A Preliminary Review of Generative AI as a Decision-Support System for Students with Motor Disabilities in Higher Education

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***Abstract*— This article presents preliminary findings from an exploratory review analyzing how generative artificial intelligence (generative AI) has been addressed in recent higher education research, particularly in accessibility and inclusion contexts. The study focuses on students with motor disabilities and on the role of generative AI in decision-support systems. Methodologically, an initial literature screening was conducted in the Scopus and Web of Science databases. Publications from 2023 to 2025 were considered, and defined inclusion criteria were applied. The selected studies were analyzed descriptively to identify patterns and trends. The results highlight recurring themes such as interactivity, adaptability, multimodality, and ease of use. However, gaps were identified in studies that specifically address motor disabilities, particularly regarding motor load reduction, accessible interaction, and the role of generative AI in decision-support systems. These findings help define the scope of the field of study and guide the development of an ongoing systematic review, as well as the construction of conceptual frameworks for the integration of generative AI into inclusive higher education settings.**

I. Introduction

Until the early 21st century, the concept of disability was understood primarily as an individual health condition, with little consideration of the social, technological, or institutional factors that influence educational participation [1]. However, this perspective changed with the adoption of the World Health Organization's International Classification of Functioning, Disability and Health (ICF), which establishes that disability results from the interaction between a health condition and contextual, personal, and environmental factors [1].

This perspective is relevant to the current analysis of artificial intelligence in higher education, particularly because motor disabilities continue to be treated in a general or secondary manner in some of the academic literature.

The expansion of generative artificial intelligence (generative AI) in higher education has opened new possibilities for supporting teaching and learning processes through automated content generation, educational personalization, and new forms of interaction.

In the field of inclusive education, these technologies can serve as advanced support tools for students with disabilities, contributing to communication, content adaptation, and the reduction of certain educational barriers.

However, much of the existing research has focused on cognitive or sensory disabilities, while motor disabilities have received less attention.

Motor disabilities involve limitations in physical control that can affect activities such as writing, the use of traditional input devices, or prolonged interaction with digital interfaces. In this context, one of the main challenges is the motor load associated with academic tasks, understood as the physical effort required to interact with technological tools.

In this regard, generative AI can contribute to reducing this burden through conversational interfaces—that is, voice input and the automation of writing processes; however, this potential has not been extensively explored in the scientific literature.

Despite the exponential growth in studies on generative AI in education, limited attention has been given to its application for students with motor disabilities. This hinders the identification of trends, research gaps, and opportunities for technological development in this emerging field.

Most existing research focuses on cognitive or sensory disabilities, and motor limitations are often grouped into broad, undifferentiated categories, which limits the analytical depth and practical relevance of the results for this specific population.

This gap highlights the need for more specialized research focused on motor impairments, particularly regarding accessible interfaces, interaction modes, and technologies that enable low-effort or hands-free participation in university settings.

This paper presents a preliminary review aimed at exploring the role of generative AI in decision-support processes for students with motor disabilities in inclusive higher education. Through an exploratory review, the study seeks to identify trends, research gaps, and underexplored areas in the recent literature on generative AI and motor disabilities.

Finally, this study expands previous research on accessibility and inclusion in higher education by incorporating a specific focus on motor disabilities and decision-support systems [2].

II. OBJECTIVES

To analyze how recent scientific literature addresses generative artificial intelligence as a decision-support system for students with motor disabilities in higher education, with the aim of identifying research gaps, emerging trends, and relevant aspects for the development of models focused on accessibility and inclusion.

1. Identify studies that directly address the use of generative AI among college students with motor disabilities.
2. Analyze research on generative AI, disability, or inclusion in higher education whose findings may be applicable to contexts involving motor impairments.
3. Propose future lines of research and recommendations for the development of generative AI systems focused on addressing the diverse needs of students with motor disabilities.

III. METHODOLOGY

This study is conducted as a preliminary exploratory review, aimed at identifying emerging trends and research gaps regarding the use of generative artificial intelligence in higher education, with an emphasis on accessibility and inclusion for students with motor disabilities. This phase is the first step in a broader systematic review process that is currently underway.

To this end, a preliminary literature screening was conducted to define the study's scope. The study selection process followed the methodological recommendations outlined in PRISMA 2020 [3].

The search was conducted in the Scopus and Web of Science databases, focusing on peer-reviewed articles published in English between 2023 and 2025. Keyword combinations such as "generative artificial intelligence," "higher education," "accessibility," "inclusion," "motor disabilities," and "assistive technologies" were used.

The selection process began with an initial screening based on titles, abstracts, and keywords. Then, inclusion and exclusion criteria were applied. As a result, only a few relevant studies were identified, which highlights the limited attention paid to motor disabilities in recent literature.

The selected studies were analyzed through a descriptive thematic approach, considering dimensions such as interactivity, adaptability, multimodality, and ease of use. This analysis allowed for the identification of initial patterns and areas with limited evidence.

Tables I and II present the inclusion criteria applied. This preliminary review provides a basis for the development of a broader systematic review in subsequent stages.

TABLE I. ARTICLE SELECTION CRITERIA

Articles published between 2023 and 2025.
Articles written in English.
Peer-reviewed publications.
Studies employing experimental, quasi-experimental, observational, qualitative designs, as well as systematic reviews and meta-analyses.

TABLE II. THEMATIC INCLUSION CRITERIA

Studies focusing on university students with motor disabilities
Studies examining the use of generative AI to personalize learning and reduce physical interaction demands.
Studies addressing accessibility, assistive technologies, or inclusive practices in higher education.
Studies linking generative AI, accessibility, and inclusion in higher education contexts.

IV. PRELIMINARY RESULTS

This section presents the preliminary results of the literature screening process (Table III). Based on the previously defined inclusion criteria, a limited number of studies were identified that explicitly address the use of generative AI in relation to accessibility and motor disabilities in higher education [4-8].

TABLE III. PRELIMINARY REVIEW STUDIES

Article Title	**Topics**	**Journal**	**Year**	**Data-base**
The use of generative AI by students with disabilities in higher education	Generative AI, Disabilities, Inclusion, Academic Writing.	The Internet and Higher Education	2025	Scopus
Integrating Large Language Models into Accessible and Inclusive Education: Access Democratization and Individualized Learning Enhancement Supported by Generative Artificial Intelligence	Large Language Models, Accessibility, Inclusion, Personalizati on.	Information (Switzerland)	2025	Scopus / Web of Science
Beyond the Prompt: Student Strategies, Ethical Reflections, and Learning with ChatGPT in Computer Science	Generative AI, ChatGPT, Accessibility, Ethical Reflections.	Technology, Knowledge, and Learning	2025	Scopus / Web of Science
Managing generative artificial intelligence in the daily lives of people with disabilities	Generative AI, Adoption, Disabilities, UTAUT2	Management Decision	2025	Scopus
Disability services in higher education: Statistical disparities and the potential role of AI in bridging institutional gaps	Disability Services, Higher Education, AI Role, Inclusion.	PLOS ONE	2025	Scopus

Source: Prepared by the author based on the selected articles.

The preliminary results of this ongoing review reveal a scarcity of studies that explicitly address the use of generative AI as a decision-support system for students with motor disabilities in higher education.

After applying the inclusion criteria, only a small number of articles met the established requirements, confirming the underrepresentation of this population in recent literature indexed in Scopus and Web of Science.

As shown in Table III, most of the identified studies focus on the use of these digital tools by students with disabilities in general terms [4–8]. Consistently, these studies prioritize cognitive disabilities and, to a lesser extent, sensory disabilities, while motor disabilities are typically addressed broadly, without specific differentiation; therefore, the results and recommendations in most studies are presented in a general context. Consequently, this trend limits the ability of the studies to identify specific physical barriers related to assisted interaction with educational technologies.

Of the identified studies, only one article directly analyzes the use of generative AI by students with motor impairments [5], making it one of the few emerging studies focused on motor disability and highlighting the scarcity of research on this type of disability compared to other categories.

On the other hand, no studies were found that specifically focused on reducing the motor load through generative AI in higher education contexts.

Furthermore, recurring patterns were identified in the analyzed studies, particularly in aspects such as personalized learning, multimodality, and the automation of writing tasks [4,6,7]. However, these elements are often presented as general benefits of generative AI, reinforcing the evidence that there is insufficient attention to reducing motor load or facilitating interactions requiring minimal physical effort.

Likewise, the reviewed studies tend to focus on access to generative AI [6], while aspects related to modes of interaction, the use of adapted interfaces, or the integration of assistive devices receive limited attention.

This lack of focus restricts the understanding of the real potential of these technologies in contexts where the user's physical conditions are a determining factor. However, this situation presents opportunities for future research to more closely examine the development of accessible and tailored solutions that help reduce physical barriers and support the participation of students with motor disabilities in inclusive higher education settings.

Overall, the results indicate a general approach to addressing cognitive, sensory, and motor disabilities in the study of generative AI in inclusive education. This leads to a significant gap in research specifically focused on motor disabilities, their characteristics, needs, and particular limitations, especially regarding physical interaction, motor load, and the design of adapted solutions.

V. Conclusion

This preliminary review takes an initial approach to analyzing generative AI as a decision-support system in inclusive higher education settings with a focus on students with motor disabilities. The review confirms a lack of studies that explicitly address this population and a tendency to broadly categorize motor impairments, without analyzing physical barriers, modes of interaction, or specific accessibility needs.

The reviewed studies suggest that this technology has significant potential to personalize learning, reduce physical strain, and support more inclusive and adaptable educational interactions for students with motor disabilities. However, its integration with academic decision-support systems and its potential impact on the design of truly inclusive university environments have not yet been systematically explored from a perspective focused on motor disabilities.

Thus, the preliminary findings justify the need to expand and deepen the systematic review in subsequent phases, incorporating a more detailed analysis of the types of motor impairments, the contexts of generative AI use, and its ethical, technological, and institutional implications in higher education. These lines of work will facilitate the development of conceptual frameworks that will guide the responsible integration of generative AI into inclusive university environments.

VI. Limitations

This study has several limitations. First, the preliminary nature of the review means that only a few studies were analyzed. Second, the scope of the analysis may be restricted by the fact that the search was limited to English-language publications and two databases.

VII. Future work

For future work, it is proposed to expand the review with a more comprehensive, systematic approach that incorporates a greater number of databases, more detailed analysis criteria, and a more specific classification of types of motor disabilities. Additionally, this study suggests the development of a conceptual framework for the use of generative AI in decision-support systems.

This framework should integrate dimensions of accessibility, interaction, and adaptation in inclusive university settings. Furthermore, future studies should directly explore how the adoption of generative AI systems can contribute to reducing accessibility gaps, as well as identify potential risks or limitations for students with motor disabilities.

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REFERENCES

[1] World Health Organization, International Classification of Functioning, Disability and Health (ICF). Geneva, Switzerland: World Health Organization, 2001.

[2] J. A. Jaime-Vargas, "Generative AI for enhancing accessibility and inclusion in higher education: A systematic review," HighTech and Innovation Journal, vol. 6, no. 2, pp. 723–735, Jun. 2025, doi: 10.28991/HIJ-2025-06-02-022.

[3] M. J. Page, J. E. McKenzie, P. M. Bossuyt, I. Boutron, T. C. Hoffmann, C. D. Mulrow, et al., "The PRISMA 2020 statement: An updated guideline for reporting systematic reviews," BMJ, vol. 372, p. n71, 2021, doi: 10.1136/bmj.n71.

[4] G. Bagnato, F. Ruiz-Moreno, C. Giachino, and A. A. Abdelkader Ali, "Managing generative artificial intelligence in the daily lives of people with disabilities," Management Decision, early access article, 2025, doi: 10.1108/MD-10-2024-2471.

[5] X. Zhao, A. Cox, and X. Chen, "The use of generative AI by students with disabilities in higher education," The Internet and Higher Education, vol. 66, Art. no. 101014, 2025, doi: 10.1016/j.iheduc.2025.101014.

[6] I. Lopez-Gazpio, "Integrating large language models into accessible and inclusive education: Access democratization and individualized learning enhancement supported by generative artificial intelligence," Information, vol. 16, no. 6, Art. no. 473, 2025, doi: 10.3390/info16060473.

[7] K. Aruleba, I. T. Sanusi, G. Obaido, B. Ogbuokiri, and I. D. Mienye, "Beyond the prompt: Student strategies, ethical reflections, and learning with ChatGPT in computer science," Technology, Knowledge and Learning, early access article, 2025, doi: 10.1007/s10758-025-09899-7.

[8] M. B. Wells, "Disability services in higher education: Statistical disparities and the potential role of AI in bridging institutional gaps," PLOS ONE, vol. 20, no. 5, 2025, doi: 10.1371/journal.pone.0302623.