

CONTEMPORARY CHALLENGES IN PUBLIC BASIC EDUCATION: AN INTEGRATIVE PERSPECTIVE ON PROFESSIONAL DEVELOPMENT, INNOVATION, LEARNING AND SCHOOL COEXISTENCE

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Abstract

Public Basic Education faces technological, pedagogical, informational, and relational challenges that cannot be adequately addressed through isolated responses. This qualitative, documentary, descriptive-analytical, and comparative study analyzes five doctoral theses in Basic Education and identifies convergent dimensions related to professional development, infrastructure and access, mediation, inclusion and equity, institutional governance, and the sustainability of educational actions. The corpus comprises studies on school library automation, teacher professional development and ICTs, post-pandemic learning difficulties, school conflict and a culture of peace, and artificial intelligence in education. Objectives, methods, findings, conclusions, limitations, and proposed products were organized in an analytical matrix and subjected to thematic comparison. Six cross-cutting dimensions emerged: continuing professional development; infrastructure and conditions for participation; human mediation;

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inclusion, equity, and rights protection; governance and institutional support; and monitoring, evaluation, and sustainability. Their articulation led to a conceptual synthesis termed the Integrated Institutional Cycle. The findings indicate that sustainable educational transformation depends less on the isolated adoption of technologies programs than on the coordinated interaction of institutional conditions, professional competencies, mediation, equity, governance, and continuous monitoring.

Keywords: Basic Education, Continuing Professional Development, Educational Governance, Educational Innovation, Equity.

INTRODUCTION

Contemporary Basic Education is undergoing technological, pedagogical, social, and relational transformations that are reshaping the conditions under which teaching, learning, access to information, educational service organization, and interpersonal relationships within schools take place. The digitalization of educational practices, inequalities in access, the educational impacts of the COVID-19 pandemic, the growing attention to school coexistence, and, more recently, the widespread adoption of artificial intelligence systems demonstrate the multidimensional nature of the challenges currently faced by educational institutions.

This complexity requires caution regarding technologically deterministic interpretations. The Global Education Monitoring Report 2023 warns that the role of technology in education must be assessed in terms of relevance, equity, sustainability, and evidence of educational benefit rather than solely on the basis of its availability (UNESCO, 2023a). From a convergent perspective, the OECD (2023) conceptualizes digital education as an ecosystem in which infrastructure, data, professional capacities, governance, and trust are interconnected. Accordingly, equipment and digital platforms constitute important conditions, but they are not sufficient in themselves to generate pedagogical innovation.

Educational innovation, therefore, should not be equated with technological novelty. In discussing

information ecology, Davenport (1998) had already highlighted the limitations of approaches centered exclusively on technology. Choo (2006) further argues that information and knowledge acquire value when they are incorporated into processes of interpretation, learning, and decision-making. In the educational field, Masetto (2012) emphasizes pedagogical mediation as the component that provides intentionality to the use of technologies, whereas Libâneo (2013) situates planning, objectives, methods, and assessment as interconnected dimensions of pedagogical practice.

The central role of mediation is also grounded in Freirean thought. By asserting that “teaching is not transferring knowledge” (Freire, 2021, p. 47, translation by the authors), Freire shifts education away from a transmission-based logic toward a practice that creates opportunities for the production and construction of knowledge.

This perspective is particularly relevant to contemporary educational debates because digital systems, libraries, platforms, and artificial intelligence may broaden opportunities for access and knowledge production, but they do not eliminate the need for professional judgment, dialogue, and the active participation of educational subjects.

Professional development therefore becomes a strategic dimension. Tardif (2014) demonstrates that teachers’ professional knowledge is plural and develops through the interaction of formal education, professional experience, and the context of practice. Nóvoa and Alvim (2022), in discussing recent challenges facing the teaching profession, reinforce the need to strengthen professional communities and institutional environments capable of sustaining educational change. In the context of digital education, this requirement is further developed in international frameworks: UNESCO (2024) proposes an AI competency framework for teachers that integrates a human-centered mindset, ethics, technological foundations, pedagogy, and professional development, while the European Commission (2022) advises educators to consider opportunities, risks, data, transparency, and accountability simultaneously.

In the field of school libraries, the same systemic perspective is explicitly evident. The 2025 IFLA–UNESCO School Library Manifesto states that the school library program improves and enhances

teaching and learning when qualified professionals, collections, spaces, equipment, services, and collaboration are brought together (IFLA; UNESCO, 2025). Campello (2009) positions the school library within the development of information literacy and learning; Almeida Júnior (2015) conceptualizes information mediation as an intervention in the relationship between individuals and information; and Lankes (2016) shifts the focus of librarianship from collections toward knowledge creation and community empowerment.

Challenges related to learning likewise demonstrate that educational problems cannot be reduced to individual factors. Research on learning losses resulting from school closures during the pandemic has documented substantial and unequal effects (Engzell; Frey; Verhagen, 2021). Within school settings, learning recovery requires diagnostic assessment, planning, differentiated interventions, continuous monitoring, and institutional support. An interpretation focused exclusively on student performance risks obscuring the social, family-related, emotional, technological, and organizational factors that shape learning.

The relational dimension is equally constitutive of the school experience. School coexistence, belonging, respect, violence prevention, and the capacity to engage in dialogue across differences affect the conditions for participation and learning. Vygotsky (2007) provides a theoretical basis for understanding the social nature of developmental processes, while Freire (2021) associates autonomy, dialogue, and respect with an ethically grounded educational practice. From this perspective, school conflicts should not be regarded merely as disciplinary incidents but as phenomena requiring institutional understanding, appropriate mediation, and protection networks.

Artificial intelligence further intensifies these tensions. UNESCO (2023b) recommends a human-centered approach to generative AI in education, emphasizing privacy, equity, pedagogical validation, and the development of human capabilities. The European Commission (2022) similarly stresses that the use of AI and data in schools requires critical understanding, ethical awareness, and institutional accountability. AI therefore does not introduce an entirely new educational problem; rather, it makes

increasingly visible issues that were already embedded in digital transformation, including professional development, mediation, governance, equity, and assessment.

Against this background, the present article brings together five doctoral studies addressing distinct objects of investigation: automation and information management in school libraries; teacher professional development, ICTs, and digital inclusion; post-pandemic learning difficulties; school conflicts, violence, and a culture of peace; and artificial intelligence in Basic Education. Bringing these studies into dialogue does not imply equivalence among the phenomena investigated, nor does it authorize the aggregation of their samples or the reanalysis of their primary data as though they constituted a single study.

The scientific interest lies at a different analytical level: determining whether distinct investigations identify convergent institutional conditions for addressing contemporary challenges in schools. The present study therefore constitutes a second-order comparative documentary analysis, guided by a common analytical matrix while preserving the objects, methods, and limitations of each individual thesis.⁶

The following research question was formulated: What cross-cutting dimensions emerge from the comparative analysis of five doctoral studies on contemporary challenges in Basic Education, and how can these dimensions contribute to integrated institutional responses in public schools?

Accordingly, the general objective is to comparatively analyze five doctoral studies in the field of Basic Education, identifying convergent dimensions related to professional development, infrastructure and access, mediation, inclusion and equity, institutional governance, and the sustainability of educational initiatives.

The relevance of the study lies in its potential to produce a synthesis that goes beyond the mere juxtaposition of five research topics. The interpretive hypothesis guiding the analysis is that sustainable

⁶ In this article, the expression “second-order comparative documentary analysis” refers to the comparative examination of findings, conclusions, limitations, and propositions already consolidated in the five doctoral theses, without access to or reanalysis of their original primary datasets. The expression is used descriptively to characterize the analytical level adopted in this study.

educational responses do not result from isolated technologies, programs, or interventions, but rather from the articulation of institutional conditions, professional development, human mediation, equity, governance, and continuous monitoring. This hypothesis is examined throughout the following sections without transforming analytical convergence into statistical generalization.

METHODOLOGY

The study is characterized as qualitative, documentary, descriptive-analytical, and comparative research. A qualitative approach was adopted because the objective is not to statistically aggregate results, but rather to understand similarities, differences, complementarities, and limitations among studies conducted in distinct contexts. Minayo, Deslandes, and Gomes (2022) emphasize the relevance of qualitative approaches to social phenomena shaped by meanings, relationships, and contexts, while Creswell (2014) highlights their potential for the systematic interpretation of complex phenomena.

The documentary corpus consists of five doctoral theses completed in 2026 in the field of Education Sciences. The studies were intentionally selected on the basis of analytical interfaces among investigations addressing contemporary challenges in Basic Education. The corpus comprises Souza's (2026) study on the implementation of the Pergamon System in a school library; Faria's (2026) thesis on teacher professional development, social policies, and ICTs; Henschel's (2026) research on post-pandemic learning difficulties; Oliveira's (2026) study on school conflicts, violence, and a culture of peace; and Amorim's (2026) research on artificial intelligence, pedagogical practices, teacher professional development, and ethical challenges.

The theses were treated as autonomous documentary units. No access to or reanalysis of the primary datasets derived from questionnaires, interviews, observations, or other research instruments used by the original researchers was undertaken. This methodological decision preserved the original research designs, the contexts in which the data were produced, the ethical boundaries of the individual studies, and the different levels of evidence provided by each investigation.

To ensure comparability, ten units of analysis were established: object of investigation; research problem and objectives; educational context; methodological design; participants or corpus; instruments and procedures; main findings; conclusions; limitations; and contributions, products, or propositions. This information was extracted and organized into a comparative analytical matrix.

The analysis followed a thematic and categorical approach informed by Bardin (2016) and was conducted in three stages. First, an analytical reading of the five theses was performed, followed by the standardized extraction of relevant information. Second, convergences, complementarities, specificities, and divergences were identified. Third, the findings were reorganized into cross-cutting categories to interpret educational conditions shared across distinct research objects.

Evidence was considered convergent when findings originating from different research problems pointed to a similar educational condition; complementary when different perspectives expanded the understanding of the same dimension; and specific when findings remained associated with the particular object or context of a single thesis. Divergences were preserved rather than reinterpreted as inconsistencies. This procedure prevented the homogenization of findings derived from empirical field studies and bibliographic/documentary research.

The comparative process resulted in six analytical categories: (a) continuing professional development and professional competencies; (b) infrastructure, access, and conditions for participation; (c) pedagogical, informational, and relational mediation; (d) inclusion, equity, and rights protection; (e) governance, management, and institutional support; and (f) monitoring, evaluation, and sustainability.

From an ethical standpoint, the article uses exclusively consolidated results reported in the academic documents. No participant from the original studies was reidentified, and the empirical datasets were not recombined. The proposed products presented in the theses were classified according to their status: empirically observed results were distinguished from models, programs, and workshops that had not yet been implemented or validated. This distinction is essential to prevent unsupported claims of effectiveness.

The methodological process can therefore be summarized as follows: corpus construction; analytical reading; standardized data extraction; development of the comparative matrix; cross-cutting thematic coding; identification of convergences, complementarities, specificities, and divergences; integrative interpretation; and formulation of a conceptual synthesis for discussion.

RESULTS AND DISCUSSION

The comparative analysis showed that, despite addressing different research objects and employing distinct methodological designs, the five studies converge on a set of structural and institutional conditions required to address contemporary challenges in Basic Education. The most significant result does not lie in the recurrence of identical findings, but rather in the repeated identification of relationships among people, resources, mediation, rights, management, and monitoring. The six categories discussed below constitute the analytical framework through which these relationships are interpreted.

CONTINUING PROFESSIONAL DEVELOPMENT AND PROFESSIONAL COMPETENCIES

Professional development constitutes one of the strongest convergences across the corpus. In Souza (2026), the implementation of the Pergamum System demonstrated that automation and the reorganization of work processes depend on the acquisition of new procedural knowledge, ongoing support, and change management. Within the MIRABE framework, role-specific professional development and continuous monitoring are presented as conditions for preventing capacity-building initiatives from being reduced to one-time technical training. This finding is consistent with Davenport (1998) and Choo (2006), who argue that information systems must be accompanied by appropriate organizational practices and human capabilities.

Faria (2026) extends this discussion by arguing that teachers' digital competence cannot be reduced to technical proficiency. The study associates professional development with the ability to select,

plan, adapt, evaluate, and critically reflect on the use of technologies, a perspective consistent with Tardif (2014) and Nóvoa and Alvim (2022). Importantly, however, the Format Digital Program was developed as a theoretically grounded applied proposal and was not implemented as an intervention whose effectiveness had been empirically demonstrated.

In Henschel (2026), professional development assumes a pedagogical function oriented toward diagnosis, learning recovery, and continuous monitoring. The findings indicate that teachers and schools employ reinforcement activities, parallel recovery strategies, adapted learning activities, and diagnostic assessment. However, these practices require systematic organization, collective planning, adequate resources, and support from pedagogical coordination. Libâneo (2013) supports this interpretation by conceptualizing teaching as an intentional activity that integrates objectives, methods, and assessment.

Oliveira (2026) introduces relational and socio-emotional competencies into the analysis. Conflict prevention, dialogue, peer education, and the promotion of a culture of peace require specific professional development and an institutional capacity to distinguish situations that may appropriately involve mediation from those requiring immediate protection and adult intervention. Professional development therefore also entails ethical responsibility and an understanding of the limits of mediation.

Amorim (2026) adds the critical and ethical dimensions associated with artificial intelligence. The study identifies the potential of AI to support lesson planning, material adaptation, and accessibility while emphasizing concerns related to authorship, bias, privacy, verification, and the preservation of meaningful intellectual participation. These findings are consistent with UNESCO's human-centered approach (2023b; 2024) and the guidelines issued by the European Commission (2022).

The comparative analysis therefore suggests that the competencies required in contemporary schools are multidimensional: technical, pedagogical, digital, informational, relational, and ethical. Technology constitutes the central object of three of the theses but is not the common denominator across the corpus. Rather, the cross-cutting element is the professional and institutional capacity to interpret contexts, make informed decisions, and adapt practices in response to complex educational challenges.

INFRASTRUCTURE, ACCESS, AND CONDITIONS FOR PARTICIPATION

The second analytical category demonstrates that infrastructure must be understood in broader terms. In Souza (2026), equipment, connectivity, technical support, data quality, and operational continuity affected the functioning of the school library system. The implementation experience showed that the mere availability of software does not eliminate network limitations, technical processing requirements, inconsistencies in registration data, or constraints on service capacity.

Faria (2026) situates infrastructure within the broader field of digital inclusion and demonstrates that access cannot be reduced to device ownership. Connectivity, accessibility, technical support, competencies, socioeconomic conditions, and opportunities for meaningful educational use all affect participation. This interpretation is consistent with UNESCO (2023a), which recommends assessing educational technology according to contextual appropriateness and equity, and with the OECD (2023), which describes the digital education ecosystem as dependent on interconnected infrastructure and governance.

Henschel (2026) shows that inequalities experienced during and after the pandemic were also manifested through inadequate internet access, insufficient equipment, unsuitable learning environments, and limited educational support. A lack of pedagogical resources constrains individualized responses and reinforces the need to understand material conditions as part of the learning problem itself rather than as an external variable.

Oliveira (2026) adds a relational dimension to infrastructure through the need for permanent spaces for listening, dialogue, mediation, and support. This contribution broadens the category by demonstrating that appropriate institutional environments encompass not only physical spaces but also organizational mechanisms that enable safe participation and collaborative problem-solving.

In Amorim (2026), access to artificial intelligence is associated with platforms, data, accessibility, and digital inequality. Infrastructure therefore also encompasses security, privacy, and the conditions necessary for responsible use. Taken together, the findings indicate that material, technological,

informational, organizational, and relational resources constitute an interconnected foundation for educational participation.

PEDAGOGICAL, INFORMATIONAL, AND RELATIONAL MEDIATION

Mediation is the category that most clearly challenges automated or technology-driven interpretations of educational change. In the school library context, automation expanded the possibilities for searching, locating, and organizing information. However, frequency of use and pedagogical appropriation cannot be inferred solely from the availability of an online catalog. Campello (2009), Almeida Júnior (2015), and Lankes (2016) help explain why potential access must be transformed into meaningful learning experiences through mediation and user education.

Faria (2026) reaches a conceptually similar conclusion in the field of ICTs: teachers need to select technologies according to pedagogical objectives rather than adapting teaching practices to whatever technological tool happens to be available. Masetto (2012) supports this perspective by conceptualizing pedagogical mediation as an intentional process that promotes participation and knowledge construction.

In Henschel (2026), mediation takes the form of pedagogical monitoring, diagnosis, listening, and adaptation. Teachers remain central to this process, but they cannot be held individually responsible for learning difficulties shaped by social, emotional, family-related, and institutional factors. From a Freirean perspective, education requires the creation of possibilities and recognition of learners as active subjects rather than the unilateral transmission of content (Freire, 2021).

Oliveira (2026) explicitly addresses conflict mediation. Peer education may contribute to the management of minor conflicts when appropriate training, supervision, and clearly defined boundaries are in place. Situations involving violence, intimidation, or power imbalances, however, require adult intervention and protective measures. Mediation, therefore, should not be understood as neutrality or as the transfer of institutional responsibility to students; it is a practice governed by ethical and institutional criteria.

Amorim (2026) demonstrates that artificial intelligence increases rather than eliminates the need for human mediation. Verifying AI-generated responses, identifying bias, preserving authorship, and determining appropriate educational uses all require professional judgment. UNESCO (2023b) reinforces this perspective by advocating regulation and pedagogical design grounded in a human-centered approach.

The comparative synthesis supports the proposition that the greater the technological, pedagogical, or relational complexity of an intervention, the greater the need for qualified human mediation tends to become. None of the five theses provides evidence supporting the assumption that resources, methods, or algorithms can replace the interpretive work performed by educational professionals and other participants in the educational process.

INCLUSION, EQUITY, AND RIGHTS PROTECTION

Inclusion emerges across the five studies through different dimensions: access and informational autonomy; digital inclusion and accessibility; inequalities in learning; belonging and protection from violence; and digital rights. The comparative analysis demonstrates that formal equality of provision does not necessarily ensure equitable participation.

In the school library context, democratizing access involves making collections discoverable, understandable, and effectively usable by the school community. The 2025 IFLA–UNESCO School Library Manifesto connects inclusive and equitable education with qualified professionals, physical and digital collections, equipment, services, and collaboration (IFLA; UNESCO, 2025). An automated library system therefore represents only one component of this broader institutional architecture.

Faria (2026) demonstrates that students may have access to devices while still experiencing unstable internet connectivity, shared equipment, limited digital competence, or accessibility barriers. Inclusion must therefore encompass resources, competencies, and genuine opportunities for meaningful educational use. UNESCO (2023a) likewise warns that technology may exacerbate inequalities when

conditions of access and use are asymmetrical.

Henschel (2026) shifts the discussion of equity toward learning trajectories. Post-pandemic learning difficulties cannot be attributed exclusively to individual students or their families.

Socioeconomic, emotional, technological, and institutional conditions affect educational development and require responses proportionate to identified needs.

Oliveira (2026) incorporates belonging, respect, and protection. Distinguishing conflict from violence is essential to protecting students' rights: minor disagreements may provide opportunities for educational dialogue, whereas bullying, threats, aggression, and other risk situations require protective measures and adult intervention. Student participation does not remove the institution's duty of care.

Amorim (2026) adds privacy, data protection, authorship, and algorithmic bias to the discussion. The use of AI in school settings creates new asymmetries and requires criteria to ensure that innovation does not compromise fundamental rights. The European Commission (2022) and UNESCO (2023b; 2024) converge in advocating critical competencies and principles for safe, ethical, and responsible use.

From these intersections emerges an operational understanding of equity comprising five elements: access, accessibility, learning, participation, and protection. This formulation does not erase differences among the five studies; rather, it provides a shared analytical language for assessing whether institutional changes expand or constrain educational opportunities.

GOVERNANCE, MANAGEMENT, AND INSTITUTIONAL SUPPORT

Governance constitutes the dimension through which individual initiatives can become sustainable institutional processes. In Souza (2026), MIRABE incorporates diagnosis, assignment of responsibilities, data quality, phased implementation, support, and monitoring. The implementation experience indicates that automation without governance may produce inconsistent databases, duplicated work, and operational instability even when the technology itself is functional.

Faria (2026) demonstrates that digital policies need to integrate infrastructure, professional

development, funding, accessibility, support, and monitoring. This interpretation is consistent with Ball (1994) and Mainardes (2006), who argue that educational policies are reinterpreted in practice and depend on local implementation conditions. The OECD (2023) likewise identifies governance as a central component of digital education ecosystems.

In Henschel (2026), school management and pedagogical coordination function as organizational structures for listening, collective planning, monitoring, teacher support, and engagement with families. This institutional structure helps prevent learning recovery from depending exclusively on the individual efforts of teachers.

Oliveira (2026) demonstrates that school coexistence and violence-prevention initiatives tend to lose effectiveness and continuity when they depend on occasional campaigns or on the initiative of a small number of professionals. Clear procedures, defined responsibilities, spaces for dialogue, coordination with families and protection networks, and integration with school planning and the School Political-Pedagogical Project are conditions for institutional continuity.

In Amorim (2026), governance also assumes a digital dimension through rules governing AI use, data protection, authorship, accountability, and assessment criteria. Generative technologies shift part of the issue from the individual to the institutional level because decisions concerning data and digital tools have consequences that extend beyond the practice of an individual teacher.

The comparative analysis therefore enables a distinction between operational management and educational governance. Management organizes resources, activities, and schedules; governance establishes principles, responsibilities, boundaries, decision-making criteria, and monitoring mechanisms. Sustainability depends on the articulation of both dimensions.

MONITORING, EVALUATION, AND SUSTAINABILITY

The sixth category demonstrates that diagnosis, monitoring, and evaluation should not be treated as isolated stages conducted only after an intervention has been completed. In Souza (2026), MIRABE

proposes phased implementation, progression criteria, operational indicators, quality control, and stabilization procedures. Success is not inferred merely from the presence of the system but assessed through evidence concerning its functioning and appropriation.

Faria's (2026) Formar Digital Program includes diagnosis, professional development, practical application, knowledge sharing, and evaluation. Because the program was not implemented, these components represent a proposed sustainability framework rather than empirical evidence of effectiveness. Preserving this distinction is methodologically essential.

In Henschel (2026), monitoring assumes a pedagogical character. The study identified weaknesses in the systematic monitoring of learning difficulties and emphasized the need for records, targeted interventions, diagnostic assessment, and collective planning. These findings indicate that identifying learning gaps without subsequently monitoring progress limits the school's capacity for evidence-informed decision-making.

Oliveira (2026) proposes School Coexistence Indicators within the CONVIVER Method, which likewise had not yet been empirically validated. Amorim (2026), in turn, presents an AI professional development workshop whose effectiveness would require future implementation, contextual adaptation, and evaluation. Thus, these proposed products reinforce the analytical importance of monitoring but must not be interpreted as empirically validated outcomes. Their existence demonstrates that the original studies identified monitoring and evaluation as necessary components of future implementation; it does not establish that the proposed interventions are effective.

The comparative synthesis reveals a recurring institutional sequence: diagnosis → planning → implementation → monitoring → evaluation → adjustment → continuity. Sustainability, from this perspective, no longer refers merely to the temporal persistence of an initiative. Instead, it denotes an institution's capacity to learn from evidence and continuously revise its own practices.

INTEGRATIVE SYNTHESIS: AN INSTITUTIONAL CYCLE FOR CONTEMPORARY EDUCATIONAL RESPONSES

The articulation of the six analytical categories gives rise to the principal original contribution of this article: an Integrated Institutional Cycle comprising the conditions required to address contemporary challenges in Basic Education.

The conceptual synthesis can be represented as follows: Institutional Conditions and Infrastructure → Professional Development → Pedagogical, Informational, and Relational Mediation → Inclusion, Equity, and Rights Protection → Governance and Institutional Coordination → Monitoring and Evaluation → Adjustment of Actions → Renewed Diagnosis.

The Integrated Institutional Cycle does not constitute a universal model, a standardized intervention protocol, or an empirically validated framework. Its purpose is analytical and conceptual: to make visible the recurring relationships identified through the comparative examination of studies addressing distinct educational phenomena.

Within the cycle, the first dimension provides resources and enabling conditions; the second develops professional competencies; the third transforms resources and competencies into meaningful educational practice; the fourth establishes criteria for equity, participation, and protection; the fifth institutionalizes principles and responsibilities; and the sixth generates evidence to inform continuity, modification, or renewed intervention.

The interdependence among these dimensions is critical. Infrastructure without professional development may result in underutilization; professional development without adequate institutional conditions may restrict the practical application of competencies; mediation without equity may reproduce existing inequalities; innovation without governance may become excessively dependent on individual actors; and implementation without monitoring makes it difficult to distinguish administrative continuity from meaningful educational outcomes.

This synthesis also reframes the meaning of innovation across the corpus. School library

automation, ICTs, and artificial intelligence represent different forms of technological innovation, whereas learning recovery and the promotion of a culture of peace involve primarily pedagogical and relational challenges. Nevertheless, all five studies indicate that meaningful innovation occurs when changes in working conditions, participation, learning, mediation, and management are institutionally coordinated.

The human dimension, therefore, does not become less important in the context of digital transformation. On the contrary, increasingly complex systems require professionals capable of interpreting information, making informed decisions, mediating relationships and learning processes, and responding ethically to emerging challenges. This conclusion brings Freire (2021), Tardif (2014), Masetto (2012), Lankes (2016), and recent UNESCO frameworks (2023b; 2024) into conceptual dialogue around a common principle: technologies and institutional structures acquire educational meaning through situated human action.

Table 1
Dimensions of the Integrated Institutional Cycle

Dimension	Cross-cutting synthesis	Risk when addressed in isolation
Institutional conditions and infrastructure	Resources, connectivity, information, spaces, support, and accessibility provide the enabling conditions for educational action.	Provision of resources without effective use or continuity.
Professional development	Technical, pedagogical, digital, informational, relational, and ethical competencies.	One-time training without sustainable changes in practice.
Human mediation	Professionals and educational participants provide educational intentionality to technologies, information, and relationships.	Automation or decontextualized intervention.
Governance and institutional support	Responsibilities, policies, planning, coordination, quality assurance, and support.	Dependence on individual initiatives and discontinuity.
Monitoring and sustainability	Diagnosis, indicators, monitoring, evaluation, and adjustment.	Continuation of initiatives without sufficient evidence of effective functioning.

Source: Prepared by the authors based on the comparative analysis of the five doctoral theses (2026).

CONCLUSION

This study comparatively analyzed five doctoral studies addressing contemporary challenges in Basic Education and identified six cross-cutting dimensions: continuing professional development and professional competencies; infrastructure, access, and conditions for participation; pedagogical, informational, and relational mediation; inclusion, equity, and rights protection; governance, management, and institutional support; and monitoring, evaluation, and sustainability.

In response to the research question, the findings indicate that these dimensions help explain why isolated interventions tend to have limited reach. The results do not suggest that a single solution can be uniformly applied to school libraries, ICTs, learning difficulties, school coexistence, and artificial intelligence. Rather, they indicate that consistent educational responses depend on an institutional architecture capable of integrating resources, competencies, mediation, rights, coordination, and organizational learning.

Continuing professional development emerged as a particularly strong point of convergence. Although the competencies required vary according to the object of each study, all five investigations indicate that sustainable change depends on professionals capable of learning, interpreting contexts, and reorganizing their practices. Infrastructure also emerged as a multidimensional concept encompassing connectivity, informational resources, physical and organizational spaces, accessibility, support, and conditions for participation.

Human mediation constitutes another central finding. School library systems, ICTs, artificial intelligence, learning recovery strategies, and school coexistence practices acquire educational meaning only when integrated into pedagogical and institutional decision-making. The analysis reinforces the understanding that increasing technological or relational complexity does not reduce the need for mediation; on the contrary, it increases the importance of professional judgment, ethical responsibility, and contextualized decision-making.

Equity connects the five fields by shifting attention from the formal provision of opportunities to

the actual conditions under which individuals are able to participate. Access, accessibility, learning, belonging, privacy, and protection therefore become criteria for evaluating the quality of educational transformations. Governance and monitoring complete this institutional architecture by enabling individual initiatives to become shared processes that can be systematically monitored, evaluated, and revised.

As its principal original contribution, this article proposes the Integrated Institutional Cycle, organized around institutional conditions and infrastructure, professional development, mediation, inclusion and equity, governance, monitoring, and adjustment. The cycle is not presented as an empirically validated model; rather, it constitutes an analytical-conceptual synthesis derived from comparative documentary analysis. Its contribution lies in providing a shared analytical language for examining the conditions that may support sustainable educational change without erasing the specific characteristics of the different research objects.

The study has several limitations. The corpus was intentionally selected and consists of only five doctoral theses; the methodological designs are heterogeneous; three studies include fieldwork, whereas two are bibliographic/documentary in nature; and several proposed products have not yet been implemented or validated. The samples from the original studies were not aggregated, and the findings do not support statistical generalization to Brazilian Basic Education as a whole.

The transferability of evidence from each thesis must also be considered carefully. Findings derived from case studies or specific regional contexts should be interpreted in relation to the conditions under which they were produced. Likewise, programs, workshops, and models proposed in the original studies require implementation and empirical testing before any claims regarding their effectiveness can be made.

Future research may empirically examine the Integrated Institutional Cycle across different education systems and educational levels, expand the corpus to include additional doctoral theses, master's dissertations, and international studies, and develop indicators capable of examining

relationships among the six dimensions. Future studies should also implement and evaluate the products proposed in the original research while adopting evaluation designs capable of distinguishing among process, outcomes, and context.

In conclusion, contemporary challenges in Basic Education require responses that are less fragmented and more institutionally coordinated. Technologies, pedagogical practices, information services, and school coexistence strategies may contribute to educational improvement, but their sustainability depends on how resources, people, rights, management, and evaluation are combined. The main contribution of this article is to make this institutional architecture visible and to offer it as a conceptual hypothesis for further investigation, contextual adaptation, and refinement across diverse educational settings.

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