism, two prominent alternatives emerge from the studies: the first advocates that Higher Education should adopt pedagogical practices aligned with current market challenges; the second, almost a consequence of the first, promotes learner-centered approaches, such as the use of active methodologies.

Lacerda and Santos (2018), for example, focus their objectives on analyzing practices they define as non-traditional, using examples of active methodologies considered effective and innovative within contemporary educational contexts. According to the authors, it is also essential to understand Higher Education in Brazil within the context of the social and market demands of the 21st century.

In this sense, as a critique of the traditional teaching model, the authors advocate for the regulation of educational training based on market logic:

The hegemony that has shaped the university, from its principles and purposes to its activities, is crumbling and on the verge of collapse. In the new model, the university will revolve around the market, which, eager for a qualified workforce, will orchestrate its new direction toward active learning methodologies. (Lacerda & Santos, 2018, p. 611)

The justification for overcoming the traditional teaching model through the necessary alignment of university education with market demands is reiterated in

other studies, for example, in the study of Miranda and Bortoluzzi (2020) who, by analyzing the current landscape of active methodologies in Engineering programs, state that:

The market is becoming increasingly demanding as technologies evolve, requiring professionals to keep up by developing competencies and skills throughout their studies. Thus, active methodologies emerge as an alternative for improving teaching and learning in Engineering programs, as they foster greater student engagement. (Miranda & Bortoluzzi, 2020, p. 159)

At the core of the defense of university education geared toward market demands is, among other elements, entrepreneurial training. Filion (2000), for example, is a key reference supporting the claims of researchers such as Araújo et al. (2012), who advocate entrepreneurship as an alternative to traditional practices for a Higher Education model more aligned with the current economic framework.

The study by Araújo et al. (2012) discusses the need for Higher Education Institutions (HEIs) to provide entrepreneurial training that equips future professionals to develop career paths better suited to current market trends: adaptable to new demands, capable of offering quick, efficient, and profitable business solutions. The authors also argue that teaching entrepreneurship could help HEIs combat unemployment by encouraging individuals not to rely on job offers but instead create their own opportunities and explore alternative forms of work.

The large percentage of graduates trained and sent into the job market by HEIs has become a significant issue, as it contrasts with high unemployment rates. Thus, from the 1990s to the present, Brazil's entrepreneurial history has witnessed a growing trend of self-employment, characterized by involuntary entrepreneurs, mainly represented by recent graduates. (Araújo et al., 2012, p. 30)

In developing their argument, Araújo et al. (2012) advocate that universities should prepare individuals to engage in entrepreneurship effectively, fostering, for example, the ability to create market niches rather than merely integrating into existing organizations. As a result, there is a defense of pedagogical practices closely tied to the notion of individual utility, linked to creative and productive capacity.

Human identity itself and its recognition as an individual belonging to a social class are closely linked to the ability to produce and adapt, as exemplified by Filion (2000):

Entrepreneurs enjoy action. They appreciate change and movement because they themselves are a dynamo, capable of inspiring enthusiasm in action and conveying the passion that drives them. Entrepreneurs are motivated by tangible results and have enough self-confidence to take action. The success of the endeavor stands as evidence of its value. (p. 5)

In contrast to this pedagogical perspective, which is more common in the fields of Health and Engineering, texts from the educational field discuss the social consequences of this teaching and training model. Alves et al. (2021) warn that this entrepreneurial pedagogy entails a radical individualization of educational goals. As

it moves toward shaping a citizen driven by personal aspirations, dimensions related to solidarity, the sense of the common good, or even social responsibility become secondary. Thus, governed by their private aspirations for happiness, self-fulfillment, and quality of life, individuals distance themselves from collective horizons and turn inward as self-enterprising individuals. According to the authors:

The self-enterprising individual is thus not a descriptive concept but a normative and prescriptive one. It does not describe what the subject is but what must become to continue participating in the economic competition and the social game. Adopting an entrepreneurial attitude toward life is seen as a prerequisite not only for participation in the labor market but in all spheres of social life. In this sense, the self-entrepreneur is not only someone who manages his/her educational investments and career as if he/she was a business but also someone who approaches his/her family life, community relationships, and citizenship as enterprises or as parts of an enterprise. (Alves et al., 2021, p. 13)

Regarding the advocacy of alternative practices centered on the learner, the second key alternative in this discussion emerges as a direct implication of the first premise: in defending an education that addresses the competitiveness of a global market, many authors argue for teaching and learning processes that place the student at the center as the protagonist. Thus, active methodologies are proposed as strategies to facilitate assimilation, engage multiple intelligences, strengthen the theory-practice relationship, position the student as an active subject, and promote interdisciplinarity.

It is important to highlight that, in most studies, there are indications rather than clear definitions of what active methodology entails. Some suggested strategies include problem-based activities (especially in the Health field), projects, gamification, flipped classrooms, and case studies.

A characteristic trait of these studies, which lack conceptual depth, is the appropriation of ideas from authors such as Paulo Freire, who advocate for student autonomy, to justify the application of so-called active methodologies. From this perspective, the work of Andrade et al. (2022) cites Paulo Freire to support the need to explore teaching alternatives that go beyond traditional approaches. In doing so, the authors also present active methodologies as the only possible counterpoint to authoritarian, fragmented, repetitive, and disconnected teaching practices from the everyday lives of individuals.

Other researchers advocate for active methodologies as integral to the process of developing student autonomy. Freire (1996) already argued that, in adult education, the elements that drive learning are overcoming challenges, solving problems, and constructing new knowledge based on individuals' wisdom and prior experiences. (Andrade et al., 2022, p. 528)

Similarly, Sena et al. (2018), in proposing a theoretical study on the innovative impact of active methodologies in undergraduate courses in the state of Rio Grande do Sul, also draw on Paulo Freire to justify the relevance of their research:

In light of this need for reconfiguration of educational structures, Freire (2001) describes that education in Brazil requires traditional and fragmented

pedagogical models to be modified into an emancipatory and reflective teaching approach, in which all individuals involved strive to be protagonists in the learning process, actively engaging in the pursuit of knowledge. (p. 76)

In the same argumentative direction, Nascimento et al. (2019), who sought to investigate the engagement of a group of higher education professors during the transition from traditional teaching models to the use of innovative methodologies in their classes, also draw on Paulo Freire to justify their research: “Paulo Freire (1974) presents the teacher as a mediator in the construction of knowledge, responsible for learning methods and techniques that help contribute to the learner’s autonomy in his/her academic and professional development” (Nascimento et al., 2019, p. 3).

In our view, there is a problematic appropriation of Paulo Freire’s concepts due to the lack of a theoretical distinction between active methodology and the development of student autonomy in these studies. This supports the critical reading conducted in other studies, such as those by Martins et al. (2019) and Lima et al. (2020). These authors propose pedagogical approaches within active methodologies while engaging in conceptual discussions that also establish an epistemological stance. Martins et al. (2019), for example, highlight the importance of understanding the educational purposes underlying the teaching methods chosen by educators:

Any teaching methodology is grounded in a philosophical orientation based on a specific conception of the learner, which requires Higher Education faculty to reflect on the evidence of their critical stance, as their pedagogical vision and practice are not neutral. (Martins et al., 2019, p. 125)

Lima et al. (2020) also highlight a critical reading of active methodologies. The authors distinguish the concept of active learning—grounded in theoretical foundations from studies such as those of Paulo Freire or Edgar Morin—from the term “active methodology”, and they argue that active learning entails teaching practices that go beyond the use of technological resources and the mere application of techniques, which often disregard the critique of human, social, political, and cultural relations inherent in teaching and learning processes.

According to Lima et al. (2020), it is necessary to question active methodologies that are presented as “magic formulas” to overcome traditional teaching, solve issues related to teaching and dropout rates, or lack of interest in studies. For the authors:

many of the challenges in teaching and learning situations are didactic in nature and need to be overcome and/or minimized. One of the current challenges is the pursuit of active teaching and learning processes, understood in an integrated and relational way among the individuals involved, within a perspective of collective knowledge construction, which does not emerge *a priori* but is essentially shaped through dialogue among the subjects in the teaching and learning process, considering the human, technical, and socio-political dimensions inherent to pedagogical practice. (Lima et al., 2020, p. 160)

Therefore, this critical perspective argues that overcoming traditional teaching cannot be based on a methodological choice devoid of meaning for teaching

practice; it is essential to establish a collective educational project that critically examines the social, cultural, political, and economic dimensions of educational action.

| Pursuit of quality

Still within the scope of technique as a solution to student learning issues, we established the axis “Pursuit of Quality”. In this set of texts, research suggests that the solution to educational problems—beyond merely overcoming traditional teaching but also ensuring student learning—is technique, provided it aligns with innovation. Innovation, in turn, is synonymous with the use of technology, such as virtual environments in Distance Education or hybrid learning, and methodologies like Problem-Based Learning (PBL), among others, in the case of in-person teaching (Carvalho et al., 2015; Cerutti, 2021; Dias-Lima et al., 2019; Macedo et al., 2018, among others).

As highlighted by Mafra da Silva (2018), neotechnicist rationality supports and validates the creation of teaching and learning methods and techniques focused on results that ensure efficiency and productivity in education. Identifying the same logic of technical rationality from the 1970s, the author presents the hypothesis that

pedagogical neotechnicism is present in current education policies through two central axes: (1) technicist reductionism—where teacher training shifts from an academic dimension to an experimental/instrumental/pragmatic one, emphasizing the competencies and skills of teachers and students to achieve pre-established goals and results; (2) technological sophistication—the configuration of neotechnicism centered on the ways ICT [Information and Communication Technologies] are incorporated into education. (Mafra da Silva, 2018, p. 11)

Expanding on the second axis highlighted by Mafra da Silva (2018), we understand that, with strong support from digital technologies, pedagogical neotechnicism has been associated with so-called active teaching methodologies and educational innovation. This movement, by increasingly devaluing education, justifies introducing new forms of classroom management, with “methods” and “techniques” of teaching that supposedly make schools more attractive and efficient. Frigotto (2001) reinforces this understanding, noting that arguments of efficiency and productivity and/or pedagogical modernity and innovation are used to devalue schoolwork.

Given the polysemy of the word “innovation”, beyond its use as a synonym for “active methodologies”, some authors explicitly define their conception of innovation, such as, for example, Pereira and César (2016) who explore the tension between innovation and openness to establish their position. In their study, they aim to analyze new possibilities for didactic-pedagogical use in Distance Education in Higher Education. To this end, they assume that innovation is a process that only occurs when individuals are open to readjusting their practices. To clarify this understanding, Pereira and César (2016) define:

a) Innovation: A process of transforming a given practice in response to emerging variables, through the rejection of tradition and the affirmation of adjustments that seem more suitable for individuals in their contemporary context.

b) Openness: The willingness of individuals and the system in which they operate in each situation, in order to embrace the diversity inherent in interpersonal relationships. While maintaining the common structure of the practice and allowing for planned pathways, it also accommodates the unexpected as a result of the margin of freedom granted to the other. (p. 621)

However, as in the other texts analyzed, this concept remains fragile, as it presents technologies as the result of choices that do not take into account a planned, systematized, and intentional educational project. In this sense, more than just technical choices, it is necessary to reconfigure pedagogical practices to develop new ways of teaching and learning that mobilize knowledge and teaching experiences, challenging objectivity and subjectivity, science and common sense, theory and practice (Lima, 2019).

This concept of innovation also includes the use of applied techniques and methodologies. We can mention, for example, Dias-Lima et al. (2019):

In addition to recent curricular reforms and the changing role of the teacher—from a mere transmitter of knowledge to a facilitator—innovative teaching strategies have been increasingly employed. It is necessary to reflect on pedagogical practices that use active methodologies to promote student autonomy and discuss some of these approaches, including Problem-Based Learning (PBL), case studies, and project method, which can integrate teaching, research, and extension activities. (p. 218)

Contrary to this view of innovation, studies such as Cunha (2022) highlight pedagogical innovation that demands a new epistemological understanding of knowledge. In this regard, the author considers innovation as a paradigmatic rupture. However, this rupture goes beyond methodological changes or the introduction of technology in teaching practices. Thus, Cunha (2022) argues that it is necessary to recognize the epistemological foundations of educational practices in their emancipatory dimension. This recognition gives greater meaning and purpose to teaching and learning practices.

Thus, pedagogical innovation is not merely a set of interventions aimed at changing content, models, ideas, or teaching practices that are applied without understanding the ideology, power relations, and sociocultural and economic control to which they are subordinated (Cunha, 2022).

When so-called innovative practices are shaped by a more naive vision, they often disguise traditional practices, which maintain the same procedures and purposes of technical rationality. According to Lima (2019):

In line with this disguise is the inclusion of information and communication technologies in the university classroom, which, in most cases, are tied to traditional teaching practices built on technical rationality, based on knowledge transmission—with the teacher as the main actor—and memorization by the student as a receiver. (p. 87)

Also among these studies, the use of technologies in pedagogical practices is also associated with the idea of innovation, assuming that such practice provides better conditions for students to face the job market, as seen in Cerutti (2021): “an education with a set of innovations, as well as the use of new technologies, serves to make the teaching-learning process more flexible, integrated, and entrepreneurial” (p. 5).

Far from these practices that associate the technical application of technologies with innovation as an effective means of learning, Vosgerau et al. (2017), Lima (2019), and Lima et al. (2020) advocate for investigations aimed at understanding how teachers appropriate digital tools to develop pedagogical activities that incorporate teaching, conceptual, technological, and contextual knowledge. As Lima (2019) infers, “it is not enough to introduce technologies to make teaching innovative; it is necessary to promote alternatives for their pedagogical use, which must align with the intended objectives and the learning to be developed, contributing to knowledge construction” (p. 88).

Finally, in the eagerness to justify the indispensable use of active methodologies in teaching—and similarly to what occurred with Paulo Freire’s ideas in the previous section—the articles make theoretical mistakes by merging ideas from authors of distinct schools of thought, such as Freire, Dewey, Piaget, Vygotsky, among others, and by framing the perspective of active methodologies as the one promoted by these authors, thereby justifying that it is not a new topic.

| Teacher accountability

In this axis, we focus on studies that suggest teachers are a significant cause of educational failure, portraying them as outdated, resistant to change, and unprepared for the challenges of modern times. Teachers’ work is often analyzed from the perspective of knowledge and competencies, even without an underlying theory.

Freitas (2016) defines neotechnicism as the resurgence of technicism within a neoliberal, meritocratic, and privatist context, driven by new technologies, which redefine “the very work of teachers and students, making it dependent on a technological process that dictates, on its own, what, when, and how to teach” (Freitas, 2016). The author also points out that this shift is supported and promoted by the business sector, which pressures public policies to align with its market interests.

Thus, the responsibility falls on teachers to “adapt” to the new way of teaching, as they embody the convergence of ideas advocated in the texts compiled in the previous axes: the teacher must overcome the traditional approach through innovative practices, incorporating new technologies and methodologies. As explained in Nascimento et al. (2019), “it is necessary to integrate active teaching and learning methodologies into innovative educational environments, enabling teachers to use methods and techniques that lead students to learn by doing, whether through case studies, role-playing, or problem-solving” (p. 4).

Wagner and Martins Filho (2022) discuss the importance of teacher training for the development of educational practices that consider students' active learning. They contextualize the implementation of national policies regulating medical courses in the country and highlight the challenges of moving away from exclusively traditional practices. They also advocate for the adoption of strategies based on active methodologies as an alternative to achieving more humanized and relationship-centered teaching. The authors rely on the 2014 National Curriculum Guidelines (*DCN*, acronym in Portuguese) for medical courses, which mention these methodologies and emphasize student protagonism as opposed to traditional teaching; hence the importance, for the authors, of teacher education aimed at contemporary educational practice.

The role of the teacher, when curricula are based on active methodologies, requires a different relationship with the learning process. However, health-related fields have historically relied on traditional teaching methods, meaning that most educators have experienced a teaching approach different from that advocated by the current *DCN*. In this sense, implementing a curriculum based on Active Learning Methodology involves challenges that encompass both structural issues within universities and the pedagogical conceptions of students and teachers. Regarding educators, training in this area is essential when the goal is to prepare an active and well-prepared professional. (Wagner & Martins Filho, 2022, p. 2)

In this case, the argument appears to be in favor of a more meaningful and less violent education, particularly in relation to practices commonly found in health-related courses, where students often experience psychological disorders due to excessive pressure from faculty to meet high performance expectations—without necessarily being provided adequate learning conditions. While the critique of traditional practices in courses like Medicine is relevant, there seems to be a lack of awareness of other theoretical foundations and pedagogical alternatives that challenge traditional teaching. Moreover, there is little to no reflection on the implications of an education rooted in technicist principles.

Since many higher education faculty received initial training considered outdated—because it does not encompass new methodologies and technologies—continuing education becomes a prominent focus in research, which links teachers' continuing education to the overcoming of traditional teaching.

Thus, the need for updating teaching practices is widely emphasized and regarded as essential for improving education. Cerutti (2021) states: “By enabling the use of modern tools in the classroom, the teacher leverages students' digital competencies, making educational proposals that emphasize greater innovation more effective” (p. 7).

However, we emphasize that teaching practice encompasses more than technical elements. It is important to emphasize that our critique is directed at the use of technology for its own sake, which overshadows human relationships, teaching intentionality, and the unique aspects of the educational process, which is inherently complex. We understand that the purpose of teaching techniques is connected to the broader dimensions of educational practice: the teaching and learning

processes, students and teachers, the immediate and wider sociocultural context of the educational community, and the objectives of education.

Lima et al. (2020) point out that fostering more qualitative learning processes requires overcoming the disconnect between teaching and learning processes, as well as the “gap between those who teach and those who learn, how teaching and learning occur, and the reasons for learning” (p. 151). In other words, various elements shape teaching and learning processes, which, in our view, are driven by the teacher and students within their relational context. This understanding is important to avoid an idealistic conception of the teaching and learning process, “which tends to consider the social actors involved in isolation” and, therefore, “any failure, from this perspective, can only be attributed to some deficiency or shortcoming on an individual level” (Cordeiro, 2007, p. 97); or even a technicist conception, in which it is enough to “learn good techniques, be proficient in using technologies and equipment, and apply psychology as a socio-emotional technology for educational success to be achieved” (Hypolito, 2021, p. 47-48).

| Final considerations

We consider that the studies analyzed here outline a picture of technicism in higher education, particularly in how teaching and learning processes are conceived, which deeply impacts teaching practices. There is a strong emphasis on the new—new technologies and methodologies to meet market demands—found in most of the reviewed texts. However, some studies, mainly by authors in the educational field, take a more critical and/or reflective approach, such as those by Lima et al. (2020) and Vosgerau et al. (2017). These studies are essential for questioning neotechnicist teaching practices and their epistemological weaknesses.

In the shift from so-called traditional teaching to the “new” approach, the fallacy we observe is that many studies fail to demonstrate that merely introducing new and technological elements does not guarantee the success of the process, as we understand that technique cannot replace pedagogical work. As a result, the issue of teacher accountability—so deeply rooted in neoliberal discourse—resurfaces. Advocates of technicist rationality often claim that teachers use outdated teaching methods, are resistant to change, and are incapable of preparing individuals for the market-driven, technology-oriented world. We disagree with this premise, as training in new techniques alone will not equip educators to achieve students’ educational goals.

The discussion on teacher training and qualification has never been, nor can it be, reduced to personal will. Any assertion that disregards social conditions, public policies for teaching, and the deterioration of teachers’ working conditions cannot even be considered a genuine debate. We acknowledge the importance of ongoing professional development and understand that building teaching expertise requires solid and continuous theoretical and critical training, enabling educators to identify demands, reflect on the conditions, limitations, and possibilities of their work, in order to create meaningful practices from within their pedagogical work.

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Contribution to the preparation of the text: author 1 - Conceptualization, Data curation, Formal analysis, Investigation, Methodology, Writing-original draft, Writing-review and editing; author 2 - Conceptualization, Data curation, Formal analysis, Investigation, Methodology, Writing-original draft, Writing-review and editing; author 3 - Conceptualization, Data curation, Formal analysis, Investigation, Methodology, Writing-original draft, Writing-review and editing.

| **Resumo**

Apresentamos um mapeamento de duas décadas de pesquisas brasileiras, sobre as quais tecemos reflexões, de modo a trazer novas/possíveis compreensões dos entrecruzamentos entre elementos de cunho neotecnicista (metodologias ativas, inovação, tecnologias) e seu impacto na docência na Educação Superior. A análise do material, realizada a partir de uma perspectiva crítica, apresenta três eixos: i) necessidade alardeada de superação do tradicionalismo educacional; ii) busca pela qualidade em educação; iii) responsabilização docente pelos problemas educacionais. Identificamos que a literatura valoriza, como ação didática, a simples inserção de novos elementos tecnológicos e digitais. Relaciona tais práticas como inovadoras, sem apresentar discussão epistemologicamente fundamentada sobre o que é inovação no campo educacional. Concluimos que não é a adoção de certas estratégias que garante o sucesso do processo educativo, pois a técnica não se sobrepõe ao trabalho pedagógico docente. Destacamos que sua formação não pode ser resumida ao treinamento técnico.

Palavras-chave: Inovação Pedagógica. Ensino Superior. Formação Docente.

| **Resumen**

Presentamos un mapeo de dos décadas de investigación brasileña, con el fin de traer nuevas/posibles comprensiones de las intersecciones entre elementos neotecnicistas (metodologías activas, innovación, tecnologías) y su impacto en la enseñanza en la Educación Superior. El análisis realizado desde una perspectiva crítica presenta tres ejes: i) necesidad de superar el tradicionalismo educativo; ii) búsqueda de calidad en educación; iii) responsabilidad docente ante los problemas educativos. Identificamos que la literatura valora, como acción didáctica, la simple inserción de nuevos elementos tecnológicos y digitales. Enumera prácticas como innovadoras, sin presentar una discusión epistemológica sobre la innovación en el campo educativo. Concluimos que no es la adopción de determinadas estrategias lo que garantiza el éxito del proceso, ya que la técnica no se superpone con el trabajo pedagógico. Insistimos en que su formación no puede reducirse a una formación técnica.

Palabras clave: Innovación pedagógica. Educación Superior. Formación del Profesorado.

Linhas Críticas | Journal edited by the Faculty of Education at the University of Brasília, Brazil
e-ISSN: 1981-0431 | ISSN: 1516-4896
<http://periodicos.unb.br/index.php/linhascriticas>

Full reference (APA): Antunes-Souza, T., Pucci, R. H. P., & Ferreira, L. H. (2025). Pedagogical neotechnicism, innovation and the impact on teaching in Higher Education. *Linhas Críticas*, 31, e54157.
<https://doi.org/10.26512/lc31202554157>

Full reference (ABNT): ANTUNES-SOUZA, T.; PUCCI, R. H. P.; FERREIRA, L. H. Pedagogical neotechnicism, innovation and the impact on teaching in Higher Education. *Linhas Críticas*, 31, e54157, 2025. DOI: <https://doi.org/10.26512/lc31202554157>

Alternative link: <https://periodicos.unb.br/index.php/linhascriticas/article/view/54157>

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