

## NAVIGATING THE IMPLICATIONS OF GENERATIVE AI IN EDUCATION, LEARNING, AND ASSESSMENT

**Dr. JULIUS OTUNDO**

Lecturer Riara University  
Research Scholar

<https://doi.org/10.37602/IJREHC.2025.6517>

### ABSTRACT

Technological advancements have helped in the rise of generative artificial intelligence (GenAI), which incorporates tools such as Gemini, ChatGPT, Midjourney, and Claude. The rapid integration of GenAI in the education sector is alarming, as teaching methodologies, learning processes, and assessment strategies have been affected. Such effects result from its ability to generate personalized learning materials while offering immediate feedback. As a result, in collaboration with students, education stakeholders have utilized these capabilities to set rules on their utilization in the classroom. Despite having the capabilities to facilitate personalized learning experiences, provide immediate feedback, and automate administrative tasks, it has several challenges. Key concerns include increased cases of plagiarism, as many students are submitting assignments and projects generated from AI. In addition, the ethical implications of AI usage, such as data privacy, algorithmic bias, and equitable access, have increased.

This research adopted a literature review as the methodology. More than fifteen research papers were analyzed to identify various methods that can be used to navigate GenAI implications. Through a systematic review of the past literature, this research identified four strategies to help navigate these implications. These solutions are redesigning the assessment criteria, using an AI assessment scale (AIAS), addressing ethical implications, using micro-credentials, incorporating capstone projects and investing in ongoing research and collaboration. Based on these methods of navigating implications caused by GenAI, the study discusses how these methods will help preserve academic standards. The paper further discusses the need for collaboration among educators, technologists, and policymakers in developing the best practices that harness the advantages of GenAI while mitigating its risks.

**Keywords:** Generative AI (GenAI), education, learning, assessment, academic integrity, ethical implications, and AI assessment scale (AIAS)

### 1.0 INTRODUCTION

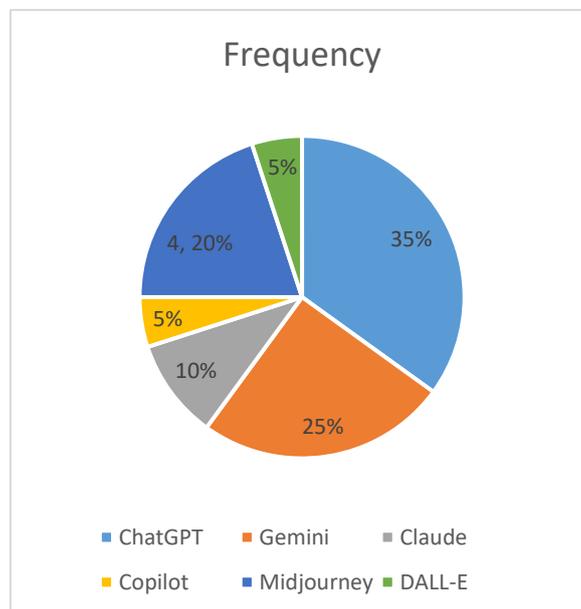
For centuries, technological advancements have consistently reshaped the educational landscape [1]. Gone are the days when students relied on books for their assignments and teachers spent the whole night marking books. The 21st century is characterized by the widespread adoption of computers and the Internet [1]. This has enabled students to do their tasks with the help of tablets, smartphones, and laptops. On the other hand, teachers are receiving printed copies or online submissions, giving them adequate time to mark them. Increased access to computers and the internet among many educational institutions has paved

the way for the integration of artificial intelligence [1]. For instance, generative artificial intelligence (GenAI) is one of the most integrated technologies in the education sector [1, 2, 3]. Its integration has been attributed to its ability to process large datasets and produce specific content. Such content includes images, videos, infographics, notes, and data that are vital in facilitating various programs in the education sector [3, 4]. With GenAI, students and teachers can generate these materials in the blink of an eye. Some of the GenAI tools that are widely used include ChatGPT, Gemini, Copilot, DALL-E, Claude, and Midjourney [3, 4, 5].

ChatGPT is the most used from the past literature, followed by Gemini and Midjourney, while Copilot is rarely used [3, 4]. The figure below illustrates the usage of GenAI tools.

**Figure 1.1: A pie chart illustrating the usage of Gen AI tools in the education sector**

GenAI Tool	Frequency of usage in the education sector
ChatGPT	7
Gemini	4
Midjourney	4
Claude	2
DALL-E	1
Copilot	1



Some pros associated with these tools are facilitating personalized learning experiences, providing immediate feedback, and automating administrative tasks [2]. On the other hand, they are associated with drawbacks such as increased cases of plagiarism, erosion of critical thinking, and rise of ethical implications [6, 8]. These ethical implications include algorithm bias, data privacy, and equitable access. By analyzing both the benefits and the limitations, this study aims to provide various mechanisms that can be used to navigate the implications while utilizing the benefits.

Past papers that other scholars and researchers have written have been systematically analyzed to produce data that have helped build up this study's findings. To help fulfil the objective of this study, the researcher has presented the conclusions of four thematic areas.

This study is essential, as other researchers will use its findings to build their studies. In addition, it has added more knowledge to the existing research while providing new recommendations that will help advance the use of GenAI in the education sector.

This study incorporates other sections such as materials and methods, findings, discussion, conclusion, and recommendations. The following section will analyze how the data was collected. After this, data will be presented and discussed, paving the way for the conclusion.

### 2.0 MATERIALS AND METHODS

This study used a literature review as the primary data collection tool. Articles and past papers published in education concerning generative artificial intelligence (GenAI) were analyzed to provide data. Keywords played a huge role as they helped identify recent literature relevant to this study.

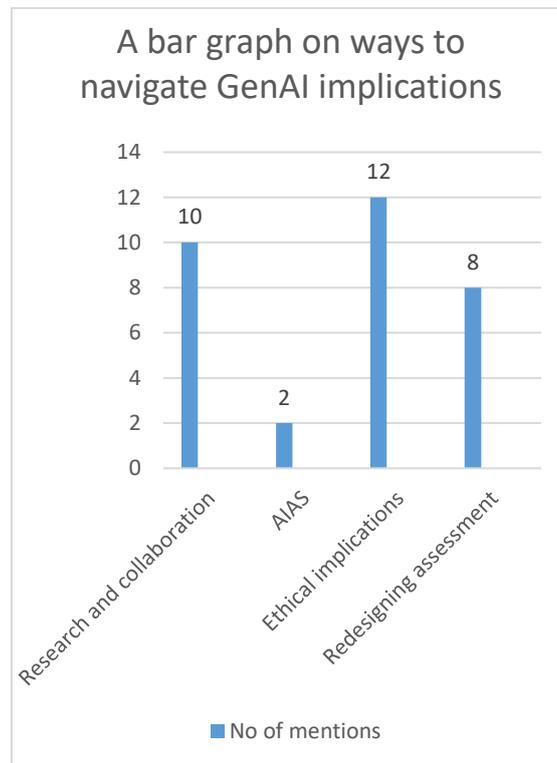
### 3.0 FINDINGS

Different studies that have been conducted between 2022 and 2025 have been analyzed. The data that has been obtained helped identify the four ways of navigating the GenAI implications in the education sector. The researcher presents the solutions in six topics. The topics are redesigning the assessment criteria, using the AI assessment scale (AIAS), addressing ethical implications, investing in ongoing research and collaboration, incorporating capstone projects, and using micro-credentials.

The figure below illustrates how past researchers mentioned the four solutions in their studies.

**Figure 1.2: A bar graph illustrating the number of mentions against the solutions of navigating the GenAI implications**

Solutions	Number of mentions in past papers
Investing in ongoing research and collaboration	10
Addressing ethical implications	12
Use of the AI assessment scale (AIAS)	2
Redesigning the assessment criteria	8



## 4.0 DISCUSSION

### 4.1 Redesigning the assessment criteria

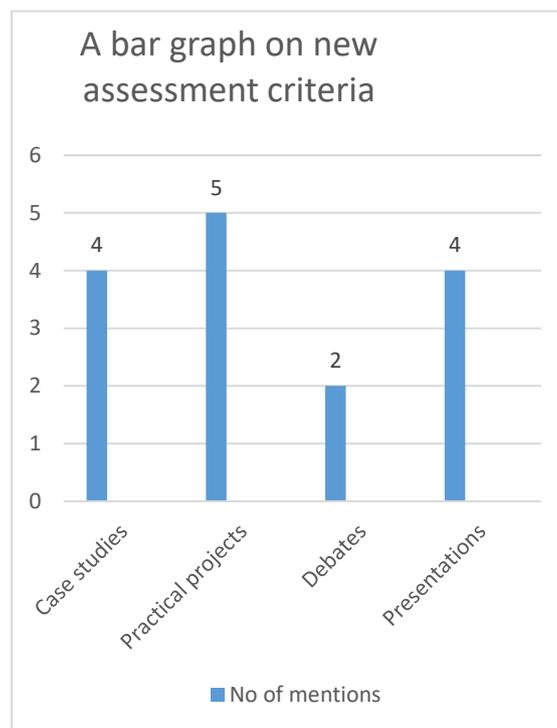
Education facilitators have used content reproduction criteria for decades to evaluate students' performance [4]. These criteria required students to state facts, write essays, and explain a specific phenomenon. However, GenAI can give these responses within a second. Therefore, many students pass the question on to the GenAI tool to provide answers. While some students submit GenAI work without making any changes, others use it to improve their work. Continued use of GenAI among students has led to increased plagiarism and erosion of critical thinking due to overreliance [7].

Past research has advocated for the need to have an assessment that focuses on higher-order thinking skills. The new assessments will measure the student's ability in evaluating, analyzing, applying, and creating [13]. They will incorporate tasks requiring students to critique AI-generated content, justify their decisions, and solve real-world problems [14]. Considering that such tasks have no single correct answer, students can give a broader perspective [8, 14, 15]. Researchers also encourage using professional contexts, such as group projects, debates, and presentations, where collaboration and critical thinking are as important as the final product [13, 15].

Out of the eight scholars who advocated redesigning assessment criteria, using a practical project was highly encouraged. The figure below illustrates how researchers suggested new assessment criteria.

**Figure 1.3: A bar graph showing the number of mentions against the new assessment criteria**

Solutions	Number of mentions in past papers
Case studies	4
Practical projects	5
Debates	2
Presentations	4

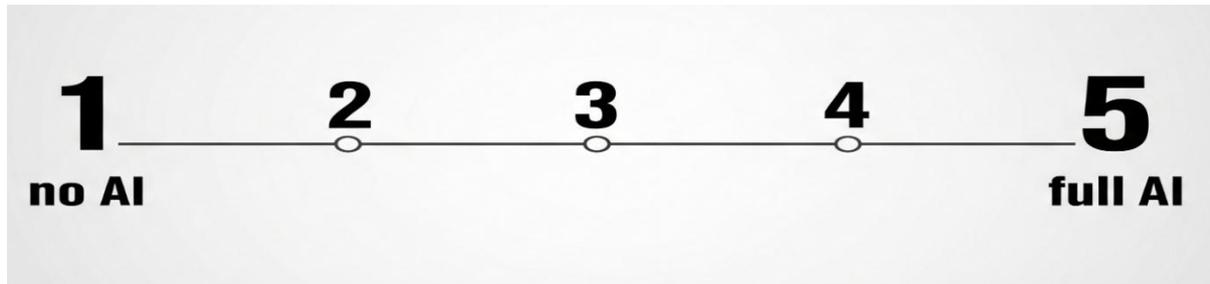


#### 4.2 Use of the AI assessment scale (AIAS)

The current technological advancements clearly illustrate that GenAI is here to stay. Based on this argument, researchers suggest using an AI assessment scale to navigate the complexities of GenAI in educational assessments [6, 8, 9]. This framework does not advocate for either banning or allowing GenAI. It uses a scale level to measure how AI has been used for academic purposes [9]. The scale has a five-level structure ranging from "no AI" to "full AI." This scale provides students with clear instructions on areas where they are supposed to use GenAI and sessions where they are not supposed to use it [7]. Based on the students' work, the educator can identify the amount of AI content using a scale level [8]. The findings of a pilot study revealed that AIAS led to a significant reduction in academic misconduct cases and enhanced

student engagement with the technology [8]. The figure below illustrates a scale used to measure the amount of AI in academic documents.

**Figure 1.4: A diagram to illustrate the AIAS scale**



### 4.3 Addressing ethical implications

Generative artificial intelligence has led to several ethical implications, such as algorithm bias, data privacy, and equitable access [10, 12]. Algorithm bias occurs when the developers feed an AI system with biased information [11]. Researchers suggest educators teach their students to critically evaluate AI-generated content for accuracy, inclusivity, and fairness [11]. While critiquing such content, students will have an opportunity to identify potential bias.

As students and educators interact with GenAI tools, they input sensitive personal and academic data, raising concerns about how this information is collected, stored, and used [10]. A systematic review on data privacy points out the risks of institutional misuse of student data and the lack of regulatory oversight [11]. Researchers encourage educators to teach students to avoid inputting personal and academic data into AI systems [12]. Furthermore, they urge educators to avoid over-relying on AI systems for admission and grading due to potential bias.

Equitable access to GenAI remains a long-lasting challenge. Some students cannot utilize GenAI tools effectively due to financial constraints, poor internet connectivity, and geographical barriers [10]. Researchers are advocating for a policy that persuades institutions to provide GenAI tools to students. In addition, they are required to teach students how to use them [10]. This will help in bridging the gap between equitable access to GenAI tools.

### 4.4 Investing in ongoing research and collaboration

Generative artificial intelligence is advancing daily, emphasizing the need for continued research to ensure that one is up to date with the latest developments [3]. Based on this argument, researchers have highlighted the need to bring together different stakeholders to undertake this research. For example, some studies point to the crucial role of collaboration between educators and GenAI developers in facilitating a forum for sharing insights and best practices, leading to an advanced GenAI tool with fewer algorithm biases [1, 2]. Researchers are also calling for collaboration between educators and students to align their preferences and values, which can lead to more successful guidelines for AI use in the classroom [4].

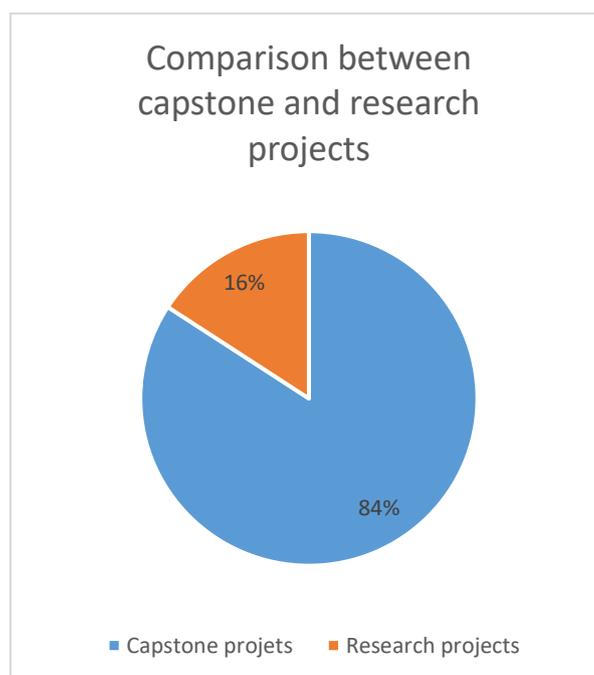
### 4.5 Use of a capstone project

Capstone projects challenge GenAI as they require students to develop projects that give physical solutions to societal problems. At the institutions of higher learning, instructors have always relied on research projects. However, capstone projects are different from research projects due to their high-level, culminating assessments that require students to synthesize knowledge and skills gained throughout a program of study [13]. Scholars note that these projects are inherently complex for GenAI to complete alone because they demand critical thinking, originality, and the integration of diverse concepts across a discipline [13]. Such projects focus on real-world problem-solving, often requiring students to define a research question, conduct in-depth research, and develop a tangible solution. Once students have completed the capstone project, they are required to make a presentation. During the presentation, a panel of experts can evaluate the student’s mastery, originality and uniqueness [15]. This is contrary to research projects where students are just required to submit their handouts without making a presentation.

Many scholars have compared capstone and research projects. Most of them have mentioned capstone projects as the way forward in the era of artificial intelligence (AI). The pie chart below illustrates the mentions of both the capstone and the research project.

A pie chart illustrating the comparison of capstone and research projects

Comparison	Number of mentions in past papers
Capstone projects	16
Research projects	3



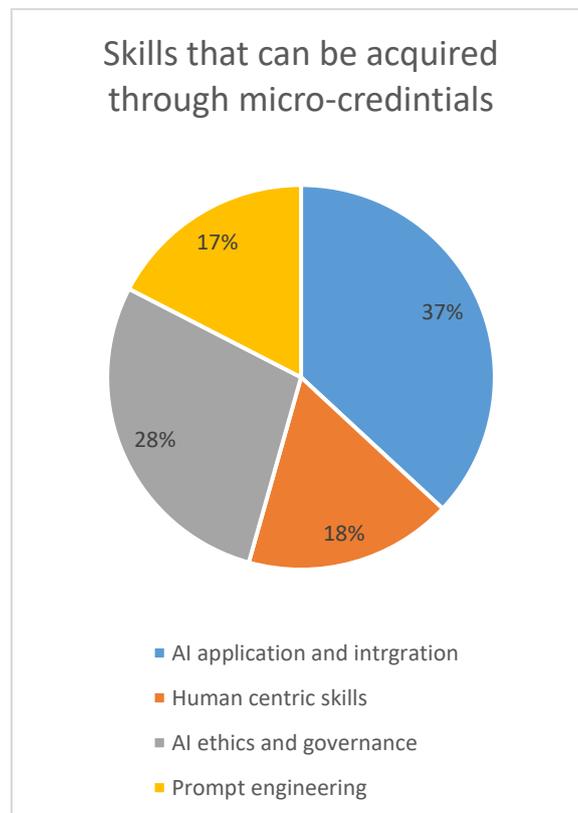
#### 4.6 Incorporating micro-credentials

Micro-credential use is one of the valuable responses to assessing students in an era characterized by increased use of GenAI. It involves students getting specific skills from one university and another skill from another university. As one study suggests, micro-credentials validate particular skills or competencies that are difficult to automate and highly valuable in the modern workforce [14]. For example, a student can earn a micro-credential for AI ethics and governance, AI application and integration, human-centric skills and prompt engineering.

The pie chart below illustrates the skills that can be acquired through micro-credentials.

A pie chart illustrating the skills that can be acquired through micro-credentials

Skills	Number of mentions in past papers
AI ethics and governance	15
AI application and integration	5
Human-centric skills	10
Prompt engineering	5



This approach allows educational institutions to assess and certify discrete, high-demand skills while removing reliance on traditional examinations [15].

## 5.0 CONCLUSION

Continued research proves that GenAI tools are here to stay. Their integration in the education sector has led to increased cases of plagiarism and erosion of critical thinking. Researchers have suggested new mechanisms to counter these challenges, such as using AIAS, incorporating capstone projects, investing in micro-credentials and redesigning the assessment criteria. Such methods aim to test the concept understanding while solving case studies. This will help to ensure that the integrity of education standards and examinations remains intact. Using debates and presentations to test the students' ability to grasp concepts will help mitigate the increased cases of plagiarism.

## 6.0 RECOMMENDATIONS

Increased use of GenAI calls for the urgent need for policymakers, educators, AI developers, and technologists to collaborate in the development of a framework that advocates for:

- i. A quick implementation of the new assessment criteria/ the use of the artificial intelligence assessment scale (AIAS).
- ii. All educational institutions should invest in generative artificial intelligence tools to bridge the ethical issue of equitable access.
- iii. Regular training for educators and students on data privacy. They should be educated on what data to input into AI and what data they should not input.
- iv. Continued collaboration between educators and students to enhance AI usage in the classroom.

## REFERENCES

1. Alier, M., et al. (2024). Establishing ethical standards for GenAI in university education: a roadmap for academic integrity and fairness. *Journal of Interactive, Communicative, and Educational Services*.
2. Agbese, M., Mohanani, R., Khan, A., & Abrahamsson, P. (2023). Implementing AI ethics: making sense of the ethical requirements. *Proceedings of the 27th international conference on evaluation and assessment in software engineering*.
3. Frontiers Publishing Partnerships (2024). *Generative AI in Higher Education: Balancing Innovation and Integrity*. *Frontiers in Education*.
4. Frontiers in Education (2025). *Ethical and regulatory challenges of Generative AI in education: a systematic review*.
5. Tan, J. Y., et al. (2025). *Collaborative Uses of GenAI Tools in Project-Based Learning*. MDPI.
6. Perkins, M., Furze, L., Roe, A., & MacVaugh, J. (2023). *The AI Assessment Scale (AIAS): A Framework for Ethical Integration of Generative AI in Educational Assessment*. arXiv preprint.
7. Canterbury Christ Church University (2025). *Artificial Intelligence Assessment Scale (AIAS)*.
8. Vynck, G. (2023). *Comprehensive AI assessment framework: Enhancing educational evaluation with ethical AI integration*. ERIC.
9. Leon Furze (2023). *The AI Assessment Scale: Version 1*.

10. Akgun, S., & Greenhow, C. (2022). Artificial intelligence in education: addressing ethical challenges in K-12 settings. *AI Ethics*.
11. Strunk, V., & Willis, J. (2025). Generative Artificial Intelligence and Education: A Brief Ethical Reflection on Autonomy. *EDUCAUSE Review*.
12. *Frontiers in Education* (2024). The ethical implications of using generative chatbots in higher education.
13. *ResearchGate* (2025). Redesigning Assessments for AI-Enhanced Learning: A Framework for Educators in the Generative AI Era.
14. *Frontiers in Education* (2025). Balancing AI-assisted learning and traditional assessment: the FACT assessment in environmental data science education.
15. *tandfonline.com* (2025). Mastering knowledge: the impact of generative AI on student learning outcomes.