

CONTINUING TEACHER EDUCATION FROM THE PERSPECTIVE OF BLENDED LEARNING AND DIGITAL EDUCATION

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Abstract

This study aims to analyze the importance of continuing teacher education from the perspective of blended learning and digital education, highlighting its challenges, possibilities, and contributions to pedagogical practice. This qualitative study was conducted through bibliographic and documentary research grounded in scientific publications, normative documents, and theoretical frameworks addressing educational innovation, teachers' digital competencies, and active learning methodologies. The

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results indicate that continuing education is essential to teachers' professional development, as it promotes the updating of knowledge, mastery of technological resources, and adoption of innovative pedagogical practices capable of responding to the demands of contemporary education. However, challenges were also identified in relation to technological infrastructure, inequalities in access, resistance to change, and the need for permanent public policies aimed at recognizing and enhancing teachers' professional qualifications. The study concludes that continuing education, when systematically planned, contextualized, and aligned with digital competencies, strengthens teachers' professional practice, expands opportunities for pedagogical innovation, and contributes to the development of more inclusive, participatory, and meaningful educational environments prepared to address the challenges posed by digital culture and society's ongoing transformations.

Keywords: Blended learning, Continuing teacher education, Digital education.

INTRODUCTION

The transformations brought about by digital culture have promoted significant changes in educational processes, requiring new ways of teaching, learning, and constructing knowledge. The incorporation of digital technologies into everyday school life is no longer merely a methodological innovation; it has become an inherent requirement in educating students who are capable of acting critically, creatively, and collaboratively in an increasingly connected society (Corrêa; Boll; Nobile, 2022). In this context, blended learning has emerged as a pedagogical approach that integrates in-person and digital activities, broadening opportunities to personalize learning and encouraging students to take an active role.

The consolidation of these new practices demonstrates that the mere availability of technological resources does not guarantee improvements in the quality of education. Investment in continuing teacher education is therefore essential to enable teachers to develop the pedagogical and digital competencies required for the critical, ethical, and effective use of educational technologies (Simões et al., 2021).

Accordingly, teachers no longer occupy the exclusive position of knowledge transmitters, instead serving as mediators, facilitators, and organizers of learning experiences (Bacich; Tanzi Neto; Trevisani, 2015).

Continuing education therefore plays a strategic role in implementing blended learning and digital education by contributing to professional development, reflection on pedagogical practice, and the incorporation of active learning methodologies capable of fostering greater student engagement (Simões et al., 2021). It also promotes the development of competencies related to planning, assessment, the curation of digital resources, and the use of virtual learning environments.

However, implementing these approaches still entails significant challenges, including inequalities in access to technology, infrastructure limitations, insufficient public investment, and the need for permanent policies supporting teachers' professional development (Gatti, 2008; Kenski, 2012). These challenges are compounded by the rapid evolution of digital technologies, which requires educators to update their knowledge continuously in order to keep pace with changes in how knowledge is produced and circulated.

Against this backdrop, the following research question was formulated: how does continuing teacher education contribute to the implementation of blended learning and digital education, considering the challenges and possibilities associated with developing teachers' competencies and improving teaching and learning processes?

To address this question, the study aims to analyze the importance of continuing education from the perspective of blended learning and digital education, discussing its contributions to pedagogical innovation, the strengthening of teachers' competencies, and the improvement of teaching and learning processes.

To achieve this objective, qualitative bibliographic and documentary research was conducted, drawing on scientific publications and documents addressing teacher education, educational technologies, blended learning, and digital education. The study sought to understand the principal challenges and

possibilities involved in consolidating an educational model aligned with the demands of contemporary society.

THEORETICAL FRAMEWORK

Continuing education is one of the principal instruments of teachers' professional development, particularly in light of the constant social, cultural, and technological transformations affecting the educational landscape. Unlike initial teacher education, this process is characterized by the continuous updating of knowledge, improvement of pedagogical practices, and critical reflection on professional practice. In this sense, continuing education extends beyond occasional courses and constitutes an ongoing process of knowledge construction and development of the competencies required for teaching (Imbernón, 2011). Complementing this understanding, Rocha (2022, p. 40) identifies the following as relevant elements of continuing education: "a focus on pedagogical content knowledge; the use of active learning methodologies; collaborative work among peers; sustained duration of training; and systemic coherence."

The National Common Foundation for the Continuing Education of Basic Education Teachers (Base Nacional Comum para a Formação Continuada de Professores da Educação Básica) establishes that professional development should promote competencies related to pedagogical knowledge, the use of digital technologies, methodological innovation, and improvements in student learning, thereby strengthening a culture of education throughout teachers' careers (Brasil, 2020). Along the same lines, Nóvoa (2022) emphasizes that the teaching profession requires continuous learning processes grounded in collaboration among teachers, reflection on practice, and the collective construction of pedagogical knowledge. According to the author, professional development occurs not only through the acquisition of content, but primarily through the ability to analyze the challenges of educational practice critically.

Tardif (2014) further argues that teachers' knowledge is constructed through the articulation of academic education, professional experience, and everyday life in schools. Continuing education thus

strengthens the integration of theory and practice, helping improve the quality of teaching and learning.

This understanding is also expressed by Costa (2021, p. 1):

[...] continuing education broadens the possibilities available to teaching practice and to teaching and learning through a wide range of content in constant dialogue with students' realities. It also stimulates cognitive skills that foster the ability to establish relationships, construct syntheses, think theoretically, and reflect critically on reality.

In this context, recognizing the value of teachers depends on the existence of public policies that ensure permanent educational opportunities, encourage pedagogical innovation, and provide suitable conditions for professional development, thereby contributing to an educational model aligned with the demands of the knowledge society (Brasil, 2020). Accordingly, Augusto et al. (2026, p. 926) state that:

[...] continuing education ceases to represent the mere updating of knowledge and becomes an ongoing process of constructing teacher professionalism, committed to improving the quality of education and fostering meaningful student learning.

Blended learning is characterized by the planned integration of in-person activities and experiences mediated by digital technologies, combining different spaces, times, and learning strategies. This approach breaks with traditional models centered exclusively on teacher-led exposition, promoting more flexible, collaborative, and personalized practices (Horn; Staker, 2015). According to Bacich, Tanzi Neto, and Trevisani (2015), blended learning restructures the educational process by intentionally combining in-person and online components, enabling students to participate actively in constructing knowledge. From this perspective, teachers serve as learning mediators, using different methodologies to meet students' individual needs.

The authors emphasize that the personalization of learning is one of the principal distinguishing features of blended learning, as it enables greater student autonomy, individualized monitoring, and the use of digital resources to support the development of the competencies established in the curriculum

(Bacich; Tanzi Neto; Trevisani, 2015). This concept is supported by the National Common Core Curriculum (Base Nacional Comum Curricular, BNCC), which recognizes digital culture as one of the general competencies of Basic Education. The document establishes that students must develop skills related to the critical, ethical, and responsible use of digital technologies and understand their application in communication, knowledge production, and problem-solving (Brasil, 2018).

Moran (2018) further states that blended learning represents an evolution in pedagogical practices because it integrates active learning methodologies, technological resources, and different learning environments, fostering greater student participation and the development of cognitive, socioemotional, and digital competencies. This broad conception of student education is supported by the BNCC:

It thus recognizes that Basic Education must aim at comprehensive human education and development, which entails understanding the complexity and nonlinearity of this development and breaking with reductionist views that privilege either the intellectual (cognitive) dimension or the affective dimension. It also means adopting a plural, individual, and comprehensive view of children, adolescents, young people, and adults, regarding them as learning subjects, and promoting an education devoted to welcoming, recognizing, and fully developing them in their uniqueness and diversity. Furthermore, as a space for learning and inclusive democracy, the school must strengthen itself through the coercive practice of nondiscrimination, nonprejudice, and respect for differences and diversity. (Brasil, 2018, p. 14).

Digital education encompasses the pedagogical use of digital technologies as instruments capable of expanding opportunities for teaching, learning, communication, and assessment. Its effectiveness, however, depends on preparing teachers to integrate these tools into pedagogical practices critically, ethically, and meaningfully (UNESCO, 2019). In this regard, Santana et al. (2026, p. 4) state that “contemporary teachers must develop competencies related to pedagogical mediation, the critical use of digital technologies, and the construction of more collaborative, flexible, and meaningful educational practices.”

The United Nations Educational, Scientific and Cultural Organization (UNESCO) emphasizes that developing teachers’ digital competencies involves not only technical mastery of technologies, but also

the ability to select appropriate resources, promote collaborative learning, use innovative methodologies, and assess educational processes mediated by digital environments (UNESCO, 2019).

Complementing this perspective, the European Framework for the Digital Competence of Educators (DigCompEdu) establishes that teachers must develop competencies related to pedagogical planning, the creation of digital resources, assessment, learner empowerment, and the facilitation of learners' digital competence, consolidating professional practice aligned with the demands of contemporary education (Redecker, 2017). In Brazil, the National Connected Schools Strategy (Estratégia Nacional de Escolas Conectadas) reinforces the need for teacher education focusing on the pedagogical use of digital technologies, recognizing technological infrastructure, connectivity, and professional qualification as inseparable elements in the digital transformation of education (Brasil, 2023).

Thus, continuing education emphasizing digital education supports the development of competencies related to digital content curation, the production of multimodal materials, the use of virtual learning environments, and the application of active learning methodologies, expanding opportunities for pedagogical innovation and improved learning (Moran, 2018).

Despite the progress made in incorporating digital technologies into educational contexts, several challenges continue to hinder the consolidation of blended learning in Brazilian schools. These include unequal internet access, technological infrastructure limitations, insufficient public investment, and gaps in teacher education (Brasil, 2023). According to UNESCO (2023), although digital technologies expand educational opportunities, their implementation requires public policies that ensure digital inclusion, equity, and teachers' continuous professional development. The organization emphasizes that the indiscriminate use of technology does not improve learning unless it is associated with clearly defined pedagogical objectives.

Beyond structural issues, Imbernón (2011) notes that many continuing education programs remain excessively technical and disregard teachers' actual needs and the specific contexts of schools. According

to the author, effective educational processes should foster critical reflection, collaboration among peers, and the permanent articulation of theory and practice. Nóvoa (2022) likewise emphasizes that teacher education must strengthen professional learning communities in which teachers share experiences, collectively produce knowledge, and develop solutions to the everyday challenges of educational practice. Prospects for blended learning therefore depend on the integration of public policies, infrastructure investment, high-quality continuing education, and the strengthening of teachers' digital competencies. Together, these elements contribute to a more inclusive and innovative educational model aligned with the demands of digital society.

METHODOLOGY

This research is characterized as a qualitative study because it seeks to understand, interpret, and analyze aspects related to continuing teacher education from the perspective of blended learning and digital education. Qualitative research makes it possible to investigate educational phenomena by considering their complexity, meanings, and the relationships established between theory and practice, thereby enabling an in-depth understanding of the object under investigation (Minayo, 2014).

With regard to its objectives, this research is descriptive and exploratory. Descriptive research aims to identify, record, and analyze the characteristics of a particular phenomenon, whereas exploratory research provides greater familiarity with the subject under investigation, helping expand knowledge and construct new interpretations (Gil, 2019). These characteristics are appropriate to the purpose of this study, which is to understand the importance of continuing education in developing the competencies teachers need for blended learning and digital education.

Regarding technical procedures, the investigation is classified as bibliographic and documentary research. According to Gil (2019), this type of research is developed from previously published materials, including books, scientific articles, dissertations, theses, legislation, and institutional documents, allowing researchers to bring together different theoretical perspectives on the phenomenon under study. Marconi

and Lakatos (2022) add that bibliographic research enables researchers to understand the state of the art on a given subject, identify gaps in knowledge, and provide a theoretical foundation for their analyses.

The choice of bibliographic research is justified by the extensive scientific literature on continuing education, active learning methodologies, blended learning, and digital technologies applied to education. Analyzing these sources makes it possible to understand how technological transformations have influenced teachers' professional development and which competencies are required to meet the demands of contemporary education (Imbernón, 2011).

Classic and contemporary works on teacher education, educational innovation, blended learning, digital competencies, and public education policies were consulted to construct the theoretical framework and analyze the data. Official documents published by the Ministry of Education were also used, particularly the National Common Core Curriculum (Base Nacional Comum Curricular, BNCC) (Brasil, 2018), the National Common Foundation for the Continuing Education of Basic Education Teachers (Brasil, 2020), and the National Connected Schools Strategy (Brasil, 2023). These documents establish guidelines for incorporating digital technologies into the curriculum and developing teachers' professional competencies.

In addition to national normative documents, the study analyzed international publications produced by the United Nations Educational, Scientific and Cultural Organization (UNESCO), particularly the ICT Competency Framework for Teachers (UNESCO, 2019) and the Global Education Monitoring Report 2023 (UNESCO, 2023), which present frameworks addressing teachers' digital competencies, digital inclusion, and the pedagogical use of technology in education.

The bibliographic search was conducted between June and August 2026 using the descriptors "continuing teacher education," "blended learning," "digital education," "teachers' digital competencies," "active learning methodologies," and "digital technologies in education," combined using the Boolean

operators AND and OR. Priority was given to publications from the preceding decade that were available in full and directly related to the object of investigation.

Priority was also given to publications indexed in national and international scientific databases, including the Scientific Electronic Library Online (SciELO), Google Scholar, the Journal Portal of the Coordination for the Improvement of Higher Education Personnel (Coordenação de Aperfeiçoamento de Pessoal de Nível Superior, CAPES), and official documents made available by the Ministry of Education and UNESCO. Although the research prioritized works published during the preceding decade, publications regarded as classics in the field of teacher education were also included because they remain fundamental theoretical references for understanding the object under investigation.

The bibliographic material was examined through thematic content analysis. According to Bardin (2016), this technique makes it possible to organize, interpret, and categorize information obtained from documents by identifying recurring meanings that help answer the research question. An exploratory reading of the selected works was initially undertaken, followed by analytical and interpretive readings that made it possible to identify categories associated with continuing education, digital competencies, active learning methodologies, blended learning, digital education, and the challenges of teaching practice.

The data were subsequently organized into thematic axes, making it possible to establish relationships among the different theoretical frameworks and normative documents. This systematization enabled an understanding of the convergences between scientific publications and educational policies concerned with the digital transformation of education, demonstrating the strategic role of continuing education in implementing innovative pedagogical practices (Nóvoa, 2022).

The interpretation of the results was based on a critical analysis of the contributions presented by the different authors, considering the specific characteristics of the Brazilian educational context and the demands imposed by digital culture. As Bacich, Tanzi Neto, and Trevisani (2015) emphasize, implementing blended learning requires structural changes in pedagogical practices, making it essential

for teachers to develop competencies related to planning, learning mediation, the use of virtual environments, and the integration of active learning methodologies.

The research also recognized that continuing education should not be restricted to technical mastery of digital tools, but should encompass pedagogical, ethical, methodological, and reflective dimensions, fostering the construction of contextualized educational practices centered on student learning. This understanding is supported by Moran (2018), who states that educational innovation depends on the articulation of technology, active learning methodologies, and teachers' professional development.

Because this was exclusively bibliographic research, no human participants were involved and no field data were collected. Submission to a Research Ethics Committee was therefore unnecessary under the guidelines of National Health Council Resolution No. 510/2016, which exempts research conducted exclusively with public-domain materials and previously published documents from ethical review (Brasil, 2016).

The methodological procedures adopted thus enable a consistent analysis of continuing education from the perspective of blended learning and digital education, providing a theoretical basis for understanding the challenges, possibilities, and contributions of this process to strengthening teachers' competencies and improving the quality of education.

RESULTS AND DISCUSSION

CONTINUING EDUCATION AND TEACHERS' DIGITAL COMPETENCIES

The analysis of the bibliographic and documentary material demonstrated that continuing education is one of the central elements in the consistent implementation of blended learning and digital education. The studies examined converge in showing that incorporating technologies into educational processes does not, by itself, produce pedagogical innovation or automatically improve learning.

Qualitative change depends on teachers' ability to align digital resources with curricular objectives, student characteristics, mediation strategies, and assessment procedures. This finding challenges technocentric conceptions that attribute to platforms, applications, and devices the power to transform education independently of the pedagogical and institutional conditions under which they are used. UNESCO (2023) cautions that evidence concerning the effects of educational technologies remains uneven and that their adoption must be evaluated according to relevance, equity, scalability, and sustainability, rather than solely on the novelty of the resources employed.

The findings also indicated that the most effective continuing education is not limited to operational training in the use of equipment or software. Although instrumental competence is necessary, it represents only one dimension of teachers' digital competence. Teachers must understand when a particular technology should be used, which learning outcomes it is intended to foster, how student participation should be monitored, and which ethical, cognitive, and social risks arise from digital mediation. The DigCompEdu framework developed by Redecker (2017) supports this interpretation by organizing educators' digital competence into six areas: professional engagement, digital resources, teaching and learning, assessment, learner empowerment, and facilitating learners' digital competence. The framework demonstrates that digital competence is not merely technical proficiency, but the ability to use technologies to enhance and innovate educational processes.

This finding has an important theoretical implication because it shifts the discussion from the material presence of technology to the quality of pedagogical action. A school may have internet access, computers, platforms, and virtual environments without substantially changing the transmissive logic of its teaching. In such situations, sophisticated digital resources merely reproduce traditional practices, including one-way exposition, standardized exercises, excessive control, and assessment centered on memorization. Modelski, Giraffa, and Casartelli (2019) argue that technology integration requires the knowledge, skills, and attitudes that allow teachers to reinterpret their practice within a cyberculture context. Simply digitizing printed materials or transferring lectures to a platform does not, in itself,

constitute high-quality digital education. Transformation occurs when technologies expand opportunities for interaction, authorship, investigation, collaboration, pedagogical differentiation, and knowledge production.

BLENDED LEARNING, PERSONALIZATION, AND PEDAGOGICAL MEDIATION

In this sense, blended learning was identified as a pedagogical conception broader than the mere alternation between in-person and remote activities. According to Bacich, Tanzi Neto, and Trevisani (2015), blended learning entails the intentional integration of in-person and digital experiences, with students exercising some degree of control over the time, place, path, or pace of learning. The review findings show that this integration can promote greater flexibility, diversification of experiences, and more individualized monitoring, but these benefits depend on rigorous pedagogical planning. Simply distributing tasks across two environments is insufficient; didactic continuity, coherence among activities, and clarity concerning the function of each environment within the learning pathway must be established.

The possibility of personalization emerged as one of the most frequently cited contributions of blended learning. Virtual environments can provide teachers with information on participation, performance, difficulties, and the pace at which students complete activities, enabling more targeted interventions. However, the critical analysis of the studies demonstrates that personalization does not mean fully individualizing education or replacing collective interaction with isolated learning paths. Pedagogically responsible personalization takes differences among students into account without weakening collaborative learning, dialogue, or the communal construction of knowledge. Moran (2018) understands active and blended learning methodologies as opportunities to reorganize times, spaces, and roles, thus encouraging greater student participation. This participation, however, must be accompanied by teacher guidance, clear objectives, and coherent assessment practices.

The literature analyzed also indicated that student autonomy does not emerge automatically from exposure to technology. Everyday familiarity with social networks, applications, and mobile devices is not equivalent to competence in autonomous learning within digital environments. Students may have difficulty selecting reliable sources, organizing routines, managing time, understanding instructions, producing original content, and monitoring their own learning. Teachers therefore retain a decisive role in blended learning, although their work is reconfigured. Rather than disappearing or losing relevance, they assume more complex functions involving planning, curation, mediation, monitoring, feedback, and the organization of meaningful experiences.

This reconfiguration runs counter to discourses that associate technological innovation with the replacement of teachers' work. The analysis suggests the opposite: the greater the complexity of the digital ecosystem, the more necessary qualified professional practice becomes. The Organisation for Economic Co-operation and Development emphasizes that effective digital systems depend on governance, infrastructure, interoperability, high-quality resources, and professional development and cannot be reduced to the isolated acquisition of technologies (OECD, 2023). Teachers must assess the appropriateness of tools, interpret educational data, protect personal information, address misinformation, and ensure that the resources used serve legitimate pedagogical purposes.

Assessment emerged as one of the weakest dimensions of the digitalization of education. Many teachers use technology to present content or distribute tasks while retaining assessment models centered on standardized responses and outcomes. Blended learning requires a process-oriented conception of assessment capable of bringing together evidence produced at different times and in different environments. Digital records can help monitor learning, provided they are not interpreted mechanically. The number of accesses, time spent online, and completion of activities do not necessarily represent conceptual understanding, intellectual engagement, or authorship. Teachers must combine digital indicators with observation, dialogue, analysis of student work, and qualitative feedback.

CHALLENGES OF DIGITAL TRANSFORMATION: INFRASTRUCTURE, INEQUALITIES, AND ETHICS

The use of educational data also presents risks that must be addressed in continuing education. Digital monitoring can facilitate early interventions, but it can also result in excessive surveillance, premature classifications, and decontextualized interpretations. Pedagogical analysis cannot be replaced by automated metrics. Data should support professional judgment rather than determine decisions in isolation. The OECD (2023) recognizes that intelligent technologies can free up teachers' time and support students requiring greater attention, but this depends on transparent systems, clearly defined pedagogical objectives, and the professional capacity to interpret the information generated.

The review also demonstrated that inequalities in access remain a structural obstacle to consolidating blended learning. The availability of equipment does not resolve disparities involving connection quality, the sharing of devices among family members, physical study conditions, and mastery of digital languages. UNESCO (2023) emphasizes that technology can expand opportunities for certain groups while simultaneously excluding others, particularly when policies disregard pre-existing socioeconomic inequalities. Blended approaches that assume permanent and uniform access can therefore deepen asymmetries by transferring to families responsibilities that should be taken into account by the educational system.

At this point, a divergence emerges between the theoretical potential of blended learning and the actual conditions under which it is implemented. Although part of the literature emphasizes flexibility and personalization, many school systems face unstable internet connections, insufficient equipment, overcrowded classrooms, excessive workloads, and a lack of technical support. This contradiction does not invalidate blended learning, but it precludes its idealization. Pedagogical innovation cannot depend exclusively on individual teachers' efforts, as this risks turning continuing education into a mechanism for holding professionals solely accountable. Demanding technological mastery without ensuring

infrastructure, planning time, support, and adequate working conditions places responsibility for resolving systemic problems upon teachers.

In examining the use of digital technologies as pedagogical resources, Aureliano and Queiroz (2023) highlight the relationship between continuing education and the possibility of integrating these resources effectively into teaching. However, education produces sustainable outcomes only when accompanied by coherent institutional policies. Schools must define priorities, ensure pedagogical support, allocate study time, and establish criteria for selecting and evaluating technologies. In the absence of these conditions, initiatives tend to become fragmented, dependent on individually motivated teachers, and vulnerable to discontinuation following administrative changes.

Another practical implication concerns recognition of the emotional dimension of professional development. The incorporation of technology can cause insecurity, resistance, and a sense of diminished competence, particularly when educational programs disregard participants' different levels of experience. Interpreting these reactions as a mere lack of interest reduces a complex phenomenon to an individual deficiency. Resistance may reflect frustrating prior experiences, lack of support, fear of exposure, excessive workloads, or legitimate disagreement regarding the appropriateness of a particular tool. A human-centered approach to professional learning must accommodate these differences without abandoning the expectation of professional development, creating gradual pathways and genuine opportunities for experimentation.

The critical analysis also demonstrated that digital education must incorporate ethical issues. The use of platforms involves data processing, image exposure, intellectual property, accessibility, security, misinformation, and the influence of commercial interests. Teachers' competence includes assessing not only what a technology makes it possible to do, but also which values, limitations, and forms of control are embedded in its operation. Recent developments in the international debate on digital competence have given greater attention to issues such as artificial intelligence, well-being, cybersecurity, rights, and sustainability, indicating that digital education must extend beyond functional mastery of tools.

PROSPECTS FOR CONTINUING TEACHER EDUCATION

Another significant finding concerns the need to contextualize continuing education. Standardized programs organized without diagnosing the concrete needs of schools and teachers tend to have limited transformative potential. Imbernón (2011) criticizes education models based on transmitting externally developed solutions because they disregard professional knowledge, institutional contexts, and the problems teachers actually experience. Continuing education must begin with the realities of schools, facilitate the analysis of authentic situations, and allow teachers to experiment with, evaluate, and reconstruct teaching strategies. This perspective does not eliminate contributions from specialists, but rejects top-down education that treats teachers merely as executors of previously defined techniques.

The studies by Santos, Jung, and Fossatti (2021) reinforce the need for a complex understanding of teacher education. According to the authors, technology does not, in itself, provide a distinctive advantage in the teaching and learning process; its contribution depends on the practices of professionals and the relationships constructed within the educational context. This approach converges with the findings of the present study by demonstrating that education must consider cognitive, emotional, relational, institutional, and cultural dimensions. Teachers do not learn merely by receiving information about a tool, but by attributing meaning to it, relating it to problems in their practice, testing it in concrete situations, and reflecting on its effects.

Collaborative education consequently emerged as a more consistent alternative than episodic and individualized initiatives. Nóvoa (2022) argues that professional education must be constructed within the profession through cooperation, shared reflection, and the strengthening of teacher communities. In digital education, such collaboration allows teachers to share materials, discuss difficulties, analyze experiences, develop assessment criteria, and construct solutions suited to the local context. Machado et al. (2021) found that technologies can also overcome pedagogical isolation by creating spaces for

interaction and professional development. This finding is important because it demonstrates that digital resources serve not only to educate students, but can also support learning networks among educators.

Nevertheless, the existence of virtual communities or exchange groups does not guarantee critical education. Collaborative spaces may reproduce superficial practices when they focus on the indiscriminate sharing of tools and activities without evaluating their quality. Professional collaboration must be guided by relevant pedagogical problems, evidence of learning, and analysis of implementation conditions. The rapid circulation of digital resources can foster a culture of consuming novelty in which applications are adopted because of their popularity, appearance, or convenience rather than their curricular relevance. Continuing education must therefore develop curation skills, enabling teachers to examine the authorship, accessibility, reliability, data protection, age appropriateness, and pedagogical potential of materials.

In theoretical terms, the results make it possible to understand continuing education as a situated, reflective, collaborative, and ethically oriented process of professional development. It is not a matter of accumulating courses or certificates, but of expanding teachers' ability to interpret problems, make informed decisions, and reconstruct practices. Tardif (2014) notes that teachers' knowledge is plural and results from the articulation of education, curriculum, experience, and professional relationships. Education for blended learning must engage with this knowledge, recognizing that teachers do not begin the process as empty vessels, but as professionals whose experiences, conceptions, and criteria have developed throughout their careers.

From a practical perspective, the findings suggest that continuing education programs must combine competency diagnosis, pedagogical foundations, guided experimentation, monitoring, collaboration, and assessment of effects on learning. One-off initiatives may raise participants' awareness but rarely produce lasting changes. Progressive educational pathways must be organized in which teachers plan interventions, implement them, collect evidence, discuss results, and revise their decisions.

Institutions must understand that errors and adjustments are part of the innovation process, avoiding both the immediate imposition of tools and their adoption without criteria.

In summary, the results discussed demonstrate that blended learning and digital education have the potential to expand flexibility, participation, authorship, and the personalization of learning, but this potential is conditioned by the quality of teacher education and by institutional conditions. Technology neither eliminates the historical problems of education nor, by itself, compensates for inequalities, curricular weaknesses, or the deterioration of working conditions. When guided by pedagogical objectives, ethical criteria, evidence, and a commitment to inclusion, it can strengthen teachers' work and diversify learning experiences. When adopted as an automatic response to the demand for innovation, it tends to reproduce traditional practices, intensify inequalities, and increase professional workloads. Continuing education must therefore be conceived as a permanent policy integrated into the pedagogical project, rather than as an emergency intervention or peripheral training. Its overarching purpose must be to ensure that teachers and students participate critically in digital culture, using technologies not as ends in themselves, but as instruments subordinate to human development, knowledge construction, and the right to learn.

CONCLUSION

This study aimed to analyze the importance of continuing education from the perspective of blended learning and digital education, considering the challenges and possibilities arising from the digital transformation experienced by contemporary education. The analysis of scientific literature and normative documents demonstrated that continuing education is a strategic element in strengthening teachers' pedagogical and digital competencies, enabling the construction of more innovative and inclusive educational practices aligned with the demands of the knowledge society.

The results showed that simply introducing digital technologies into school environments does not guarantee improvements in the quality of learning. The effectiveness of blended learning depends on teachers' ability to integrate technological resources, active learning methodologies, mediation strategies, and assessment processes consistent with educational objectives. In this sense, the study confirmed that continuous professional development is indispensable if teachers are to use technology critically, ethically, and in pedagogically meaningful ways.

The research also demonstrated that continuing education must extend beyond models centered exclusively on technical training in the use of digital tools. Developing teachers' competencies requires reflective, collaborative, and contextualized educational processes capable of articulating theory and practice, promoting exchanges of experience among professionals, and fostering the collective construction of solutions to the everyday challenges faced by schools.

Another relevant aspect identified concerns the structural limitations that remain present in Brazilian education. Problems involving technological infrastructure, connectivity, unequal access to digital resources, and insufficient investment in public policies continue to impede the consolidation of blended learning in different school contexts. Implementing innovative pedagogical practices therefore depends not only on teachers' commitment, but also on institutional and governmental policies that ensure adequate conditions for teaching and for the development of digital competencies.

From a practical perspective, the study concludes that continuing education should be conceived as a permanent policy for recognizing and supporting teachers, integrated into educational institutions' pedagogical projects and grounded in scientific evidence. Educational programs must address pedagogical planning, active learning methodologies, learning assessment, digital resource curation, ethical technology use, and the development of professional autonomy, enabling teachers to serve as learning mediators in both in-person and digital environments.

Finally, this study is acknowledged to have limitations because it is exclusively bibliographic and grounded in theoretical frameworks and official documents, without empirical investigation in

educational institutions. Future research should therefore conduct field studies involving Basic Education teachers, school administrators, and students to examine how continuing education has been implemented in practice and what effects it has on learning, the development of digital competencies, and the quality of educational processes. Such studies may expand knowledge of the subject and contribute to improving public policies for teacher education and the digital transformation of Brazilian education.

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