Emerging Research and Policy Themes on Academic Integrity in the Age of Chat GPT and Generative AI

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Abstract: Universities are increasingly concerned with the impact of Generative AI, such as Chat GPT, on cheating and other violations of students' academic integrity. However, research is scarce regarding the responses of universities on this issue. In addition, the increase in studies on GenAI invites a systematic review of themes and trends to update researchers who wish to embark on this emerging research area. This paper reviews 37 articles on academic integrity in the Age of Gen AI and presents the approaches of the top 20 global universities to mitigate the impact of artificial intelligence tools on students' intellectual integrity and learning. The results showed three themes both in the systematic review of the literature and the content analysis of the policies of the top 20 global universities: enforcement of academic integrity, education of faculty and students on ways to avoid academic misconduct, and encouragement of using Gen AI tools in the academe and the workplace, for productivity. This paper proposes a 3E Model for higher education institutions to start a discussion on creating a roadmap to ensure academic integrity, explore ways to improve classroom assessment practices, and encourage exploration of evolving Gen AI tools. In addition, the categories found in this study may be used by universities in updating their research agenda on Generative AI.

Keywords: Academic integrity, Chat GPT, Student assessment, University policy

1. Introduction

The advent of Generative AI, especially ChatGPT, has drastically changed the accessibility of information generation in various industries. Generative AI uses a large corpus of data from images, music, and text to create other forms of text, images, and predictable data (Euchner, 2023). This feature of Generative AI has been received with much enthusiasm as it opens doors to endless possibilities that could improve operations, management, text, music, and art production and be an indispensable tool in the business and health sectors. In business and marketing, the application of Generative AI has been seen in creating marketing and sales content, including generating images, layout, and sound or music (Chi et l, 2022). In the art industry, AI-generated images are revolutionizing the field and giving viewers a more personalized experience (Lau, 2022). Lau (2022) also posited that today's media is developing faster and more complex than ever. Generative AI has also impacted the fields of and engineering since it can generate, document, and review the codes necessary for programming software. Moreover, Generative AI allows for automating tabular forms of data while providing contextual information (Lau,

2022). The same power and application can be seen in the field of medicine. Artificial intelligence (AI) is making waves in the healthcare industry, potentially raising the standard of patient care. Industry analysts and innovators are investigating AI's potential to save healthcare costs and simplify administrative processes.

While the dawn of Generative AI has been received with much optimism, the opposite can be said in academia, where it has been received with some apprehension and concern. ChatGPT is an example of a Generative AI platform that relies on natural language processing to create appropriate texts regarding context and coherence (Hsu & Ching, 2023). The ability of Generative AI to generate such text has been deemed a useful tool for rapid learning (Chang & Kidman, 2023). This feature is just one of the reasons why Generative AI has been touted by experts (Kuhail et al., 2023) to have the most potential in education. On the other end of the spectrum, others have expressed concern over the potential drawbacks of Generative AI, both short-term and long-term. First, there is a lack of human interaction, which may disadvantage some students (Crawford et al., 2023). In addition, AI cannot explain nor give feedback to students based on their individual needs and differences (Wang et al., 2020). In addition, there have been concerns about the application of AI in assessing students' outputs, as the instrument where AI is programmed to perform may only be designed to suit a particular demographic of students. Another concern lies in the ability of Generative AI to automate text with a few commands or queries, as this may make students overly dependent on AI in creating essays, creative texts, and content, among others. This capability of AI opens the gates to discussions about plagiarism, attribution, and the accuracy of information, not to mention the possibility of decreasing students' critical thinking skills.

Consequently, there have been calls for the acceptance of Generative AI, as technology has already found its way into the continuum of teaching and learning, assessment, and research. As a

result, only a handful of HEIs in the Global North have developed declarations of policy about using generative AI to facilitate learning. According to UNESCO, less than ten percent of schools have formal guidance on adopting Generative AI in the teaching and learning continuum (UNESCO, 2023b). This paper intends to synthesize the most recent research on using Generative AI in academia, specifically in assessment, to clarify appropriate accommodation strategies for HEIs in Asia.

This study seeks to amalgamate the current literature on Generative AI in education, particularly in assessment. More specifically, it seeks answers to the following questions:

RQ 1. What are the research themes on students' academic integrity with the rise of Generative AI in higher education?

RQ 2: How did top global universities respond to the threats of generative AI tools to students' academic integrity?

2. Method

This paper used a systematic review process followed by Su et al. (2022) for the first research question and a content analysis for the second question. First, the objectives for the review and the research questions were set. Initially, the goals were to trace trends in research on AI and academic integrity. However, the initial review showed that Generative AI was used in the current literature. The second stage was identifying relevant studies using clear parameters. For the systematic literature review, the researchers used keywords related to Generative AI and its application in learning when searching for journal articles. Keywords include: " "Generative AI in HEIs/Universities," "Generative AI in Education," "Generative AI Policies," "ChatGPT in HEIs/Universities," "ChatGPT in education," and "ChatGPT AI Policies.

Next, the researchers decided on the following inclusion criteria to filter the references for this study. Scholarly publications should be a.) Published from November 2022 onwards; b.) Peer-reviewed journal articles; c.) The topic should be Generative AI or ChatGPT in education or its application in teaching and learning, including AI or Generative AI policies; d.) Can be quantitative, qualitative, or mixed; and e.) Relevant to the research questions.

Exclusion criteria were: a.) Journals published before November 2022; b.) Articles in the basic education setting; c.) Technical discussions on AI and ChatGPT ; d.) Relevant journals that do not address the research questions.

The fourth stage was creating a system to categorize the studies. A matrix was created with three columns based on an initial literature reading: enforcement, education, and encouraging exploration. The researchers agreed upon the definition and parameters based on the initial framework of University College London (2023). UCL modified Rundle et al. (2020)'s Swiss Cheese Approach to trace the causes of and barriers preventing plagiarism and cheating. This paper used two themes from the model: Education and Enforcement. Education ensures that stakeholders understand what constitutes misconduct. To summarize UCL's concepts of Environment and Engineering, the third theme was developed and termed encouragement. Studies that encourage faculty and students to explore the capabilities of Gen AI to improve teaching, assessment, and learning were classified under this third category.

The final stage was summarizing and reporting the results of the systematic review. Researchers used strategies to enrich the trustworthiness of qualitative research. Peer review, prolonged engagement, and persistent observation were used for credibility. For four months, there was a weekly meeting among the researchers to provide feedback on the analysis of each team member to limit the researcher's bias. For dependability and comfortability, investigator triangulation was used, where two researchers discussed similarities and differences in their coding by themes (Lincoln and Guba (1986); Merriam and Tisdell (2016); as cited in Yadav, 2022). Consensus coding was used for the first 15 references. Consequently, two researchers proceeded to split the coding. Consensus coding gave alignment on coder variability, with the first weeks focused on discussing the best labels for the themes, as well as points of disagreement (Politz, 2023). Shortly after, split coding was used, where one researcher was assigned to code the themes in the scientific journals, and another reviewed the policies. Once each was complete, they exchanged data and looked for inconsistencies or differences in coding (Politz, 2023).

On the one hand, for the content analysis of policies on the top 20 global universities, the researchers used the 2023 QS Ranking Report (QS Quacquarelli Symonds Limited, 2023). The keywords used were *academic integrity/cheating/plagiarism/Generative AI policy.* Next, a matrix was created with the list of top global universities and their policies on the threats of ChatGPT and other AI tools to students' academic integrity. The categories also followed the ones used in the first research question of this paper.

A total of 37 studies were included in the systemic review. Table 1 summarizes these studies and shows that a review was the most common method used by the authors. There were a total of 17 reviews. Five were literature reviews, two were systematic reviews, and one was a rapid review. The other reviews used various methods of analysis: three content analyses, two document analyses, an archival study, an expert analysis, an ethical analysis, and a scientific analysis.

Table 1. Summary of Methods of the Systematic Literature Review

Article Type	Sub-categories	Author (year)
Review	Literature	Tajik & Tajik, 2023; Estrellado & Miranda, 2023; Uzun, 2023 ; Cotton et al., 2023; Pournaras, 2023
	Systematic	Perkins, 2023; RodriguezChavez et al., 2023
	Rapid	Lo, 2023
	Document Analysis	Mhlanga, 2023; Chou et al., 2023
	Archival Study	Rahman et al., 2023
	Content analysis of policies/ media articles/etc.	Xiao et al., 2023; Sullivan et al., 2023; Al-Worafi et al., 2023

Article Type	Sub-categories	Author (year)
	Expert Analysis	Dwivedi et al, 2023
	Ethical Analysis	Lund et al., 2023
	Scientific Analysis	Farrokhnia et al., 2023
Position papers and commentaries	Position papers with proposed frameworks	Dai et al., 2023; Su & Yang, 2023; Halaweh, 2023
	Commentaries	Maciel, 2023; Anders, 2023; Crawford et al., 2023; Tan, 2023
Experimental Studies	Quasi-Experimental Studies	Chaudhry et al., 2023
	Coding-related experiments with Chat GPT	Rahman & Watanobe, 2023
Qualitative	Perception studies through surveys	Rajabi et al., 2023;
Studies	Speculative future narratives	Bozkurt et al., 2023
	Gender-Based and Sentiment Analysis	Raman et al., 2023
Quantitative studies	Cross-sectional Surveys	Dawa et al., 2023
	Evaluating the quality of Chat GPT essays versus student-written papers	Busch & Hausvik, 2023
	Testing the capability of Chat GPT: Outputs generated by a chatbot are analyzed and evaluated numerically	Khalil & Er, 2023
Mixed Method Studies	Anonymous, confidential online survey and interviews (open and close-ended questions)	Kier & Ives, 2022
	Completing ChatGPT Activities and interviews (open-ended questions)	Shoufan, 2023
	Questionnaires and Analyzing comments and content related to ChatGPT(social media platforms, including LinkedIn, Facebook, and Twitter)	Subaveerapandiyan et al., 2023
	Survey and interview (open-ended questions)	Chan, 2023
	Testing the capability of Chat GPT: Generating ChatGPT responses to a prompt, then evaluating it using Turnitin results and Qualitative grading using rubrics	Alafnan et al., 2023

3.1 Results

RQ: 1. What are the research themes on students' academic integrity with the rise of Generative AI in higher education?

Theme 1: Educating the Faculty and Students on the Impact of Generative AI on academic integrity

The first overarching theme was education, divided into two sub-themes, educating the faculty and the students. Table 2 shows that the literature highlights the need to train faculty members to engineer

their assessment and for educational institutions to provide various channels to ensure that their teachers understand the impact of Gen AI tools on academic integrity and their ethical use.

Table 2. Educating Faculty Members

Prevailing Subthemes	**Codes**	**Authors**
Changes enerative AI has on learning	Benefits in higher education	Cotton et al., 2023; Dai et al., 2023; Estrellado & Miranda, 2023; Tajik & Tajik, 2023
	Purposes in higher education	Rahman & Watanobe, 2023; Chaudhry et al., 2023; Busch & Hausvik, 2023
	Limitations	Busch & Hausvik, 2023; Subaveerapandiyan et al., 2023; Shoufan, 2023; Bozkurt et al., 2023
Channels of educating the faculty	Providing education	Kier & Ives, 2022
	Research integrity campaigns	Chou et al., 2023
	Further research and discussion	Sullivan et al., 2023
	Training and support	Cotton et al., 2023
Generative AI and assessment	Modifying Assessment Teacher Responsibility	Al-Worafi et al., 2023; Estrellado & Miranda, 2023; Sullivan et al., 2023; Dai et al., 2023; Xiao et al., 2023
		Xiao et al., 2023; Shoufan, 2023; Lo, 2023; Anders, 2023
	Engineering Assessment Recommendations	Alafnan et al., 2023; Busch & Hausvik, 2023; Lo, 2023; Bozkurt et al., 2023; Halaweh, 2023; Crawford et al., 2023; Chaudhry et al., 2023; Kier & Ives, 2022

Table 3 highlights the need to acquaint students with new policies about academic integrity, cheating, and ethical use of Gen AI tools.

Table 3. Educating Students

Prevailing Subthemes	**Codes**	**Authors**
Changes brought by using AI in learning	Correct Use of Generative AI	Anders, 2023, Raman et al.,
	Wrongful Use of Generative AI	Dawa et al., 2023; Busch & Hausvik, 2023; Alafnan et al., 2023; Lo, 2023; Chaudhry et al., 2023; Khalil & Er, 2023; Cotton et al., 2023

Prevailing Subthemes	**Codes**	**Authors**
	Student Responsibilities	Dawa et al., 2023; Khalil & Er, 2023; Sullivan et al., 2023
Academic Integrity and Misconduct	The Meaning of Academic Integrity	Cotton et al., 2023; Lo, 2023; Khalil & Er, 2023
	Cheating and Plagiarism	Anders, 2023; Kier & Ives, 2022
	Other Ethical Issues on AI Use	Mhlanga, 2023; Lo, 2023; Rajabi et al., 2023; Lund et al., 2023; Su & Yang, 2023

Students should also be part of implementing university policies on academic integrity. They should be familiar with the importance of academic integrity and ethical behavior, preventing academic dishonesty, and the consequences of academic misconduct (Cotton et al., 2023; Lo, 2023; Khalil & Er, 2023). Students need clarification on what constitutes cheating, plagiarism, and academic misconduct (Anders, 2023; Kier & Ives, 2022), empowering them to report cases (Kier & Ives, 2022) and make them aware of other ethical issues in the use of AI (Mhlanga, 2023; Lo, 2023; Rajabi et al., 2023; Lund et al., 2023; Su & Yang, 2023).

Theme 2: Enforcement at the University and Classroom Levels

Table 4 shows the need to reinforce the importance of an academic integrity policy at the university level**.** The literature reminds HEIs to take all necessary steps to ensure that AI will be integrated into their practices. For example, Bozkurt et al. (2023), Chaudhry et al., 2023 Estrellado & Miranda 2023; Khalil & Er, 2023; Kier & Ives, 2022; Rodriguez-Chavez et al., 2023, and Xiao et al., 2023, agree that policies must be made to educate all stakeholders as to how Generative AI can be used in their universities, particularly in teaching and learning in the classroom. It must cover all ethical and academic integrity issues affected by the rise of Generative AI like ChatGPT.

Table 4: Enforcement of Policies

Prevailing Subthemes	**Codes**	**Authors**
There is a need for a of learning policy on the use Chat GPT in	Need/Urgency	Maciel, 2023; Uzun, 2023; Subaveerapandiyan et al.,2023; Chaudhry et al., 2023; Estrellado & Miranda, 2023; Mhlanga,2023; Su & Yang, 2023; Raman et al., 2023
	Overall enforcement of the use of Generative AI in HEIs	Tan, 2023; Perkins, 2023; Xiao et al., 2023; Su & Yang, 2023; Estrellado & Miranda, 2023; Halaweh, 2023;
	ChatGPT's integration into Evaluation, Instruction, and Assessment	Rodriguez-Chavez et al., 2023; Chaudhry et al., 2023; Subaveerapandiyan et al., 2023; Chan, 2023; Lo, 2023; Halaweh, 2023

Prevailing Subthemes	Codes	Authors
	Looking into the use of technologies	Busch & Hausvik, 2023; Khalil & Er, 2023; Halaweh, 2023; Chan, 2023; Lo, 2023; Subaveerapandiyan et al., 2023
	Role of Administrators and Stakeholders	Kier & Ives, 2023; Cotton et al., 2023; Xiao et al., 2023; Khalil & Er, 2023; Rodriguez-Chavez et al, 2023; Chaudhry et al., 2023; Estrellado & Miranda, 2023
Universities must on issue a policy academic integrity	Policies in the aftermath of ChatGPT	Anders, 2023, Lo, 2023; Perkins, 2023; Xiao et al., 2023; Kier & Ives, 2022; Cotton et al., 2023; Khalil & Er, 2023
	Policies on Academic Integrity	Taghipour et al., 2023; Lo, 2023; Xiao et al., 2023; Anders, 2023; Perkins, 2023; Kier & Ives, 2023; Cotton et al., 2023
Teachers can implement their own policy on the use of ChatGPT in their classrooms.	Teachers can ban the use of Generative AI in the classroom.	Subaveerapandiyan et al., 2023; Xiao et al., 2023
	Teachers can allow the use of Generative AI in the classroom, with restrictions.	Halaweh, 2023; Crawford et al., 2023; Xiao et al., 2023; Khalil & Er, 2023

There are differing views on enforcing AI policies. With differing responses of HEIs on AI use, HEIs must produce their policies as these policies will allow for maximizing the benefits of AI (Perkins, 2023; Tan, 2023; Xiao et al., 2023) Researchers have shown that HEIs must reinforce the policies as it is needed and urgent (Maciel, 2023; Uzun, 2023; Subaveerapandiyan et al.,2023; Chaudhry et al., 2023; Estrellado & Miranda, 2023; Mhlanga,2023; Su & Yang, 2023; Raman et al., 2023), since AI inadvertently facilitated plagiarism, and defeated the purpose of fair evaluation and assessment (Lo, 2023). These policies must highlight Generative AI's integration into Evaluation, Instruction, and Assessment (Chaudhry et al., 2023; Subaveerapandiyan et al., 2023; Chan, 2023; Lo, 2023; Halaweh, 2023). It was also suggested that HEIs must investigate the use of these technologies, particularly ChatGPT and Turnitin (Khalil & Er, 2023).

Studies also mention the role of administrators and stakeholders, as their open communication will shape and refine the guidelines for AI use, thus assisting students in enforcing AI Policies. As Generative AI, particularly ChatGPT, challenged the very foundations of academic integrity (Anders, 2023; Lo, 2023; Perkins, 2023; Xiao et al., 2023), HEIs should focus on redefining cheating and determining and demarcating plagiarism (Anders, 2023; Cotton et al., 2023; Xiao et al., 2023). In addition, HEIs must adopt academic integrity policies that discuss such technologies' appropriate, ethical, and moral use (Maciel, 2023; Uzun, 2023; Xiao et al., 2023; Subaveerapandiyan et al., 2023).

Table 4 also shows the themes of the enforcement of AI policies by the teacher at the classroom level. Banning Generative AI is disadvantageous as HEIs become blind to detecting plagiarism among students (Subaveerapandiyan et al., 2023; Xiao et al., 2023). Xiao et al. (2023) do not agree with banning ChatGPT, as all students will eventually use it, so it will become difficult to prevent them from accessing and using AI technologies. Some teachers allow the use of AI, stating explicitly that it will be used in the

course (Halaweh, 2023). Crawford and colleagues (2023) add that by embedding AI into subjects and courses, teachers might be able to teach students the ethical use of such technologies. Khalil & Er (2023) saw the need to provide clear guidelines on the importance of academic integrity and ethical behavior. This, plus teacher expectations for students, should be included in the syllabus.

Theme 3: Encouraging the Exploration of the Capabilities of Generative AI

Table 5. Encouraging the exploration of Generative AI

Prevailing Theme	Codes	Authors
Encouraging faculty and students to use generative AI.	Exploring the capabilities of generative AI	Farrokhnia et al., 2023; RodriguezChavez et al, 2023; Kier & Ives, 2022; Hallaweh, 2023; Anders, 2023, Cotton et al., 2023; Lo, 2023; Tan, 2023; Estrellado & Miranda, 2023; Tajik & Tajik, 202
	Maximizing the advantages of Generative AI for students	Lo, 2023; Maciel, 2023; Bozkurt, et al., 2023; Tajik & Tajik, 2023
	Research Capabilities of Chat GPT	Maciel, 2023; Rahman et al., 2023; Pournaras, 2023; Lund et al., 2023

Table 5 discusses the third prevailing theme, encouraging the exploration of Generative AI tools. Encouraging the use of ChatGPT, according to Anders (2023), is the most tactical approach. For example, Lo (2023) encourages the use of ChatGPT as it provides students with an interactive and personalized learning environment. She explains that ChatGPT can be a valuable tool for instructors, providing a starting point for creating course syllabi, teaching materials, and assessment tasks, thus, as Tan (2023) puts it, enhancing the teaching-learning experience. In addition, ChatGPT in HEIs is known for making processes and tasks more efficient (Farrokhnia et al., 2023) and offering innovations across all learning domains (Maciel, 2023). Furthermore, Tajik & Tajik (2023) believe in maximizing the potential benefits of ChatGPT as it can support students with developmental disabilities. Also, ChatGPT is utilized in university research (Maciel, 2023; Rahman et al., 2023; Pournaras, 2023; Lund et al., 2023). ChatGPT can play a significant role as a powerful assistant (Maciel, 2023) and can be used in various research writing steps.

RQ 2: How did top global universities respond to the threats of generative AI tools to students' academic integrity?

Table 6 shows three responses to Generative AI like Chat GPT by the top 20 global universities: enforcement, education, and encouragement. Ten of the 20 universities posted on their websites an academic integrity policy. For example, the University of Oxford (2023) states:

> *"Presenting work or ideas from another source as your own, with or without consent of the original author, by incorporating it into your work without full acknowledgement. All published and unpublished material, whether in manuscript, printed or electronic form, is covered under this definition, as is the use of material generated wholly or in part through use of artificial intelligence (save when use of AI for assessment has received prior authorisation e.g. as a reasonable adjustment for a student's disability). Plagiarism can also include re-using your own work without citation. Under the regulations for examinations, intentional or reckless plagiarism is a disciplinary offence."*

In addition, Harvard University (2023) reminded its students that "our academic integrity policy forbids students to represent work as their own that they did not write code or create. Submission of

computer generated text without attribution is also prohibited by Chat GPT's own terms of service." The University of California in Berkeley (2023) also emphasized that students should submit their work or acknowledge their sources through the announcement on its website. On the other hand, the University of Cambridge (2023) highlighted the disciplinary process for academic misconduct because it misrepresented the output of ChatGPT as a student's work. Some universities allowed teachers to state in their curriculum if using GenAI in students' output would be banned or allowed if attribution was made. Stanford University's (2023) policy on its website states, "Individual course instructors are free to set their policies regulating the use of generative AI tools in their courses, including allowing or disallowing some or all uses of such tools." The MIT Teaching and Learning Lab (2023), provided samples of academic integrity policies that teachers could use in their syllabi:

1. The use of AI is prohibited in the subject.
2. The limited use of AI with proper citation
3. Acceptability of use on a case-to-case basis

The analysis also showed that another response from top global universities was to educate faculty members and students. For example, the California Institute of Technology (2023) provided guidelines and resources for its faculty on how assessment could be engineered to prevent cheating and intellectual dishonesty. On the other hand, Yale University (2023) started orienting its faculty and students with a panel discussion on February 14, 2023, on the implications of AI for teaching and learning. The website also provided guidelines on creating transparency policies in the syllabus and changing assessment designs. The Yale Poorvu Center for Teaching and Learning also provided a list of articles that provided practical advice on teaching.

Table 6. How top global universities responded to the threats of generative AI tools to academic integrity

Types of Response	Details
Educating	Educating faculty members about chat GPT and how they can modify their assessment tasks and grading.
a. Faculty	
b. Students	Educating students on what constitutes academic integrity and dishonesty and sanctions for violations.
Enforcement	Universities are creating a policy on using Chat GPT in teacher assessment.
a. University level	
b. Teacher-level	Teachers are asked to add their policy on the use of Generative AI to their syllabus. Three options for teachers: 1. Ban 2. Allowed in the process but not in the final assessment output. 3. Allowed in the final submission with attribution to the help provided by AI.
Encouraging	Encouraging teachers and students to explore the future of education with Gen AI
a. teachers	
b. students	Exploration of opportunities to improve teaching and learning through Gen AI tools. Encouraging lifelong learning through certificate programs on Gen AI

Some of the top global universities encouraged discussions on the potential of generative AI to improve teaching and learning. For example, Stanford University (2022) organized the AI+Education Summit on February 15th, 2023, entitled "AI+Education Summit: AI in the Service of Teaching and

Learning." Another example is the National University of Singapore (NUS). It organized a workshop for its faculty and students, and anyone interested in applying AI tools in the academe and in the workplace.

Other global universities saw an opportunity to expand their training offerings by designing new professional development programs for lifelong learners who wish to acquire technological competencies in the workplace. For example, through its Advanced Computing for Executives, the National University of Singapore (2023a) offered a Professional Certificate in ChatGPT, Advanced Chat Models, and Generative AI Program for Singaporeans and international participants. Another example is the University of Oxford (2023), which started offering online certificate courses for professional development. Courses include "Low-Code Data Scientist: Low-Code AI Apps including LLMs and ChatGPT," an eight-week program, and Artificial Intelligence: Generative AI, Cloud and MLOps. MIT (2023) also saw an opportunity by offering Applied Generative AI for Digital Transformation and the Future of Productivity certificate programs that target leaders from various industries.

3.2 Discussion

This study sought to synthesize the most recent studies on the use of Generative AI in academia, but more specifically, zero in on its application in the teaching and learning continuum and its impact on assessment. By having such information, the study aimed to recommend accommodation strategies for Higher Education Institutions in Asia as they design their own university policies surrounding the use of Generative AI. The themes that emerged from the articles included in this study elucidate the various ways in which Generative AI can be integrated in the educational setting.

Major Themes

A central theme of this study is the need to train and educate faculty members on the potential impact of Generative AI on pedagogy and students' learning process. Training should also cover ethical considerations and concerns, addressing academic integrity issues and assessments of learning outcomes using Generative AI. While teachers need to be aware of the positive implications of such technology in education, there is a need to be vigilant about its limitations and possible downsides. Educating faculty members and providing them with adequate professional development with such concerns will allow them to have a firmer grasp of policies and procedures vis-a-vis academic integrity attribution, including ways and means of attending to academic misconduct, as Generative AI has significantly impacted students' aptitude, competencies, and learning styles. It has also been observed that teachers need to acknowledge that students will continue to use Generative AI and that there is a call for standardizing and adopting authentic, process-based forms of assessment rather than just adhering to that more conventional way of doing it.

Another theme highlighted in the study is the need to educate students on how Generative AI should be utilized in learning institutions and how this aligns with the university policies set forth. By doing this, students' understanding of the ethical and proper use of Generative AI in fulfilling their academic requirements and how such understanding aligns with university policies will be enforced and strengthened. It is interesting to note that some teachers in HEI classrooms are utilizing generative AI in novel ways. They use instructor tools to develop lesson plans, instructional resources, and assessment assignments, improving the teaching and learning processes. Generative AI may be difficult for HEIs to identify as being used if openly prohibited; therefore, banning it might be counterproductive. Moreover, some instructors instead publicly explain the use of Gen AI tools in their courses or incorporate them into the learning process for transparency and accountability.

In terms of implementation, the results of this study also show how different Higher Education Institutions (HEIs) have reacted to using Generative AI, specifically ChatGPT, for instruction and evaluation. HEIs must create their detailed policies to maximize the advantages of AI and ensure appropriate integration. To build an all-encompassing framework for its application, these principles should cover the usage of generative AI in evaluation, instruction, and assessment. It is advised that HEIs carefully assess how particular technologies, such as ChatGPT and Turnitin, are used in their academic settings. Institutions of higher learning will be able to make well-informed judgments on

integrating these technologies by being aware of their capabilities and limitations. Moreover, they can determine the best circumstances for employing generative AI to improve the educational experience by conducting thorough yearly evaluations and assessments.

The consequences of using ChatGPT, particularly concerning academic integrity, are one of the most important topics of policy concern. Academic integrity has been a long-fought battle, and before ChatGPT, the world was battling accidental plagiarism (Kurniawan et al., 2023). Inadvertently, generative AI has made plagiarism easier and raised problems for fair evaluation and assessment procedures. HEIs should create thorough anti-cheating and anti-plagiarism policies to handle these problems. The rules should specify precisely how ChatGPT, and other generative AI tools can support student learning without jeopardizing the quality of academic work. To preserve a culture of academic integrity and ethical behavior, HEIs must also implement strong penalties for any AI policy infractions.

The ramifications of this research emphasize how crucial carefully thought-out policies are for integrating generative AI in HEIs. Such regulations will guarantee academic honesty and ethical behavior and facilitate the efficient use of AI tools. By creating explicit rules, HEIs can encourage accountability and openness when students use AI technologies. Additionally, having customized regulations will help HEIs adjust to their academic contexts' unique requirements and features. This adaptability enables institutions to use Generative AI's advantages while resolving any potential difficulties or worries particular to their educational contexts.

4. Conclusions

Recognizing the power of Chat GPT and other Generative AI tools to take examinations and write academic papers prompted educational institutions to review their academic integrity policies rapidly. However, some universities are still uncertain about their response to this smart technology. In addition, research in this area is still in its infancy, necessitating a review of themes and trends for those who wish to review their research agenda.

The findings of this review showed three areas for research and policymaking. These are the enforcement of academic integrity, educating students and faculty on the benefits and limitations of Gen AI tools, and encouraging the whole university to explore how Gen AI can enhance teaching and how professional development programs can be expanded to help leaders and the workforce harness the power of this evolving technology. These comprise the 3E Model.

Research on enforcement could analyze the revision of the university academic integrity policy, the implementation of this policy, and the perception of stakeholders on this change. On the other hand, researchers may explore the instructional leadership models of training faculty and students on Gen AI. Finally, future research might investigate and test evolving Gen AI tools to support individualized instruction, especially for struggling students.

This paper also proposes a 3E model for university policymaking. The study results showed that top global universities started by educating faculty, administrators, and students on the uses, misuses, and ethical considerations of using AI tools through university-wide panel forums and webinars. The second step was enforcing academic integrity through a university policy that allowed teachers to set their standards as long as these standards were explicit in their syllabi. Finally, universities may need to encourage faculty and students to leverage Gen AI tools for research, teaching, learning, and assessment. The increasing acceptance of Gen AI tools in various industries demands that university students possess AI literacy as their competitive advantage. Most importantly, universities may expand their lifelong learning offerings and increase revenue through certificate programs for business and government managers and employees applying Gen AI tools to productivity.

5. Author contributions

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The data used for this study are available upon request.

8. Competing interests

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10. Abbreviations

AI	Artificial Intelligence
Chat GPT	Chat Generative Pre-Trained Transformer
GenAI	Generative Artificial Intelligence
HEIs	Higher Education Institutions
IT	Information Technology
LLMs	Large Language Models
MIT	Massachusetts Institute of Technology
MLOps	Machine Learning Operations
NUS	National University of Singapore
QS	Quacquarelli Symonds
RQ	Research Questions
UCL	University College London
UNESCO	United Nations Educational, Scientific and Cultural Organization