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A Systematic Review of Research on ChatGPT in Higher Education

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Abstract: This systematic review synthesizes research published between January 2023 and March 2025 on the integration of ChatGPT in higher education. Following PRISMA guidelines, a total of 20 peer-reviewed empirical studies were selected from Web of Science and Scopus databases. These studies represent diverse global contexts and methodological approaches, including qualitative, quantitative, and mixed-methods designs. The review identifies five key thematic categories: student perceptions, attitudes, perceived usefulness, acceptance, and user experience. The findings indicate that while students and educators largely view ChatGPT as a beneficial tool for enhancing learning efficiency, self-regulation, and academic productivity, concerns about overreliance, ethical ambiguity, content accuracy, and academic integrity persist. The review further shows that the educational impact of ChatGPT is shaped not only by the affordances of the technology but also by contextual factors such as institutional policies, instructor guidance, and students' AI literacy. Implications for practice include the need for clear usage guidelines, AI literacy integration, and pedagogical redesigns that promote critical thinking and originality. Limitations of the review include language and database restrictions, as well as the emergent nature of the literature base. Future research should address longitudinal impacts, discipline-specific applications, and cross-cultural differences in AI use.

Keywords: ChatGPT, Perceptions of ChatGPT, Trust in ChatGPT, Experience with ChatGPT, **DOI:** https://doi.org/10.31757/euer.824

Introduction

The integration of generative artificial intelligence (AI) tools like ChatGPT into higher education has prompted significant interest, experimentation, and debate. Developed by OpenAI and released to the public in late 2022, ChatGPT represents a new generation of large language models capable of generating human-like responses to diverse user prompts. Its accessibility and versatility have made it attractive to students and educators alike, enabling applications in writing assistance, tutoring, content creation, assessment support, and personalized learning pathways (Asy'ari, & Sharov, 2024; Dwivedi et al., 2023).

As ChatGPT's use proliferates in university contexts, the need to understand its pedagogical, ethical, and institutional implications has grown. While early adopters highlight its potential to foster engagement, efficiency, and equity in learning environments, others warn of its risks, including academic dishonesty, misinformation, and reduced critical thinking (Cotton et al., 2024). These divergent views reflect a broader uncertainty about the role of AI in formal education and indicate the urgency of developing informed policies and instructional practices.

The academic community has responded with a surge of empirical studies, theoretical analyses, and policy commentaries exploring ChatGPT's effects on learners, instructors, and institutional systems. However, these findings are often fragmented across disciplines, methods, and stakeholder perspectives. This review aims to present a holistic overview of the research conducted between 2023 and 2025 (Marh) on the integration of ChatGPT in higher education.

Research questions

What key findings have been revealed by academic studies regarding perceptions, attitudes, perceived usefulness, user experience, and perceived risks related to ChatGPT?

Literature Review

Pedagogical Applications of ChatGPT in Higher Education

Recent research highlights a variety of pedagogical applications of ChatGPT in university-level instruction, particularly in enhancing instructional delivery, tutoring, content generation, and formative assessment. As an advanced language model, ChatGPT offers on-demand explanations, answers to student queries, and example-based guidance that can supplement traditional teaching methods. For instance, it is used to generate problem sets, scaffold academic writing, and simulate dialogue in language learning contexts, thereby functioning as both a cognitive and affective support tool (Dwivedi et al., 2023).

In terms of instructional design, ChatGPT has been applied to automate certain elements of curriculum development, such as generating reading questions, summaries, and lesson outlines tailored to course objectives. Feedback provision is another area where the tool proves useful, especially in large-class settings where personalized instructor feedback is limited. Studies show that ChatGPT can assist in peer-review simulations or provide initial feedback on drafts, enhancing learning cycles when appropriately guided by human oversight (Rudolph et al., 2023).

The integration of ChatGPT also varies across academic disciplines. The integration of ChatGPT varies across academic disciplines. While the humanities and social sciences have witnessed earlier and more creative adoption—particularly in writing, philosophy, and education, where language-based reasoning predominates—STEM fields have also begun utilizing ChatGPT, though primarily for computational support such as coding assistance, mathematical explanations, and physics problem-solving (Wang et al., 2024).

Student Perceptions and Usage Patterns

Student perceptions of ChatGPT in university learning environments reveal a complex blend of enthusiasm, pragmatism, and caution. A growing body of research documents how students perceive the usefulness of ChatGPT as a learning aid, particularly for its ability to clarify difficult concepts, generate academic content, and offer immediate feedback. In a multi-university study, Kasneci et al. (2023) found that students appreciated ChatGPT's capacity to break down complex material into more understandable components, especially in self-paced or remote learning contexts. Many students view the tool as a supplementary tutor that can answer follow-up questions and personalize content delivery.

The frequency and purpose of ChatGPT use vary by academic background and course demands. According to surveybased findings, students most commonly use ChatGPT to support assignment writing, prepare for exams, and verify understanding of lecture materials (Krause, et al, 2024). In STEM disciplines, it is often employed to explain coding errors or solve mathematical problems, while in the humanities, students turn to it for idea generation, essay structuring, and improving linguistic clarity. Its availability around the clock and speed in generating responses contribute to its appeal as an accessible study aid.

Despite these benefits, students also voice concerns about ChatGPT's limitations. A key issue is trustworthiness, many users are aware that ChatGPT may "hallucinate" facts or provide outdated information, as it lacks real-time knowledge and source verification. Some students report cross, checking its outputs with textbooks or peer-reviewed sources to ensure reliability. Moreover, there are concerns about overreliance: students worry that habitual use may reduce their own critical thinking, writing skills, or engagement with original texts.

Instructor Attitudes and Institutional Responses

The introduction of ChatGPT into university learning environments has sparked varied reactions among instructors, ranging from enthusiasm for its pedagogical potential to concern about its disruptive implications. Many university staff members perceive ChatGPT as both a threat and an opportunity. On the one hand, instructors acknowledge the benefits of generative AI for enhancing personalized learning, reducing workload through automated feedback, and promoting student engagement. On the other hand, they also express apprehension about academic dishonesty, reduced student effort, and the erosion of fundamental skills such as critical thinking and independent writing.

Instructor concerns are most pronounced in disciplines that rely heavily on written assessments. Educators worry about students using ChatGPT to complete assignments dishonestly, which makes it harder to detect plagiarism or evaluate authentic learning. As a result, academic integrity has become a central theme in faculty discussions. According to a study by Cotton et al. (2024), many faculty members are uncertain about how to distinguish between legitimate use of AI as a learning tool and its misuse for academic fraud.

Institutional responses have ranged from outright bans to proactive integration. Some universities have restricted the use of ChatGPT through updated academic honesty policies, while others have embraced its potential by training faculty and students on ethical usage. For example, certain institutions have incorporated AI literacy modules into digital competence curricula or explicitly outlined acceptable AI use cases in course syllabi (Rudolph et al., 2023).

Ethical, Legal, and Academic Integrity Considerations

The incorporation of ChatGPT into university learning has brought ethical, legal, and academic integrity issues to the forefront of higher education discourse. Central to these concerns are questions of plagiarsm, authorship, and originality in AI-assisted work. Since ChatGPT can generate essays, problem solutions, and coding scripts that appear human-written, distinguishing between student-authored and AI-generated content has become increasingly challenging. Scholars argue that traditional definitions of plagiarism are being stretched, as students may not copy existing texts but instead present AI-generated material as their own (Cotton et al., 2024).

To address these concerns, several policy and technological interventions have been proposed. Institutions have begun renewing their academic integrity policies to include explicit guidelines on acceptable AI use. Some universities allow the use of ChatGPT for brainstorming or language correction but prohibit submission of AI-generated content as final work unless disclosed and appropriately cited (Rudolph et al., 2023).

Beyond plagiarism detection, broader ethical issues have also emerged. These include fairness in assessment, especially for students with unequal access to AI tools, transparency in how AI systems function, and concerns about data privacy. Since ChatGPT processes user contributions via cloud-based systems, the handling of sensitive academic or personal information becomes a legal and ethical concern. Questions about surveillance, consent, and data retention policies must be addressed if AI tools are to be safely combined into educational ecosystems.

Impact on Learning Outcomes and Critical Thinking

The impact of ChatGPT on students' learning outcomes and cognitive development is a topic of growing scholarly interest. Several studies have begun to evaluate whether generative AI tools enhance or hinder students' comprehension, engagement, and critical thinking. Findings suggest that ChatGPT can reduce cognitive load by offering immediate explanations, summarizing complex material, and providing alternative examples, particularly benefiting students who struggle with academic texts or abstract concepts (Kasneci et al., 2023).

However, this reduction in cognitive effort is accompanied by concerns regarding shallow processing and overreliance. Critics argue that while ChatGPT may improve surface-level understanding, it risks impeding deeper learning and critical engagement if students bypass essential steps such as inquiry, analysis, and synthesis (Heung & Chiu, 2025). There is evidence that some students adopt a "copy-edit-submit" approach, using AI-generated answers without fully engaging with the underlying concepts, which may weaken their long-term retention and problem-solving skills.

Debates also extend to creativity and higher-order thinking. On one hand, proponents suggest that ChatGPT can stimulate creativity by helping students brainstorm ideas, generate writing prompts, or explore multiple perspectives. This can be particularly valuable in disciplines that require divergent thinking and open-ended inquiry (Urban et al 2024). On the other hand, educators express concern that constant reliance on AI for ideation and articulation may hinder students' ability to develop their own voice, make nuanced arguments, and engage in original thought.

Furthermore, engagement metrics from classroom-based studies are mixed. While some research reports that students feel more motivated and confident when supported by AI tools, others indicate a decline in active participation and class discussion, suggesting that ChatGPT may substitute rather than supplement cognitive effort if not used judiciously (Heung & Chiu, 2025).

ChatGPT as a Tool for Accessibility and Inclusion

ChatGPT holds significant promise as a tool for promoting accessibility and inclusion in higher education. Its natural language processing capabilities allow it to support students with disabilities, language barriers, and learning difficulties by offering specific, real-time assistance that adapts to individual needs. For example, students with dyslexia or attention deficit disorders may benefit from ChatGPT's capacity to rephrase complex material, provide step-by-step explanations, or maintain focus through interactive dialogue. Similarly, learners with visual impairments can engage with content through screen readers enhanced by conversational AI responses, thereby improving access to digital learning environments (Hyatt, & Owenz, 2024). Language support is another area where ChatGPT has demonstrated considerable utility. For non-native English speakers, the tool can translate, simplify, and clarify academic texts, thereby mitigating language-related disadvantages. Research indicates that multilingual learners often use ChatGPT to draft responses, practice academic vocabulary, and receive grammar support, services that are especially valuable when institutional language support is limited (Kim, 2024).

Beyond individual accommodations, ChatGPT also contributes to reducing structural inequities in education. Students from underserved or under-resourced backgrounds, such as first-generation college students or those from low-income regions, may not have access to private tutoring or extensive academic support networks. ChatGPT can help level the playing field by offering equitable access to explanations, feedback, and guidance at no additional cost.

Challenges and Limitations of ChatGPT Use in Academia

While ChatGPT presents numerous educational opportunities, its integration into academic settings is accompanied by several technical, pedagogical, and practical limitations. One of the most cited concerns is its tendency to generate incorrect or fabricated information, a phenomenon known as "hallucination." ChatGPT can produce text that appears fluent and convincing, yet may contain factual inaccuracies, outdated references, or misleading explanations (Oladokun et al, 2025). These technical constraints also extend to subject specificity. While ChatGPT is generally proficient in language-based disciplines, it often lacks the depth and contextual nuance required for advanced or highly specialized content, particularly in STEM fields. For instance, it may misapply formulas, misunderstand scientific terminology, or fail to provide comprehensive justifications in mathematical or logical reasoning tasks (Cao, 2023). In terms of pedagogical concerns, a major challenge lies in the risk of increasing shallow learning and overreliance. When students use ChatGPT primarily to complete assignments or generate responses without engaging in the underlying reasoning, it can reduce the development of critical thinking, problem-solving, and academic writing skills. Some educators report that students are tempted to bypass the learning process, relying instead on AI-generated summaries or solutions, which may hinder long-term understanding.

Methods

Design

This study employed a systematic review design to examine recent empirical literature on the use and impact of ChatGPT in higher education. The review followed the Preferred Reporting Items for Systematic Reviews and Meta-

Analyses (PRISMA) guidelines to ensure a transparent, replicable, and rigorous research process (Page & Moher, 2017).

Search Strategy

Relevant articles were identified through a comprehensive database search conducted in March 2026 using two major scholarly databases: Web of Science (WoS) and Scopus. The search terms included combinations of keywords such as "ChatGPT," "higher education," "university students," "AI in education," and "generative AI tools." Boolean operators (AND/OR) were used to refine the results and capture a wide range of studies relevant to the research objectives.

Eligibility Criteria

To be included in the review, studies had to be published in 2024, appear in peer-reviewed journals, be written in English, and focus on the use, perception, or impact of ChatGPT in higher education contexts. Eligible studies had to be empirical or conceptual in nature, employing quantitative, qualitative, or mixed-methods research designs. Studies were excluded if they were non-empirical, review articles, editorials, or conference proceedings, or if they did not directly address ChatGPT in educational settings.

Screening and Selection Process

The initial search retrieved 318 records, 127 from Web of Science and 191 from Scopus. After removing 79 duplicate entries, 239 records remained for title and abstract screening. Of these, 198 were excluded for not meeting the inclusion criteria. The full texts of 41 articles were retrieved, and all these reports were ultimately assessed for eligibility. Following full-text assessment, 22 reports were excluded, eight were review articles, three were conference proceedings, six were not at university level, and participants of seven were not student. In total, 20 studies met all inclusion criteria and were included in the final synthesis. The PRISMA flow diagram (Figure 1) illustrates this process in detail.

Data Extraction and Analysis

Key characteristics were extracted from each included study using a structured data coding sheet. Information recorded included the author(s), year of publication, country of study, methodological approach (including study design and method type), educational level, unit of analysis, and number of participants. Descriptive synthesis and thematic analysis were then applied to identify major patterns, research trends, and conceptual gaps within the selected studies.

Figure 1

PRISMA Flow Diagram for the Systematic Review



Results

To provide an overview of the current empirical literature on ChatGPT in higher education and related contexts, Table 1 presents a summary of 20 selected studies published in 2024. These studies were chosen for their relevance to student experiences, perceptions, and behavioral patterns related to ChatGPT use, as well as for their diversity in research settings and methodological approaches.

All studies were conducted in university settings, with students as the primary unit of analysis. Methodologically, the articles span quantitative, qualitative, and mixed-methods designs, reflecting the interdisciplinary and exploratory nature of the field. Sample sizes varied widely, ranging from small qualitative studies with fewer than 30 participants to large-scale surveys exceeding 1000 respondents.

Geographically, the research spans Asia, Europe, the Middle East, and North America, with Hong Kong, South Korea, Germany, and the United States appearing multiple times. This global distribution shows the broad interest and relevance of ChatGPT across different educational and cultural contexts.

Table 1

Selected Articles and Key Characteristics

Authors	Year	Country	Method Type	Number of
				participants
Xu et al.	2024	Hong Kong	Qualitative	187
Espartinez	2024	Philippines	Mixed methods	27
Žáková et al.	2025	Slovakia	Mixed methods	166
Chan and Hu	2023	Hong Kong	Mixed methods	399
Acosta-Enriquez et al.	2024a	Peru	Quantitative	595
Acosta-Enriquez et al.	2024b	Peru	Quantitative	499
Chen et al.	2024	Taiwan	Quantitative	659
Almogren et al.	2024	Saudi Arabia	Quantitative	458
Adams et al.	2024	Malaysia	Mixed methods	373
Jo, H.	2023	Korea	Quantitative	645
Chung and Kwon	2025	South Korea	Quantitative	695
Zhu et al.	2024	Chinese	Quantitative	198
Kayalı et al.	2023	Turkey	Mixed methods	84
Sedlbauer et al.	2024	Czech Republic	Quantitative	25
Shuhaiber et al.	2025	UAE	Quantitative	283
Supianto et al.	2024	Indonesia	Quantitative	293
Fuchs and Aguilos	2023	Thailand	Quantitative	12
Xu et al.	2024	Hong Kong	Mixed methods	29
Shahzad et al.	2024	China	Quantitative	320
Strzelecki, A.	2024	Poland	Quantitative	534

Thematic analyses

The analysis of the 20 selected studies revealed a set of recurring themes that reflect how ChatGPT is perceived, utilized, and evaluated in higher education contexts. The themes emerged across diverse geographical, disciplinary, and methodological contexts, yet converged around several key constructs central to AI integration in education. These include perceptions of usefulness, attitudes and trust, learning outcomes, ethical concerns, instructional challenges, and levels of student engagement. Each theme encapsulates not only the affordances of ChatGPT but also the limitations and tensions associated with its implementation in academic environments.

Student Perceptions of ChatGPT

The increasing integration of ChatGPT in higher education has led to a growing body of research examining how students perceive this technology in academic contexts. Overall, student perceptions are shaped by a complex interplay of perceived usefulness, trust, ethical awareness, and concerns regarding academic integrity (Chan & Hu, 2023; Espartinez, 2024; Xu et al., 2024; Žáková et al., 2024).

Across multiple studies, perceived usefulness emerged as a dominant theme. Students frequently reported that ChatGPT enhanced their academic productivity by supporting brainstorming, clarifying complex concepts, assisting in writing, and facilitating access to information. These benefits were especially evident in non-assessment contexts where efficiency and comprehension were valued. However, perceptions of usefulness were not absolute; students often contextualized the tool's value based on task type and academic discipline (Chan & Hu, 2023; Xu et al., 2024). Trust in ChatGPT was found to be conditional and shaped by the students' familiarity with AI technologies and prior experiences. While some students trusted ChatGPT for routine or low-stakes academic tasks, they expressed reservations about its reliability in tasks requiring deep analysis or discipline-specific knowledge (Espartinez, 2024; Žáková et al., 2024).

Ethical concerns also significantly influenced how students engaged with ChatGPT. Many expressed uncertainties about the boundaries between acceptable and inappropriate use, particularly in relation to plagiarism, authorship, and original work. The absence of clear institutional guidelines often amplified this ambiguity (Chan & Hu, 2023; Xu et al., 2024).

In addition, concerns related to academic integrity were deeply interwoven with students' perceived benefits and ethical judgments. Although some students appreciated ChatGPT's utility for generating ideas and improving writing, others feared that overdependence on AI could hinder critical thinking, reduce authenticity in learning, or encourage dishonest practices (Espartinez, 2024; Žáková et al., 2024).

Attitudes Toward ChatGPT

In parallel with understanding how students perceive ChatGPT, another important dimension emerging in recent research is their attitudes toward the tool. While perceptions focus on how students interpret ChatGPT's functionality and affordances, attitudes capture their emotional, cognitive, and behavioral dispositions toward its use. These attitudes are shaped by several psychological and contextual factors, including user experience, trust, perceived benefits and risks, and the broader technological environment in which the tool is introduced (Acosta-Enriquez et al., 2024a; Acosta-Enriquez et al., 2024b).

Affective, cognitive, and behavioral components of student attitudes toward ChatGPT have been consistently identified in recent studies. Students generally exhibit positive attitudes when they perceive ChatGPT as beneficial to their academic work, particularly in improving task efficiency and offering writing support. This is reflected in

research where strong predictors of positive attitude include responsible use, intention to use, and emotional engagement, such as enjoyment and satisfaction with the tool's responses (Acosta-Enriquez et al., 2024b).

From a cognitive perspective, students' beliefs about ChatGPT's reliability, ease of use, and usefulness influence their overall attitude. For instance, when students understand how to use ChatGPT appropriately and view it as a tool that aligns with their academic goals, their attitudes tend to be more favorable. However, studies also report cognitive dissonance when students feel uncertain about the ethical implications of using AI or doubt the accuracy of AI-generated content (Acosta-Enriquez et al., 2024a).

Perceived Usefulness of ChatGPT

One of the most prominent themes emerging across recent literature is students' and educators' perceived usefulness of ChatGPT in higher education settings. This perception directly influences acceptance, engagement, and behavioral intention to adopt the tool. Across a range of disciplinary and geographic contexts, ChatGPT is generally viewed as a helpful assistant for academic tasks, particularly when it is used to support learning, improve productivity, and enhance access to information (Adams et al., 2024; Almogren et al., 2024; Chen et al., 2024; Jo, 2023).

Students frequently report that ChatGPT supports their academic help-seeking behavior, especially in contexts where human support is limited. It is viewed as an effective tool for task completion, accessing learning materials, and receiving explanations tailored to individual learning needs (Adams et al., 2024). Its ability to provide immediate, round-the-clock assistance makes it particularly valuable for students working independently or during off-hours. Beyond student perceptions, studies in smart education and healthcare settings also reflect a broader consensus on ChatGPT's utility. In a study involving students from healthcare and non-healthcare backgrounds, ChatGPT was perceived as more useful for medical education and research tasks than for clinical decision-making (Chen et al., 2024). Trust and ease of use emerged as key factors influencing this perception, especially among users with prior technological exposure. In the educational domain, factors such as feedback quality, assessment support, and intuitive interaction design have been shown to predict the perceived usefulness of ChatGPT in virtual learning environments (Almogren et al., 2024).

However, perceived usefulness is not uniform and may vary depending on the task domain, user experience level, and expectations of performance. In Jo's (2023) study comparing university students and office workers, both groups identified benefits in areas such as personalization, task efficiency, and cognitive support. Yet, they also noted that ChatGPT's usefulness is moderated by its limitations in content accuracy and contextual depth. Students particularly value ChatGPT's ability to provide utilitarian benefits, such as simplified explanations or structured outputs, especially during preliminary exploration of topics.

While users often acknowledge the usefulness of ChatGPT in academic and professional contexts, the literature also shows growing awareness of its perceived risks. These risks span several domains, including data privacy, security,

academic integrity, and ethical concerns, all of which shape user caution and hesitancy toward AI integration in higher education and research environments (Chung & Kwon, 2025).

A key area of concern involves privacy and data security. ChatGPT's ability to process and retain large volumes of data has sparked apprehension regarding how personal and sensitive information is managed. University students, in particular, have expressed concerns that their interactions with the platform might be stored, misused, or accessed without consent. For example, Chung and Kwon (2025) identified "privacy fatigue" among South Korean students, a sense of resignation about data protection, which paradoxically led to reduced perceived risk and increased usage intentions despite ongoing concerns.

ChatGPT Acceptance in Learning

As ChatGPT continues to evolve into a widely accessible educational tool, researchers have increasingly focused on the factors influencing its acceptance in learning environments. Acceptance, distinct from perception and attitude, refers to students' and educators' willingness to incorporate ChatGPT into their academic routines and pedagogical practices. Recent studies commonly frame this theme using constructs from the Technology Acceptance Model (TAM), the Unified Theory of Acceptance and Use of Technology (UTAUT), and related frameworks that emphasize behavioral intention, perceived usefulness, and ease of use (Almogren et al., 2024; Shahzad et al., 2024; Zhu et al., 2024).

Across studies, students' acceptance of ChatGPT is strongly influenced by its perceived contribution to learning efficiency, support for self-directed learning, and facilitation of personalized academic assistance. ChatGPT's integration into digital learning systems, such as Learning Management Systems (LMS), has enhanced its appeal as a learning companion. The seamless, real-time support it offers, ranging from content generation to feedback and clarification, has led many learners to view it as a useful adjunct to traditional instruction. When students perceive the tool as easy to use and aligned with their academic needs, they are more likely to adopt it in both formal and informal learning contexts.

A key factor in acceptance is the alignment between ChatGPT's functionality and learners' expectations. In higher education, where autonomy and flexibility are valued, students are particularly receptive to AI tools that support independent study and resource navigation. In hospitality and tourism education, for example, authenticity was found to be a stronger predictor of acceptance than traditional usability metrics, suggesting that context-specific attributes influence how ChatGPT is evaluated (Zhu et al., 2024).

Student Experience with ChatGPT

Beyond attitudes and acceptance, a growing body of research is now focusing on students' lived experiences with ChatGPT as a learning companion in higher education. These experiences encompass not only how students interact with the tool but also how they evaluate its impact on learning, academic behavior, and personal development. While many report positive and supportive experiences, these are often accompanied by reflections on limitations, ethical ambiguities, and evolving relationships with AI (Fuchs & Aguilos, 2023; Kayalı et al., 2023; Šedlbauer et al., 2024; Shuhaiber et al., 2025).

Students commonly describe ChatGPT as accessible, responsive, and easy to use, especially in online or asynchronous courses. It is often viewed as a helpful resource for clarifying doubts, summarizing readings, assisting with writing, and generating ideas. The immediacy of feedback and the tool's capacity to scaffold independent study have contributed to a generally favorable usability experience (Kayalı et al., 2023). However, these practical benefits are often tempered by concerns about accuracy and performance inconsistencies, especially when dealing with ambiguous or nuanced questions.

Experiential studies also suggest that students are actively negotiating the boundaries between support and substitution. Some students perceive ChatGPT as a tutor-like figure, reliable for routine academic support, while others warn that overreliance on AI may impede critical thinking or reduce engagement with course materials. For example, qualitative analyses of student-written essays and reflections reveal a range of reactions, from initial curiosity and excitement to more cautious or critical stances after prolonged use (Šedlbauer et al., 2024). These reflections often highlight the duality of ChatGPT: a time-saving tool on one hand, and a potential source of superficial learning on the other.

Another dimension of student experience relates to emotional and motivational responses. In many cases, students report feeling more confident, motivated, and autonomous when ChatGPT is available as a support system (Shuhaiber et al., 2025). However, this empowerment is not universal. Some students express frustration with the AI's limitations, especially when it produces vague, incorrect, or misleading content. There are also students who express discomfort or ethical unease with using AI, particularly when it is unclear how its use aligns with institutional policies. Students' experiences are further shaped by trust, transparency, and institutional framing. When ChatGPT is introduced with clear guidelines and ethical scaffolding, students are more likely to report positive outcomes. Conversely, in the absence of support or clarity, students tend to experiment with the tool in unstructured ways, sometimes encountering negative consequences such as information inaccuracies or conflicts with academic integrity policies (Fuchs & Aguilos, 2023).

Discussion

The findings synthesized in this review suggest that ChatGPT represents both a transformative opportunity and a multifaceted challenge in higher education. Students generally perceive ChatGPT as a supportive tool, especially for clarifying difficult concepts, generating ideas, and providing immediate feedback (Strzelecki, 2024). These positive perceptions, however, coexist with apprehension around accuracy, overreliance, and ethical use. The tension between utility and risk underscores a central theme: the pedagogical value of ChatGPT is highly contingent on the context of its use and the frameworks guiding its application.

ChatGPT's perceived usefulness, particularly in enhancing academic efficiency and enabling self-directed learning, explains its widespread adoption across disciplines (Kasneci et al., 2023; Abdalla, 2025). Yet, as evidenced by the literature, its impact on cognitive engagement and learning outcomes remains ambivalent. While the tool can scaffold comprehension and lower cognitive barriers, it may also encourage surface-level processing, especially if students use it primarily to bypass more effortful learning processes. This dual effect calls for a more nuanced approach to AI integration that emphasizes critical engagement over convenience.

Trust emerges as another pivotal factor shaping ChatGPT usage. Although many students find the tool accessible and linguistically competent, they remain skeptical of its factual accuracy (Jung et al, 2024). The phenomenon of hallucinated content and the lack of source verification reduce trust, particularly in high-stakes academic tasks. Students tend to cross-check outputs or use ChatGPT as a first step rather than a final authority. This behavior reveals a form of AI-assisted literacy that is emerging among learners, but which requires institutional support to be developed meaningfully.

Instructor perspectives reflect a parallel ambivalence. While many educators recognize ChatGPT's potential to personalize learning and reduce feedback burdens, they also express concern about academic dishonesty and erosion of foundational skills (Cotton et al., 2024). These tensions have prompted a reevaluation of assessment practices, leading some institutions to redesign assignments to emphasize process, originality, and reflection. The pedagogical shift from content reproduction to metacognitive learning may be one of the most enduring impacts of generative AI. Ethical and institutional considerations further complicate ChatGPT's adoption. Issues of academic integrity, plagiarism, authorship, and data privacy are not merely technical challenges but philosophical ones that question the boundaries of student agency and machine involvement in knowledge creation (Cotton et al., 2024; Rudolph et al., 2023). Institutional responses vary widely, from restrictive policies to proactive training programs. The latter approach—integrating AI literacy into curricula—appears more aligned with long-term goals of ethical, equitable, and empowered student engagement.

Inclusion and accessibility represent areas of significant promise. ChatGPT has been shown to support students with disabilities, language learners, and those from underserved backgrounds by offering real-time, personalized academic support (Kasneci et al., 2023). This democratizing potential, however, must be balanced against the digital divide and varying levels of AI readiness across institutions. Without equitable access to technology and guidance, ChatGPT could inadvertently reinforce educational inequalities.

Finally, limitations in ChatGPT's content accuracy, subject depth, and contextual sensitivity point to the need for human oversight and blended learning models (Han & Battaglia, 2024). Educators must be positioned not as gatekeepers of AI, but as facilitators who help students use AI critically and responsibly. Future research should explore how AI can be embedded within pedagogical strategies that preserve student agency while enhancing learning outcomes.

In sum, ChatGPT is neither a panacea nor a threat in isolation. Its value lies in how it is contextualized, scaffolded, and regulated within the broader educational ecosystem. The challenge for higher education is not whether to adopt AI tools like ChatGPT, but how to do so in ways that uphold the integrity, inclusivity, and transformative goals of learning.

Conclusions, Implications, Limitations, and Future Research

This systematic review provides a comprehensive synthesis of studies exploring the use of ChatGPT in higher education. The analysis reveals that ChatGPT is widely appreciated for its accessibility, efficiency, and capacity to support academic tasks such as content generation, explanation, and feedback. However, its integration is accompanied by nuanced concerns related to trust, ethical use, academic integrity, and overreliance. The evidence suggests that the educational value of ChatGPT is not intrinsic to the tool itself but depends on how it is pedagogically contextualized and institutionally supported.

The findings of this review carry several implications for higher education institutions, instructors, and policymakers. Institutions must establish clear, transparent, and adaptive policies regarding acceptable uses of generative AI in academic settings. Educators should be equipped with the training and resources necessary to integrate AI tools in ways that promote originality, critical thinking, and active learning.

Embedding AI literacy into curricula is essential to foster responsible and informed student engagement with tools like ChatGPT. Furthermore, equity considerations must be central to institutional planning, ensuring that students from all backgrounds have access to both the technological infrastructure and the educational support required to benefit from AI-enhanced learning.

While this review offers meaningful insights, it is not without limitations. First, the scope was limited to studies published in English and indexed in two major academic databases (Web of Science and Scopus), which may have excluded relevant research from other linguistic or regional contexts. Second, the review only included studies published in between 2023 and March 2025, potentially overlooking more recent developments or rapidly evolving literature on generative AI.

Third, although a range of research designs were included, the variation in methodological rigor across studies was not formally assessed through a quality appraisal framework, which could affect the reliability of some findings. Additionally, due to the emergent nature of this research field, many included studies had exploratory aims and were conducted in early phases of ChatGPT's adoption, limiting generalizability over time or across educational systems. The review highlights several areas for future inquiry. Longitudinal studies are needed to evaluate the sustained cognitive, behavioral, and motivational effects of ChatGPT use in education. There is also a need for discipline-specific investigations, particularly in fields where creative reasoning, ethics, or laboratory engagement are central.

Research should explore the development of AI literacy, how students and faculty conceptualize ethical use, and how generative AI tools affect academic identities and assessment cultures. Moreover, cross-national and institutional comparisons could offer insight into how cultural, policy, and infrastructural differences shape attitudes toward AI. Experimental and intervention-based designs would also strengthen the evidence base, helping institutions make informed decisions about integrating AI technologies into learning environments.

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