

Examining Recommendations for Generative Artificial Intelligence Use with Integrity from a Scholarship of Teaching and Learning Lens

Examinando Recomendaciones para el Uso de la Inteligencia Artificial Generativa con Integridad desde un Lente de Enseñanza y Aprendizaje

Examinar recomendações para a utilização de inteligência artificial com integridade através de uma lente de bolsa de estudo de ensino e aprendizagem

从教与学的学术研究角度出发审视人工智能诚信应用的建议

دراسة التوصيات المتعلقة باستخدام الذكاء الاصطناعي بنزاهة من منظور التعليم والتعلم

Moya, Beatriz Antonieta , Eaton, Sarah Elaine 

Universidad de Calgary, Canadá

Abstract

New developments in the Artificial Intelligence (AI) field allowed the development of Generative Artificial Intelligence (GenAI), capable of creating text resembling what humans can produce. As a result, educators' concerns in the higher education sector quickly emerged. Many organizations and experts have addressed these concerns through recommendations. In this conceptual paper, we draw from the *Integrated Model for Academic Integrity through a Scholarship of Teaching and Learning Lens* to examine and stimulate discussion from twelve documents that focus on using GenAI with integrity. We identified recommendations suitable for the individual (micro), the departmental/program (meso), the institutional (macro), and the interinstitutional/ national/ international (mega) levels concerning two core elements of the model: "high-impact professional learning for individuals and groups" and "local-level leadership and microcultures." Suggestions around the core element "scholarship, research and inquiry" were lacking at the micro and meso levels; likewise, recommendations for the core element "learning spaces, pedagogies, and technologies" were also absent at the meso, macro, and mega levels. We acknowledge that these recommendations focus on learning, involve various stakeholders, and go beyond student conduct, which aligns with current approaches to academic integrity. However, some gaps need further exploration. We highlight the need to develop more specific and practical guidance and resources for educational stakeholders around GenAI issues related to academic integrity, explore how to better support networks and leaders in higher education in creating the conditions for ethical GenAI use, and emphasizing the need for an Equity, Diversity, and Inclusion lens on GenAI.

Keywords: Artificial Intelligence; Generative Artificial Intelligence (GenAI); Large Language Models; Academic Integrity; Scholarship of Teaching and Learning; Systems Approach

Resumen

Los recientes avances en el ámbito de la Inteligencia Artificial (IA) han posibilitado el desarrollo de la IA Generativa, la que puede generar texto que se asemeja a la producción humana. En consecuencia, han surgido rápidamente inquietudes por parte de los educadores en el sector de la educación superior. Numerosas organizaciones y expertos han abordado dichas preocupaciones mediante la formulación de recomendaciones. En el presente artículo conceptual, hacemos uso del *Modelo Integrado para la Integridad Académica desde un Lente del Scholarship of Teaching and Learning*, con el propósito de fomentar la discusión a partir de doce documentos que se enfocan en la utilización de la IA Generativa con integridad. Identificamos recomendaciones apropiadas a nivel individual (micro), departamental/programático (meso), institucional (macro) y a niveles interinstitucionales/nacionales/internacionales (mega), enfocándonos en dos elementos fundamentales del modelo: "Aprendizaje Profesional de Alto Impacto para Individuos y Grupos" y "Liderazgo a Nivel Local y Microculturas". Observamos una carencia de sugerencias en relación con el elemento "Investigación e Indagación" en los niveles micro y meso. Además, se constató la ausencia de recomendaciones para "Espacios de Aprendizaje, Pedagogías y Tecnologías" en los niveles meso, macro y mega. Reconocemos que estas recomendaciones se centran en el aprendizaje y van más allá de la conducta de los estudiantes, lo cual se encuentra en consonancia con las tendencias actuales en integridad académica. Asimismo, proponemos explorar formas de brindar un mayor respaldo a las redes y líderes para crear las condiciones propicias para promover el uso ético de la IA Generativa.

Palabras clave: Inteligencia Artificial; Inteligencia Artificial Generativa; Modelos de Lenguaje Avanzados; Integridad Académica; Scholarship of Teaching and Learning; Enfoque de Sistemas

Received/Recibido	Oct 27, 2023	Approved /Aprobado	Nov 16, 2023	Published/Publicado	Dec 11, 2023
-------------------	--------------	--------------------	--------------	---------------------	--------------

Corresponding author / Autor de contacto: Beatriz Antonieta Moya Figueroa. Universidad de Calgary. Dirección Postal, Calgary (Canadá); correo-e: beatriz.moya@ucalgary.ca

Resumo

Os novos desenvolvimentos no domínio da Inteligência Artificial (IA) permitiram o desenvolvimento da Inteligência Artificial Generativa (GenAI), capaz de criar texto semelhante ao que os humanos conseguem produzir. Consequentemente, as preocupações dos educadores no setor do ensino superior surgiram rapidamente. Muitas organizações e peritos abordaram estas preocupações através de recomendações. Neste documento conceptual, baseamo-nos no *Modelo Integrado para a Integridade Académica através de uma Lente de Bolsa de Estudo de Ensino e Aprendizagem* para examinar e estimular a discussão de doze documentos na utilização da GenAI com integridade. Identificámos recomendações adequadas aos níveis individual (micro), departamental/programa (meso), institucional (macro) e interinstitucional/nacional/internacional (mega) relativamente a dois elementos centrais do modelo: “aprendizagem profissional de elevado impacto para indivíduos e grupos” e “liderança e microculturas a nível local”. Faltaram sugestões em torno do elemento central “bolsas de estudo, investigação e inquérito” aos níveis micro e meso; do mesmo modo, as recomendações para o elemento central “espaços de aprendizagem, pedagogias e tecnologias” também estiveram ausentes aos níveis meso, macro e mega. Reconhecemos que estas recomendações se centram na aprendizagem, envolvem várias partes interessadas e vão além do comportamento dos estudantes, o que está de acordo com as atuais abordagens à integridade académica. Propomos também explorar formas de fornecer maior apoio às redes e aos líderes para criar as condições que conduzam à promoção do uso ético na GenAI.

Palavras-chave: Inteligência Artificial; Inteligência Artificial Generativa (GenAI); Modelos Linguísticos de Grande Dimensão; Integridade Académica; Bolsa de Estudo de Ensino e Aprendizagem; Abordagem de Sistemas

摘要

人工智能 (AI) 领域的新发展促进了生成式人工智能 (GenAI) 的出现, 这种新技术可以创造出与人类能力相似的文本。针对这一现象, 高等教育阶段的教育者们反应迅速地表达了他们的担忧。众多的专家和组织通过建议的方式展示他们的忧虑。因此, 在这篇理论性论文中, 我们通过“基于教与学学术研究的学术诚信模型”来审视十一篇关于生成式人工智能诚信应用的文章, 并在此基础上进行相应的讨论。我们识别出适用于个人 (微观)、部门/项目 (中观)、机构 (宏观)、机构间/国家/国际 (巨型) 层面的建议, 其中建议涉及模型的两个核心元素: 具有深远影响力的个人及小组专业化学习、地方级别领导力和微观文化。在微观和中观层面缺少关于“学术、研究及调查”的核心元素建议。而在中观、宏观和巨型层面欠缺关于“学习空间、教学法及技术”的核心元素建议。我们发现这些建议都聚焦于学习, 且涉及多个利益相关者, 并不仅仅限于学生的行为, 这与现在的学术诚信方法一致。然而我们也发现仍有差异需要更深入的研究和探索。在与学术诚信相关的生成式人工智能问题上, 我们坚信应该为教育利益相关者们提供更具实用性的指导和资源。我们也坚持提倡为高等教育网络和领导者提供更好的支持, 为符合道德规范地使用生成式人工智能创建条件, 强调对平等、包容及多样化的生成式人工智能的需求。

关键词: 人工智能、生成式人工智能 (GenAI)、大语言模型、学术诚信、教与学的学术研究、系统方法

ملخص

نصوص إنشاء على القادر (GenAI) التوليدي الاصطناعي الذكاء بتطوير (AI) الاصطناعي الذكاء مجال في الجديدة التطورات سمحت المنظمات من العديد تناولت وقد. العالي التعليم قطاع في المعلمين مخاوف بسرعة ظهرت, لذلك ونتيجة إنتاجها للبشر يمكن التي لتلك مشابهة عدسة خلال من الأكاديمية للنزاهة المتكامل النموذج على نعتمد, المفاهيمية الورقة هذه في. التوصيات خلال من المخاوف هذه والخبراء للمستويات المناسبة التوصيات حددنا لقد. بنزاهة GenAI استخدام على تركيز ورقة عشرة إحدى من المناقشة وتحفيز لفحص والتعلم التدريس فيما (الضخمة) الدولية/الوطنية/المؤسسات بين المشتركة والمستويات, (الكلية) والمؤسسية, (المتوسطة) البرامج والإدارات, (الجزئية) الفردية المستوى على الصغيرة والثقافات القيادة" و" والمجموعات للأفراد التعلم "التأثير عالية المهنية": للنموذج أساسيين بعنصرين يتعلق وبالمثل; والمتوسط الجزئي المستويين على مفقودة "والاستقصاء والبحث الدراسية المنح" الأساسي العنصر حول الاقتراحات وكانت. "المحلي والكلية المتوسطة المستويات على أيضًا غائبة" والتكنولوجيات التدريس وطرق التعلم مساحات" الأساسي بالعنصر المتعلقة التوصيات كانت مع يتوافق ما هو, الطلاب سلوك وتتجاوز, المصلحة أصحاب مختلف وتشرك, التعلم على تركيز التوصيات هذه أن ندرك نحن. والضخمة تطوير إلى الحاجة على الضوء نسلط نحن. الاستكشاف من مزيد إلى تحتاج الثغرات بعض هناك, ذلك ومع. الأكاديمية للنزاهة الحالية الأساليب أفضل واستكشاف, الأكاديمية بالنزاهة المتعلقة GenAI قضايا حول التعليم مجال في المصلحة لأصحاب وعملية تحديدًا أكثر وموارد إرشادات والتنوع العدالة عدسة إلى الحاجة على والتأكيد, GenAI. الأخلاقي للاستخدام الظروف فتيهية العالي التعليم في والقادة الشبكات لدعم السبل في GenAI. والشمول

الدالة الكلمات

النظم منهج, والتعلم التدريس منحة, الأكاديمية النزاهة, الكبيرة اللغوية النماذج, (GenAI) التوليدي الاصطناعي الذكاء, الاصطناعي الذكاء

Introduction

The latest Artificial Intelligence (AI) developments are actively reshaping our societies. AI, a term coined by John McCarthy, was originally defined as “the science and engineering of making intelligent machines, especially intelligent computer programs” (Stanford University, n.d., para. 2). Within AI, we find Generative Artificial Intelligence (GenAI), which is “technology that (i) leverages deep learning models to (ii) generate human-like content (e.g., images, words) in response to (iii) complex and varied prompts (e.g., languages, instructions, questions)” (Lim et al., 2023, p. 2).

In the GenAI field, we find Large Language Models (LLMs). LLMs can interact with humans on conversational tasks (Canadian Center for Cybersecurity, 2023). LLMs can learn from data and produce texts like humans can, involving minimal effort on the user’s side (Mindzak, 2020; Peres et al., 2023). These models are trained with large datasets to predict the next word in a sentence, and for that reason, they can generate human-like responses to various kinds of prompts, even in zero-shot tasks (Illia et al., 2023; Lesage et al., 2023; Sabzalieva & Valentini, 2023). For many, the capabilities of the applications based on LLMs are striking and could impact the educational landscape since their misuse could threaten the academic integrity of educational institutions (Lancaster, 2023; Perkins, 2023). The need for more insight into the effects of GenAI and LLMs in teaching and learning, more specifically, has moved to the center of the academic integrity field discussions.

In this article, we respond to calls to explore and promote ethical GenAI use (Bearman & Luckin, 2020; Dignum, 2021; Zawacki-Richter et al., 2019). We aim to analyze currently available recommendations for promoting GenAI use with integrity in higher education to synthesize critical ideas that can inform decision-making and identify areas that require further exploration. With this work, we hope to contribute to the emerging discussions in this area. We draw from the *Integrated*

Model for Academic Integrity through a Scholarship of Teaching and Learning Lens (Kenny & Eaton, 2022) to carry out this analysis. We use this framework because the academic integrity field is interdisciplinary (Bretag, 2016) and because this framework facilitates exploring how educational institutions can transform their organizational cultures to embrace academic integrity by focusing on high-impact areas at varied organizational levels and involving various structures and stakeholders. We carry out this exploration under the assumption that creating infrastructures that make change possible involves intentional leadership efforts (Miller-Young et al., 2017; Simmons & Taylor, 2019). We intend to contribute to emerging dialogues exploring the ethical dimensions of GenAI in teaching and learning in the higher education sector to benefit educators, students, staff members, practitioners, and policymakers.

Emerging Issues with Artificial Intelligence (AI) from an Academic Integrity Perspective

Academic integrity involves “compliance with ethical and professional principles, standards, practices, and a consistent system of values that serves as a guidance for making decisions and taking actions” (Tauginienė et al., 2018, p. 8). Academic integrity also involves a commitment to the values of honesty, trust, fairness, respect, responsibility, and courage (ICAI, 2021). One of the most salient concerns from an academic integrity perspective emerging from GenAI use in the higher education sector, and more specifically LLMs, is plagiarism, as tools based on this technology are available at a low cost and can create almost untraceable original text (Brake, 2022; Illia et al., 2023; Kumar et al., 2023; Zohny et al., 2023). In the last period, educators and researchers have actively explored how LLMs-based applications challenge our understanding of plagiarism.

Plagiarism means using people’s ideas, content, or structure without proper acknowledgement (Tauginienė et al., 2018). An increasing number of organizations and experts have shared that using LLMs-based

tools without acknowledgement can be interpreted as plagiarism because it involves copying content in ways that misrepresent effort (Peres et al., 2023). Plagiarism with this kind of technology could be especially concerning for subjects where writing skills and information recall are most relevant (Sabzalieva & Valentini, 2023). Hence, if students made their use explicit, they would not plagiarize content (Foltýnek et al., 2023). However, in some situations, such as summative assessments, educators require more than students' confirmation that they have not used these tools; they might need other sources that ensure that students have performed their tasks independently.

GenAI technologies based on LLMs can bypass text-matching tools because they can combine words in original ways (Lancaster, 2023). This reality adds another layer of complexity around LLMs use and plagiarism. A reliable software solution for GenAI detection is not currently available, and it might not potentially be available in the foreseeable future due to its implementation costs and the fact that text spinners can make GenAI detection untraceable (Kumar et al., 2023; Weber-Wulff et al., 2023). Since this reality challenges current definitions of plagiarism, many scholars call for its redefinition so it could successfully transcend into a GenAI educational landscape (Eaton, 2023a, 2023b; Perkins, 2023). Sustainable options need to effectively navigate the fact that these tools are everywhere and that their use cannot be easily detected.

The disruption of LLMs also made many ask new questions about authorship. Authorship refers to a situation where an author's name or pseudonym is communicated in a work, and nobody has disputed that fact (Tauginienè et al., 2018). In this regard, some experts have shared their reflections on what could happen if GenAI silenced the human voice (Illia et al., 2023; Fyfe, 2022). When LLMs-based tools use is explicitly unauthorized, any use intended to achieve academic credit could be seen as contract cheating since involving a third party to

complete an assignment means bypassing learning (Lancaster, 2023; Zohny et al., 2023), which also compromises the authentication of individual attainment in assessments (AAIN, 2023). At the same time, GenAI use might not always imply an attempt to actively blur the boundaries of authorship since its use could be accepted in specific disciplines and cultures for particular purposes (Anson, 2022; Roe et al., 2023). Emerging voices concerning GenAI use and issues of authorship emphasize the murkiness of this area.

Other issues of LLMs-based tools from an academic integrity standpoint are their potential to deliver inaccurate information and promote biases that could impact minoritized groups (Emenike & Emenike, 2023; Illia et al., 2023; Khan, 2023). Even when LLMs provide an experience that resembles a conversation with another human being, they cannot be made responsible for the fake information they produce because they lack accountability (Foltýnek et al., 2023; Peres et al., 2023). LLMs have shown that they can also fabricate text citations and references (Perkins, 2023). For this reason, humans are the ones called to verify information when reading their outputs (Eaton, 2023c; Emenike & Emenike, 2023).

Cognitive bias embedded in the LLMs' training data, algorithmics and filters even included in supervised learning processes during labelling of data and in the choice of dataset (Foltýnek et al., 2023; Illia et al., 2023; Sabzalieva & Valentini, 2023; UNESCO, 2023) challenge educational stakeholders develop students' critical thinking, data, and information literacy skills to understand these tools' capabilities and limitations and identify and challenge biased information (Emenike & Emenike, 2023; Peres et al., 2023). AI has the potential to create new forms of inequality (European Commission, 2022), for instance, when performing "feature extraction" (Illia et al., 2023, p. 203), and some forms of inequality could also be linked to the lack of participation of women in IA and its research and development (Sabzalieva & Valentini, 2023; UNESCO, 2023). Attention and a growing understanding of the limitations of these tools

have raised the need to find ways to mitigate potential harm.

The academic integrity lens into GenAI, and LLMs more specifically, does not only focus on their risks since experts in the field also claim that decision-making should consider their benefits and opportunities to enhance teaching and learning, especially considering that modern societies are actively integrating technologies to automatize processes, that new technologies have impacted the ways educators teach in the twenty-first century, and that these technologies could help the implementation of a more inclusive teaching and learning environment (Delisio & Butaky, 2019; Dignum, 2021; Hemsley et al., 2023; Ouyang et al., 2022). LLMs have interaction and writing capabilities that could turn them into students' virtual learning assistants, collaborators or tutors and teachers' assistants, dynamic assessors, or co-designers to increase productivity (Eke, 2023; Emenike & Emenike, 2023; Kumar et al., 2022; Mills, 2023; Sharples, 2022; Whitford, 2022).

Students could use GenAI to answer questions related to assignments and assessments, to generate outlines and summaries, and to ask for feedback to write and improve essays, lab reports, papers, and reflection writing processes (European Commission, 2022; Khan, 2023; Lancaster, 2023). At the same time, educators could use GenAI to write assessments, rubrics and class and course materials, reply to e-mails, support grant proposals and papers and write career and promotional materials (Emenike & Emenike, 2023). For some situations, using GenAI could be helpful to allow more time to focus on the big picture of an assignment (Zohny et al., 2023). GenAI could provide an opportunity to save time, carry out mundane tasks, and help increase accuracy and insight (Munoko et al., 2020).

Recognizing the ubiquity of GenAI, the difficulties in its detection, and the benefits it could bring, experts have recommended deeper reflection and education around its use.

The main purpose of these processes should be to understand further GenAI's implications, limitations, and benefits in ways that involve all educational stakeholders (Munoko et al., 2020; Peres et al., 2023; Ouyang et al., 2022).

An Integrated Model for Academic Integrity through a Scholarship of Teaching and Learning Lens

Current perspectives on academic integrity in higher education emphasize the benefits of the systems approach. This approach focuses on transforming social and organizational cultures through structural, procedural, and cultural changes, which involves clarifying desired values and behaviours and establishing means to reach these expectations to make visible institutions' social responsibility and commitment to ethical conduct (Bertram Gallant, 2016; Bretag, 2013; Eaton, 2021). Promoting academic integrity through a systems approach requires a deep understanding of the educational ecosystems and attention to multi-stakeholder engagement at varied organizational levels (Bertram Gallant, 2008; Eaton, 2020a, 2020b; Eaton, 2021; TEQSA, 2017). Institutions leaders interested in implementing an educational approach require an understanding of academic integrity that goes beyond student conduct to include other areas such as everyday ethics, professional and collegial ethics, publication ethics, research integrity and ethics, instructional ethics, ethical leadership, and institutional ethics (Eaton, 2023a).

The complexity and focus on learning embedded in the systems approach to academic integrity have laid the foundations for integrating the academic integrity field with the Scholarship of Teaching and Learning (SoTL). SoTL, which started as a movement built from Boyer's (1990) focus on situating teaching as a thoughtful intellectual work (Hutchings et al., 2011), has sparked interest in higher education leaders for decades to increase their attention to the significance of students' learning, work for strengthening the environments that better support teaching and

learning and create better worlds for teaching and learning (Felten, 2013; Hubball & Clarke, 2010; Kenny et al., 2016; Kreber 2013; Miller-Young & Yeo, 2015; Simmons & Poole, 2016).

Current SoTL perspectives have advanced to conceptualizing teaching and learning as a public endeavour that requires continuous exchange and collaboration centred on evidence and documentation strategies (Hutchings et al., 2011; Kreber, 2002; Trigwell, 2021). Most importantly, SoTL has expanded to address issues of educational development, educational leadership, program and curriculum development and academic integrity that go beyond the classroom level, spanning to multiple and interconnected organizational levels (e.g., disciplinary, institutional, regional, provincial, national) (Eaton, 2020a; Hubball et al., 2013; Kenny et al., 2017; O'Brien, 2008; Simmons & Poole, 2016).

Evolving SoTL perspectives and ideas have been influential to academic integrity leaders. For example, the renewed SoTL push underpins the *Integrated Model for Academic Integrity through a SOTL Lens*. This lens provides tools for educational institutions stakeholders interested in promoting ethical decision-making throughout their organizations (Kenny & Eaton, 2022). This model is based on workplace learning theory and systems thinking; additionally, the *4M framework*, inspired by Bronfenbrenner's (1976) complex ecological system, provides a foundation for it. The *4M framework* presents four interconnected lenses to understand organizational learning for change in post-secondary organizations: micro, meso, macro, and mega (Hannah & Lester, 2009; Poole & Simmons, 2013; Simmons, 2016).

The micro-level focuses on individual practitioners' and leaders' knowledge, skills, and behaviours; the meso-level relates to leadership, departments, support units, networks, and committees that help translate policy into actions; the macro-level emphasizes the organization's processes,

structures, systems, and policies that set the expectations; the mega-level is related to disciplinary, provincial, and national levels that frame the accepted practices outside institutions (Kenny & Eaton, 2022; Roxå & Mårtensson, 2012; Simmons, 2016). The value of the *4M framework* is that it helps streamline academic integrity work by facilitating an understanding of the interconnections between teaching and learning practices, their associated inquiries, and the broader context.

Building from the *4M framework*, the *Integrated Model for Academic Integrity through a SoTL Lens* highlights four core elements for change (see Figure 1) that spread across the micro, meso, macro, and mega levels. These elements are a) high-impact professional learning for individuals and groups, b) local-level leadership and microcultures, c) scholarship, research and inquiry, and d) learning spaces, pedagogies, and technologies (Kenny & Eaton, 2022). The first element refers to educational development options offered by the institutions that are pertinent and practical and foster educational stakeholders' actions and reflections. The second relates to the role of appointed and emergent leaders in influencing change in institutional microcultures. The third one represents systematic investigation, dissemination, and strengthening of knowledge and practices concerning academic integrity in institutions. The last one comprises all physical and digital teaching and learning spaces, teaching methods, and new hardware and software that can shape practices (Kenny & Eaton, 2022).

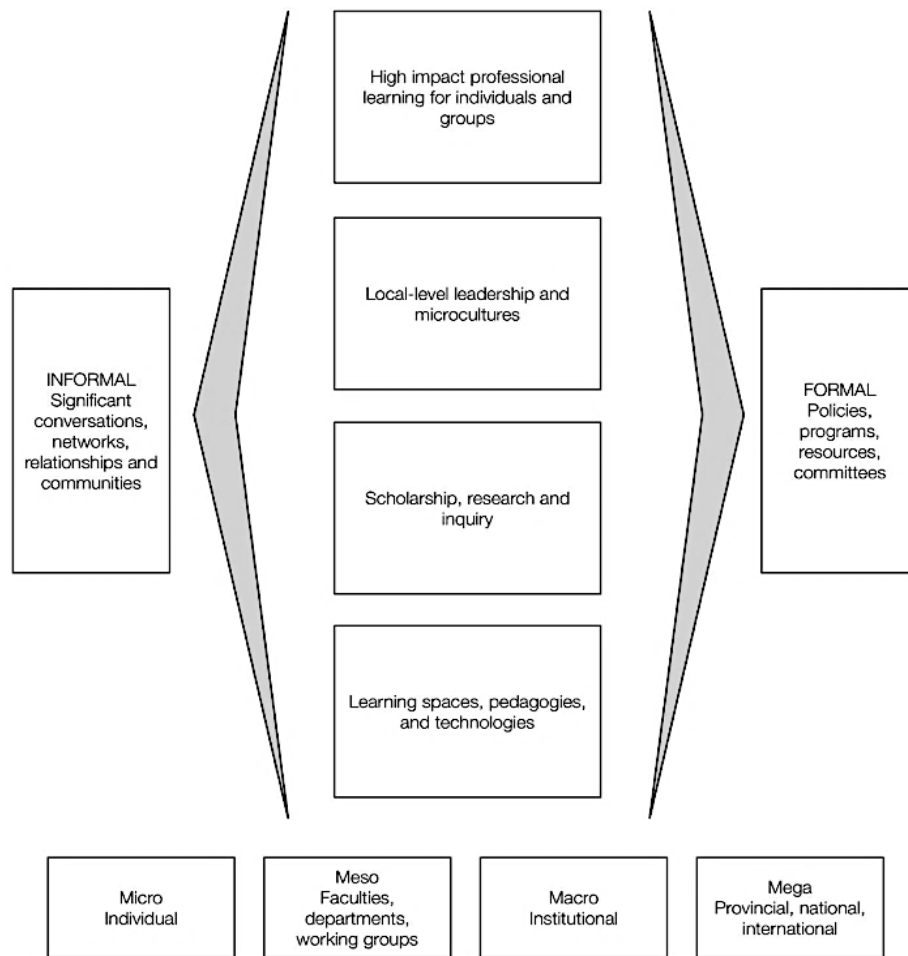
This model also makes visible all the formal and informal actions around the four core elements of change. The formal actions include designing, developing, and implementing policy, programs and resources and establishing appointed groups with specific tasks, such as committees (Kenny & Eaton, 2022). The informal actions are as important as the previous ones, involving the significant conversations of various stakeholders with trusted peers and network co-members and the

relationships and communities surrounding the initiatives (Kenny & Eaton, 2022).

This model is relevant to this examination because it can provide insight into the complexity involved in promoting the use of

GenAI with integrity in higher education. Likewise, it makes the need for systematic work visible. With it, educational stakeholders could inform initiatives that collectively contribute to ethical GenAI use.

Figure 1. Integrated Model for Academic Integrity through a SoTL lens (Kenny & Eaton, 2022).



Note: This figure is shared with a Creative Commons license.

Method

Framing the Examination Process of the Recommendations for the Use of GenAI with Integrity

In this article, we analyzed twelve documents written to provide

recommendations for using GenAI with integrity to educational stakeholders and policymakers. Table 1 provides information about the titles, authors, and publication years of the documents we included in this examination. We acknowledge that we only included documents written in English and that the scope of this search is limited

Table 1. Documents with Recommendations for the Use of GenAI with Integrity

Title	Author(s)	Year
1. AAIN generative artificial intelligence guidelines	Australian Academic Integrity Network (AAIN)	2023
2. ENAI recommendations on the ethical use of artificial intelligence in education	Foltýnek, Bjelobaba, Glendinning, Khan, Santos, Pavletic, & Kravjar	2023
3. Artificial intelligence content generators in education for schools and universities: A good practice guide	Khan	2023
4. Academic integrity and artificial intelligence: An overview	Kumar, Eaton, Mindzak, & Morrison	2023
5. Artificial intelligence, text generation tools and ChatGPT: Does digital watermarking offer a solution?	Lancaster	2023
6. Generative artificial intelligence: Guidelines for educators	National Academic Integrity Network (NAIN)	2023
7. Academic integrity considerations of AI large language models in the post pandemic era: ChatGPT and beyond	Perkins	2023
8. A review of AI-powered writing tools and their implications for academic integrity in the language classroom	Roe, Renandya, & Jacobs	2023
9. ChatGPT and artificial intelligence in higher education: Quick start guide	Sabzalieva & Valentini	2023
10. Ethical guidelines on the use of artificial intelligence (AI) and data in teaching and learning for educators	European Commission	2022
11. The ethics of artificial intelligence	UNESCO	2021
12. Harnessing the era of artificial intelligence in higher education	UNESCO	2023

We analyzed the documents' recommendations using the *Integrated Model for Academic Integrity through a SoTL Lens*, searched for recommendations framed as actions, and organized them across the framework's main components: organizational levels and core elements of change. We classified the recommendations as actions that various educational stakeholders could develop. Actions placed into higher organizational levels (e.g., macro and mega) might involve senior leadership within and outside institutional boundaries. Actions placed at lower organizational levels (e.g., meso and micro) might tend to involve not only appointed leaders at the departmental and program level but also informal leaders who are intrinsically motivated educational actors who promote the use of AI with integrity. We

also classified the recommendations into formal and informal actions. With this analysis, we aimed to map and synthesize currently available recommendations and identify areas that will require further exploration.

Findings

We identified twenty-five recommendations across the four core elements of the model: High-impact Professional Learning for Individuals and Groups ($n = 10$), Local-Level Leadership and Microcultures ($n = 9$), Scholarship, Research, and Inquiry ($n = 2$), and Learning Spaces, Pedagogies, and Technologies ($n = 4$). In Table 2, we provide a synthesis of our examination.

Table 2. GenAI with Integrity Recommendations Examined with Kenny and Eaton’s (2022) Model

Core Elements	Organizational Levels			
	Micro	Meso	Macro	Mega
High-impact Professional Learning for Individuals and Groups	- Formal: Connect course learning outcomes with GenAI ethical use (AAIN, 2023; Sabzalieva & Valentini, 2023).	- Formal: Update programs and courses to include GenAI-related skills and valid assessments (NAIN, 2023; Sabzalieva & Valentini, 2023). - Informal/Formal: Provide peer support and mentoring in the faculties (Sabzalieva & Valentini, 2023).	- Formal: Provide training for investigating misconduct cases (Kumar et al., 2023; Lancaster, 2023; Perkins, 2023). - Formal: Educate students on the ethical use of GenAI (AAIN, 2023; Foltýnek et al., 2023; Khan, 2023; Kumar et al., 2023; Lancaster, 2023; NAIN, 2023; Perkins, 2023; Roe et al. 2023). - Formal: Educate faculty and staff members to face the GenAI landscape (AAIN, 2023; European Commission, 2022; Foltýnek et al., 2023; Khan, 2023; Lancaster, 2023; NAIN, 2023; Roe et al., 2023).	- Formal: Deliver AI literacy education (UNESCO, 2021). - Formal: Support awareness of GenAI development. (UNESCO, 2021). - Formal: Promote the acquisition of pre-requisite skills for AI education (UNESCO, 2021). - Formal: Develop AI ethics curricula (UNESCO, 2021).
Local-Level Leadership and Microcultures	- Formal: Clarify expectations about GenAI use that comply with institutional guidelines (AAIN, 2023). - Formal: Interview with a student before determining GenAI use (Kumar et al., 2023)	- Informal/Formal: Create discussion opportunities involving all educational stakeholders in the GenAI use (Sabzalieva & Valentini, 2023) - Informal/Formal: Involve students so their voices can be heard (Khan, 2023; Lancaster, 2023). - Informal/Formal: Involve academic support staff in the promotion of ethical GenAI use (AAIN, 2023). - Formal: Set up sub-committees to revisit assessment design (Khan, 2023).	- Formal: Individual institutions’ leaders should negotiate and help set clear expectations about ethical GenAI use in policy (AAIN, 2023; Foltýnek et al., 2023; Khan, 2023; Kumar et al., 2023; Lancaster, 2023; NAIN, 2023; Perkins, 2023; Roe et al., 2023; Sabzalieva & Valentini, 2023; UNESCO, 2023).	- Formal/Informal: Discuss discipline-specific principles and interventions (AAIN, 2023; Lancaster, 2023). - Formal/Informal: Support Quality Assurance bodies in their promotion of consistency in approaches to AI in academic integrity policy (Lancaster, 2023; NAIN, 2023).
Scholarship, Research, and Inquiry			- Formal: Incentivize research on the ethical use of GenAI in teaching and learning (UNESCO, 2021, 2023).	- Formal: Create connections with external partners to mobilize knowledge (AAIN, 2023)
Learning Spaces, Pedagogies, and Technologies	- Formal: Avoid GenAI detection tools (Lancaster, 2023; NAIN, 2023). - Formal: Consider adjusting assessments (Foltýnek et al., 2023; Kumar et al., 2023; Lancaster, 2023; NAIN, 2023; Sabzalieva & Valentini, 2023; UNESCO, 2023). - Formal: Develop students’ GenAI literacy, and information, and generic literacy skills (AAIN, 2023). - Formal: Ask students to be transparent about their GenAI use (AAIN, 2023; Foltýnek et al., 2023; NAIN, 2023).			

High-impact Professional Learning for Individuals and Groups

At the micro-level, we identified AAIN (2023) and Sabzalieva and Valentini (2023) recommendations, which incentivized finding ways to link course learning outcomes with skills needed for GenAI ethical use that aligned not only with institutional guidelines but also with accreditation requirements. This action could be framed as a formal activity as it relates to curriculum development. The meso-level recommendations for this core element of change also involved Sabzalieva and Valentini's (2023) and NAIN's (2023) suggestion to include GenAI literacy, ethics, and other core competency skills (e.g., self-efficacy and critical thinking) at programs and courses. These authors also recommended that some committees or similar could be appointed to ensure that the volume of assessment was adequate and that assessments were valid. We interpreted those recommendations as formal because they would involve allocating institutional resources. From our perspective, the suggestion of providing peer support and mentoring for faculty members (NAIN, 2023; Sabzalieva & Valentini, 2023) at the meso-level could be either formal or informal since some faculty members could initiate impromptu dialogues and information exchange about GenAI in teaching and learning with colleagues and at the same time, the institutions could also decide to implement programs or initiative for that purpose.

We identified most of the recommendations for high-impact professional learning for individuals and groups placed at the macro-level with a formal orientation as they involved intentional institutional efforts. Here, the authors provided copious guidance on building internal capacity within educational institutions. The first recommendation was about training stakeholders in charge of investigating misconduct cases (AAIN, 2023; Kumar et al., 2023; Lancaster, 2023; Perkins, 2023). The authors also highlighted the need to develop various stakeholders' capacity to identify AI-generated text by focusing on inaccuracies and fabricated citations or

references, the significance of involving non-teaching staff who investigate academic misconduct cases, and the search for communicating trends in academic integrity breaches (AAIN, 2023; Kumar et al., 2023; Lancaster, 2023; Perkins, 2023).

The second suggestion at the macro level for this core element was to find best strategies to educate students on the ethical use of GenAI in different situations (e.g., authorized writing co-creation), with information on its ethical implications, and with discipline-specific guidelines and through formal and innovative events such as open mic days, debates, among others (AAIN, 2023; Foltýnek et al., 2023; Khan, 2023; Kumar et al., 2023; Lancaster, 2023; NAIN, 2023; Perkins, 2023; Roe et al., 2023). Students will interact with chatbots to assist their learning (UNESCO, 2023), and, as Foltýnek et al. (2023) explained, students who do not learn how to use these tools ethically have higher chances of engaging in unethical use of GenAI. For this reason, students need significant and high-quality educational opportunities and resources that set them up for success in identifying errors, hallucinations, outdated information, biases, or omissions in AI output (AAIN, 2023) and help them understand the impacts of bypassing learning (NAIN, 2023).

The third advice at the macro-level was to educate faculty and staff members in the development of relevant learning outcomes, to have a basic knowledge of GenAI, understand the implications and complexities of GenAI, know what tools their students can use, and use it properly, and how to design assessments with strong validity (AAIN, 2023; European Commission, 2022; Foltýnek et al., 2023; Lancaster, 2023; Khan, 2023; NAIN, 2023; Roe et al., 2023). Consideration of educators' collaboration, professional knowledge, autonomy, and epistemic positions would be highly needed for success (Kumar et al., 2023; NAIN, 2023).

We also identified some recommendations at the mega-level, and these could also be categorized as formal. UNESCO (2021)

actively promoted AI literacy education to empower people, address digital divides and access inequalities. This organization also focused on increasing awareness of AI development and its impacts on human rights (UNESCO, 2021). Additionally, UNESCO (2021) emphasized promoting the acquisition of pre-requisite skills for AI education, for instance, coding, digital, creative, critical, and artificial intelligence skills and designing AI ethics curricula for all educational levels and systems.

Local-Level Leadership and Microcultures

We also identified core elements for local-level leadership and microcultures at all organizational levels. Starting with the micro-level, AAIN (2023) incentivized educators to clarify expectations about GenAI use that aligned with institutional guidelines by including explicit information in various teaching resources. These expectations should be formally communicated to students. Kumar et al. (2023) added to this level that interviewing a student before determining if unauthorized GenAI use happened was critical. Since this action would be a step in an academic misconduct investigation process, we classified this action as formal.

For this core element, the meso-level centred on mobilizing communities around GenAI. We acknowledge that the guidelines in this section could be implemented in formal and informal ways, as they could involve a range of actions that could be planned or spontaneous. First, Khan (2023) and Sabzalieva and Valentini (2023) explained that institutions must actively create opportunities involving all educational stakeholders in dialogues around using GenAI. Other recommendations were more focused on specific educational actors; for instance, students should be invited to share their concerns and have their voices heard regarding the use of GenAI since they could provide rich insight into future employment concerns and needs (Khan, 2023; Lancaster, 2023). Other relevant actors were academic support staff since they actively helped other community

members learn about the ethical use of GenAI by sharing guidance, resources, and advice (AAIN, 2023). At this level, Khan (2023) claimed that administrators should set up sub-committees to revisit assessment design to make them more authentic and work-integrated (Khan, 2023).

At the macro-level, we found advice on developing a policy framework for the ethical use of GenAI, which reflects a formal action. Individual institutions' leaders should negotiate and help set clear expectations about ethical GenAI use in policy (AAIN, 2023; Foltýnek et al., 2023; Kumar et al., 2023; Lancaster, 2023; NAIN, 2023; Perkins, 2023; Sabzalieva & Valentini, 2023). Policies could help foster the transparent use of GenAI (Foltýnek et al., 2023; Kumar et al., 2023; Perkins, 2023), making explicit the use of authorized GenAI, such as proofreaders, spelling checkers and thesaurus (Foltýnek et al., 2023), communicating language that clearly emphasizes values and defines types of academic misconduct (e.g., contract cheating or unauthorized content generation) (AAIN, 2023; Foltýnek et al., 2023; NAIN, 2023), and providing information about GenAI-related cases, benefits, and risks (Roe et al., 2023). Policies addressing the ethical use of GenAI should be constantly updated and supported by specific guidelines (AAIN, 2023; Foltýnek et al., 2023; Sabzalieva & Valentini, 2023; UNESCO, 2023).

Suggestions at the mega-level centred on discussing discipline-specific principles and interventions while recognizing the presence of specific approaches (AAIN, 2023; Lancaster, 2023). Also, educational leaders should support Quality Assurance bodies in promoting consistency in approaches to GenAI in academic integrity policy (Lancaster, 2023; NAIN, 2023), as national guidance provides direction to the overall sector (Foltýnek et al., 2023). We recognized these actions could also be formal and informal, recognizing that the formal level would provide necessary visibility and support.

Scholarship, Research, and Inquiry

We did not find explicit guidance on promoting AI research addressing its ethical uses at the micro and meso levels in the reviewed documents. However, at the macro-level, we identified that UNESCO (2021, 2023) asked higher education institutions to embrace and create the conditions to stimulate research in the ethical use of AI in teaching and learning. Adding to this, this organization also underscored the need to train AI researchers in research ethics to raise their awareness of the ethical considerations of their work, promote interdisciplinary research on AI and search for areas within the field that require further exploration (UNESCO, 2021). We interpreted this as a formal endeavour.

At the mega-level, we found that AAIN (2023) proposed creating connections with external partners to mobilize knowledge; following up on this recommendation could help leaders find common issues across varied institutions and seek new and creative ways to address them. Understanding this as a formal action would be most beneficial with the presence of agreements.

Learning Spaces, Pedagogies, and Technologies

As for the core element called learning spaces, pedagogies, and technologies, we could extract recommendations at the micro level where we identified formal actions. The first one involved avoiding GenAI detection tools resulting from low reliability, especially for those conducting academic misconduct investigations (Lancaster, 2023; NAIN, 2023). Second, experts proposed adjusting assessments to be fit for purpose (Foltýnek et al., 2023; Kumar et al., 2023; Lancaster, 2023; NAIN, 2023; Sabzalieva & Valentini, 2023; UNESCO, 2023). When the authors discussed assessments, they also explored possibilities around the use of analog, oral or alternative mechanisms (Kumar et al., 2023; UNESCO, 2023), the analysis of kind of information that students needed to have before implementing assessments (Foltýnek et al., 2023), the testing of assessment questions with AI tools

(Lancaster, 2023; NAIN, 2023; Sabzalieva & Valentini, 2023), and the exploration of assessment from a mental health perspective (Kumar et al., 2023).

Third, experts favoured developing students' GenAI literacy, information, and generic literacy skills (AAIN, 2023). With these skills, students would be better equipped to critically analyze GenAI technologies, communicate with them, and use GenAI as a tool (AAIN, 2023). One last action at the micro-level was to ask students to be transparent about GenAI use when authorized. Students could include a reference to the AI outputs they used and be ready to explain how they used it; they should also be aware of the sanctions the institution could apply in case of unethical GenAI use (AAIN, 2023; Foltýnek et al., 2023; NAIN, 2023).

Discussion and Conclusions

We analyzed twelve documents that provide practical guidance to promote the ethical use of GenAI in higher education using the *Integrated Model for Academic Integrity through a SoTL Lens* (Kenny & Eaton, 2022). A significant assumption underlying the creation of these documents was that exploring the ethical use of GenAI in teaching and learning (and not banning it) was a necessary endeavour that should involve everyone. This assumption aligns with the systems approach to academic integrity (Bertram Gallant, 2008; TEQSA, 2017). We found recommendations for all organizational levels for the core elements of “high-impact professional learning for individuals and groups” and “local-level leadership and microcultures.” Likewise, these two core elements concentrated most of the recommendations. The documents we reviewed provided comprehensive and insightful suggestions to support higher education institutions' efforts to build the knowledge, skills, and capacities of their community members to face the emerging GenAI landscape and to engage them and ensure they were involved in various action and decision-making levels.

The focus of the recommendations for “high impact professional learning for individuals and groups” and “local-level leadership and microcultures” across all organizational levels (i.e., micro, meso, macro, and mega) is on learning, which resonates with calls from academic integrity and the SoTL scholars in the last decades (Bertram Gallant, 2008, 2016; Bretag, 2013; Kenny et al., 2016; O’Brien, 2008). Moreover, guidelines in these two core elements suggest specific formal and informal learning opportunities that theory shows could facilitate change in higher education (Roxå & Mårtensson, 2015).

Our analysis of the micro-level of “high-impact professional learning for individuals and groups” shows that recommendations for connecting learning outcomes with GenAI ethical use were present (AAIN, 2023; Sabzalieva & Valentini, 2023) but not addressed in depth. We anticipate that more organizations and individuals should provide more insight into this area since curriculum development could be critical in addressing GenAI more formally. Likewise, information that could connect course learning outcomes with plagiarism, authorship and contract cheating was not explored in detail. This connection is urgent as academic integrity experts have actively shared the need to explore these concepts vis-à-vis GenAI (Eaton, 2023a; Perkins, 2023). With the development of more research, we also expect that more clarity about the definitions of plagiarism and authorship (Anson, 2022; Eaton, 2023a; Fyfe, 2022) will help develop recommendations that explore this focus more closely.

Following the analysis of recommendations at the micro-level for the core element of “local-level leadership and microcultures,” we identified suggestions to make clear for students how to use GenAI and include interviews with students in academic misconduct investigations (AAIN, 2023; Kumar et al., 2023). However, we recognize the need to develop research-informed resources to guide faculty on how to communicate GenAI use expectations that align with institutional policy and carry out fair

academic misconduct case investigations involving unauthorized use of GenAI. Finding ways to teach GenAI use that would make sense to students, and the provision of concrete examples could be helpful for course instructors. Moreover, interviews could involve an emotional burden to faculty or staff members in the position of potentially applying sanctions; thus, they could benefit from theory and best practices that could support them in this kind of situation.

At the meso level of these two core elements (i.e., high-impact professional learning for individuals and groups and local-level leadership and microcultures), we identified recommendations involving the need to update programs and courses to include GenAI-related skills, the presence of peer support and mentoring in the faculties, the creation of discussion opportunities about GenAI involving all educational stakeholders, the significance of involving students and academic integrity staff for the promotion of ethical GenAI use, and the creation of sub-committees to revisit assessment design (AAIN, 2023; Khan, 2023; Lancaster, 2023; NAIN, 2023; Sabzalieva & Valentini, 2023). When analyzing these recommendations through a SoTL lens, we realized that educational stakeholders might require more insight into the ways to engage community members. We believe that insight into operationalizing this could also be explored in theory and practice. The work of SoTL scholars provides frameworks to understand how to initiate and sustain networks so that their members can actively participate in new learning opportunities and promote knowledge-sharing and practices in ways that make sense to them within an institutional setting (Kenny et al., 2016; Taylor et al., 2021). These frameworks emphasize the role of appointed and informal leaders who could actively engage, connect, collaborate, and advocate (Simmons and Taylor, 2019) for ethical GenAI use. We identify opportunities to explore these gaps to equip better institutions interested in weaving actions at the meso level of their institutions.

Another gap that might require attention at the meso level of “high-impact professional learning for individuals and groups” and “local-level leadership and microcultures” is the presence of intentional recommendations to explore GenAI from an Equity, Diversity, and Inclusion lens. The potential of GenAI to promote biases (Illia et al., 2023; Khan, 2023) needs to be actively addressed to mitigate harm. Also, discussions around the potential of GenAI to create inclusive teaching and learning environments require more advocacy.

As for the macro level of these two key core elements (i.e., “high-impact professional learning for individuals and groups” and “local-level leadership and microcultures”), we acknowledge that most experts agree on the significance of providing high-quality educational opportunities for various stakeholders, especially faculty and students (AAIN, 2023; European Commission, 2022; Foltýnek et al., 2023; Khan, 2023; Kumar et al., 2023; Lancaster, 2023; NAIN, 2023; Perkins, 2023; Roe et al. 2023). Likewise, experts also highlighted the need for policy that addressed GenAI (AAIN, 2023; Foltýnek et al., 2023; Khan, 2023; Kumar et al., 2023; Lancaster, 2023; NAIN, 2023; Perkins, 2023; Roe et al., 2023; Sabzalieva & Valentini, 2023; UNESCO, 2023). These recommendations were explained in more detail than others, possibly because of the critical role that education and policy have reached in the advancement of the system's approach to academic integrity.

The mega level of the elements “high-impact professional learning for individuals and groups” and “local-level leadership and micro-cultures” promoted AI literacy education, further awareness of GenAI development, the promotion of pre-requisite skills for AI education, the development of AI ethics curricula, the revision of discipline-specific principles and interventions for GenAI, and the support to Quality Assurance bodies in their approaches to AI (AAIN, 2023; Lancaster, 2023; NAIN, 2023; UNESCO, 2021). From our perspective, we see that building the mega level more actively for the

purposes of more ethical GenAI is critical since it can have a strong impact on institutional decision-making (Miller-Young et al., 2017; Simmons, 2016). A strong mega level to promote the ethical use of GenAI can steer universities towards more robust and nuanced approaches.

In this examination, we also realized that institutions might still need more guidance for “scholarship, research, and inquiry” and “learning spaces, pedagogies, and technologies” at the meso level. As Kenny & Eaton (2022) suggest, focus on this level has been regularly less prioritized than others. The meso level involves working with networks based on trust, spontaneity, reciprocity, and intellectual engagement (Roxå & Mårtensson, 2012; Taylor et al., 2021). While identifying the best conditions to facilitate the generation and strengthening of significant networks might be challenging, we propose that this kind of exploration might be necessary as it could provide relevant insight to find better ways to influence community members. Research shows that conversations inside networks can have more impact than conversations that happen outside them (Roxå & Mårtensson, 2012, 2015). Additionally, research in the SoTL highlights that understanding the educational context, which involves understanding these networks, can be helpful in catalyzing innovation (Mårtensson & Roxå, 2016; Miller-Young et al., 2017; Simmons & Taylor, 2019; Taylor et al., 2021).

Following up on the gaps, we noticed that the recommendations for “scholarship, research, and inquiry” at the micro level were also absent. SoTL scholars have searched for ways to bridge the individual and institutional layers of educational organizations (Hubball & Clarke, 2010; Hubball et al., 2013; Hutchings et al., 2011; Kenny et al., 2016; Poole & Simmons, 2013; Simmons & Poole, 2016; Verwood & Poole, 2016). Hence, guidelines at the institutional level (i.e., macro) regarding research on GenAI should be recognized as relevant as those that are visible at the individual level.

As for the macro level of the core element “scholarship, research, and inquiry,” we identified UNESCO’s (2021, 2023) recommendations to promote research on the ethical use of GenAI. We argue that expanding on future directions for research could act as a beacon to inform researchers’ work more actively. At the mega level, AAIN (2023) incentivized connections with external partners. We believe that more guidance on how institutions connect with external partners is needed.

We only found recommendations at the micro-level for the core element “learning, spaces, pedagogies, and technologies.” These recommendations focused on the avoidance of GenAI detection tools, the consideration of adjusting assessments to be fit-for-purpose, the development of students’ GenAI literacy and information and generic literacy and the relevance of asking students to use GenAI transparently (AAIN, 2023; Foltýnek et al., 2023; Kumar et al., 2023; Lancaster, 2023; NAIN, 2023; Sabzalieva & Valentini, 2023; UNESCO, 2023). We believe that the emerging nature of GenAI might explain this. However, we anticipate that recently created informal international networks exploring the uses of GenAI might need more insight into the growing understanding of how GenAI impacts teaching.

Limitations

In this work, we did not include perspectives on relevant areas of AI in education, such as how GenAI can help instructional design and development and support educational administrators’ decision-making concerning course development, pedagogical design, and academic transformations (Ouyang et al., 2022). Other areas outside of the scope of this work are the role of social media companies using LLMs and the role of governments in the regulation of these new tools (Illia et al., 2023).

Conclusion

We used the *Integrated Model for Academic Integrity through a SoTL Lens* to examine twelve documents that focus on using GenAI

with integrity to identify ideas that are actively supported by experts and map areas that might require more attention in the future. This exploration, while limited in scope, contributes to emerging dialogues around using GenAI with integrity and could benefit educators, students, staff members, practitioners, and policymakers who might find that their ideas resonate with our findings and perspectives. We believe that the recommendations shared in this work, as well as our perspectives, might evolve as our understanding of GenAI grows.

Acknowledgements

We are grateful to the University of Calgary Teaching and Learning Grant and to the Social Sciences and Humanities Research Council of Canada (SSHRC) (Grant #611-2022-0398) for supporting this research.

References

- Anson, C. M. (2022). AI-based text generation and the social construction of “fraudulent authorship”: A revisit. *Composition Studies*, 50(1), 37-46.
- Australian Academic Integrity Network (AAIN). (2023). *AAIN generative artificial intelligence guidelines*. <https://www.teqsa.gov.au/sites/default/files/2023-04/aain-generative-ai-guidelines.pdf>
- Bearman, M., & Luckin, R. (2020). Preparing university assessment for a world with AI: Tasks for human intelligence. In M. Bearman, P. Dawson, R. Ajjawi, J. Tai & D. Boud (Eds.), *Re-imagining university assessment in a digital world* (pp. 49-63). Springer International Publishing. <https://doi.org/https://doi.org/10.1007/978-3-030-41956-1>
- Bertram Gallant, T. (2008). *Academic integrity in the twenty-first century: A teaching and learning imperative*. Jossey-Bass.
- Bertram Gallant, T. (2016). Systems approach to going forward. In T. Bretag (Ed.), *Handbook of academic integrity* (1st ed., pp. 975–977). Springer.

- <https://doi.org/10.1007/978-981-287-098-8>
- Brake, J. (2022). *Education in the world of ChatGPT*. The Absent-Minded Professor https://joshbrake.substack.com/p/education-in-the-world-of-chatgpt?utm_source=direct&utm_campaign=post&utm_medium=web
- Bretag, T. (2013). Short-cut students: Fostering academic integrity in students. In Transparency International, *Global Corruption Report: Education*. <https://doi.org/10.4324/9780203109816>
- Bretag, T. (2016). Defining academic integrity: International perspectives - Introduction. In T. Bretag (Ed.), *Handbook of academic integrity* (1st ed., pp. 3–6). Springer. <https://doi.org/10.1007/978-981-287-098-8>
- Bronfenbrenner, U. (1976). The experimental ecology of education. *Educational Researcher*, 5(9), 5-15. <https://doi.org/10.2307/1174755>.
- Boyer, E. L. (1990). *Scholarship reconsidered: Priorities of the professoriate*. The Carnegie Foundation for the Advancement of Teaching. <https://files.eric.ed.gov/fulltext/ED326149.pdf>
- Canadian Center for Cybersecurity. (2023). *Generative artificial intelligence (AI) - ITSAP.00.041*. Government of Canada. <https://www.cyber.gc.ca/en/guidance/generative-artificial-intelligence-ai-itsap00041>
- Delisio, L. A., & Butaky, C. A. (2019). UDL and assistive technology: Utilizing technology beyond mere accessibility. In W. W. Murawski & K. L. Scott (Eds.), *What really works with Universal Design for Learning* (pp. 157-172). Corwin.
- Dignum, V. (2021). The role and challenges of education for responsible AI. *London Review of Education*, 19(1), 1-11. <https://doi.org/10.14324/LRE.19.1.01>
- Eaton, S. E. (2020a). *Understanding academic integrity from a teaching and learning perspective: Engaging with the 4M framework*. <http://hdl.handle.net/1880/112435>
- Eaton, S. E. (2020b). *Academic integrity: A systems approach to address contract cheating / Integridad Académica: Un enfoque de sistemas para enfrentar la compraventa de trabajo académico* [Conference Paper]. Eighth Congress on Academic Integrity, Monterrey, Mexico [online]. <https://prism.ucalgary.ca/handle/1880/112560>
- Eaton, S. E. (2021). *Plagiarism in higher education: Tackling tough topics in academic integrity*. ABC-CLIO. <https://doi.org/10.5040/9798400697142>
- Eaton, S.E. (2023a). *A comprehensive academic integrity (CAI) framework: An overview*. University of Calgary. <https://prism.ucalgary.ca/handle/1880/116060>
- Eaton, S. E. (2023b, September 28). *Del plagio al posplagio: escribiendo el futuro de la integridad académica en la era de la inteligencia artificial* [Conference presentation]. Décimo Primer Congreso de Integridad Académica, Monterrey, México.
- Eaton, S. E. (2023c). Six tenets of postplagiarism. *Learning, Teaching and Leadership*. <https://drsaraheaton.wordpress.com/2023/02/25/6-tenets-of-postplagiarism-writing-in-the-age-of-artificial-intelligence/>
- Eke, D.O. (2023). ChatGPT and the rise of generative AI: Threat to academic integrity? *Journal of Responsible Technology*, 13. <https://doi.org/10.1016/j.jrt.2023.100060>.
- Emenike, M. E. & Emenike, B. U. (2023). Was this title generated by ChatGPT? Considerations for artificial intelligence text-generation software programs for chemists and chemistry educators. *Journal*

- of *Chemical Education*, 100(4). <https://doi.org/10.1021/acs.jchemed.3c00063>
- European Commission. (2022). *Ethical guidelines on the use of artificial intelligence (AI) and data in teaching and learning for educators*. <https://op.europa.eu/en/publication-detail/-/publication/d81a0d54-5348-11ed-92ed-01aa75ed71a1/language-en>
- Felten, P. (2013). Principles of good practice in SoTL. *Teaching and Learning Inquiry*, 1(1), 121–125. <https://doi.org/10.20343/teachlearning.1.1.121>
- Foltýnek, T., Bjelobaba, S., Glendinning, I, Khan, Z.R., Santos, R. Pavletic, P., & Kravjar, J. (2023). ENAI Recommendations on the ethical use of Artificial Intelligence in Education. *International Journal for Academic Integrity*, 19(12). <https://doi.org/10.1007/s40979-023-00133-4>
- Fyfe, P. (2022). How to cheat on your final paper: Assigning AI for student writing. *AI & Society*. <https://link.springer.com/article/10.1007/s00146-022-01397-z>
- Hannah, S. T., & Lester, P. B. (2009). A multilevel approach to building and leading learning organizations. *Leadership Quarterly*, 20(1), 34–48. <https://doi.org/10.1016/j.leaqua.2008.11.003>
- Hemsley, B., Power, E., & Given, F. (January 18, 2023). Will AI tech like ChatGPT improve inclusion for people with communication disability. *The Conversation*. <https://theconversation.com/will-ai-tech-like-chatgpt-improve-inclusion-for-people-with-communication-disability-196481>
- Hubball, H., & Clarke, A. (2010). Diverse methodological approaches and considerations for SoTL in higher education. *The Canadian Journal for the Scholarship of Teaching and Learning*, 1(1). <https://doi.org/10.5206/cjsotl-raceca.2010.1.2>
- Hubball, H., Pearson, M. L., & Clarke, A. (2013). SoTL inquiry in broader curricular and institutional contexts: Theoretical underpinnings and emerging trends. *Teaching and Learning Inquiry*, 1(1), 41–57. <https://doi.org/10.2979/teachlearning.1.1.41>
- Hutchings, P., Huber, M. T., & Ciccone, A. (2011). Why the scholarship of teaching and learning matters today. In P. Hutchings, M. T. Huber, & A., Ciccone (Eds.), *The scholarship of teaching and learning reconsidered: Institutional integration and impact* (pp. 1–23). Jossey-Bass.
- ICAI (2021). The Fundamental Values of Academic Integrity. <https://academicintegrity.org/resources/fundamental-values>
- Illia, L., Colleoni, E., & Zyglidopoulos, S. (2022). Ethical implications of text generation in the age of artificial intelligence. *Business Ethics, the Environment & Responsibility*, 32(1), 201–210. <https://doi.org/10.1111/beer.12479>
- Kenny, N., Watson, G. P. L., & Desmarais, S. (2016). Building sustained action: Supporting an institutional practice of SoTL at the University of Guelph. *New Directions for Teaching and Learning*, 146, 87–94. <https://doi.org/10.1002/tl.20191>
- Kenny, N., Popovic, C., McSweeney, J., Knorr, K., Hoessler, C., Hall, S., Fujita, N., & El Houry, E. (2017). Drawing on the principles of SoTL to illuminate a path forward for the scholarship of educational development. *The Canadian Journal for the Scholarship of Teaching and Learning*, 8(2).

- <https://doi.org/10.5206/cjsotl-rcacea.2017.2.10>
- Kenny, N., & Eaton, S. E. (2022). Academic integrity through a SoTL lens and 4M framework: An institutional self-study. In S.E Eaton & J. Christensen Hughes (Eds.), *Academic integrity in Canada: An enduring and essential challenge*. Springer. <https://link.springer.com/book/10.1007/978-3-030-83255-1>
- Khan, Z. R. (2023). Artificial intelligence content generators in education for schools and universities: A good practice guide, European Network for Academic Integrity Working Group Centre for Academic Integrity in the UAE. *University of Wollongong in Dubai*. <https://academicintegrity-uae.com/category/faculty-resources/>
- Kreber, C. (2002). Controversy and consensus on the scholarship of teaching. *Studies in Higher Education*, 27(2), 151–167. <https://doi.org/10.1080/03075070220119995>
- Kreber, C. (2013). The transformative potential of the scholarship of teaching. *Teaching and Learning Inquiry*, 1(1), 5–18. <https://doi.org/10.20343/teachlearningu.1.1.5>
- Kumar, R., Mindzak, M., Eaton, S. E., & Morrison, R. (May 17, 2022). *AI & AI: Exploring the contemporary intersections of artificial intelligence and academic integrity* [Conference Session]. Canadian Society for the Study of Higher Education Annual Conference [Online]. <http://hdl.handle.net/1880/114647>
- Kumar, R., Eaton, S. E., Mindzak, M. & Morrison, R. (2023). Academic integrity and artificial intelligence: An overview. In S. E. Eaton (Ed.), *Handbook of academic integrity* (2nd edition). Springer. https://doi.org/10.1007/978-981-287-079-7_153-1
- Lancaster, T. (2023). Artificial intelligence, text generation tools and ChatGPT – does digital watermarking offer a solution?" *International Journal for Educational Integrity*, 19(1). <https://doi.org/10.1007/s40979-023-00131-6>
- Lesage, J., Brennan, R., Eaton, S. E., Moya, B., McDermott, B., Wiens, J., & Herrero, K. (2023). Exploring natural language processing in mechanical engineering education: Implications for academic integrity. *International Journal of Mechanical Engineering Education*. <https://doi.org/10.1177/03064190231166665>
- Lim, W. M., Gunasekara, A., Pallant, J. L., Pallant, J. I., & Pechenkina, E. (2023). Generative AI and the future of education: Ragnarök or reformation? A paradoxical perspective from management educators. *The International Journal of Management Education*, 21(2). <https://doi.org/10.1016/j.ijme.2023.100790>
- Martensson, K., & Roxa, T. (2016). Leadership at a local level – Enhancing educational development. *Educational Management Administration and Leadership*, 44(2), 247–262. <https://doi.org/10.1177/1741143214549977>
- Miller-Young, J., & Yeo, M. (2015). Conceptualizing and communicating SoTL: A framework for the field. *Teaching and Learning Inquiry*, 3(2), 37–53. <https://doi.org/10.20343/teachlearningu.3.2.37>
- Miller-Young, J., Anderson, C., Kiceniuk, D., Mooney, J., Riddell, J., Schmidt Hanbidge, A., Ward, V., Wideman, M., & Chick, N. (2017). Leading Up in the Scholarship of Teaching and Learning. *The Canadian Journal for the Scholarship of Teaching and Learning*, 8(2). <https://doi.org/10.5206/cjsotl-rcacea.2017.2.4>

- Mills, A. (2023). *What to do about AI text generators*.
<https://docs.google.com/presentation/d/1P5nSOm1g3CvsoPEga4fSnzjMiLtGg7Bf/mobilepresent?slide=id.p2>
- Mindzak, M. (2020, February 17). What happens when a machine can write as well as an academic? *University Affairs*.
<https://www.universityaffairs.ca/opinion/in-my-opinion/what-happens-when-a-machine-can-write-as-well-as-an-academic/>
- Munoko, I., Brown-Liburd, H. L., & Vasarhely, M. (2020). The ethical implications of using artificial intelligence in auditing. *Journal of Business Ethics*, (167), 209-234.
<https://doi.org/10.1007/s10551-019-04407-1>
- National Academic Integrity Network (NAIN). (2023). *Generative artificial intelligence: Guidelines for educators*.
<https://www.qqi.ie/sites/default/files/2023-09/NAIN%20Generative%20AI%20Guidelines%20for%20Educators%202023.pdf>
- O'Brien, M. (2008). Navigating the SoTL landscape: A compass, map and some tools for getting started. *International Journal for the Scholarship of Teaching and Learning*, 2(2), Article 15.
<https://doi.org/10.20429/ijstl.2008.020215>
- Ouyang, F., Zhen, L., & Jiao, P. (2022). Artificial intelligence in online higher education: A systematic review of empirical research from 2011 to 2020. *Education and Information Technologies* (27), 7893-7925.
<https://doi.org/10.1007/s10639-022-10925-9>
- Peres, R., Schreier, M., Schweidel, D., & Sorescu, A. (2023). On ChatGPT and beyond: How generative artificial intelligence may affect research, teaching, and practice. *International Journal of Research in Marketing* 40(2), 269-275.
<https://doi.org/10.1016/j.ijresmar.2023.03.001>
- Perkins, M. (2023). Academic integrity considerations of AI Large Language Models in the post-pandemic era: ChatGPT and beyond. *Journal of University Teaching and Learning Practice*, 20(2).
<https://doi.org/10.53761/1.20.02.07>
- Poole, G., & Simmons, N. (2013). Contributions of the scholarship of teaching and learning to quality enhancement in Canada. In R. Land & G. Gordon (Eds.), *Enhancing quality in higher education international perspectives* (1st ed., pp. 278-298). Routledge.
- Roe, J., Renandya, W., Jacobs, G. (2023). A review of AI-Powered writing tools and their implications for academic integrity in the language classroom. *Journal of English and Applied Linguistics*, 2(1).
<https://doi.org/10.59588/2961-3094.1035>
- Roxå, T., & Mårtensson, K. (2012). How effects from teacher-training of academic teachers propagate into the meso level and beyond. In E. Simon & G. Pleschová (Eds.), *Teacher development in higher education: Existing programs, program impact, and future trends*. Routledge.
<https://doi.org/10.4324/9780203096826>
- Roxå, T., & Mårtensson, K. (2015). Microcultures and informal learning: a heuristic guiding analysis of conditions for informal learning in local higher education workplaces. *International Journal for Academic Development*, 20(2), 193-205.
<https://doi.org/10.1080/1360144X.2015.1029929>
- Sabzalieva, E., & Valentini, A. (2023). ChatGPT and Artificial Intelligence in higher education: Quick start guide. *UNESCO*.
[https://www.iesalc.unesco.org/wp-content/uploads/2023/04/ChatGPT-and-Artificial-Intelligence-in-higher-](https://www.iesalc.unesco.org/wp-content/uploads/2023/04/ChatGPT-and-Artificial-Intelligence-in-higher-education-quick-start-guide.pdf)

[education-Quick-Start-guide EN FINAL.pdf](#)

- Sharples, M. (2022). Automated essay writing: An AIED opinion. *International Journal of Artificial Intelligence in Education*, 32, 1119-1126. <https://doi.org/10.1007/s40593-022-00300-7>
- Simmons, N. (2016). Synthesizing SoTL institutional initiatives toward national Impact. *New Directions for Teaching and Learning*, 146, 95–102. <https://doi.org/10.1002/tl.20192>
- Simmons, N., & Poole, G. (2016). The history of SoTL in Canada: Answering calls for action. *New Directions for Teaching and Learning*, 146, 13–22. <https://doi.org/10.1002/tl.20182>
- Simmons, N., & Taylor, K. L. (2019). Leadership for the scholarship of teaching and learning: Understanding bridges and gaps in practice. *The Canadian Journal for the Scholarship of Teaching and Learning*, 10(1). <https://doi.org/10.5206/cjsotl-rcacea.2019.1.7995>
- Stanford University (n.d.) *What is AI? / Basic Questions*. <http://jmc.stanford.edu/artificial-intelligence/what-is-ai/index.html>.
- Tauginienė, L., Gaižauskaitė, I., Glendinning, I., Kravjar, J., Ojsteršek, M., Ribeiro, L., Odiņeca, T., Marino, F., Cosentino, M., Sivasubramaniam, S., Foltýnek, T. *Glossary for Academic Integrity*. <https://www.academicintegrity.eu/wp/wp-content/uploads/2023/02/EN-Glossary revised final 24.02.23.pdf>
- Taylor, K. L., Kenny, N. A., Perrault, E., Mueller, R. A., Taylor, K. L., Kenny, N. A., Perrault, E., & Mueller, R. A. (2021). Building integrated networks to develop teaching and learning: The critical role of hubs. *International Journal for Academic Development*, 1–13. <https://doi.org/10.1080/1360144X.2021.1899931>
- Tertiary Education Quality and Standards Agency (TEQSA). (2017). *Good practice note: Addressing contract cheating to safeguard academic integrity (Issue October)*. <https://www.teqsa.gov.au/latest-news/publications/good-practice-note-addressing-contract-cheating-safeguard-academic>
- Trigwell, K. (2021). Scholarship of teaching and learning. In L. H. & D. Chalmers (Eds.), *University teaching in focus: A learning-centred approach* (2nd ed., pp. 286–303). Routledge. <https://doi.org/10.4324/9781003008330-17>
- UNESCO. (2021). *The ethics of artificial intelligence*. <https://unesdoc.unesco.org/ark:/48223/pf0000381137>
- UNESCO (2023). *Harnessing the era of artificial intelligence in higher education*. <https://unesdoc.unesco.org/ark:/48223/pf0000386670>
- Verwood, R., & Poole, G. (2016). The role of small significant networks and leadership in the institutional embedding of SoTL. *New Directions for Teaching and Learning*, 146, 79–86. <https://doi.org/10.1002/tl>
- Weber-Wulff, D., Anohina-Naumeca, A., Bjelobaba, S., Foltýnek, T., Guerrero-Dib, J., Popoola, O., Šigut, P., & Waddington, L. (2023). Testing the detection tools for AI-generated text. *Computation and Language*. <https://arxiv.org/abs/2306.15666>
- Whitford, E. (2022, December 9). A computer can now write your college essay – Maybe better than you can. *Forbes*. <https://www.forbes.com/sites/emmawhitford/2022/12/09/a-computer-can-now-write-your-college-essay---maybe-better-than-you-can/?sh=4f078e2add39>
- Zawacki-Richter, O., Marín, V. I., Bond, M., & Gouverneur, F. (2019). Systematic review of research on artificial

intelligence applications in higher education—where are the educators? *International Journal of Educational Technology in Higher Education*, 16(1), 1-27. <https://doi.org/10.1186/s41239-019-0171-0>

Zohny, H., McMillan, J., & King, M. (2023). Ethics of generative AI. *J Med Ethics*, (49), 79–80. <https://doi.org/10.1136/jme-2023-108909>

Authors / Autores

Moya, Beatriz Antonieta (beatriz.moya@ucalgary.ca)  0000-0003-4692-7867

Beatriz Moya is a Ph.D. candidate in the Werklund School of Education at the University of Calgary in the Educational Research program, specializing in Leadership. Her primary motivation as a student researcher is to contribute to the continuous transformation of higher education institutions' cultures to pursue academic and research integrity and social justice. For this reason, Beatriz situates herself at the intersections of the Scholarship of Teaching and Learning (SoTL), Leadership, and Academic Integrity. In this space, Beatriz is currently involved in projects seeking to contribute to a 'glocal' scholarly dialogue concerning academic integrity as a teaching and learning imperative. For instance, Beatriz is exploring the situated meanings and experiential insights from academic integrity educational leaders, and is also a contributing author for a chapter on academic integrity policy in Latin America in the *Handbook of Academic Integrity* (2nd ed.).

Eaton, Sarah Elaine (seaton@ucalgary.ca)  0000-0003-0607-6287

Dr. Sarah Elaine Eaton, PhD, is an Associate Professor of Education at the University of Calgary, Canada. She served as the inaugural Educational Leader in Residence, Academic Integrity at Taylor Institute for Teaching and Learning, University of Calgary. Dr. Eaton's research focuses on academic ethics in higher education. Her work can be found in the *British Educational Research Journal*, the *Journal of Academic Ethics*, and the *Journal of Educational Thought and Interchange*, among other places. She is the Editor-in-Chief of the *International Journal for Educational Integrity* (Springer Nature) and co-founder and co-editor of *Canadian Perspectives on Academic Integrity*. In 2020 she received the National Research and Scholarship award from the Canadian Society for the Study of Higher Education (CSSHE) for her contributions to research on academic integrity in Canadian higher education. In 2022, she received the outstanding research award from the European Network for Academic Integrity (ENAI). Her books include *Plagiarism in Higher Education: Tackling Tough Topics in Academic Integrity*, *Academic Integrity in Canada: An Enduring and Essential Challenge* (Eaton & Christensen Hughes, eds.), *Contract Cheating in Higher Education: Global Perspectives on Theory, Practice, and Policy* (Eaton, Curtis, Stoesz, Clare, Rundle, & Seeland, eds.) and *Ethics and Integrity in Teacher Education* (Eaton & Khan, eds.).



Revista ELectrónica de Investigación y EValuación Educativa
E-Journal of Educational Research, Assessment and Evaluation

[ISSN: 1134-4032]



Esta obra tiene [licencia de Creative Commons Reconocimiento-NoComercial 4.0 Internacional](https://creativecommons.org/licenses/by-nc/4.0/).

This work is under a [Creative Commons Attribution 4.0 International license](https://creativecommons.org/licenses/by-nc/4.0/).