Academic Integrity Meets Artificial Intelligence

The Case of the Anglophone Caribbean

Ruth **BAKER-GARDNER**

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Academic Integrity Meets Artificial Intelligence: The Case of the Anglophone Caribbean

BY

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Dedicated to Dr Cherrell Shelley-Robinson – Destiny Helper!

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About the Author

Ruth Baker-Gardner is emerging as the foremost voice on academic integrity in the Caribbean, having published *The State of Academic Integrity in the Caribbean: Plagiarism Policies, Perceptions, Procedures and Possible Solutions in 2022*. That publication, which is the forerunner to this volume, was awarded the Principal's Award for the Best Research Publication in the book category for the academic year 2022–2023. She is currently a member of the National Task Force on Artificial Intelligence in Jamaica and was the recipient of the Exemplar of Academic Integrity Award from the International Center for Academic Integrity for 2025. She was selected as the Information Professional of the Year by the Library and Information Association of Jamaica for 2017 and 2024. She was also the winner of the European Network for Academic Integrity 2025 Outstanding Research Award.

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Foreword

This book represents a pivotal contribution to the ongoing dialogue surrounding academic integrity, particularly within the context of the rapidly evolving landscape of higher education in the Caribbean. The emergence of generative artificial intelligence (GenAI) tools like ChatGPT has brought forth both unprecedented opportunities and challenges for educational institutions worldwide. This book directly addresses this complex intersection between academic integrity and GenAI, providing valuable insights for all stakeholders in higher education.

Ruth Baker-Gardner, a recognized expert in academic integrity, expertly guides the reader through a comprehensive examination of the current state of academic integrity practices in 31 Caribbean higher education institutions. Her meticulous research, utilizing the Academic Integrity Rating System (AIRS) developed by the International Center for Academic Integrity, offers an in-depth analysis of 10 key areas crucial to maintaining academic integrity.

She sets the stage by providing a historical overview of artificial intelligence (AI), distinguishing between traditional AI and GenAI, and outlining the various categories and challenges associated with GenAI tools. She critically analyses the use of GenAI in education, examining its potential to revolutionize teaching, learning, and assessment while raising concerns about the ethical implications and potential for misuse.

Next, she showcases her research study, providing a rich overview of the higher education environment in the Caribbean. In this section, she meticulously outlines the methodology used, including the AIRS, and presents the demographic data of the participating institutions. The subsequent chapters offer a detailed analysis of the findings from each subscale of the AIRS, highlighting the strengths and weaknesses of the current academic integrity practices in the region.

The later chapters in the book are a culmination of the book's exploration, bringing together the two strands of academic integrity and AI. She evaluates the readiness of Caribbean higher education institutions to effectively address the potential challenges posed by GenAI to academic integrity. Based on the research findings and a comprehensive review of the literature, she presents a set of actionable recommendations aimed at fostering a culture of academic integrity that benefits students, institutions and Caribbean society as a whole.

This book goes beyond outlining the challenges; it provides a roadmap for the way forward. In the concluding chapter, 'The Way Forward', she offers practical, sensible steps that institutions can implement in the short, medium and long term to adapt to the changing landscape of higher education in the age of GenAI.

Her emphasis on the importance of regional and national collaboration, along with the need for AI literacy and a proactive approach to policy development, offers a beacon of hope for the future of academic integrity in the Caribbean.

This book is an indispensable resource for administrators, faculty and students alike. For administrators, it provides critical information for developing, implementing and evaluating effective academic integrity policies. Faculty members gain a deeper understanding of their role in fostering a culture of academic integrity within their classrooms and in navigating the ethical considerations of AI use in teaching and learning. Students, the future leaders and innovators of the Caribbean, are empowered to embrace GenAI tools responsibly and ethically, ensuring that their academic achievements are built on a foundation of integrity.

In essence, this book serves as a call to action, as she urges Caribbean higher education institutions to embrace the opportunities presented by GenAI while simultaneously addressing potential challenges, especially ethical ones. The Caribbean stands at a critical juncture, and the choices made today will shape the future of higher education in the region. This book provides the knowledge and tools necessary to make informed decisions, paving the way for a future where academic integrity and GenAI are both embedded into teaching, learning and institutional culture for the betterment of today's learners, who are tomorrow's leaders.

Sarah Elaine Eaton, PhD
University of Calgary, Canada

Preface

The introduction of generative artificial intelligence (GenAI) captured the attention of higher education stakeholders globally as it has the potential to reshape the higher education environment in unprecedented ways. There is no doubt that GenAI has the potential to bring significant benefits to the education sector. It should therefore be adopted and adapted so that it can advance teaching and learning. The Caribbean has been feeling the tremors of this new development. The likely impact of GenAI on higher education institutions (HEIs) globally was managed as a part of the academic integrity provisions for institutions which already had those structures in place. The issue was whether or not the Caribbean was able to respond in effective ways so that academic integrity was not compromised, and this would be dependent on the academic integrity systems that were available within each institution.

A preliminary examination of academic integrity in the Caribbean resulted in *Academic Integrity in the Caribbean: Plagiarism Policies, Perception, Prevalence and Possible Solutions* published in 2022. This first publication investigated the awareness of plagiarism as a societal phenomenon in the region by examining its prevalence in newspaper articles. It also included an analysis of plagiarism and accreditation policies and guidelines. Moreover, it also focused on the prevalence of plagiarism at the secondary and tertiary levels and took a deep dive into the perceptions of undergraduate students toward plagiarism.

Then came ChatGPT! The concerns of Caribbean HEIs as they sought solutions to the challenge were obvious. There were discussions in the region about using Turnitin to detect machine-generated text, and many other suggestions were made which did not seem feasible in meeting the challenges being presented. This situation necessitated an examination of institutions' capacity to deal with the perceived challenges and potential damage to academic integrity as a result of the misuse or unauthorized use of GenAI. There was a need for a follow-up volume to *Academic Integrity in the Caribbean: Plagiarism Policies, Perception, Prevalence and Possible Solutions* that addressed the critical issue of GenAI and academic integrity.

Academic Integrity Meets Artificial Intelligence: The Case of the Anglophone Caribbean is a response to changes in the environment resulting from the development and use of GenAI. It is a follow-up volume that presents research into the academic integrity practices of 31 higher education institutions in the Caribbean, with a view to evaluating their readiness to respond to the potential fallout if

academic integrity issues are not given due attention. *Academic Integrity Meets Artificial Intelligence: The Case of the Anglophone Caribbean* makes frequent references to the previous volume, which provides a foundational understanding of the Caribbean as both a geographical location and an academic space. This new publication adds to the emerging body of works on academic integrity in the Caribbean and is the first from the region that examines the nexus between academic integrity and AI. It also adds to the global discourse on academic integrity and GenAI.

The work is divided into three parts. Part 1 begins by presenting an overview of the GenAI environment to include its history, categories of GenAI tools and challenges to their use. It then examines GenAI use in education generally. The academic integrity element of the work is introduced in Chapter 3, and this includes an overview of theories of academic misconduct, a topic that does not get enough attention in the Caribbean. The following chapter discusses the perceived and potential impact of AI on academic integrity. Global responses to these potential negative impacts are discussed to lay a foundation for evaluation of the academic integrity structures in the Caribbean.

Part 2 is the presentation and analysis of the data collected from the 31 institutions using the Academic Integrity Rating System developed by the International Center for Academic Integrity (ICAI). It begins by presenting an overview of the higher education sector in the Caribbean to give international readers a context within which to interpret the data presented in Chapters 8–12. Chapter 7 presents the methodology and the demographic data for the study. The data are then presented based on the 10 subscales of the Academic Integrity Rating System, with an overview of the literature relevant to each subscale. Part 2 ends with a summary of the findings from the Academic Integrity Rating System.

Part 3 brings together the two strands of the book: academic integrity and artificial intelligence. It contains an in-depth analysis of the availability of academic integrity structures in the institutions to mount a ready response to the misuse or unauthorized use of GenAI. The author then presents recommendations based on the findings and evaluation and closes with a short chapter titled 'The Way Forward'. This gives institutions suggestions as to what can be done in the short, medium and long term to effect the desired changes to develop a culture of academic integrity.

This work has value to all higher education stakeholders. For administrators, this book provides an understanding of the nexus of academic integrity and GenAI, giving them information that could prove critical to the development, implementation and evaluation of effective policies in higher education. For faculty, it helps them to better understand their roles as it relates to academic integrity and GenAI. It should also present strategies that faculty can leverage AI to become more efficient and effective in the many roles they have to perform. This work should help students to be more proactive in responsibly developing academic integrity principles and practices. It should motivate students to participate in academic integrity activities and to use GenAI tools responsibly. For institutions, it provides a point of reference as it gives an overview of the academic integrity practices across the region.

The Caribbean stands at a crossroads in terms of academic integrity. GenAI has placed attention on academic integrity in an new way. Educational institutions can now harness information and bring about the kind of improvements that are not only desired, but necessary (at this point) for developing effective responses to the evolving technological landscape.

The region therefore must embrace AI … with integrity.

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I owe a debt of gratitude to the institutions that participated in this study. To the administrators who facilitated and considered the requests for information, I am more than grateful. Thank you to the institutional review boards that considered my applications for ethical approval and took the time to assess and approve them. To the contact persons whom I called so many times, but they were always polite and helpful, I am glad for your patience. I am also grateful to the persons who were assigned to complete the instrument. I thank you for the many hours that you spent on this task.

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Finally, to my immediate family who cheered me along this journey, my church family who prayed and encouraged me, and my friend Claudia Allen-Hutchinson, I appreciate the support.

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Part 1

The Context

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Chapter 1

Overview of Generative Artificial Intelligence Tools

Introduction

Technological developments have resulted in the emergence of artificial intelligence (AI), which Martini et al. (2024) state 'aims to develop systems that can simulate some of the human capabilities of learning and reasoning, such as visual perception, voice recognition, and linguistic translation, to perform specific tasks autonomously or semi-autonomously' (p. 1). The recent developments have led to some authors theorizing that we are in the Industry 5.0 phase of development, where these technologies will be critical to the development of future societies. According to Martini et al. (2024), in developing countries such as those in the Caribbean, the public sector is the largest market for the adoption of AI. AI developments are likely to also have significant impact in education, and it is important to note here that in some countries the education sector is considered as part of the public sector (Morrison, 2022). According to Locatelli (2018), 'the concept of education as a public good has long been a foundational principle of international education development discourse' (p. 1). Changes that impact the public sector in the ways AI is expected to are likely to influence educational processes and outcomes.

The 5.0 Revolution

Over the past decade, there have been significant changes to everyday life as more and more daily activities are being impacted by technological innovations. The changes are so ubiquitous that the term Industry 5.0 is being used to refer to the current era in which it seems impossible to live without the technology which has become integral to daily life. Also called the fifth industrial revolution (5IR), this era is characterized by workplace processes which involve AI-powered robots, humans and advanced technology working together ('What is Industry 5.0?', 2024). The technology that is behind this 5IR includes 'artificial intelligence, automation, big data analytics, the Internet of Things (IoT), machine learning, robotics, smart systems, and virtualisation' ('What is Industry 5.0?', 2024).

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Prior to the emerging era, humans have witnessed four industrial revolutions that caused significant changes in the way society operated ('What is Industry 5.0?', 2024). Firstly, the evolution of machines run by steam and water resulted in the mechanization of industrial processes. Secondly, the availability of electricity led to mass production and the possibility of the assembly line. The introduction of computers ushered in the third revolution, which involved automation. It must be noted that these three first revolutions spanned 300 years, with significant change occurring approximately each century. However, this changed with Industry 4.0, which originated in Germany in 2011 (Xu et al., 2021). This revolution is characterized by digitalisation, automation, AI technologies, connected devices, data analytics and digital transformation among others ('What is Industry 5.0?', 2024).

Industry 4.0 gave way to Industry 5.0. According to Martini et al. (2024),

> With a focus on human–machine interaction, Industry 5.0 interconnects human intelligence with the precision and efficiency of machines using artificial intelligence in industrial production. Industry 5.0 is developed to overcome the challenges faced by Industry 4.0 by promoting human centrality and meeting societal needs. (p. 5)

What distinguishes Industry 4.0 from 5.0 are the three pillars postulated by the European Commission. Industry 5.0 is human-centric, sustainable and resilient. Whereas Industry 4.0 is technology-driven, its successor 5.0, is more value-driven (Xu et al., 2021).

The mandate to implement Industry 5.0 is supported by the European Union. This means that AI is likely to be a game changer as society gradually moves towards greater levels of social value and well-being. Fitzpatrick et al. (2023) note that AI has the potential to transform the world by impacting the job market, healthcare, well-being, elderly care, genetic engineering, transportation, retail, the environment and education. Simply put, AI is expected to significantly impact the everyday lives of the majority of the people on the planet. AI technologies are rapidly emerging and are affecting society as there are high rates of adoption of some tools in some sectors.

The release of Chat Generative Pre-Trained Transformer (ChatGPT) became a game changer, and it caught the attention of persons not normally interested in technological innovations. 'Artificial intelligence has gone through many cycles of hype, but even to sceptics, the release of ChatGPT seems to mark a turning point' (Stryker & Kavlakoglu, 2024). In describing the influence of ChatGPT, the most popular AI tool that is currently available (Digital Education Council, 2024b; von Garrel & Mayer, 2023), UNESCO states that it reached 100 million users just two months after its launch (Sabzalieva & Valentini, 2023).

The response from an institution with the reputation of UNESCO sounded alarm bells for higher education institutions in the Caribbean that there was a

significant shift that had to be attended to (The University of the West Indies, 2023). From the observer perspective, responses ranged from interest in how the new technologies could positively impact education, to curiosity about how GenAI tools work. There was also the perception that this was just another technological fad that would soon pass, and outright panic that traditional ways of educating and assessing students were under threat, and therefore the education system needed to be protected at all costs.

But AI is not new. The average person interfaces with AI on a daily basis. In a context where technology is so pervasive and ubiquitous, users might not even be aware that the systems that they are interfacing with are driven by AI. Broad categories of AI use include speech recognition, customer service, computer vision, supply chain, weather forecasting and anomaly detection (Rashid & Kausik, 2024). So, even while using Microsoft Word, the built-in AI systems indicate incorrect spelling and grammar and provide suggestions to correct these. Some persons frequently have 'conversations' with Alexa, requesting that it give directions, explain terms or concepts or provide information. These are examples of the everyday use of AI, which has been around for a while. However, the introduction of what is called generative AI (GenAI) has resulted in renewed focus on this field.

Emerging alongside and strongly influenced by the Industry 5.0 concept is Society 5.0, which originated in Japan and in which 'both the public and private sectors can craft solutions to many of the structural societal challenges by leveraging sophisticated societal-technical approaches' (Rane et al., 2024). These authors further advocate that in addition to being human-centric and reliant on and driven by AI, Society 5.0 is also super smart and lean. AI is described as a fundamental technology in Society 5.0, (Rane et al., 2024). In this new society, AI is expected to deliver better health outcomes as a result of treatment plans in healthcare that are tailored to the patients' needs and improved safety (Michigan Tech Global Campus, 2025). It should also lead to reduced traffic as a result of both smart traffic management systems and autonomous vehicles (Rane et al., 2024). Central to this discussion is that AI should result in 'proper education for students using personal learning experiences, along with advancement by providing the facility of acquiring knowledge' (Rane et al., 2024, p. 14).

The term Education 5.0 is used for the new education landscape. It is defined as 'the use of new technologies to provide more humanized teaching, with a focus on students' social and emotional development and solutions that improve life in society' (Carvalho, 2023). It is expected that this kind of education will adequately meet the needs of Society and Industry 5.0. Education 5.0 provides the context for students to 'gain practical and theoretical knowledge aligned with market needs by integrating interdisciplinary courses that emphasize digital literacy, ethical considerations, and sustainability' (Shahidi Hamedani et al., 2024, p. 20). Education 5.0 and Society 5.0 facilitate mutual enhancement as society augments education and vice versa, holistic development is facilitated by education, there is increased technology integration, and collaboration and synergy are enabled through collaborative ecosystem and synergistic growth (Carvalho, 2023).

Traditional AI and GenAI

AI is described both as a field of study and a set of skills. Dawson (2023) defines AI as a field of study that 'focuses on creating computer systems or programs capable of performing tasks that usually require human intelligence' (p. 2). On the other hand, Copeland (2024) defines it as the computer's ability to execute tasks that are normally done by intelligent beings. Dawson (2023) explains that AI works when computers process data, make decisions and learn from humans using mathematical principles. According to McGuire (2006), the long-term goal for AI research is to build a machine with the capability to imitate humans to the point where it is impossible to tell the difference between them.

According to Marr (2023), traditional (weak or narrow) AI and GenAI differ mainly in their capabilities and applications. Wohlfarth (2024) defines traditional AI as: 'a subset of artificial intelligence that is used to perform tasks based on predetermined algorithms'. Traditional AI has limited capacity as it is only able to perform a narrow range of tasks. It has four characteristics: it uses programmed intelligence, has restrictive applications, is useful for data analysis, and has limited learning capabilities (Wohlfarth, 2024). Within our everyday environment, narrow or weak AI is prevalent. Shah (2023) notes that it is able to perform 'narrow tasks' such as recognizing our voices and faces and unlocking our phones. Shah (2023) further explains that some weak or narrow AI systems can be trained to diagnose diseases or predict stock market trends. With reference to terminology, the term 'narrow' is a more suitable descriptor than 'weak' as narrow refers to the range of functions (Shah, 2023). Apple's Siri, Amazon's Alexa, IBM's Watson and self-driving vehicles are examples of some applications facilitated by traditional AI (Stryker & Kavlakoglu, 2024).

GenAI is able to produce a variety of content including text, imagery, audio and synthetic data (Lawton, 2024). Its distinguishing feature is its ability to 'generate' content, hence its name. GenAI developers train the tools on massive data sets, and this enables them to learn how patterns and underlying structures work, and replicate these. 'At a high level, generative models encode a simplified representation of their training data and draw from it to create a new work that's similar, but not identical, to the original data' (Stryker & Kavlakoglu, 2024).

FitzPatrick et al. (2023) identify nine types of GenAI platforms: text to text, text to images, text to video, text to audio, text to code, text to 3D image, audio to text, audio to audio, and image to text. The outputs created by GenAI tools are similar, not identical to what the machines were trained on. For example, ChatGPT is a large language model (LLM) that has been trained on text from a variety of sources, including textbooks, articles, websites, and so on. GenAI text generating tools are trained to learn how language works, and because they can predict the words or strings of words that will come after specific words, they are able to create text that sounds natural, that is, it sounds like text that would be created by a human being (FitzPatrick et al., 2023). ChatGPT is able to write essays, answer questions, solve worded mathematical problems, translate from

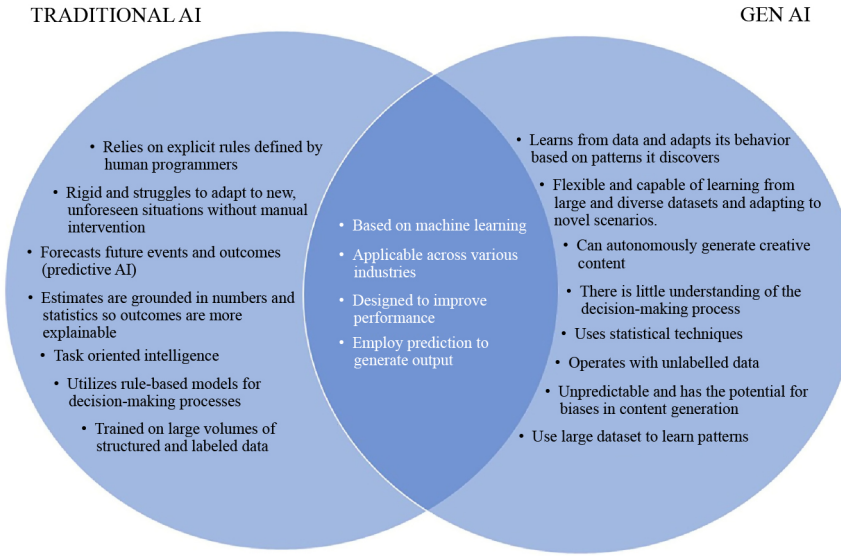

Fig. 1. A Comparison of Traditional AI and Generative AI.

one language to another and even write computer codes (Dawson, 2023). See Fig. 1 for similarities and differences between traditional AI and GenAI.

There is also a third stage of AI, which is artificial general intelligence (AGI). Shah (2023) noted that developments in GenAI have led computer experts to begin to wonder how close we are to AGI, which has the potential to 'learn, adapt, and implement knowledge in a wide variety of tasks at the level of a human being' (p. 17). However, Shah (2023) concedes that we are somewhere between narrow AI and strong AI. Beyond AGI is the superintelligent AI, which is supposed to have the ability to supersede human intelligence. According to Shah (2023), superintelligent AI could have consciousness and self-awareness. Shah (2023) and Pegrum (2025) note that superintelligent AI is the futuristic component of some science fiction novels and movies.

History of AI

John McCarthy is credited with coining the term artificial intelligence in 1956 when he organized the first academic conference on the subject (Smith, 2006). Seven significant periods in the development of AI have been identified ('What is the history of artificial intelligence (AI)?', 2024)). These major development periods are shown in Table 1, and each period is discussed briefly.

Although the concept of AI did not emerge until the 1950s, ideas of creating robots resulted in the first robot, called Gakutensoku, by Japanese Makoto Nishimura in 1929 ('What is the history of artificial intelligence (AI)?', 2024). This was part of the groundwork that was to later inform the development of AI as we know it today. The universal Turing machine, developed by Alan Turing in 1936,

Table 1. Major Periods of Developments in AI.

Date	Period
1900–1950	Groundwork for AI
1950–1956	Birth of AI
1957–1979	AI maturation
1980–1987	AI boom
1987–1993	AI winter
1993–2011	AI agents
2012–present	Artificial general intelligence

is hailed as the early predecessor of modern computers (Copeland, 2024). Turing described how he believed AI could work by examining the game of chess (Copeland, 2024). According to Swaine and Freiberger (2024), Electronic Numerical Integrator and Computer which was built by the United States in 1946, was the first computer.

Copeland further noted that Alan Turing continued his work, and in 1950, the period known as the birth of AI, Turing published the article *Computing Machinery and Intelligence*, suggesting the possibility of creating a 'thinking machine'. It was during the birth of AI period that the Dartmouth Summer Research Project on Artificial Intelligence saw a gathering of researchers from a number of universities for open discussions about AI (Anyoha, 2017). Although no significant decisions came from that project, it started the wheels turning, and it placed focus on the possibilities of AI (Anyoha, 2017). This project influenced the next two decades of AI research which were critical to advancements in the field.

The AI maturation phase (1957–1979) saw an increase in AI activity, and additional researchers became involved in developments that were to have significant results. Anyoha (2017) describes it as a roller coaster of successes and setbacks. Successes included the LISP (list processing), the first programme language for AI research; coining of the term 'machine learning'; creation of the first robot to work on an assembly line; development of the first 'expert system' that was able to replicate human thinking; creation of the first chatterbot (chatbot); and the launching of the American Association of Artificial Intelligence, which was later renamed the Association for the Advancement of Artificial Intelligence (AAAI) ('What is the history of artificial intelligence (AI)?', 2024). During this period, the biggest setback was the lack of computational powers of computers which limited their storage and processing ability (Anyoha, 2017). This led to disenchantment with AI, and the British government reduced funding for research as it was believed that the gains that were promised were not delivered (Anyoha, 2017).

The AI boom phase (1980–1987) was marked by expert systems (Haigh, 2024). A grant was provided by the Japanese government to develop computers that could perform "human" activities such as translate, converse and reason ('What is the