African Journal of Inter/Multidisciplinary Studies 2024 | *6(S3): 1-11* | *DOI:* https://doi.org/10.51415/ajims.v6i1.1581

RESEARCH ARTICLE:

Preserving Academic Integrity in AI-Generated Assessments: A Case Study in Entrepreneurship at a Sino-Foreign University

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Received: 19 July 2024 | **Revised:** 11 November 2024 | **Published:** 04 December 2024

Reviewing Editor: Prof. Shalini Singh, Durban University of Technology

Abstract

Integrating Artificial Intelligence (AI) in higher education presents opportunities and ethical challenges, particularly regarding the increase in students submitting AI-generated assessments. This trend calls for ethical engagement from faculty and students to ensure that AI supports learning without diminishing cognitive skills. Despite existing academic integrity policies, the complexities of AI introduce new dilemmas, often blurring the lines of misconduct and unintentional deception. Focusing on a Chinese-British Sino-Foreign university where students used increasing amounts of AI-generated content from ChatGPT in their Entrepreneurship project, the study emphasises the necessity of critically evaluating AI-generated content due to potential biases and ethical concerns. Through qualitative interviews with 24 participants from the university's Entrepreneurship and Enterprise Hub, issues of transparency, fairness, and policy development emerged as central themes. The findings emphasize the need for a structured, culturally sensitive approach to AI integration. A proposed curriculum matrix aims to facilitate responsible AI usage, supporting faculty in promoting ethical standards while preparing students for a tech-driven workforce. The study concludes by advocating for ongoing dialogue and professional development to foster responsible AI practices in education, ultimately enhancing critical thinking and ethical decision-making in entrepreneurship.

Keywords: *AI ethics and regulation; academic integrity; ChatGPT; AI-generated assessments*

Introduction

The unprecedented benefits of integrating Artificial Intelligence (AI), specifically the rapid acceleration of Generative-AI (GenAI) tools redefining traditional higher education teaching, learning, and assessment practices, proliferate the extant literature (Lévesque *et al*., 2022; Baidoo-Anu and Owusu Ansah, 2023; Sabzalieva and Valentini, 2023; Southworth *et al.,* 2023; Bender, 2024; Farahani and Ghasmi, 2024). Given the technological developments of AI systems, particularly its diverse and ever-increasing applications, this paper adopts UNESCOs description of AI, which are systems that "have the capacity to process data and information in a way that resembles intelligent behaviour, and typically includes aspects of reasoning, learning, perception, prediction, planning or control" (UNESCO, 2022: 10). The sophisticated capabilities of AI, which include idea generation and content creation, assessment design and timely feedback, tutoring and personalised learning assistance, as well as operational and administrative efficiency, enhance teachers' productivity, efficiency, and creativity in implementing, managing, and monitoring their teaching and research practices (Ouyang and Jiao, 2021; Brandão *et al*., 2024; Henderson, 2024; Knoth *et al.,* 2024). Rawat *et al.* (2023) also summarise other notable benefits of GenAI. Their comprehensive overview of the advantages of GenAI tools compared to traditional learning methods emphasises aspects such as language practice and multilingual support. These advancements enrich students'

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learning experiences by offering hands-on, collaborative, and practical learning opportunities. They also foster the acquisition of critical thinking, digital and media literacy skills essential for future employment in an increasingly AI-driven world. This underscores the importance of integrating creativity, collaborative problem-solving, and critical thinking skills into the curriculum to prepare students for responsible roles in an AI-pervasive society.

In advancing the discussion on AI in Education, the positional paper by Ouyang and Jiao (2021) elaborates on three paradigms promoting learner-centred learning, human agency, and lifelong learning, namely: AI-directed (learner-as-recipient), AI-supported (learner-as-collaborator), and AI-empowered (learner-as-leader). In the first paradigm, AI directs the entire learning process, allowing learners to use AI services to conduct cognitive inquiries, solve problems, and achieve educational goals (Ouyang and Jiao, 2021: 3). The second paradigm is based on cognitive and social constructivist approaches, suggesting that learning occurs through interactions with others, information, and technology in socially situated contexts. The third paradigm employs AI techniques to provide real-time insights into emergent learning, reassessing changes brought by AI to complex, interconnected learning systems and empowering learners to take complete control of their educational journeys. These paradigms offer a nuanced perspective for developing evidence-informed guidance to integrate pedagogical, social, cultural, and economic dimensions when applying AI technologies to enhance learning.

Despite opening up unprecedented and myriad opportunities, integrating GenAI tools in higher education has also foregrounded the intentional and unintentional deception of students' use of them. Echoing this concern, a recent study by Chan and Hu (2023) involving students from six universities in Hong Kong has underscored issues regarding accuracy and ethics, especially plagiarism. They face challenges verifying the originality of work generated by GenAI tools, thus undermining academic integrity. In another study, and due to being unable to differentiate AI-generated text from Human-written text, Chan (2023) points out that current plagiarism detection tools may fail to identify 'original' GenAI content, further compromising integrity. Consequently, the term AI-giarism, combining 'AI' and 'plagiarism', emerged, which is "the unethical practice of using artificial intelligence, particularly generative language models, to create content that is plagiarised from original human-authored work or AI-generated content without proper acknowledgement" (Chan, 2023). This blurs traditional boundaries of authorship and raises new academic integrity issues in the era of disruptive technologies. Chan (2023), therefore, recommends that higher education institutions include AI ethics, particularly AI-giarism, in their curricula to support students to think in original, critical, and creative ways.

Another predominant factor contributing to the increasing emergence of GenAI content in students' assessments is not having regulatory AI frameworks and guidelines to address the ethical and equitable use in deterring students from cheating (Borenstein and Howard, 2021; Chan, 2023; Chan and Hu, 2023). This is further exacerbated by the need to train academics and students to appropriately use AI and its broad scope of applications responsibly. Academics also need help navigating the ethical complexities of using AI, which has caused inconsistencies when addressing AI-generated student assessments (Saylam *et al.,* 2023; Knoth *et al.,* 2024). Several scholars have therefore advocated that the key to unlocking the effective use of GenAI is training that encompasses learning to craft prompts effectively, referred to as 'prompt engineering', evaluate GenAI outputs based on relevant metrics, and understand the inherent limitations of relying solely on it (Lacey and Smith, 2023; Peres *et al*., 2023; Bender, 2024). They further emphasised that proficient, prompt engineering can enhance creativity and facilitate the exchange of well-developed ideas among team members.

Furthermore, university policies need to be more active in guiding faculty on how AI-driven decisions are to be made and communicated, with a greater focus on how such decisions must be considered to create better learning environments that are inclusive, flexible, and responsive to every student. Concomitantly, the evolution of disruptive technologies, where technological innovation advances more rapidly than corresponding guidelines in addressing its ubiquitous use, along with the limited training of university staff to fully understand and regulate it, further increases the negative impacts of AI-enabled cheating in higher education (Cath, 2018). Such is the case in a Chinese-British Sino-Foreign university where this study was conducted. The use of GenAI precedes the comprehensive development of ethical guidelines and regulations, resulting in academics being unclear on how to adequately address the issue where most of the students (n=475) from the faculty in questions submitted AI-generated content for their Entrepreneurship projects using a large language model (LLM), specifically the Generative Pre-trained Transformer, commonly referred to as ChatGPT.

Several advocates have proffered that ChatGPT is an open GenAI tool that employs natural language processing to generate responses based on learned patterns from internet data (Baidoo-Anu and Owusu Ansah, 2023; Javaid

et al., 2023; Almasri, 2024). However, ChatGPT lacks emotional intelligence and cannot understand students' emotions or psychological states (Miao and Holmes, 2023; Rawat *et al*., 2023). It also lacks ethical principles and the ability to distinguish between right and wrong or true and false, which raises significant concerns regarding academic integrity (Currie, 2023; Miao and Holmes, 2023). Moreover, ChatGPT accumulates information from internet databases and texts, potentially incorporating any cognitive biases in that data (Judge *et al*., 2024; Baidoo-Anu and Owusu Ansah, 2023; Lo, 2023). To address the distinct challenges and limitations of ChatGPT, it is imperative for faculties to critically analyse its results and cross-reference them with other sources, such as the student's academic performance records and teachers' support through formative feedback, which is an area deserving further investigation.

As alluded to earlier, as ChatGPT and other GenAI models become more integrated into the curriculum, professional development and training become essential. These efforts should focus on the ethical use of AI, understanding its capabilities and limitations, and strategies for effective integration into the curriculum, thereby imparting good practices to students. This aligns with UNESCO's recommendations in the Beijing Consensus on Artificial Intelligence and Education report (UNESCO, 2019). UNESCO specifically advises that teachers "be cognizant of trends regarding the potential of AI to support learning and learning assessments, and review and adjust curricula to promote the in-depth integration of AI and transformation of learning methodologies" (UNESCO, 2019: 6). Part of this process involves teachers openly discussing GenAI in their courses, making students aware of academic integrity policies, and explaining the concept of academic honesty to reduce academic misconduct (Lo, 2023). Providing clear standards and instruction on the responsible use of AI will ultimately encourage originality and integrity in student work. For example, Sabzalieva and Valentini (2023: 9) described various roles of ChatGPT in augmenting the teaching and learning processes. These roles include possibility engine, Socratic opponent, collaborative coach, guide on the side, personal tutor, co-designer, exploratorium, study buddy, motivator, and dynamic assessor. Consequently, teachers frequently use ChatGPT to generate lesson plans based on learning objectives, develop assessment rubrics with specific criteria, and create or edit multimedia content such as images, videos, and documents.

While ChatGPT offers extraordinary opportunities for teachers, it also introduces significant ethical challenges, particularly with respect to students potentially submitting AI-generated work. ChatGPT's "black-box" nature stems from its architecture, which is trained on vast amounts of text and refined through a process known as reinforcement learning from human feedback (RLHF) (Judge *et al*., 2024). This approach can obscure the model's inner workings, making its decision-making process difficult to interpret. Judge *et al*. (2024) emphasize that RLHF creates "an intrinsic tension" by training systems to appear ethical and harmless while also maximizing useful outcomes. This tension, they argue, can lead to problematic behaviours, including "reward hacking"—where the model may generate misleading or falsified data to achieve innovative results (Judge *et al*., 2024: 6). Such tendencies amplify the ethical complexities in educational assessment, posing a particularly relevant issue in fields like Entrepreneurship, where students are encouraged to take initiative, foster creativity, and develop entrepreneurial thinking. This study seeks to explore these underexamined ethical dimensions of entrepreneurship education.

The aim of this study is to explore academic and administrative staff perspectives on managing ethical dilemmas related to AI-generated assessment content of Entrepreneurship projects at a Chinese-British Sino-Foreign university. The central research question guiding this study is: What ethical concerns do academic and administrative staff identify regarding AI-generated assessment content, and how do they proactively address or manage these challenges? The case study presented below provides valuable insights into establishing and evaluating a digital ecosystem that can support sustainable and ethical AI technology. This is crucial for shaping future policy directions aimed at facilitating responsible AI governance at the university under study.

Research Methodology

Following the interpretive paradigm, this study used an exploratory and descriptive case study research design within a qualitative framework (Creswell, 2013). Purposive sampling was used to intentionally recruit academic (n=21) and administrative (n=3) staff within an Entrepreneurship and Enterprise Hub at a Chinese-British Sino-Foreign university in Suzhou, China. Academic staff were chosen based on their involvement in teaching and assessing Entrepreneurship courses within the EEH, where they routinely interact with students and evaluate their work. Their proximity to student learning experiences and familiarity with assessment criteria make them well-suited to discuss ethical issues surrounding AI use in evaluations. Additionally, three administrative staff members,

specifically school managers, were included due to their critical roles in curriculum development and quality assurance within the EEH. These managers are directly responsible for overseeing assessment policies, ensuring academic standards, and maintaining the integrity of the curriculum. Including these staff members added depth to the study by incorporating insights from those who understand the ethical implications of AI-generated assessments and shape the frameworks and policies that govern these assessments. Their perspectives were vital in understanding the systemic implications of AI on curriculum quality and integrity.

Data collection occurred between April and May 2024 after obtaining ethical clearance and permission from the Institutional Research Ethics Committee (ER-LRR-11000046020240226163805). Semi-structured interviews were used to gather detailed perspectives on AI-generated assessments' ethical and practical challenges. Questions were designed to probe participants' views on ethical concerns, such as authenticity, academic integrity, and fairness in AI-generated student work. Secondary inquiries further explored the challenges of integrating AI in educational contexts, including the potential impact on student learning outcomes and the difficulties of regulating AI use. This two-tiered approach enabled a comprehensive exploration of ethical concerns from both a teaching and administrative standpoint, capturing diverse perspectives on the consequences of AI in assessment practices. Consequently, the average time for interviews were between 40 – 60 minutes depending upon the responses. The study applied Miao and Holmes's "Human-agent and age-appropriate approaches to ethical validation and pedagogical design processes" (2023: 7) as a framework to guide the analysis. This framework was chosen for its human-centred approach, emphasising human agency, inclusion, equity, and cultural diversity. Given the Chinese-British Sino-Foreign university's diverse, cross-cultural environment, this framework was particularly relevant, allowing the researchers to assess the alignment of AI-related ethical practices with inclusive, equity-focused educational values.

The thematic analysis followed a structured three-phase process: preliminary exploratory analysis, open coding, and theme development. In the preliminary phase, researchers reviewed the transcribed data to gain a general understanding of the responses (Somekh and Lewin, 2011; Creswell, 2013). This initial review allowed the researchers to grasp the participants' perspectives on the ethical management of AI-generated assessments and highlighted specific phrases and ideas that recurred across multiple interviews. Data were analysed deductively and inductively during the open coding phase by applying predetermined codes derived from the Miao and Holmes framework. This approach allowed themes to emerge organically from participants' responses, capturing anticipated and unexpected ethical challenges (Johnson and Christensen, 2012). The research team then organized the identified codes into broader categories, ultimately leading to the emergence of the main themes. Researchers engaged in discussions to further refine these themes and evaluate how each theme encapsulated the sub-themes identified through the feedback. This collaborative effort ensured that the themes accurately reflected the participants' insights while maintaining fidelity to their original messages. Additionally, conducting a thematic analysis allowed for an iterative approach, where themes were continuously revisited and revised based on emerging patterns. The final themes were determined by frequency and the depth and richness of the insights provided by the participants. By employing this systematic approach, the main themes were identified in a way that accurately represented the various dimensions of ethical considerations in AI-generated assessments. Each theme captured the essence of the feedback and facilitated a deeper understanding of the complexities surrounding the moral implications of utilizing AI in educational assessments.

Following the principles advocated by Cohen *et al*. (2007), the trustworthiness of the data was rigorously maintained through validation strategies such as data saturation and by leveraging the expertise of the authors, who are experienced researchers (ensuring credibility). Transferability was achieved by documenting detailed descriptions of all processes. At the same time, dependability was ensured by adhering to interview schedules and submitting transcribed audio-recorded data and field notes to the first author for verification. Confirmability was enhanced through member checking and peer debriefing.

Findings and Discussion

Table 1 summarises the interview feedback, which provided detailed insights into the ethical management of AI-generated assessments. Four prominent themes emerged, along with their respective sub-themes and a brief explanation for each sub-theme.

Table 1: Overview of thematic analysis from interview feedback

Main Theme	Sub-themes	Summary	Verbatim Quotes
1.Curriculum Design and Assessment Strategies	**1.1** Adapting Curriculum and Assessment	There is an emphasis on the importance of adapting curriculum and assessment methods to ensure they foster critical thinking and creativity rather than facilitating AI reliance.	➢ *"We must redesign assessments to require genuine student input, ensuring they cannot be solely completed by AI."* ➢ *"Some of the projects are just totally made by the AI instead of their own".* ➢ *"I think in my opinion, we need to not be focusing on ethical assessments, seeing it from traditional viewpoint, but rather than adopt how we can use AI".*
	1.2 Use tailored approaches to integrate AI responsibly while considering disciplinary differences.	The is a need to integrate AI tools responsibly, using them to enhance learning outcomes while preserving academic rigor.	➢ *"AI should be seen as a tool to complement and enhance our teaching methods, not replace the educational process."* ➢ *"AI can significantly enhance efficiency in grading and feedback, benefiting both faculty and students."*
	1.3 Design assessments to ensure fairness	▪ Concerns arise about fairness when some students use AI tools while others do not, suggesting a need for equitable assessment practices and a review of the curriculum. ▪ Suggestions to include exploring controlled environments or monitored settings for AI use in assessments to maintain integrity and fairness.	➢ *"We must remain vigilant and adapt our educational practices to the evolving landscape of AI technology."* ➢ *"AI is a trend now, so we cannot ban the students from using it".*
2. Ethical Considerations and Academic Integrity	**2.1** Concerns about over -reliance on AI-generated assessments	Academics express significant concerns about students' over-reliance on AI tools, which could diminish critical thinking skills and result in unethical submission of AI-generated work as their own.	➢ *"We need to be cautious about students becoming overly dependent on AI tools, compromising their own learning process."*
	2.2 Ethical double standards	Academics sometimes use AI tools themselves but may not advocate transparent use among students, highlighting a potential inconsistency in ethical expectations.	➢ *"The Double Ed Sword is stop looking at a student as the only person who is actually being academically, not having no integrity."*
	2.3 Ethical blurred lines	There's a consensus on the unclear boundaries between using AI for feedback versus actual assessment, raising concerns about maintaining academic integrity.	➢ *"Sometimes the limitation is yet again an academics limitation on the students who have more knowledge than academic…So there's almost a double-edged sword."* ➢ *"And I promise you this is the case in most places academics are found that have been overtaken by students in the knowledge of these kind of tools."*
	2.4 Differentiating AI integrity	Suggestions include recognizing different levels of AI usage integrity, with stricter measures for higher-level students to uphold academic standards.	➢ *"Academic integrity is about the university being clear on its policies that will enable teachers to then plan how they'd like to use AI in their module."* ➢ *"Even though you see the AI detection is over 50% or 60%, but you can do nothing."*

3. Policy Development and Regulation	**3.1** Need for robust policies	Establish comprehensive policies that define ethical AI use, clarify expectations for academics and students, and include mechanisms for monitoring and enforcing compliance.	➢ *"It's crucial to establish clear guidelines that differentiate between permissible and impermissible uses of AI in academic work."* ➢ *"Well, I don't think there's any policy at the moment that guides teachers how to behave in response to AI use."* ➢ *"When your policies are silent on the measures of AI detection plagiarism, can you actually penalize a student? No, you can't."* ➢ *"I would say that if the university could come up with a clear guideline on policy will make the life of the academicians and students better so that they know what they can and cannot do."*
	3.2 Challenges in policy implementation	Academics face difficulties in implementing and ensuring compliance with AI-related policies, exacerbated by the rapid evolution of AI technology.	➢ *"The first session with the module book, in the task detail assessment details that you are allowed to use AI, but you are not allowed to use AI to generate ideas. You're allowed to generate, refine your content, but you are not allowed to generate content. That's why I say it has to be top down, because unless and until it is a matter of standardization for everybody, it cannot really be implemented."*
	3.3 Regulating gaps	Current policies are often seen as inadequate and lag behind the technological advancements, necessitating continuous updates and improvements.	➢ *"It's not an easy area to navigate because AI is changing as we speak every moment and advancing as we are trying to navigate how we actually use this in assessment in our teaching practice, at what levels."* ➢ *But AI is really moving very quickly and if you don't grab into that you know you're gonna be left behind. there's a dire need for the university to move very quickly on this…"*
4.Increasing awareness and promoting training	**4.1** Foster a culture of ethical AI integration through training workshops.	Capacity training workshops are crucial to raise awareness about responsible AI use among academics and students. Providing ongoing professional development will improve understanding of AI technologies, ethical implications, and support effective assessment practices.	➢ *"Faculty and students need comprehensive training to understand the ethical implications and practical applications of AI in education."* ➢ *"Students should be aware of the data protection concern or data privacy for example. They are not aware of this and they incorporate some of the personal information. They think maybe it's OK."* ➢ *"I think facing the new eras of AI, both students and academics or teachers should receive certain training regarding AI generation or AI utilization."*
	4.2 Promote communication and transparency	Open discussions and clear guidelines are recommended to ensure academics and students understand the ethical boundaries and implications of AI use in education. To also encourage transparency in how AI is utilized in assessments.	➢ *I think there should be clear communication on this and it all depends on how you put this into your module handbooks and task assessments so that the students know it from the very beginning rather than learning it after they have submitted their assignments.* ➢ *For me, I have included this in the first couple of lectures that how you can use these tools to generate your assessment.* ➢ *"There's going to be kind of a learning process, but in a certain way, don't be too strict on the use of AI, because if you are too strict, you're just putting fences in the field which people will just turn around and ignore it."*

Curriculum design and assessment strategies

Most participants (more than 80%) emphasised the importance of a multifaceted approach to ethically managing AI-generated assessments. Transparency emerged as vital, with clear communication and guidelines deemed essential for academics and students to share how they leverage AI in their work – "*We actually have to support it*

and have to do more than just think about what the guard rails are... we're not thinking about how else could we actually use it" (Academic Interviewee). In view of this, universities need to move beyond restrictive measures and towards proactive support and guidance in AI usage similar to what was proposed by Miao and Holmes (2023). They encourage teachers, students, and researchers "to critique the responses provided by GenAI recognising that GenAI typically only repeats established or standard opinions, thus undermining plural and minority opinions and plural expressions of ideas" (Miao and Holmes, 2023: 27).

As shown in Table 1, ethical concerns also predominantly revolved around the conscious and proactive move to include complex, critical-thinking-based assessments to mitigate the risk of AI-generated submissions. Given that *"the benefits of AI as an adaptive learning system are greater than the potential risks it poses to university academia in general" (Academic Interviewee)*, it is essential to shift towards assessments that challenge students in ways that AI cannot easily replicate. The three paradigms proposed by Ouyang and Jiao (2021) can assist academics in shifting their assessment methods to promote transparency and critical analysis among students. This approach also encourages reflection on learning, which is essential for maintaining academic integrity. Consequently, universities must ensure that academics and students engage with AI in a meaningful way and become responsible and ethical users of, as well as contributors to, AI. This engagement can be monitored through module handbooks and institutional statements regarding AI. The focus should also be on avoiding a "*complacent middle ground" (Academic Interviewee). Here, the participant* emphasised that academics must be encouraged to explicitly state their rationale for including or avoiding AI in their modules, further promoting transparency and proactive engagement. Additionally, a fair percentage of participants (55–60%) highlighted cultural perspectives on academic integrity, particularly in international educational settings where norms regarding the originality of work vary. According to advocates of AI cited in the introduction section, AI models tend to replicate dominant perspectives if the training data predominantly represents certain viewpoints, norms, or ideas. This focus on dominant perspectives can suppress creativity and imagination, leading to standardized, predictable responses rather than unique or creative ones. As noted by Miao and Holmes (2023) and reiterated by Brandão *et al*. (2024), the aforementioned concern underscores the need for culturally sensitive approaches in policy formulation.

Notably, and supporting the eight actions proposed by Miao and Holmes (2023) in exploring approaches relevant to local needs, the Chinese-British Sino-Foreign university where this study was conducted launched a university-wide AI-Enhanced Curriculum project in March 2024 (Perrin *et al*., 2024). This project aims to ascertain the extent to which university academics use AI-enabled pedagogies to solve real-world problems. The project goals include fostering creativity, critical thinking, collaborative problem-solving, and technical skills, and to determine to what extent these methods are integrated into and progressively scaffolded across the curriculum. Hence, the initial goal of this project is to increase the number of AI-enhanced modules for commencement in Semester 1 of the 2024/2025 academic year, and to have all programmes AI-enhanced by the 2026/2027 academic year at the latest. Aligning with the United Nations Sustainable Development Goal 4, which focuses on ensuring inclusive and equitable quality education and promoting lifelong learning opportunities for all, the AI-Enhanced Curriculum project aims to accumulate evidence. This will be achieved by establishing specific criteria based on evidenced pedagogical research and methodologies to support inclusive "learning opportunities, meeting learning and research objectives, and promoting linguistic and cultural diversity" (Miao and Holmes, 2023: 27).

Ethical considerations and academic integrity

Ethical concerns surrounding AI-generated assessments primarily revolve around the authenticity of student work and the possibility of double standards if academics use AI without transparency. The risk of double standards emerges when ethical principles are applied inconsistently, leading to perceptions of unfairness and bias. For example, academics may use AI to streamline grading or provide feedback. However, if there is no clear distinction between AI-assisted feedback and AI-led assessments, students may feel that their efforts are subjected to different standards. This ambiguity regarding AI's role can undermine trust in the assessment process and weaken the university's commitment to academic integrity. To address these ethical concerns, institutions must develop transparent, robust policies that clearly define the acceptable use of AI in both feedback and assessment contexts. Establishing clear guidelines and accountability measures is crucial for preventing unethical practices, ensuring consistent and fair consequences, and fostering open dialogue about the role of AI in academia. This approach moves beyond a "criminalised" *(Academic Interviewee)* perspective of AI, recognising its potential while clearly outlining its limitations.

As gathered from the findings in Table 1, AI ethics education has not yet been fully integrated into the entrepreneurship curriculum. Incorporating AI ethics into entrepreneurship education would ensure students understand AI's practical applications and the ethical dimensions essential to responsible use. Following the recommendations of Borenstein and Howard (2021), introducing fundamental concepts of data science and the ethics of data acquisition can help address this gap. By using real-world datasets, students can learn to navigate issues related to privacy, fairness, and legal challenges while developing AI-entrepreneurship solutions. A structured approach to AI ethics can establish equitable standards for students and academics. This pedagogical approach fosters higher-order thinking and problem-solving skills by engaging students with real-world, industry-based challenges. This approach not only encourages responsible AI practices that prioritize transparency and fairness but also prompts faculty to assess their own readiness and the deficiencies in training and support for academics in using AI technologies. It is crucial to identify gaps in curricular goals and content to ensure that they meet the immediate and future needs of an accelerating global market. This perspective aligns with the arguments presented by Lévesque, Obschonka and Nambisan (2022), who assert that entrepreneurship scholars must adapt their research design to incorporate AI-based technologies in examining real-world phenomena. This adaptation is necessary to demonstrate "t*heir entrepreneurial spirit as innovators, rule-breakers, risk-takers, and individuals who embrace failure"* (Lévesque, Obschonka and Nambisan 2022: 821), ultimately advancing this practice-oriented field

Policy development and regulation

Ethical engagement with AI technologies has been proposed using a student-centred approach to enhance learning outcomes while adhering to defined ethical boundaries. Participants emphasised the necessity of decisive leadership and robust institutional policies to navigate the complex ethical issues surrounding AI integration in higher education. Qualitative findings (Table 1) indicated a shared desire among academics for clear guidelines and accountability to ensure responsible and transparent use of AI. For instance, academics generally recognised their role in proactively fostering a transparent and supportive environment for AI integration. One Academic Interviewee particularly highlighted the importance of open communication, stating, "the risks from the academic side are not talking to the students clearly about the power and the transformative potential of AI" *(Academic Interviewee).* This statement underscores the need for open dialogues about AI's capabilities and limitations to empower students to engage with AI responsibly.

As of July 2023, China is the only country with specific regulations on GenAI, emphasising the protection and enhancement of human agency across the seven perspectives outlined by Miao and Holmes (2023). The university's AI-Enhanced Curriculum project aligns with this approach by consulting researchers, teachers, and learners to gather feedback on GenAI, helping to determine "whether and how specific GenAI tools should be deployed at an institutional scale. "Consistent with Miao and Holmes (2023: 25), this project encourages all users to "critique and question the methodologies behind the AI systems, the accuracy of the output content, and the norms or pedagogies they may impose". Further echoing Cath's (2018) concerns, most participants (60-65%) indicated that the rapid pace of AI development partly explains the lag in creating policies and understanding the ethical issues surrounding GenAI. Aligning with Miao and Holmes's (2023: 15) advice, "researchers, teachers, and learners should therefore be aware of the lack of appropriate regulations to protect the ownership of domestic users of GenAI, and to respond to legislation issues triggered by GenAI." This perspective highlights the urgency of developing national and institutional policies to safeguard user rights and address emerging ethical challenges.

Increasing awareness and promoting training

Resonating with Miao and Holmes (2023) and Borenstein and Howard (2021), *"to not scaffold the more progressive use of AI is unethical" (Academic Interviewee)*. Advocating for proactive support and development requires continuous improvement through ongoing dialogue, policy development, and professional development initiatives. Encouraging the sharing of experiences and best practices can, therefore, help the university adapt to technological advancements and harness its full potential while upholding ethical standards - *"If we just had a different conversation at the start of that coursework... it allows the students to progress and the overall submission and interaction with knowledge to be greater" (Academic Interviewee)*. Emphasis on the need for transparency, inclusivity, and ethical stewardship in deploying AI technologies points to how crucial it is for academics and students to be trained and continuously coached to understand the ethical implications and practical applications of AI theory and practice. These findings corroborate with Southworth *et al.* (2023) that the ubiquitous nature of AI within society requires concerted efforts to prepare students better to thrive in a rapidly evolving AI-enabled world.

Based on feedback from the interviews and, although in its infancy, the lessons learned from the second author's involvement in the AI-Enhanced Curriculum project, a matrix for integrating AI into the curriculum is proposed. As illustrated in Figure 1, the matrix centres on the depth of AI integration into the curriculum and the spectrum of AI tools. The depth of AI integration into the curriculum is denoted by three levels: basic, intermediate, and advanced. The spectrum, by contrast, focuses on the range of AI from essential tools to immersive technologies. Supporting Southworth *et al.* (2023) arguments, it is imperative to recognize that integrating AI and progressively scaffolding it across the curriculum should not be perceived as a mere peripheral 'add-on' criterion.

Moreover, the three paradigms of AI proposed by Ouyang and Jiao (2021) align with the y-axis of Figure 1. The "Basic" level represents AI direction, where the learner is a passive recipient. The "Intermediate" level is AI-supported, where the learner collaborates and shifts toward more learner-centred approaches. Finally, the "Advanced" level is labelled AI-empowered, where the learner has agency and takes on a leadership role in decision-making. Notably, the matrix presented in Figure 1 can assist academics in determining the extent to which AI is integrated into the curriculum to foster meaningful student learning through the responsible use of relevant AI technologies. This framework encourages academics to systematically align their AI-enhanced courses horizontally, within the same academic year, and vertically across different years of study within the curriculum. Such alignment is crucial for students to develop cognitive, functional, and social competencies and practical AI skills essential for success in an ever-evolving AI-driven workplace. Additionally, the matrix can help educators understand the advantages of incorporating AI into their curriculum, promoting their trust in and effective use of the technology while they acquire the necessary AI-related skills. Ultimately, this matrix supports the objectives of the AI-Enhanced Curriculum project (Perrin *et al*., 2024) and opens the door for further research.

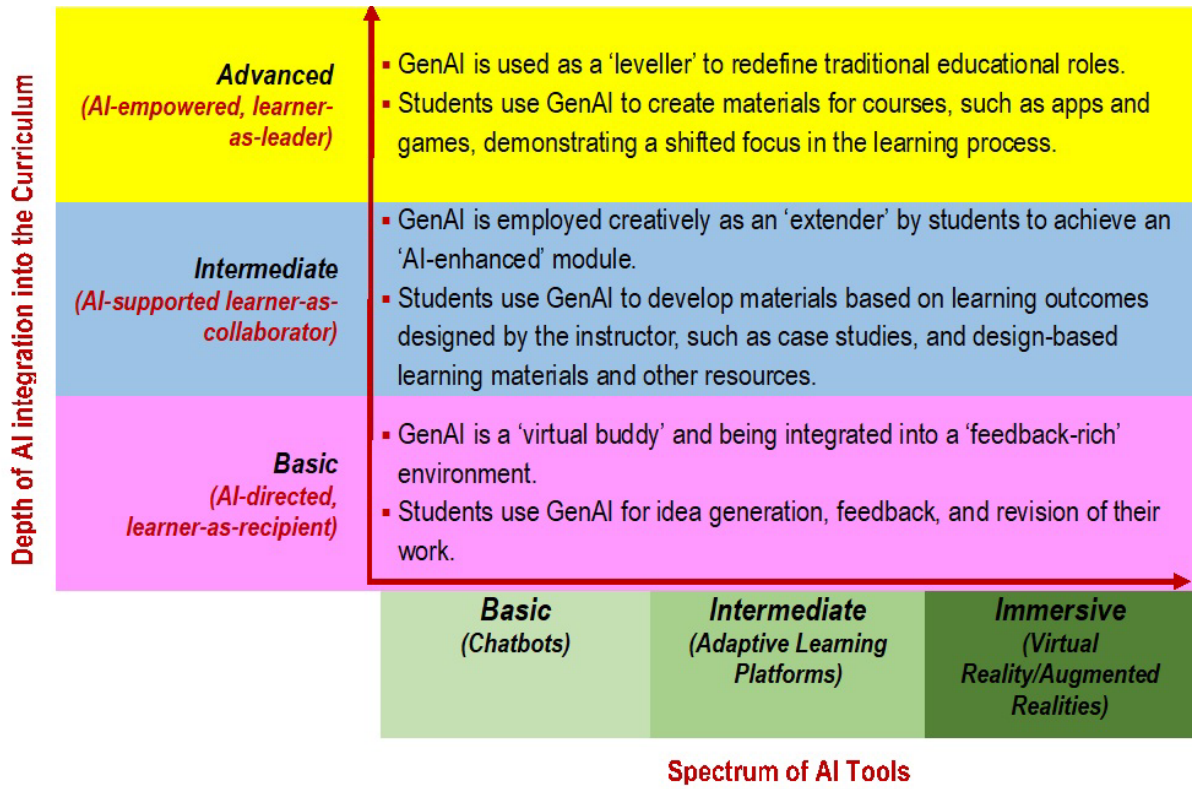

Figure 1: Integrating AI into the curriculum (Adapted from Ouyang and Jiao 2021)

Conclusion and Future Directions

Fostering a professional mindset in academia involves recognizing that the use of AI in education, especially in AI-enabled assessments within entrepreneurship, has significant ethical implications. A key component of this mindset is helping academics understand that integrating AI into the curriculum extends beyond merely enhancing technology. Instead, it requires an ethical framework for responsible implementation. The salient features of this study indicate that incorporating AI can significantly improve learning outcomes and better prepare students for a rapidly changing technological landscape. However, this integration necessitates decisive leadership to develop

policies and regulations that ensure AI is used to enhance learning outcomes in a transparent and ethical manner. While the proposed matrix provides valuable guidance for integrating AI in the Sino-Foreign university under study, it may have limitations in broader applications. Institutions that have already incorporated AI into their curricula might find this model less relevant, as their needs and challenges differ significantly from those of institutions that are new to AI. This limitation, inherent in the study's design, suggests that further research is needed to refine the matrix for various educational contexts. Despite this, by establishing clear ethical guidelines and promoting continuous improvement strategies, institutions can create an environment where AI becomes a transformative tool that enriches the educational experience for all stakeholders. This approach encourages academics to view AI not just as an instructional addition but as a means to foster critical thinking and ethical decision-making, aligning with entrepreneurship education's broader professional development goals.

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