


**THE RECONFIGURATION OF DISTANCE EDUCATION IN TEACHER TRAINING PROGRAMS TOWARD A BLENDED LEARNING MODEL: PERSPECTIVES, CHALLENGES, AND IMPACTS ON TEACHER EDUCATION**

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**Neudson Rosa Gonçalves<sup>1</sup>, Valeska Sostenes Braga<sup>2</sup>, Mariana de Souza Carvalho Velloso<sup>3</sup>, Hélio Mauro Viana Martins<sup>4</sup>, Lilian de Souza Batista Silva<sup>5</sup>, Maria Elenice Pereira da Silva<sup>6</sup>, Francisco Borges da Silva<sup>7</sup>, Célio Alves Ribeiro<sup>8</sup>, José Raimundo Pereira de Souza Júnior<sup>9</sup>, Caio Engelmann<sup>10</sup> and Boaventura da Silva Leite Filho<sup>11</sup>**

<sup>1</sup> Master's Student in Educational Sciences

Institution: Universidad Del Sol (UNADES, Paraguai)

E-mail: neudsonrosa@gmail.com

ORCID: <https://orcid.org/0009-0008-0169-5541>

<sup>2</sup> Master's Student in Human Rights

Institution: Universidade Tiradentes (UNIT)

E-mail: valeskabraga21@gmail.com

ORCID: <https://orcid.org/0009-0003-3629-3247>

<sup>3</sup> Biological Sciences Degree and Master's Degree in Plant Biology

Institution: Universidade Federal de Uberlândia (UFU)

E-mail: marianadscarvalho@gmail.com

Lattes: <http://lattes.cnpq.br/6010026859674284>

<sup>4</sup> Master's Degree in Administration – 2018

Institution: Universidade Nove de Julho (UNINOVE)

E-mail: professormauroviana@gmail.com

ORCID: <https://orcid.org/0000-0001-6689-0040>

<sup>5</sup> Professional Master's Student in Letters (PROFLETRAS)

Institution: Universidade Federal do Rio Grande do Norte (UFRN)

E-mail: lilian.souza@ufrn.br

ORCID: <https://orcid.org/0009-0001-3718-8807>

<sup>6</sup> Master's Degree in Intellectual Property and Technology Transfer for Innovation (PROFNIT)

Institution: Instituto Federal de Educação, Ciência e Tecnologia da Paraíba (IFPB)

E-mail: maria.elenice@ufpi.edu.br

ORCID: <https://orcid.org/0009-0009-7841-2447>

<sup>7</sup> Specialist in Higher Education Teaching

Institution: Faculdade Venda Nova do Imigrante (FAVENI)

E-mail: francisco.silva25@prof.ce.gov.br

ORCID: <https://orcid.org/0009-0008-2735-354X>

<sup>8</sup> Graduate in Biological Sciences, 2004

Institution: Universidade Federal do Ceará (UFC)

E-mail: celio.ribeiro@gmail.com

ORCID: <https://orcid.org/0000-0003-0010-5112>

<sup>9</sup> Specialist in Linguistics

Institution: Universidade Estadual do Maranhão (UEMA)

E-mail: souzajunior21@yahoo.com.br

Lattes: <http://lattes.cnpq.br/03810097851391043>

<sup>10</sup> Master's Student in Educational Science

Institution: UNINTER Christian of America LLC

E-mail: engelmannaio1@gmail.com

ORCID: <https://orcid.org/0009-0002-0002-0442>

<sup>11</sup> Master's student in Education Sciences

Universidad Del Sol - UNADES, Asunción, Paraguay

E-mail: boaventureprof@yahoo.com.br

Lattes: <https://lattes.cnpq.br/6265097111700070>

ORCID: <https://orcid.org/0009-0008-5173-4238>

### **Abstract**

Technological and educational transformations over recent decades have promoted significant changes in higher education models, especially in teacher education programs. In this context, distance education has undergone a reconfiguration process that favored the consolidation of the semi-presential model, characterized by the integration of face-to-face activities and virtual learning environments. This movement has intensified debates regarding educational quality, pedagogical innovation, and the competencies required for contemporary teaching practice. Therefore, this study aimed to analyze the perspectives, challenges, and impacts of the transition from distance education to the semi-presential model in teacher education programs. This is an integrative literature review with a qualitative, exploratory, and descriptive approach, based on national and international studies published between 2021 and 2026. The search was conducted in recognized scientific databases using descriptors related to hybrid education, teacher education, and semi-presential teaching. Data were analyzed through thematic content analysis, allowing the organization of findings into analytical categories. The results showed that the semi-presential model promotes student autonomy, development of digital competencies, curricular flexibility, and integration between theory and pedagogical practice. However, challenges related to technological infrastructure, pedagogical qualification, inequalities in access, and curricular reorganization remain. It is concluded that the consolidation of hybrid teaching depends on consistent pedagogical planning, institutional investment, and continuous teacher training, aiming to strengthen more critical, innovative, and contemporary educational processes.

**Keywords:** Digital competencies, Educational quality, Pedagogical innovation, Active methodologies, Technological mediation.

### **INTRODUCTION**

The provision of courses in the distance education modality (DE) in Brazil has had legal support since the Law of Guidelines and Bases of National Education (Law No. 9,394/1996), which recognizes

this modality as part of the Brazilian educational system (Brasil, 1996). Since then, DE has expanded in higher education, especially in teacher training programs, following the advancement of digital technologies and the broadening of access to education (Oliveira, 2021).

In recent years, a reconfiguration of this modality toward the blended learning model has been observed, integrating face-to-face and digital activities and promoting greater flexibility and interaction in the teaching-learning process (Amenduni; Ligorio, 2022). This movement has been driven by contemporary educational transformations and by the need to adapt to new formative demands (Schmid et al., 2023).

This change is reinforced by recent regulations, such as Decree No. 12,456/2025, which regulates the provision of courses in face-to-face, blended, and distance modalities (Brasil, 2025). In addition, CNE/CES Resolution No. 1/2016 establishes guidelines for the organization of DE, evidencing the pursuit of greater quality and integration among modalities (Brasil, 2016).

In teacher education, the blended learning model contributes to the development of digital competencies, autonomy, and the use of active methodologies (Lemes; Santos, 2021). However, challenges persist regarding teachers' pedagogical training, infrastructure, and the articulation between face-to-face and virtual activities (Santos, 2024).

In view of this, it becomes necessary to understand how the reconfiguration of DE toward the blended learning model impacts teacher education in teacher training programs. Thus, the study aims to analyze the perspectives, challenges, and impacts of this transition, contributing to the debate on the quality of teacher education.

## **METHODOLOGY**

This is an integrative literature review, with a qualitative approach and an exploratory and descriptive character, carried out in March 2026, with the objective of analyzing the reconfiguration of distance education in teacher training programs toward the blended learning model, considering its

perspectives, challenges, and impacts on teacher education.

## TYPE OF RESEARCH AND METHODOLOGICAL PROCEDURES

The research is characterized as an integrative literature review, as it enables the synthesis of results from theoretical and empirical studies, contributing to a broader understanding of the phenomenon investigated. It adopts a qualitative approach, since it seeks to interpret the meanings present in scientific productions, in addition to having an exploratory and descriptive character.

The methodological path was structured according to the stages proposed by Whitemore and Knafl (2005), comprising: (I) definition of the research problem; (II) establishment of inclusion and exclusion criteria; (III) search and selection of studies; (IV) critical evaluation of the included material; (V) extraction and organization of information; and (VI) synthesis and presentation of the results.

The guiding research question was defined as follows: how does the reconfiguration of distance education toward the blended learning model impact teacher education in undergraduate teacher training programs, in light of recent regulations and contemporary educational transformations?

## SEARCH STRATEGY AND SELECTION CRITERIA

The search for studies was conducted in recognized scientific databases, including the ScienceDirect platform, the CAPES Journal Portal, and national and international academic journals in the field of education, ensuring the breadth and quality of the selected sources.

For the search strategy, descriptors and free terms were used, initially organized in Portuguese and subsequently in English. The following descriptors in Portuguese were employed: “educação a distância”, “ensino híbrido”, “formação docente”, “licenciaturas” and “modelo semipresencial”. In English, the corresponding terms were used: “distance education”, “blended learning”, “teacher education”, “teacher training programs” and “hybrid or blended model”, combined through the Boolean operators AND and OR.

The inclusion criteria adopted were: full-text articles, published between 2021 and 2026, in any language subject to translation, that addressed distance education, blended learning, and teacher education. Relevant legal regulations for the topic were also included, such as Law No. 9,394/1996, CNE/CES Resolution No. 1/2016, and Decree No. 12,456/2025, due to their importance in regulating the modality.

As exclusion criteria, duplicate studies, incomplete publications, simple abstracts, and works that did not answer the guiding question were considered.

After the initial search, titles and abstracts were read, followed by the full reading of eligible studies, resulting in the definition of the final research sample.

## DATA ANALYSIS

Data analysis was conducted through thematic content analysis, according to Bardin (2011), encompassing the stages of pre-analysis, exploration of the material, categorization, and interpretation of the results. The findings were organized into thematic axes related to the reconfiguration of DE, regulatory guidelines, the potentialities of the blended learning model, and challenges in teacher education, allowing for a critical and systematized analysis of the phenomenon investigated.

## RESULTS AND DISCUSSION

The analysis of the selected studies shows that the reconfiguration of distance education toward the blended learning model in teacher training programs has been consolidating itself as a movement associated with pedagogical innovation, curricular flexibility, and the redefinition of formative processes in teaching. More than a transition between modalities, the results point to structural changes that affect the organization of teaching, pedagogical mediation, and the development of competencies required in the education of contemporary teachers.

## THE RECONFIGURATION OF DISTANCE EDUCATION IN TEACHER TRAINING PROGRAMS TOWARD A BLENDED LEARNING MODEL

Initially, the studies reveal consensus regarding the potential of the blended learning model to expand interactivity, student autonomy, and integration between theory and practice. This perspective is summarized in Chart 1, which presents the main findings identified in the literature and highlights convergences between potentialities and challenges associated with teacher education in hybrid contexts.

### Chart 1

*Synthesis of studies on the blended learning model and its impacts on teacher education*

Author/Year	Objective of the study	Main findings	Contributions to teacher education
Amenduni; Ligorio (2022)	Analyze international perspectives on blended learning practices in higher education	They showed that the blended learning model favors pedagogical interaction, collaborative learning, student engagement, and the expansion of participatory strategies mediated by technologies	Contributes to understanding hybrid education as a pedagogical reconfiguration capable of strengthening innovative practices in initial teacher education
Can; Zorba; Işim (2024)	Assess the effects of hybrid teaching on the development of competencies and academic success among teacher education students	They identified significant gains in 21st-century competencies, autonomy, critical thinking, and academic performance among future teachers	Reinforces the potential of the blended learning model to qualify professional competencies required in contemporary teaching
Cesário; Machado (2025)	Examine the predominance of face-to-face, hybrid, and DE modalities in different countries	They demonstrated the growth of hybrid models as a global trend, associated with curricular flexibility and educational innovation	Evidences the consolidation of the blended learning model as a response to structural transformations in higher education
Lemes; Santos (2021)	Discuss teacher education in view of the demands of Education 4.0	They pointed to the need for integration between digital competencies, active methodologies, and innovative pedagogical practices in formative processes	Grounds the relationship between blended learning and the development of teacher profiles aligned with emerging educational demands
Oliveira (2021)	Reflect on the relevance of DE in pedagogy education	It evidenced DE as a strategy for democratizing access, formative flexibility, and expanding educational opportunities	Supports the importance of the modality as a basis for the qualified transition to the blended learning model

Pereira (2022)	Investigate teacher education in hybrid teaching and student diversity	Identified challenges related to personalization of learning, curricular reorganization, and pedagogical mediation in hybrid contexts	Contributes to understanding the didactic-pedagogical challenges in implementing the blended learning model
Perry; Findon; Cordingley (2021)	Review evidence on remote and blended teacher education	They demonstrated that blended practices enhance reflective formative experiences, active learning, and articulation between theory and practice	Reinforces the effectiveness of the hybrid model as a strategy for qualifying initial teacher education
Quintanilha <i>et al.</i> (2021)	Analyze the impacts of the emergency migration to digital modalities during the pandemic	They showed that the pandemic accelerated processes of pedagogical innovation and consolidated previously emerging hybrid practices	Highlights the pandemic context as a catalyst for the reconfiguration of teacher training programs toward blended formats
Santos (2024)	Discuss challenges of DE in student education	Identified weaknesses related to infrastructure, pedagogical mediation, institutional support, and inequalities in access	Evidences structural and pedagogical limits that condition the quality of education in hybrid contexts
Schmid <i>et al.</i> (2023)	Assess evidence on online teaching, hybrid teaching, and flipped classroom in teacher education	They pointed to positive effects of these approaches on learning, performance, and professional teacher development	Strengthens, based on robust empirical evidence, the effectiveness of the blended learning model for innovative formative processes
Stap <i>et al.</i> (2024)	Investigate pedagogical strategies for online learning in blended courses	They showed that online teaching strategies favor autonomy, student retention, and engagement in hybrid formative pathways	Contributes to understanding pedagogical practices that sustain the effectiveness of blended learning

Source: Authors (2026)

Based on these findings, it is observed that the blended learning model has been understood as a formative possibility capable of overcoming instrumental perspectives historically attributed to distance education. (Amenduni; Ligorio, 2022) emphasize that the integration between digital environments and face-to-face meetings expands opportunities for active learning, collaboration, and shared construction of knowledge, which is particularly relevant in teacher training programs, where the relational dimension of teaching is central.

This perspective is reinforced by (Schmid et al., 2023), whose meta-analysis demonstrates that hybrid approaches and flipped classroom models have positive effects on academic performance, engagement, and professional development in initial and continuing teacher education. These results are in dialogue with (Can; Zorba; Işim, 2024), as they point out that hybrid teaching favors competencies associated with critical thinking, problem solving, autonomy, and digital literacy, strategic dimensions for teaching in the twenty-first century.

In the field of pedagogical competencies, the results reveal that the reconfiguration toward the blended learning model drives changes in the formative profile of teachers. (Lemes; Santos, 2021) associate this movement with the demands of Education 4.0, highlighting the need for teachers prepared to mediate innovative processes, use digital resources, and mobilize active methodologies. In the same direction, (Perry; Findon; Cordingley, 2021) emphasize that the combination of remote and face-to-face mediation can strengthen reflective practices and more contextualized formative experiences.

Another relevant result concerns the international consolidation of hybrid models as an educational trend. (Cesário; Machado, 2025) indicate that, in several countries, the predominance of hybrid modalities results from their capacity to articulate flexibility and formative quality. This understanding reinforces that the reconfiguration of DE is not limited to technological changes, but is embedded in broader transformations in teacher education policies and practices.

However, the literature also evidences persistent challenges. One of the main challenges concerns pedagogical preparation for working in hybrid contexts. (Pereira, 2022) points out that student diversity and the need to personalize learning require curricular reorganization and revision of traditional practices. Complementarily, (Santos, 2024) emphasizes that limitations in infrastructure, difficulties in technological access, and institutional weaknesses may compromise the effectiveness of the blended learning model and broaden formative inequalities.

Another recurring aspect in the results refers to the role of the pandemic as an accelerator of this process. (Quintanilha et al., 2021) demonstrate that the compulsory migration to digital modalities

produced significant changes in perceptions of educational technologies, driving practices that subsequently contributed to the consolidation of the blended learning model. This scenario simultaneously revealed innovative potentialities and structural gaps already existing in higher education.

The dimension of student retention and protagonism also emerges as an important axis. (Stap\_ et al.,\_ 2024) identify that pedagogical strategies aimed at online learning in blended courses favor students' autonomy, participation, and engagement, especially in formative pathways that require flexibility and continuous monitoring. These results converge with (Oliveira, 2021), as they reinforce that the distance modality and its hybrid developments play a relevant role in broadening access and diversifying formative experiences.

In general, the analyzed studies indicate that the reconfiguration of teacher training programs toward the blended learning model has positive impacts on teacher education, especially regarding pedagogical innovation, development of digital competencies, and expansion of learning possibilities. However, the results also demonstrate that such advances depend on institutional conditions, pedagogical qualification, and curricular design consistent with the assumptions of hybrid education. In this sense, the transition to the blended learning model is configured not only as a reorganization of modality, but as a process of redefining teacher education itself in view of contemporary educational demands.

The results show that the reconfiguration of distance education toward the blended learning model in teacher training programs is not limited to a methodological or organizational change, but represents a broader movement of transformation in formative processes in teaching. In this sense, agreement is observed among the studies regarding the understanding that the blended learning model emerges as a response to contemporary demands for flexibility, pedagogical innovation, and the development of competencies compatible with the educational challenges of the twenty-first century.

From this perspective, Amenduni and Ligorio (2022) argue that blended learning broadens the possibilities of pedagogical interaction and re-signifies learning by integrating face-to-face and digital practices into more collaborative experiences. This understanding converges with Schmid\_ et al\_. (2023),

whose meta-analysis reinforces that hybrid models and approaches such as the flipped classroom favor academic performance, engagement, and professional development in initial and continuing teacher education. The convergence among these authors strengthens the understanding that the reconfiguration of DE does not represent a mere combination of formats, but an epistemological reorganization of teaching and learning practices.

This understanding is deepened by Can, Zorba, and Işim (2024), who demonstrate that the blended learning model contributes to the development of 21st-century competencies, such as critical thinking, autonomy, problem solving, and digital literacy, competencies that assume centrality in contemporary teacher education. In agreement, Lemes and Santos (2021) argue that Education 4.0 requires new professional profiles, demanding teacher education oriented toward innovation, digital culture, and active methodologies. The articulation between these studies shows that the transition to the blended learning model is not restricted to the incorporation of technologies, but involves redefinitions of the very concept of teaching.

Within the scope of teacher training programs, such reconfiguration has relevant implications for the articulation between theory and pedagogical practice. Perry, Findon, and Cordingley (2021) argue that blended experiences can enhance reflective practices and promote more contextualized formative pathways, especially when articulated with qualified pedagogical monitoring. This position dialogues with Oliveira (2021), who emphasizes that DE, by broadening access and formative flexibility, also offers conditions for diversifying pedagogical experiences, provided that it is sustained by educational intentionality. In this direction, there is consensus that the quality of teacher education in blended contexts depends less on the modality itself and more on the consistency of the pedagogical project that sustains it.

Another aspect widely corroborated among the studies concerns the structuring character of hybrid methodologies for curricular reorganization and the redefinition of teacher and student roles. For Pereira (2022), education in hybrid contexts requires overcoming transmissive practices and incorporating approaches centered on active learning, student diversity, and the personalization of teaching. This

discussion converges with Stap et al. (2024), by showing that online pedagogical strategies, when integrated into blended proposals, broaden students' autonomy, engagement, and retention. The agreement among these authors reinforces that reconfiguration toward the blended learning model demands not only technological innovation, but paradigmatic changes in pedagogical processes.

At the broader level of educational policies and trends, Cesário and Machado (2025) argue that the international expansion of hybrid models stems from their capacity to respond simultaneously to demands for flexibility, quality, and innovation. This understanding finds support in Amenduni and Ligorio (2022), who situate blended learning as an international phenomenon associated with the transformation of educational ecosystems. Such convergence suggests that the expansion of the blended learning model in teacher training programs does not constitute an isolated movement, but is part of global reconfigurations in the ways higher education is organized.

However, although the studies point to relevant potentialities, the literature is also convergent in recognizing the limits and tensions of this process. Santos (2024) problematizes that structural weaknesses, technological insufficiency, and gaps in teachers' pedagogical preparation may compromise the effectiveness of the blended learning model. In consonance, Pereira (2022) warns that the adoption of hybrid formats without curricular restructuring and institutional support tends to reproduce traditional practices in new environments, reducing the transformative potential of these modalities. The agreement among these authors shifts the discussion from an idealized view of blended learning to a critical understanding that its results depend on concrete material, pedagogical, and institutional conditions.

Another relevant interpretive axis concerns the impact of the pandemic on the acceleration of this process. Quintanilha et al. (2021) maintain that the compulsory migration to digital modalities functioned as a catalyst for educational innovation, making visible both the possibilities and the weaknesses of technology-mediated models. This analysis dialogues with Schmid et al. (2023), who point to the strengthening of hybrid approaches in the post-pandemic scenario as resulting from accumulated evidence regarding their effectiveness. At this point, there is convergence in understanding the pandemic not only

as a disruptive event, but as a milestone that drove the consolidation of the debate on blended models in higher education.

The discussion also shows that the positive impacts of the reconfiguration of DE are strongly associated with the development of critical digital competencies for teaching. Can, Zorba, and Işim (2024) emphasize that such competencies go beyond the instrumental mastery of technologies, involving cognitive, collaborative, and pedagogical dimensions. Lemes and Santos (2021) corroborate this understanding by emphasizing that teacher education, in the digital context, requires integration between innovation, critical thinking, and responsive educational practices. This agreement reinforces that the blended learning model may favor not only new ways of teaching, but new ways of being a teacher.

Thus, the discussion of the studies allows us to understand that the reconfiguration of teacher training programs toward the blended learning model has the potential to strengthen the quality of teacher education, expand learning experiences, and respond to contemporary demands in education. However, as indicated by Santos (2024), Pereira (2022), and Perry, Findon, and Cordingley (2021), such potentialities are only materialized when articulated with consistent institutional policies, qualified pedagogical design, and continuous teacher preparation.

In this way, the agreement among the analyzed authors indicates that the blended learning model should not be understood merely as a technical rearrangement between face-to-face presence and virtuality, but as a process of pedagogical, curricular, and epistemological reconfiguration of teacher education. This understanding shifts the debate from a discussion of modality to a broader reflection on formative quality, innovation, and the future of teacher training programs in view of contemporary educational transformations.

## **CONCLUSION**

The reconfiguration of distance education toward the blended learning model in teacher training programs evidences a movement of transformation that goes beyond operational or technological

changes, configuring itself as a process of redefining the pedagogical foundations of teacher education.

Throughout this study, it was verified that the transition to hybrid models has been driven by contemporary demands for flexibility, methodological innovation, and integration between digital technologies and formative practices, pointing to new possibilities for the organization of higher education. In this scenario, the blended learning model presents itself as a strategy potentially capable of strengthening more dynamic, interactive formative experiences aligned with the demands of teaching in the twenty-first century.

The analyzed findings made it possible to understand that this reconfiguration produces significant impacts on the development of digital competencies, the autonomy of teacher education students, the adoption of active methodologies, and the articulation between theory and pedagogical practice. It was also observed that the blended learning model favors the expansion of student protagonism and contributes to re-signifying the roles of teachers and students in teaching and learning processes. From this perspective, the studies showed that the quality of this transition is directly related to the consistency of pedagogical projects, institutional support, and teachers' preparation to work in hybrid contexts.

However, the study also demonstrated that the advances associated with the blended learning model coexist with structural, pedagogical, and institutional challenges that cannot be disregarded. Issues related to technological infrastructure, inequalities in access, curricular reorganization, and pedagogical preparation for mediation in hybrid environments remain critical elements for the effectiveness of this modality. Thus, it is concluded that the reconfiguration of DE should not be understood only as the expansion of flexible formats, but as a process that requires commitment to formative quality, equity, and educational innovation.

Another relevant aspect evidenced was that the debate on the blended learning model in teacher training programs shifts the discussion toward broader dimensions of teacher education, involving educational policies, curricular transformations, and new teaching paradigms. From this perspective, the consolidation of this modality demands not only technological investments, but also the revision of

pedagogical conceptions, institutional strengthening, and the construction of practices that critically integrate face-to-face presence and virtuality. In this way, the study reinforces that the ongoing reconfiguration represents an opportunity to re-signify initial teacher education in view of contemporary educational demands.

As a contribution to the advancement of knowledge in the area, the development of empirical research is suggested to investigate the perception of teacher education students and teachers regarding the impacts of the blended learning model on the quality of education, as well as comparative studies between courses offered in different formative arrangements. It is also recommended that longitudinal studies be conducted to analyze the repercussions of this modality on the professional practice of graduates from teacher training programs, allowing for a deeper understanding of how blended education influences the practice of teaching and the constitution of professional competencies.

Finally, it is concluded that the reconfiguration of distance education toward the blended learning model constitutes a relevant and strategic phenomenon for the future of teacher training programs, as it articulates innovation, flexibility, and pedagogical potentialities for teacher education. Although challenges persist, the findings indicate that, when sustained by pedagogical intentionality and adequate institutional conditions, this model can contribute to more critical, responsive formative processes coherent with the transformations of contemporary education, reaffirming its role in strengthening the quality of teacher education.

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