

Exploring the Use of ChatGPT in Education: Teachers' Perspectives on Planning, Implementation, and Assessment of Learning

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Abstrak

Penelitian ini bertujuan mengevaluasi pemanfaatan ChatGPT dalam pendidikan dari perspektif guru, terutama pada tahap perencanaan, pelaksanaan, dan penilaian pembelajaran. Menggunakan pendekatan Systematic Literature Review (SLR), studi ini meninjau kontribusi, tantangan, dan implikasi integrasi ChatGPT dalam praktik pendidikan. Pencarian literatur dilakukan melalui Google Scholar, DOAJ, dan Scopus untuk publikasi tahun 2015–2025, dengan kata kunci terkait ChatGPT, perspektif guru, proses pembelajaran, dan penilaian berbasis AI. Artikel yang dipilih memenuhi kriteria inklusi yang menekankan peran guru, sementara publikasi yang tidak relevan terhadap perencanaan, pelaksanaan, atau penilaian dikecualikan. Hasil analisis menunjukkan bahwa ChatGPT membantu guru mempercepat penyusunan RPP, materi ajar, dan instrumen penilaian, meningkatkan kreativitas pedagogis, serta memperkuat literasi digital dan profesionalisme. Namun, terdapat kesenjangan penelitian, termasuk minimnya studi mengenai efektivitas jangka panjang penggunaan ChatGPT terhadap hasil belajar siswa, keterbatasan pemahaman guru dalam mengintegrasikan AI dengan konteks lokal, dan kurangnya kajian mengenai implikasi etis serta potensi ketergantungan teknologi. Topik riset yang mendesak mencakup evaluasi longitudinal terhadap prestasi dan kreativitas siswa, pengembangan model integrasi AI sesuai kurikulum lokal, serta analisis dampak etis dan psikologis penggunaan AI. Temuan ini diharapkan memperkaya literatur sekaligus menjadi panduan bagi guru dan pembuat kebijakan dalam memanfaatkan ChatGPT secara efektif dan bertanggung jawab.

Kata kunci; Pembelajaran Berbasis Model Matematika, Literasi Data, Kemampuan Pemodelan, Pemecahan Masalah, Pemahaman Konseptual.

Abstract

This study aims to evaluate the use of ChatGPT in education from the perspective of teachers, particularly in the planning, implementation, and assessment stages of learning. Using a Systematic Literature Review (SLR) approach, this study reviews the contributions, challenges, and implications of integrating ChatGPT into educational practices. Literature searches were conducted through Google Scholar, DOAJ, and Scopus for publications from 2015 to 2025, using keywords related to ChatGPT, teacher perspectives, learning processes, and AI-based assessment. Selected articles met inclusion criteria emphasizing the role of teachers, while publications irrelevant to planning, implementation, or assessment were excluded. The analysis results show that ChatGPT helps teachers accelerate the preparation of lesson plans, teaching materials, and assessment instruments, enhances pedagogical creativity, and strengthens digital literacy and professionalism. However, there are research gaps, including a lack of studies on the long-term effectiveness of ChatGPT use on student learning outcomes, limitations in teachers' understanding of integrating AI into the local context, and a lack of studies on the ethical implications and potential for technological dependence. Urgent research topics include longitudinal evaluations of student achievement and creativity, the development of AI integration models tailored to local curricula, and analyses of the ethical and psychological impacts of AI use. These findings are expected to enrich the literature while also.

Keyword: Mathematics-Based Learning, Data Literacy, Modeling Skills, Problem Solving, Conceptual Understanding.

Pendahuluan

The rapid progress in artificial intelligence (AI) over the past decade has had a significant impact on various aspects of life, including the education sector (Taruklimbong & Sihotang, 2023). The emergence of generative artificial intelligence (generative AI) such as ChatGPT opens up new possibilities for more adaptive, interactive, and efficient learning transformation (Sucianingtyas et al., 2025). With its ability to automatically generate text, respond to questions, provide explanations, and even simulate educational conversations, ChatGPT is an innovation that can help educators and students obtain information, deepen their understanding, and enrich their learning experience. This shows that the use of AI technology, particularly ChatGPT, has the potential to become a strategic tool in supporting learning in the digital age.

ChatGPT is known as one of the artificial intelligence applications that has gained widespread attention thanks to its ability to generate text, provide explanations, and simulate educational conversations (Lutfi, 2024). This capability makes ChatGPT a potential tool for teachers and students in various stages of the learning process, including material preparation, learning activities, and learning outcome evaluation (Nawangsih et al., 2025). With its comprehensive scope of application, the use of ChatGPT in education is becoming increasingly important to study, both in terms of the opportunities it offers and the challenges that may arise in its implementation (Andrian Putri Tasya & Ardelia Lona Dwinta, 2025).

Although technology has significant potential to drive change in education, its successful implementation depends heavily on the role of teachers (Supardi et al., 2025). Teachers not only act as learning designers, but also perform the functions of implementing the teaching and learning process and assessing learning outcomes (Zulhafizh, 2021). With such a strategic position, the teacher's perspective becomes an important aspect in assessing the extent to which ChatGPT can make a positive contribution while identifying obstacles that may arise in its practical use (Santosa et al., 2025). Therefore, studying teachers' perspectives is an essential step in assessing the effectiveness and relevance of ChatGPT integration in the context of education (Auna & Hamzah, 2024).

The use of ChatGPT in education offers great potential, but at the same time presents a number of problems, including those related to the originality of work, accuracy of information, risk of plagiarism, and limitations of digital literacy. Only a small percentage of students feel confident about the authenticity of their work, while ChatGPT's ability to generate text that resembles human writing makes it difficult for educators to conduct authentic assessments (Perera & Lankathilake, 2023) and (Kovari, 2025). In addition, many students report inaccuracies in ChatGPT's output and demonstrate limited digital literacy, which can lead to excessive dependence on technology (Abdulhajar et al., 2024). Thus, although ChatGPT has benefits in supporting learning, its application still requires clear ethical guidelines and the strengthening of digital literacy (Abdulhajar et al., 2024).

The use of ChatGPT in higher education has shown both benefits and challenges (Sok & Heng, 2023). On the positive side, ChatGPT supports personalized and interactive learning, helping students with writing, brainstorming, and summarizing, which has an impact on increasing engagement and the quality of learning outcomes (Zou et al., 2023). However, several studies have also highlighted

issues such as the reliability of outputs, the potential for decreased performance due to over-reliance, and risks to academic integrity, necessitating educational institutions to establish responsible usage guidelines (Zhai et al., 2024).

A recent literature review shows that the integration of ChatGPT in education offers both opportunities and challenges. ChatGPT has the potential to increase student engagement, facilitate personalized learning, and assist educators in developing lesson plans and providing additional resources (AlBadarin et al., 2023). However, there are significant obstacles such as pedagogical integration difficulties and student engagement issues (Mohebi, 2024), as well as ethical and academic integrity concerns that require clear usage guidelines (Samala et al., 2024).

A synthesis of previous studies shows that most research focuses on the student perspective, while the use of ChatGPT from the teacher's perspective in planning, implementing, and assessing learning is still rarely studied. Issues regarding the reliability of outputs, academic integrity, and the need for a systematic pedagogical framework have also not received much attention. This gap underpins this research, which uses a Systematic Literature Review approach to examine teachers' experiences in integrating ChatGPT, identify the best strategies, and formulate implications for the development of training, policies, and pedagogical frameworks in the field of education.

Metode Penelitian

This study aims to explore the use of ChatGPT in education by reviewing teachers' perspectives on the planning, implementation, and assessment stages of learning. Through a Systematic Literature Review (SLR) approach, this study aims to identify the contributions, challenges, and implications of integrating ChatGPT into learning practices, thereby providing a more comprehensive understanding of the role of artificial intelligence in education.

The literature search strategy was conducted systematically through the Scopus, DOAJ, and Google Scholar databases, with publications ranging from 2015 to 2025. The search process used keywords such as ChatGPT in education, teacher perspectives, learning processes, and artificial intelligence-based assessment. Articles were selected in stages to ensure that the results were in line with the research focus.

The inclusion criteria covered articles that highlighted the use of ChatGPT or artificial intelligence in education with a focus on teachers' perspectives, while the exclusion criteria applied to publications that were irrelevant or did not discuss aspects of learning planning, implementation, or assessment. The selection was carried out by screening the titles, abstracts, and content, followed by data extraction to obtain findings, methodologies, and research gaps relevant to the study objectives.

Hasil Penelitian dan Pembahasan

Hasil

A number of studies related to the use of ChatGPT in the context of education indicate a variety of research focuses that can be grouped into several main dimensions. These dimensions include: (1) Planning and Development of Teaching Materials, (2) Creativity, Innovation, and Pedagogical Strategies, (3) Teachers' Digital Literacy and Professional Competence, (4) Student Engagement and Learning Outcomes, and (5) Ethical, Pedagogical, and Technical Challenges. Each dimension is compiled based on a synthesis of various literature that emphasizes research variables, findings, and relevant key issues, as shown in Table 1.

Table 1. Mapping of Research Fields and Variables in the Use of ChatGPT in Education

No	Main Field or Focus	Author's Name	Insight or Research Variable
1.	Teaching Materials Planning and Development	(Vigih Hery Kristanto et al., 2024); (Huda, 2025); (Serdianus & Saputra, 2023); (Rhomadoni et al., 2025); (Abadi Sanosra, Dimas Herliandis Shodiqin, 2025).	ChatGPT speeds up the preparation of lesson plans, teaching materials, assignments, and assessment instruments; time efficiency (≤ 10 minutes); requires content verification.
2.	Creativity, Innovation, & Pedagogical Strategy	(Istiarsyah et al., 2024); (Hatmanto et al., 2024); (Sosa Daza et al., 2024); (Mayangsari & Salim, 2024); (Edy Sofyan et al., 2025)	Supporting teacher creativity, interactive learning strategies, personalized learning, pedagogical innovation, language literacy improvement, and increased teacher confidence.
3.	Teacher Digital Literacy & Professional Competence	(Rhomadoni et al., 2025); (Khoriiidah et al., 2025); (Kharis et al., 2024).	Improving digital literacy, pedagogical and professional competencies, understanding student characteristics, applying learning theories, and verifying data remain necessary.
4.	Student Engagement & Learning Outcomes	(Sabariah et al., 2024); (Lin et al., 2023); (Hisyam et al., 2025); (Sarah, 2024); (Hasibuan et al., 2025); (Thanh & Loan et al., 2024).	Increasing student engagement, participation, independent learning, enjoyable learning experiences, motivation, understanding of material, and intergenerational communication.
5.	Ethical, Pedagogical,	(Seputar et al., 2025); (Supriyono & Prihandono, 2024);	Risks of plagiarism, algorithmic bias, data protection, student dependency, curriculum

No	Main Field or Focus	Author's Name	Insight or Research Variable
	and Technical Challenges	(Ikhsan et al., 2025); (Rifka Ma'rifat, Suraharta, Prathama et al., 2024);	difficulties, low digital literacy, limited infrastructure (34% of rural schools have stable internet access).

Table 1 shows that the use of ChatGPT in education is not only focused on accelerating the development of learning tools, but also includes strengthening pedagogical strategies, developing teacher professionalism, and increasing student engagement. In addition, a number of ethical, technical, and pedagogical challenges were also found that need serious attention. Thus, the scope of research presented in this table emphasizes the need for a holistic approach in integrating ChatGPT so that the benefits can be optimized while minimizing potential risks in educational practice.

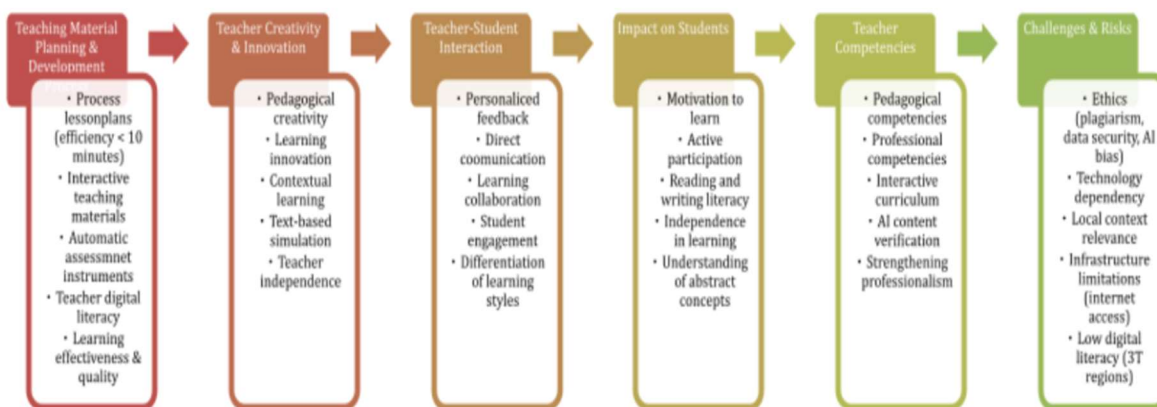


Figure 1. Dimensions of ChatGPT Utilization in Education

Figure 1 shows that the use of ChatGPT in education covers five main interrelated dimensions. In the planning and development of teaching materials, ChatGPT supports the efficient preparation of lesson plans, the provision of interactive materials, and the improvement of teachers' digital literacy. In terms of creativity and innovation, this technology encourages the development of contextual learning strategies and text-based simulations that enrich pedagogical practices. Teacher-student interaction is also strengthened through personalized feedback, direct communication, collaboration, and differentiation of learning styles. The impact on students is evident in increased motivation, active participation, reading and writing literacy, independence, and understanding of abstract concepts. Meanwhile, in terms of teacher competence, ChatGPT contributes to improving pedagogical and professional competence, strengthening interactive curricula, and verifying content. However, its implementation still faces ethical, pedagogical, and technical challenges, such as the risk of plagiarism, data security, algorithmic bias, technological dependence, infrastructure limitations, and low digital literacy in 3T areas. Therefore, the

application of ChatGPT in education needs to be guided by a wise and measured strategy.

Pembahasan

1. Teachers utilize ChatGPT in lesson planning and teaching material development

Teachers are now increasingly utilizing ChatGPT in lesson planning and teaching material development because it is considered capable of improving the effectiveness and quality of educational practices. Through its use, teachers can design lesson plans, compile teaching materials, assignments, and assessment instruments that are relevant to students' needs and support the creation of a more contextual learning experience (Vigih Hery Kristanto et al., 2024). However, challenges remain, particularly regarding the accuracy of the information produced and the need to improve teachers' digital competencies so that the integration of this technology can be implemented optimally (Juni et al., 2025).

Research shows that ChatGPT is an effective tool for teachers in lesson planning and teaching material development. The training program proved to be a significant success, with all elementary school teachers able to compile at least two types of teaching materials and some successfully developing complete lesson plans using ChatGPT (Huda, 2025). This tool has proven to be efficient because it can generate lesson plans and assessment instruments in less than 10 minutes (Serdianus & Saputra, 2023). The integration of ChatGPT in education also has the potential to improve teachers' digital literacy, support the development of critical thinking skills, and accelerate the process of developing teaching materials, although its implementation requires digital skills, ethical awareness, and adequate data security management (Rhomadoni et al., 2025).

The results of the study indicate that ChatGPT acts as a digital partner in learning planning because it is able to provide a structured initial framework so that teachers do not need to start from scratch and can focus more on adjusting the material, integrating local contexts, and applying learning strategies that are appropriate to the characteristics of the students. However, the use of ChatGPT still presents challenges, particularly regarding the need to verify content accuracy, master digital literacy to avoid passive dependence, and pay attention to ethics and data security. Therefore, ChatGPT should be positioned as an effective support tool for teachers, but it still requires supervision and critical evaluation to ensure its implementation is in line with educational standards.

2. ChatGPT supports teachers' creativity and innovation in designing learning strategies.

ChatGPT is seen as a transformative tool that can support teachers in enhancing creativity, innovation, and effectiveness in planning and implementing learning. Through the use of artificial intelligence, teachers can design more engaging, interactive, and personalized learning plans, while simplifying the process of developing materials and assessment tools to be more efficient and allow for the strengthening of creative aspects in teaching (Istiaryah et al., 2024). The use of ChatGPT also encourages innovative pedagogical approaches, strengthens student engagement through interactive learning experiences, and adapts activities to

diverse learning styles (Hatmanto et al., 2024). Furthermore, its application in language learning has been proven to contribute to improved literacy skills, particularly reading and writing (Sosa Daza et al., 2024). However, the integration of this technology still requires continuous support and professional development so that teachers can optimize its potential in educational practice.

ChatGPT has proven to play an important role in supporting teachers' creativity and innovation in designing learning strategies at various levels of education. This technology encourages the application of more contextual and creative learning approaches, especially in language learning, while facilitating the understanding of abstract concepts, providing text-based simulations for simple experiments, and assisting in the preparation of lesson plans. However, its use still faces obstacles, including limitations in understanding the local context and the potential for dependence on technology (Mayangsari & Salim, 2024). Furthermore, the training results showed a significant improvement, as indicated by a 70% increase in kindergarten teachers' scores from the pre-test to the post-test, and 90% of teachers reported an increase in confidence in using AI technology for creative teaching material development (Edy Sofyan et al., 2025).

The application of an open-ended approach in learning allows students to develop logical thinking skills through problem solving with various alternative answers. This approach guides students to think more flexibly, connect concepts, and try various strategies in finding solutions, so that their creativity and reasoning skills can develop. On the other hand, creating a conducive learning environment plays an important role in fostering interest in learning mathematics, because a supportive atmosphere encourages students to be more active, motivated, and comfortable in the learning process. The synergy between the open-ended approach and a positive learning environment is expected to provide a more meaningful learning experience, deepen conceptual understanding, and optimally hone students' critical and logical thinking skills.

3. The role of ChatGPT in supporting learning and teacher-student interaction in the classroom

ChatGPT plays a transformative role in strengthening teacher-student interactions and enriching learning experiences through personalized feedback, direct communication, and support for diverse learning needs. This technology enables teachers to tailor pedagogical strategies while allowing students to learn at their own pace (Sabariah et al., 2024). In addition, ChatGPT contributes to bridging the communication gap between generations and encourages collaborative learning (Lin et al., 2023). However, its use needs to be balanced with attention to ethical aspects, academic integrity, and the risk of technological dependence, so that its integration into educational practice must be managed wisely (Prathama et al., 2024).

ChatGPT plays a strategic role in supporting the learning process, particularly in helping teachers design teaching materials, strengthen digital literacy, and foster critical thinking skills in students. Research shows that 83% of students find the learning experience enjoyable and 76% rate the content generated as appropriate for their learning needs (Hisyam et al., 2025). In addition, this technology has been proven to improve students' understanding of the material, motivation, and active participation (Sarah, 2024). The training results also indicate that 85% of students feel assisted in the learning process and 78% are interested in using it again, which

also encourages the creation of independent learning (Hasibuan et al., 2025). However, its use still requires adequate digital literacy skills and ethical awareness.

ChatGPT does not merely function as a technical tool, but also encourages teachers to adapt their learning strategies and provides opportunities for students to learn at their own pace, thereby acting as a catalyst in creating more collaborative and interactive learning. However, its implementation still faces a number of obstacles, including limited digital literacy among teachers and students, academic ethics issues, and the potential for dependence on technology, so that its effective use still requires supervision and adequate skill support.

4. The main benefits teachers have experienced from using ChatGPT in their teaching practices

The use of ChatGPT in education has a positive impact on both teachers and students. This technology serves as a tool that makes it easier for teachers to develop lesson plans and teaching materials, while also providing quick feedback according to the needs of students. Furthermore, ChatGPT supports personalized learning and increases student engagement through more dynamic interactions (Thanh & Loan et al., 2024). Additionally, its ability to automate administrative tasks can reduce teachers' workload, although its use still requires digital literacy skills and ethical management to avoid excessive dependence (Harmawan & Makmur, 2023).

The results of the study indicate that the use of ChatGPT in learning activities provides various benefits for teachers. This technology contributes to strengthening pedagogical and professional competencies, particularly in terms of understanding student characteristics, developing interactive curricula, and applying learning theories (Khoriidah et al., 2025). In practice, teachers use ChatGPT to prepare lesson plans (40%), design evaluation instruments (33.3%), and develop teaching materials (26.7%) (Abadi Sanosra, Dimas Herliandis Shodiqin, 2025). However, the majority of teachers still verify the information generated by ChatGPT with other sources to ensure accuracy (Kharis et al., 2024). Overall, teachers showed positive responses and assessed that ChatGPT has strategic potential in improving the quality of the learning process.

The use of ChatGPT in learning supports teachers in improving their pedagogical and professional competencies, including understanding student characteristics, designing interactive curricula, and adapting teaching strategies to diverse learning needs. This technology not only improves teaching efficiency and quality, but also encourages teachers to be critical through information verification. With digital literacy and proper management, ChatGPT provides significant benefits in the form of improved learning quality, work efficiency, and strengthened teacher professionalism.

5. Ethical, pedagogical, and technical challenges faced by teachers in utilizing ChatGPT

The integration of ChatGPT into education poses various ethical, pedagogical, and technical challenges for teachers. From an ethical standpoint, concerns include student data protection, potential plagiarism, and algorithmic bias that can affect the fairness of the learning process (Seputar et al., 2025). Pedagogically, teachers face the risk of student dependence on technology and difficulties in aligning the

use of ChatGPT with curriculum objectives (Supriyono & Prihandono, 2024), while technical challenges include interface constraints, connectivity, and inconsistent content quality. Nevertheless, the prudent implementation of ChatGPT, accompanied by training and supervision, allows for the optimization of its benefits without neglecting established pedagogical principles.

The use of ChatGPT in the context of education in Indonesia faces a number of ethical, pedagogical, and technical obstacles. Ethically, teachers highlight the risk of plagiarism and the possibility of over-reliance on technology (Ikhsan et al., 2025). From a pedagogical perspective, it is necessary to verify and adjust the content generated by ChatGPT to align with the needs of students and the curriculum, including refining the depth of the material and its relevance to the local context. Technically, challenges arise from teachers' limited time to explore features, information that is sometimes not specific enough, low digital literacy, especially in 3T areas, and infrastructure limitations, with only 34% of rural schools having stable internet access (Rifka Alkhilyatul Ma'rifat, I Made Suraharta, 2024).

The integration of ChatGPT into education raises various ethical, pedagogical, and technical challenges, such as the potential for plagiarism, over-reliance on technology, the need for content verification and adaptation, limited digital literacy, and uneven infrastructure. Research findings indicate that these challenges can hinder the effective use of ChatGPT if not addressed appropriately. Therefore, the evaluation emphasizes the need for teacher training, improved digital literacy skills, and the implementation of clear usage policies to ensure that ChatGPT is utilized ethically, effectively, and in alignment with pedagogical principles.

Simpulan

Based on the results of the research evaluation, it can be concluded that ChatGPT makes a significant contribution in supporting teachers, including through accelerating the preparation of lesson plans, teaching materials, and assessment instruments, increasing pedagogical creativity, and strengthening teachers' digital literacy and professionalism. However, there are a number of gaps that need to be addressed, namely: (1) the lack of research on the long-term effectiveness of ChatGPT on the quality of learning and student achievement, (2) teachers' limited understanding of the integration of AI with the local context and characteristics of students, and (3) the lack of studies on the ethical implications and potential dependence on technology in learning practices. Based on these gaps, urgent research topics for future study include: longitudinal evaluation of ChatGPT's use in improving student learning outcomes and creativity, development of AI integration models that are adaptive to local contexts and curricula, and analysis of the ethical and psychological impacts of AI use in education. These studies are expected to enrich the literature and provide practical guidance for teachers and policymakers in optimizing and responsibly utilizing ChatGPT.

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