

Artificial Intelligence and education: a bibliographic review on the possibilities and risks in the use of digital tools by beginning teachers^I

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Abstract

This study analyzes the possibilities and risks of using Artificial Intelligence (AI) by beginning teachers in Brazilian basic education. The objective is to understand how these tools impact teaching practice in the early years of a career, balancing technological innovation and ethical dimensions. The methodology consisted of an exploratory qualitative research based on a bibliographic and documentary review of scientific productions published between 2024 and 2025. Results demonstrate that, although AI assists in pedagogical planning, formative assessment, and personalized teaching, its implementation faces challenges such as the need for critical digital literacy and ethical teacher training. It is concluded that the use of AI must be grounded in public policies that ensure equity and in the principles of humanizing education, as advocated by the LDB and the BNCC, ensuring teacher autonomy and student protagonism.

Keywords: Artificial intelligence in education; beginning teachers; digital pedagogical practices; digital technologies; brazilian basic education.

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Inteligência Artificial e educação: uma revisão bibliográfica sobre as possibilidades e riscos no uso de ferramentas digitais por professores iniciantes

Resumo

Este estudo analisa as possibilidades e os riscos do uso da Inteligência Artificial (IA) por professores iniciantes na educação básica brasileira. O objetivo é compreender como essas ferramentas impactam a prática docente nos primeiros anos de carreira, equilibrando inovação tecnológica e dimensões éticas. A metodologia consistiu em uma pesquisa qualitativa de caráter exploratório, baseada em revisão bibliográfica e documental de produções científicas publicadas entre 2024 e 2025. Os resultados demonstram que, embora a IA auxilie no planejamento pedagógico, na avaliação formativa e na personalização do ensino, sua implementação enfrenta desafios como a necessidade de letramento digital crítico e formação ética docente. Conclui-se que o uso da IA deve estar fundamentado em políticas públicas que garantam a equidade e nos princípios de uma educação humanizadora, conforme preconizado pela LDB e pela BNCC, assegurando a autonomia do professor e o protagonismo do estudante.

Palavras-chave: Inteligência artificial na educação; docência em início de carreira; práticas pedagógicas digitais; tecnologias digitais; educação básica brasileira.



Inteligencia Artificial y educación: una revisión bibliográfica sobre las posibilidades y riesgos en el uso de herramientas digitales por docentes principiantes

Resumen

Este estudio analiza las posibilidades y los riesgos del uso de la Inteligencia Artificial (IA) por docentes principiantes en la educación básica brasileña. El objetivo es comprender cómo estas herramientas impactan la práctica docente en los primeros años de carrera, equilibrando la innovación tecnológica y las dimensiones éticas. La metodología consistió en una investigación cualitativa de carácter exploratorio, basada en la revisión bibliográfica y documental de producciones científicas publicadas entre 2024 y 2025. Los resultados demuestran que, aunque la IA auxilia en el planeamiento pedagógico, en la evaluación formativa y en la personalización de la enseñanza, su implementación enfrenta desafíos como la necesidad de alfabetización digital crítica y formación ética docente. Se concluye que el uso de la IA debe estar fundamentado en políticas públicas que garanticen la equidad y en los principios de una educación humanizadora, conforme a lo preconizado por la LDB y la BNCC, asegurando la autonomía del profesor y el protagonismo del estudiante.

Palabras clave: Inteligencia artificial en la educación; docentes principiantes; prácticas pedagógicas digitales; tecnologías digitales; educación básica brasileña.



Introduction

Following the popularization of generative artificial intelligence after the launch of ChatGPT in 2023, the educational field began to experience an accelerated transformation in its teaching practices and conceptions. The growing presence of these systems in schools has redefined ways of planning, teaching, and evaluating, while simultaneously raising ethical, pedagogical, and epistemological debates regarding the boundaries between human mediation and algorithmic performance. This discussion becomes even more relevant when it involves early-career teachers who, because they are in the process of constructing their teaching identity, face the challenge of integrating emerging technologies into a practice that is still consolidating (Machado, 2025; Ritt, 2024).

The Brazilian educational context, guided by the Law of Guidelines and Bases of National Education (LDB No. 9,394/1996) and the National Common Curricular Base (Brasil, 2017), values the integral formation of the student and the promotion of cognitive, socio-emotional, and digital competences. These documents emphasize that technology must act as a means to foster meaningful learning, rather than as a substitute for the pedagogical relationship. Thus, the use of artificial intelligence (AI) must be interpreted as a supporting instrument for educational practice, capable of enhancing teaching work and expanding student autonomy, provided that its use is guided by ethical and humanizing principles (Batista; Lima; Camargo, 2025; Silva, 2025).

According to Santos (2024) and Barroso and Mello (2024), the impact of AI in education manifests in multiple dimensions: in the automation of administrative tasks, in the personalization of learning, and in the support for the production of pedagogical materials. These resources can expand the teacher's pedagogical time by reducing repetitive and bureaucratic activities, allowing them to focus their attention on student monitoring and instructional planning. However, this same technological facility brings significant risks,



such as reliance on automated responses, the reduction of reflective exercise, and the weakening of teaching authorship—understood here as the loss of the capacity to produce, interpret, and decide pedagogically without delegating such processes to AI. This risk is discussed by Melo, Guerra, and Silva (2024).

Furthermore, Silva (2025) warns that technical mastery of AI tools is not sufficient to guarantee a conscious educational practice. It is necessary to promote the digital and ethical literacy of educators so that they understand the functioning, limits, and impacts of these technologies. Without this preparation, the use of AI can reinforce educational inequalities, reproduce algorithmic biases, and compromise student privacy, as highlighted by Bender et al. (2021) and O’Neil (2020) in their studies on the social risks of algorithmic systems and digital responsibility.

In the case of beginning teachers, the relationship with AI is crossed by a tension between the support it offers and the risks it entails. On one hand, intelligent tools facilitate lesson planning, the creation of activities, and the analysis of student performance. On the other hand, they can induce technological dependence and the reproduction of content without pedagogical reflection (Nunes, 2025; Ribeiro et al., 2024). According to Machado (2025), the greatest challenge lies in “reaffirming the centrality of the teacher as a mediator of meanings,” preventing the teaching process from being reduced to mere interaction between students and algorithms.

The relevance of this study stems precisely from this conjuncture. It is observed that education is constantly pressured to adapt to digital innovations, while teachers, especially those starting their careers, still lack a solid background regarding the pedagogical use of AI. As Nóvoa and Alvim (2022) remind us, teaching is a profession built on practice and collective dialogue, and not merely on technical mastery. Based on this reality, it is assumed that artificial intelligence, although it presents the potential to enrich pedagogical practice, can generate dependence and the dehumanization of teaching when used uncritically by teachers in their professional induction phase.



In light of the foregoing, this article establishes as its general objective to analyze, through a literature review of recent scientific literature (2024-2025), the possibilities and risks of using artificial intelligence tools by beginning teachers in basic education. To achieve this purpose, the following specific objectives were defined: a) to identify the main AI tools cited in the literature as support for planning and evaluation; b) to discuss the ethical and pedagogical risks pointed out by recent studies regarding the autonomy of the beginning teacher; and c) to verify the importance of critical digital literacy in initial and continuing teacher education for the use of these technologies.

This research, qualitative in nature and exploratory in character, seeks to contribute to the contemporary debate regarding the relationship between technology and the humanization of teaching practice. It is argued that the role of artificial intelligence in education is not to replace the teacher, but to strengthen their reflective, creative, and critical capacity in the face of the challenges imposed by the digital world.

Artificial Intelligence in Contemporary Education: Panorama and Perspectives

The integration of Artificial Intelligence (AI) into education reflects the historical moment of transition between traditional pedagogy and a new digital learning culture. As Ritt (2024) observes, AI-based technologies have significantly modified teaching dynamics, allowing teachers and students to access automated learning support resources. However, this incorporation is not neutral: it brings pedagogical, ethical, and social implications that must be critically understood. The advancement of AI in school environments accompanies a global movement toward the digitalization of teaching which, according to Batista, Lima, and Camargo (2025), requires the teacher to possess not only content mastery but also the ability to critically interpret the data produced by machines.



In the Brazilian scenario, Silva (2025) and Melo, Guerra, and Silva (2024) point out that the use of AI has been expanding in functions ranging from virtual assistants and educational chatbots to automated evaluation systems. However, Barroso and Mello (2024) caution that this expansion is not uniform, depending on structural factors such as connectivity and public policies. The United Nations Educational, Scientific and Cultural Organization (UNESCO, 2023) emphasizes that AI can be transformative provided that it is aligned with values of equity and inclusion. To this end, it is essential for educators to develop an AI literacy that goes beyond instrumental use, understanding how algorithms operate and what data they manipulate—an aspect that is especially sensitive for beginning teachers (Ribeiro et al., 2024).

According to Machado (2025), AI must be understood as part of a cultural process that redefines the teaching role. Intelligent digital tools act as mediators, expanding the possibilities for interaction and personalization. However, without clear pedagogical intentionality, such resources can reduce the teacher to a mere executor of technological commands, dehumanizing the educational act. Thus, the debate on AI in education cannot be dissociated from the material and human conditions that sustain school work (Barroso; Mello, 2024).

Teaching Practice, Ethics, and the Challenges of the Beginning Teacher Faced with AI

The literature demonstrates that AI can be a strategic ally when applied to pedagogical planning and personalization. Santos (2024) and Ribeiro et al. (2024) highlight that algorithms can assist in the development of instructional sequences and formative assessment. By automating repetitive tasks, the teacher frees up time for pedagogical mediation and qualitative monitoring (Machado, 2025). Furthermore, intelligent systems can foster inclusion by adapting content to individual paces (UNESCO, 2026), strengthening student



autonomy when combined with active methodologies (Batista; Lima; Camargo et al., 2025).

Despite the potentialities, the use of AI raises profound ethical dilemmas. Silva (2025) argues that the most concerning risk is the naturalization of technology as a cognitive authority, which can lead to the loss of the critical dimension. Melo, Guerra, and Silva (2024) warn of the superficialization of content and the weakening of teaching and student authorship. There are also risks related to privacy and algorithmic biases that can reproduce inequalities (Bender et al., 2021; O’Neil, 2020). In this regard, the BNCC (Brasil, 2017) proposes the development of “Digital Culture” to guarantee the responsible and reflective use of technologies.

For the beginning teacher, these challenges are accentuated by the phase of professional identity construction. Marked by the natural insecurities of the start of their careers, these educators face pressure from accelerated technological innovation (Nunes, 2025). Although they possess openness to explore AI, many lack a solid ethical and technical background, resulting in learning through “trial and error” that generates frustration (Ribeiro et al., 2024). Machado (2025) emphasizes that, for some beginners, AI emerges as a support; for others, as a threat to autonomy. Overcoming such fragilities requires institutional policies for continuing education, as guided by the LDB (Brasil, 1996), ensuring that technology serves an emancipatory education rather than the substitution of critical thinking.

Methodology

The research adopts a qualitative approach with an exploratory nature, grounded in a literature and documentary review. This methodological choice is justified by the need to critically understand the recent phenomenon of AI integration into teaching practice, especially in the context of beginning teachers, articulating different theoretical perspectives according to the scientific literature.



The theoretical construction was based on a systematic survey of academic productions published between 2024 and 2025, a period that coincides with the consolidation and large-scale popularization of generative AI, particularly following the widespread dissemination of tools such as ChatGPT, Copilot, and Gemini. The initial search identified 76 scientific productions. After reading the titles and abstracts, 21 studies met the inclusion criteria. Of these, 11 were selected as the core basis of the analysis due to their greater theoretical depth, methodological diversity, and relevance to the theme.

The survey of materials was conducted in the SciELO, CAPES Journals, Google Scholar, and ERIC (Education Resources Information Center) databases, prioritizing peer-reviewed productions available in full text. The following keywords were used (in both Portuguese and English): “Inteligência Artificial na Educação” (*Artificial Intelligence in Education*), “Formação de Professores” (*Teacher Education*), “Professores Iniciantes” (*Beginning Teachers*), “IA Generativa” (*Generative AI*), “Ética Digital” (*Digital Ethics*), “Tecnologias Educacionais” (*Educational Technologies*), and “Educação e Inovação Tecnológica” (*Education and Technological Innovation*).

Inclusion criteria involved: papers published between 2024 and 2025; texts directly addressing the use of AI in basic education or teacher education; productions analyzing ethical, pedagogical, or political implications of emerging technologies; and studies with a qualitative, theoretical, or systematic review focus.

Exclusion criteria encompassed: papers prior to 2024; purely technical studies on AI algorithms or modeling without an educational interface; texts with low methodological rigor—defined as productions lacking a clear explanation of data collection and analysis procedures, missing adequate referencing, or published on platforms without peer review; and productions that did not address teaching performance or the school context.

After applying the criteria, 11 primary productions were selected to serve as the interpretive basis of the study; the remaining productions were used only



as contextual support but did not constitute the central base of the analysis. Thus, the analysis was conducted in three interdependent stages, structured to achieve the proposed objectives. The first stage consisted of the survey and screening of materials, in which an initial search based on the aforementioned keywords was performed, totaling 76 results. After reading the abstracts and applying the inclusion and exclusion criteria, 11 papers were selected for full-text reading. This was followed by the organization of the analysis categories; based on the full-text reading, four thematic categories were created to reflect the main axes of the contemporary debate on AI and teaching, dialoguing with objectives “b” and “c”:

- Pedagogical possibilities of AI;
- Challenges and risks for beginning teachers;
- Ethical and political issues;
- Perspectives on critical and humanizing teacher education.

Consequently, it was possible to carry out a systematization and cross-referencing of the data, wherein the contents were organized into analysis matrices, allowing for the identification of convergences, divergences, and gaps in the discourses regarding the presence of AI in the educational field. The interpretive analysis prioritized the articulation between theory and practice, finding its foundation in the critical and humanist perspective advocated by Freire (1996) and Nóvoa and Alvim (2022), and in the ethical approach proposed by UNESCO (2023). In order to systematize the materials used in the review, the main studies composing the research corpus were organized in Chart 1.



Chart 1 – Selected studies in the literature review (2024–2025).

AUTHOR(S)	YEAR	TITLE	REMARKS
Ribeiro, G. C. et al.	2024	Inteligência artificial na educação: potencialidades e limites para o século XXI	Analyze the potentialities and limits of AI in contemporary education.
Santos, M. F. C.	2024	Inteligência artificial na formação docente: desafios, possibilidades e capacitação para a educação básica	Investigates the integration of generative AI in teacher education and the risks of automating pedagogical practice.
Almeida Filho, C. L. de et al.	2024	Desafios éticos para o uso de inteligência artificial na educação e na pesquisa	Discuss the ethical and epistemological challenges of using AI in basic education.
Melo, N. J. G.; Guerra, A. L. R.; Silva, R. A.	2024	Tecnologias na educação e os desafios do uso da inteligência artificial: ética e perspectivas	Evaluate benefits and risks of AI use in learning and teaching autonomy.
Campos, M. J. O.	2024	Inteligência artificial generativa e a educação: uma leitura a partir de revisão bibliográfica sistemática	Conducts a systematic review on generative AI and education, focusing on post-pandemic trends.
Barroso, L. R.; Mello, P. P. C.	2024	Inteligência artificial: promessas, risks e regulação	Deal with the regulation of AI and its implications for teaching work in the digital era.
Nunes, J. M.	2025	A inteligência artificial ChatGPT, produções discursivas e governamentalidade neoliberal	Problematizes the discourse of innovation and the risk of commodification of AI-mediated teaching practice.
Machado, J. B.	2025	Educação na era digital; inteligência artificial e suas contribuições para o trabalho docente	Discusses the role of the teacher in the digital era and transformations in teaching identity.
Heggler, J. M.; Szmoski, R. M.; Miquelin, A. F.	2025	As dualidades entre o uso da inteligência artificial na educação e os riscos de vieses algorítmicos	Examine algorithmic biases and the impacts of automated decisions on educational equity.
Ritt, M. O.	2024	O uso da inteligência artificial na educação a partir da perspectiva docente	Analyzes the use of AI as a support tool for pedagogical planning.
Julio Cabero Almenara; Julio Barroso-Osuna.	2025	La ética de la Inteligencia Artificial en la educación: hacia un uso responsable e inclusivo.	Emphasizes the importance of ethics and literacy in educational contexts.

Source: research data prepared by the authors.



These studies were complemented by the UNESCO (2026) report, *Ethics in artificial intelligence in learner-centric education*, which presents guidelines for the responsible use of AI in the educational context.

The choice for a literature and documentary methodology arises from the fact that the phenomenon under analysis—the use of AI by beginning teachers—is still recent and in the process of consolidation. As Santos (2024) and Campos (2024) point out, there is a scarcity of empirical studies exploring this specific target audience within the Brazilian context, which reinforces the importance of a theoretical survey to map the state of the art and identify trends and gaps in the literature.

Thus, the review carried out seeks to construct a critical and interpretive overview, identifying not only the pedagogical possibilities of AI but also the ethical, political, and educational challenges emerging from this relationship.

It is important to highlight that this study does not include direct field research with beginning teachers, limiting itself to the analysis of secondary data. Even so, the results obtained constitute a solid foundation for future empirical investigations, in addition to contributing to the debate on a critical, ethical, and humanizing teacher education in the face of emerging technologies.

Discussion

The literature review conducted between 2024 and 2025 demonstrated that the use of AI in basic education possesses an ambivalent character, articulating pedagogical potentialities and ethical risks that had already been pointed out in recent studies. Ribeiro et al. (2024), Santos (2024), and Ritt (2024) converge by highlighting that AI can expand teaching efficiency by supporting planning, automating corrections, and fostering the personalization of learning.

However, these benefits emerge accompanied by significant challenges, especially regarding technological dependence, the weakening of professional autonomy, and the need for a critical teacher education for the responsible use of these tools. This tension between possibility and risk dialogues with



contemporary debates on a “liberating education mediated by AI,” which argue that technology only contributes to emancipatory practices when integrated into intentional, ethical, and humanizing pedagogical processes, rather than as a substitute for teaching action.

Within the axis of pedagogical possibilities, the works of Ribeiro et al. (2024), Santos (2024), and Ritt (2024) converge to point out that AI contributes to increased teaching efficiency by supporting planning, automating corrections, and allowing for the personalization of learning. These characteristics dialogue directly with the general competence of Digital Culture in the BNCC (2017) and with the principles of integral formation provided for in the LDB (1996). By reducing repetitive tasks and optimizing the monitoring of student performance, intelligent tools expand the time available for the teacher—especially the beginner—to develop more qualified actions of mediation, reflection, and pedagogical intervention, as also discussed by Machado (2025).

However, the review demonstrates that this technical efficiency does not automatically translate into pedagogical efficiency. Nunes (2025), Barroso and Mello (2024), and Ribeiro et al. (2024) highlight that beginning teachers frequently face difficulties in integrating AI into educational practice due to the absence of ethical, technical, and critical training. Since they are still consolidating their teaching identity, these professionals tend to interpret automated responses as ready-made solutions, increasing the risk of uncritical use, mechanical reproduction of content, and technological dependence. Thus, teacher education must include clear strategies to prevent this type of subordination, such as critical digital literacy, understanding how algorithms operate, and guidance on using AI as a support, rather than as a substitute for pedagogical decision-making.

In the ethical and political axis, the challenges become even more complex. Bender et al. (2021), O’Neil (2020), and Heggler et al. (2025) state that AI is not neutral, as it operates based on data and algorithms that carry biases and can reproduce pre-existing inequalities within the school context. This



problem is aggravated in the case of beginning teachers who, because they do not deeply understand algorithmic mechanisms, may over-rely on automated suggestions for assessment, categorization, or intervention. UNESCO (2023, 2026) reinforces this concern by proposing international guidelines for ethical governance, emphasizing that the educational use of AI must be accompanied by institutional policies that protect equity and professional autonomy.

Important epistemological implications also emerge. Machado (2025) and Silva (2025) argue that the constant use of ready-made texts and automated analyses can reduce academic authorship and weaken critical thinking, dimensions that are essential for the exercise of teaching. For beginning teachers, who are still learning to formulate their own analyses, technological efficiency can be mistakenly perceived as a substitute for pedagogical reflection, resulting in the superficialization of knowledge and the loss of intellectual protagonism.

Regarding the materiality of practices, the literature highlights the operational use of generative tools such as ChatGPT, Copilot, and Gemini, as well as adaptive systems like Khan Academy, which directly impact the school daily routine by automating the creation of evaluative rubrics, personalized lesson plans, and immediate feedback. Such tools allow the teacher to carry out the transposition of complex content into different levels of proficiency in real time, a practice that reconfigures the management of pedagogical time. However, the documentation of these processes reveals that the impact is not only technical but identity-related: the use of such resources requires the teacher to act as a data curator, validating the veracity of information and adjusting algorithmic biases that, if unmediated, compromise the quality of teaching authorship and the depth of learning.

Another relevant finding involves structural inequalities. Studies such as those by Campos (2024) and Ribeiro et al. (2024) show that the quality of technological infrastructure, connectivity, and working conditions vary significantly between public and private school networks. These factors directly influence teachers' capacity to utilize AI in a pedagogical manner, indicating



that technology, by itself, does not democratize teaching, and may, in fact, widen inequalities without policies for equitable access and institutional training.

By integrating these pedagogical, ethical, epistemological, and structural dimensions, the data from the review allow for the assertion that AI must be understood as a means, and not as an end. Its efficacy depends on human mediation, teacher education, and the school context. Beginning teachers, who are more vulnerable to pressure for results and a lack of institutional support, require continuing education that includes not only technical skills but also algorithmic ethics, critical reading of technology, and an understanding of its limits.

Thus, the results demonstrate that AI has the potential to enrich teaching work and strengthen teacher education when used as a reflective, critical tool integrated into humanizing pedagogical projects. The greatest challenge is not the presence of AI in schools, but the construction of a teacher education capable of utilizing it without naivety, without dependence, and without the loss of professional autonomy.

Final Considerations

The literature review conducted between 2024 and 2025 allowed for the identification that artificial intelligence represents a powerful resource to support teaching work, especially in planning, lesson organization, and learning monitoring. However, the results demonstrate that these benefits only materialize when mediated by critical, ethical, and technical training—a dimension that is still insufficient in the initial education of beginning teachers in Brazil. Thus, the general objective of the research was achieved by analyzing how AI affects teaching practice and which challenges are imposed on early-career professionals, identifying tools to support planning and evaluation, as proposed in the first specific objective.

The reviewed studies show that AI does not replace the teacher, but rather demands new competences, such as digital literacy, a basic understanding of



algorithms, ethical responsibility, and pedagogical mediation capacity. The absence of these competences exposes beginning teachers to concrete risks: dependence on automated responses, the weakening of didactic autonomy, the reproduction of algorithmic biases, and the superficialization of knowledge. In this manner, the second specific objective—to discuss the risks and ethical dilemmas regarding teacher autonomy—was also fully met.

Another important finding refers to structural inequalities. Differences in infrastructure between public and private schools limit the pedagogical appropriation of AI, reinforcing the need for public policies that ensure equitable access, ethical governance, and continuing education. In this sense, the research also achieves the third specific objective by verifying the fundamental importance of critical digital literacy so that AI can be used in a pedagogical and ethical manner.

As a limitation, this study is based exclusively on a literature review, without empirical investigation involving teachers. Even so, it offers relevant contributions for future research wishing to understand, in practice, how beginning teachers deal with AI and what strategies they manage to adopt to preserve their professional autonomy.

It is concluded that the presence of AI in education demands permanent critical reflection. More than learning to use digital tools, beginning teachers need to understand their ethical, social, and epistemological effects. Therefore, the central challenge is not to choose between technology or pedagogy, but to construct pathways in which artificial intelligence strengthens and never replaces the educational act and teaching autonomy.

References

ALMEIDA FILHO, Carlito Lins; FIGUEIREDO, Marcos Paulo Magalhaes; SILVEIRA, Gabriel Eidelwein; EIDELWEIN, Tamires. Desafios éticos para o uso de inteligência artificial na educação e na pesquisa. **Campos Neutrais: Revista Latino-Americana de Relações Internacionais**, Rio Grande, v. 6, n. 3, p. 220–243, 2024. DOI: <https://doi.org/10.14295/rcn.v6i3.18391>. Access in: May 7, 2026.



BARROSO, Luís Roberto; MELLO, Patrícia Perrone Campos. Inteligência artificial: promessas, riscos e regulação. **Revista Direito e Práxis**, Rio de Janeiro, v. 15, n. 4, p. 1-45, 2024. DOI: <https://doi.org/10.1590/2179-8966/2024/84479>. Access in: May 7, 2026.

BATISTA, Vitor de Souza.; LIMA, Ana Paula Freitas.; CAMARGO, Alexandre Santos. Docência em transformação: desafios e potencialidades da interação entre metodologias ativas e inteligência artificial. **Cadernos Pedagógicos**, Curitiba, v. 22, n. 9, e17793, 2025. DOI: <https://doi.org/10.54033/cadpedv22n9-020>. Access in: May 7, 2026.

BENDER, Emily M.; GEBRU, Timnit; MAJOR, Angelica McMillan; SHMITCHEL, Shmargaret. On the dangers of stochastic parrots: can language models be too big? In: **CONFERENCE ON FAIRNESS, ACCOUNTABILITY, AND TRANSPARENCY, 2021**, Virtual Event. Proceedings [...]. New York: ACM, 2021. p. 610-623. DOI: <https://doi.org/10.1145/3442188.3445922>. Access in: May 7, 2026.

BRASIL. Ministério da Educação. **Base Nacional Comum Curricular**. Brasília, DF: MEC, 2017.

BRASIL. **Lei nº 9.394, de 20 de dezembro de 1996**. Estabelece as diretrizes e bases da educação nacional. Brasília, DF: Presidência da República, [1996]. Available at: http://www.planalto.gov.br/ccivil_03/leis/l9394.htm. Access in: May 7, 2026.

CABERO-ALMENARA, Julio; BARROSO-OSUNA, Julio. La ética de la Inteligencia Artificial en la educación: hacia un uso responsable e inclusivo. **Educación e Pesquisa**, v. 51, n. 00, e293347, 2025. Available at: <https://revistas.usp.br/ep/article/view/242542>. Access in: April 2, 2026.

CAMPOS, Mara Jane de Oliveira. **Inteligência artificial generativa e educação: uma leitura a partir de revisão bibliográfica sistemática**. 2024. 44 f. Trabalho de Conclusão de Curso (Licenciatura em Geografia) – Universidade Estadual Paulista (Unesp), Instituto de Geociências e Ciências Exatas, Rio Claro, 2024. Available at: <https://repositorio.unesp.br/entities/publication/664a8d57-a13f-47e3-bf8b-0152b8a0b208> . Access in: May 7, 2026.

FREIRE, Paulo. **Pedagogia da autonomia: saberes necessários à prática educativa**. 67. ed. São Paulo: Paz e Terra, 1996. 148 p. (Coleção Leitura).



HEGGLER, João Marcos; SZMOSKI, Romeu Miqueias; MIQUELIN, Awdry Feisser. As dualidades entre o uso da inteligência artificial na educação e os riscos de vieses algorítmicos. **Educação & Sociedade**, Campinas, v. 46, e289323, 2025. DOI: <https://doi.org/10.1590/ES.289323>. Access in: May 7, 2026.

MACHADO, Jessica Barcelos. **Educação na era digital**: inteligência artificial e suas contribuições para o trabalho docente. 2025. Trabalho de Conclusão de Curso (Licenciatura em Pedagogia) - Universidade Federal de Pelotas, Pelotas, 2025. Available at: <https://repositorio.ufsc.br/bitstream/handle/123456789/267722/J%C3%A9ssica%20Barcelos%20Machado%20%20TCC%20final.pdf?sequence=1>. Access in: May 7, 2026.

MELO, Nedilson José Gomes; LUNETTA, Avaetê; GUERRA Rodrigues; SILVA, Renan Antônio. Tecnologias na educação e os desafios do uso da inteligência artificial: ética e perspectivas. **Revista Acadêmica da Lusofonia**, Curitiba, v. 1 n. 2, p. 1-14, 2024. Available at: <https://revistaacademicadalusofonia.com/index.php/lusofonia/article/view/3>. Access in: April 1, 2026.

NÓVOA, António; ALVIM, Yara Cristina. **Escolas e professores**: proteger, transformar, valorizar. Salvador: SEC/IAT, 2022. 56 p. E-book. Available at: <https://rosaurasoligo.wordpress.com/wp-content/uploads/2022/02/antonio-novoa-livro-em-versao-digital-fevereiro-2022.pdf>. Access in: May 7, 2026.

NUNES, Julia Maria. **A inteligência artificial ChatGPT**, produções discursivas e governamentalidade neoliberal. 2025. Dissertação (Mestrado em Educação) - Universidade de Santa Cruz do Sul, Santa Cruz do Sul, 2025. Available at: <https://repositorio.unisc.br/jspui/handle/11624/3985>. Access in: May 7, 2026.

O'NEIL, Cathy. **Armas de destruição matemática**: como o big data aumenta a desigualdade e ameaça a democracia. Tradução de Rafael Abraham. São Paulo: HSM, 2020. 336 p. Available at: https://www.researchgate.net/publication/314165204_Cathy_O'Neil_Weapons_of_Math_Destruction_How_Big_Data_Increases_Inequality_and_Threatens_Democracy_New_York_Crown_Publishers_2016_272p_Hardcover_26_ISBN_978-0553418811. Access in: May 7, 2026.



RIBEIRO, Gleick Cruz; SANTOS, Silvana Maria Aparecida Viana; VERNER, Artur Renato; DE GOUVEA, Adriano Paula; VIEIRA, Higor do Nascimento; GOMES, Marcelo D'ávilla Teixeira; DOS SANTOS, Olímpio José; VIANA, Silvanete Cristo; MARTINS, Valéria da Fonsêca Ribeiro. **INTELIGÊNCIA ARTIFICIAL NA EDUCAÇÃO: POTENCIALIDADES E LIMITES PARA O SÉCULO XXI**. Aracê, [S. l.], v. 6, n. 4, p. 13867-13883, 2024. DOI: 10.56238/arev6n4-166. Access in: April 2, 2026.

RITT, Maiara de Oliveira. **O uso da inteligência artificial na educação a partir da perspectiva docente**. 2024. 64 f. Trabalho de Conclusão de Curso (Bacharelado em Administração) – Universidade Federal de Santa Catarina, Florianópolis, 2024. Available at: <https://repositorio.ufsc.br/handle/123456789/257842>. Access in: May 7, 2026.

SANTOS, Mayke Franklin da Cruz. **Inteligência artificial na formação docente: desafios, possibilidades e capacitação para a educação básica**. 2024. Dissertação (Mestrado Profissional em Ensino para a Educação Básica) - Instituto Federal Goiano, Campus Urutaí, Urutaí, 2024. Available at: <https://repositorio.ifgoiano.edu.br/riserver/api/core/bitstreams/30773d60-e8d0-48a6-9eee-9bba096a376a/content>. Access in: May 7, 2026.

UNESCO. **Artificial intelligence and education: guidance for policy-makers**. Paris: UNESCO, 2023. 50 p. Available at: <https://unesdoc.unesco.org/ark:/48223/pf0000376709>. Access in: May 7, 2026.

UNESCO. **Ethics in artificial intelligence in learner-centric education**. Paris: UNESCO, 2026. Available at: <https://unesdoc.unesco.org/ark:/48223/pf0000397854>. Access in: April 2, 2026.

Note

- 1 AI Disclosure: Gemini 3.5 Flash Artificial Intelligence was utilized as an auxiliary tool for the translation of the original text, followed by human review.





How to Cite

LINHARES, Behael Nilo Ferreira; BRANDÃO, Edson David de Castro; MACEDO, Haroldo Reis Alves de. Inteligência Artificial e educação: uma revisão bibliográfica sobre as possibilidades e riscos no uso de ferramentas digitais por professores iniciantes. **Educação em Análise**, Londrina, v. 11, p. 1-21, 2026. DOI: <https://doi.org/10.5433/1984-7939.2026.v11.54455>.

Submitted on: December 29, 2025

Accepted on: March 16, 2026

Published on: July 14, 2026



CRediT

Acknowledgments	Not applicable
Funding:	Not applicable
Conflict of Interest:	The authors certify that they have no commercial or associative interest that represents a conflict of interest in relation to the manuscript.
Ethical Approval:	Not applicable
Authors' Contribution:	LINHARES, B. N. F. declares to have performed conceptualization, data curation, formal analysis, methodology, writing - original draft, and editing. BRANDÃO, E. D. C. declares to have performed conceptualization, data curation, formal analysis, methodology, writing - original draft, and editing. MACEDO, H. R. A. declares to have performed conceptualization, methodology, supervision, validation, visualization, writing - review and editing.

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