



## Responsible Use of ChatGPT in Sustainable Higher Education: A Narrative Review Aligned with SDG 4

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### Abstract

The rapid growth and adoption of generative AI tools, in particular ChatGPT, has brought both opportunities to change and significant challenges into higher education. Institutions are increasingly implementing ChatGPT for various means such as personalized learning, instructional or academic writing assistance, and research support; and in doing so, concerns regarding academic honesty and integrity, ethics, fairness, as well as the gap between digitally-enabled and -disenabled learners have begun to develop. To achieve the responsible use of any such technologies within the scope of SDG4, which calls for inclusive and equitable quality education, will require a commitment to sustainability for higher education institutions into the future as well. This article is a narrative review that synthesizes current literature on ChatGPT's application, benefits, and risks within higher education with a specific focus on how they can assist with sustainable and inclusive educational practices. Existing literature was examined via various databases (Google Scholar; Scopus; Web of Science; Policy documents) using key-words including but not limited to "ChatGPT in Higher Education"; "Generative Artificial Intelligence"; "Responsible AI use in Education"; and "AI and SDG 4.0." Peer-reviewed articles and papers, as well as review papers, conceptual analyses, and policy reports published between 2022 – 2025 were researched, and a randomized thematic analysis was utilized to group key findings. The findings indicate that ChatGPT has been widely used for support with personalized / adaptive learning; generating structured feedback for students; improving their ability to write academically; assisting in the development of educational curriculum; and guiding researchers through their research process

**Keywords:** ChatGPT in higher education; generative artificial intelligence; responsible AI use; sustainable education; SDG 4; digital ethics; academic integrity; educational governance.

### 1. Introduction

The introduction of generative artificial intelligence (GAI) tools like ChatGPT has fundamentally changed the way that higher education operates today. These tools can be used for many purposes, such as supporting students with their academic writing, providing tutoring to students, supporting researchers in conducting research, and increasing efficiency in administrative functions (Gallagher, 2025). The emergence of these tools also supports

global initiatives to modernize higher education and to achieve the United Nations' Sustainable Development Goal 4 (SDG4) to provide accessible and equitable quality education. However, the increasing use of these tools, particularly ChatGPT, raises a number of concerns, including academic dishonesty, privacy and security of personal information, algorithmic bias in machine learning models, and the inequitable access to digital



technologies and resources for all students (Raza et al., 2025; Jelinek et al., 2025). These issues underscore the need to implement best practices when implementing AI technologies in higher education responsibly and ethically. The study will review the current literature regarding the implementation of ChatGPT in higher education and the relationship between the implementation of ChatGPT with sustainable and ethical principles.

1.1.Scope of the Study

The purpose of this review will be to examine the two-fold function of ChatGPT as a facilitator of innovation and as a source of innovative ethical dilemmas within higher education. This review will provide an overview of how ChatGPT can help to sustain a learning environment and will explore various issues that may impede fair educational outcomes associated with using ChatGPT.

The integration of AI tools like ChatGPT directly relates to SDG 4 by promoting inclusive learning opportunities and enhancing accessibility. However, ensuring that these technologies are used responsibly is essential to avoid reinforcing existing inequalities.

2. Method

This paper uses a narrative review approach to gather the currently existing literature on ChatGPT and higher[1-5] education. The writing of this literature review involved the use of structured search methodologies and thematic analysis. The theoretically relevant literature was gathered using literature databases such as Google Scholar, Scopus, Web of Science, MDPI, Springer Nature and Elsevier with search terms of "chat GPT and higher education", "generative AI", "ethical AI", "AI governance", "sustainability education", and "SDG 4". The literature that was collected were peer-reviewed articles (and articles from peer-reviewed journals) or policy documents that were published between 2022 and 2025 and were about the use of artificial[6 – 10] intelligence in higher education and their ethical and/or sustainability implications. The framework for conducting the thematic analysis was created by identifying the patterns of benefits, risks, and strategies for governance related to ChatGPT. Table 1 presents the thematic categories identified from the literature review.

Table 1. Key Themes Identified in the Study

Table with 2 columns: Theme, Description. Rows include Personalized Learning, Academic Writing, Accessibility, Ethical Risks, and Governance.

3. Results and Discussion

3.1.Results

The review identified five distinct themes. ChatGPT provides significant assistance for the development of personalized learning through adapted feedback and support for different types of learners. ChatGPT is also able to assist with increasing research productivity and improving academic writing skills. Finally, ChatGPT supports student with varying ability or other language proficiency levels. However, these results provided important areas for concern including, academic dishonesty, inaccurate information, data security, and unequal access to technologies. Furthermore, unclear post-secondary institutions' policies regarding ChatGPT increase difficulties with its usage[11].

3.2.Discussion

These findings indicate that ChatGPT has the potential to be transformative, but it will require careful management before integration is feasible. A human-centered approach is needed to ensure that ChatGPT is used ethically and academic integrity is maintained. Governance frameworks should be clear and continue to promote AI literacy for both educators and students. Additionally, addressing reasons behind digital inequity will be an essential step toward providing access to all learners. The successful balance between the impact of innovation and the balancing of responsibility will greatly impact the future sustainability of AI in education.

Conclusion



In summary, this research shows that ChatGPT can be used to improve the quality of learning in higher education through personalised learning experiences; accessibility improvement and assistance with academic tasks. These three factors correspond closely with SDG4 as stated previously. It is also important that institutions begin to establish policies regarding ethical use, governance and equity in relation to AI and ChatGPT which address issues of digital literacy and proper use. The use of AI should be approached in a balanced and ethical manner to achieve sustainable and equitable outcomes in education.

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