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Plagiarism or Knowledge Synthesis? Ghanaian University Students' Conceptions of Academic Writing

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ABSTRACT

This study examines the conceptions of plagiarism, knowledge synthesis, and the ethical implications of using digital writing tools such as Grammarly, ChatGPT, and Turnitin by Ghanaian university students. Although existing scholarship largely emphasises plagiarism detection mechanisms, little research has considered students' perspectives within Ghana's unique cultural and linguistic context. Guided by Bakhtin's (1981) notion of dialogism, the study highlights how students negotiate among their ideas, digital tools, and institutional expectations. Using semi-structured and open-ended questions, data were collected from 2,000 undergraduate and graduate students at a Ghanaian public university. The findings reveal that although 65.3% of the students reported a theoretical understanding of knowledge synthesis, many struggled with its practical application, especially when engaging with AI-generated content. Moreover, 65.9% did not consistently evaluate whether AI-assisted writing required citation, exposing misconceptions about authorship and originality. Digital tools were primarily used for surface-levels corrections (e.g., grammar checks via Grammarly) rather than for dialogic engagement with academic sources, fostering a reactive rather than reflective approach to writing. Institutional gaps such as ambiguous AI citation policies and training that focused more on tool operation than ethics exacerbated these challenges. The students proposed interventions that included mandatory ethics workshops (60%), improved access to instructional resources (30%), and curriculum-integrated academic integrity training (10%). The study underscores the tension between technological convenience and scholarly rigour. It advocates for localised citation guidelines, improved digital literacy, and reformed assessment strategies, contributing to global discourses on academic integrity while centering students' lived experiences in digital writing environments.

Keywords: *AI Citation, Academic Integrity, Ghanaian Higher Education, Knowledge Synthesis, Plagiarism*

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INTRODUCTION

Plagiarism is a prevalent issue in all educational settings and remains a major concern in universities and colleges.[1] Recognised as a critical threat to the credibility of scholarly work, it has become

[1] Raymond Mulenga and Hellen Shilongo, "Academic Integrity in Higher Education: Understanding and Addressing Plagiarism," *Acta Pedagogia Asiana* 3, no. 1 (2024): 30–43.Robert Mulenga and Helvi Shilongo, "Academic Integrity in Higher Education: Understanding and Addressing Plagiarism," *Acta Pedagogia Asiana* 3, no. 1 (2024): 30–43.

entrenched in modern society's literary, political, entertainment, and research spheres.[2] The rise of digital resources, particularly the World Wide Web, has exacerbated this problem by enabling easy access to and misuse of online content.[3] The Ghanaian university system is a good case in point, with plagiarism now an emerging threat to academic integrity. Studies indicate rampant abuse in universities, driven by endemic issues such as poor research ethics, low digital literacy, and publication pressures.[4] Insufficient plagiarism detection tools and efficient policy enforcement jeopardizes the validity of academic work.[5] Fixing this crisis calls for urgent action, such as faculty training and the imposing of better accountability.

The age of the internet has also made plagiarism discourse more complex in resource-scarce contexts such as Ghana. Even as internet resources enable global knowledge synthesis and collaborative research, they also enable uncritical copy-paste culture, especially among students.[6] Tools such as ChatGPT, QuillBot, and Grammarly—despite being designed to aid writing—also blur the line between legitimate knowledge synthesis and forbidden copying (plagiarism).

Despite extensive scholarship on plagiarism detection and prevention, the Ghanaian higher education literature exhibits a critical void in understanding students' perspectives on plagiarism, knowledge synthesis, and ethical use of digital resources such as AI. Although existing research has predominantly focused on Ghanaian graduate students' knowledge of referencing, incidence of plagiarism, forms of plagiarism, students' reasons for engaging in plagiarism, adequate interventions to combat plagiarism, and systematic reviews of publications on plagiarism across Sub-Saharan African higher education institutions, students' real-life experiences are frequently limited to mere statistics in reports generated by plagiarism detection software.[7] What appears to be underexplored is an understanding of how students themselves perceive and negotiate authorship and originality within Ghana's complex cultural and linguistic landscape. This gap is particularly pressing given the unique cultural-linguistic context of Ghana, where communal knowledge systems and multilingualism require different approaches to source use. By foregrounding student narratives about their conceptualizations of plagiarism and knowledge synthesis in the digital age, this study addresses this critical gap in academic integrity research. Hence, this study was guided by these research questions:

1. How do Ghanaian university students conceptualise and negotiate legitimate knowledge synthesis versus transgressive plagiarism within their academic practices?
2. How does the use of digital writing tools (e.g., Grammarly, ChatGPT) shape the understanding of academic integrity Ghanaian university students, and what ethical challenges emerge in their writing practices?

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[2] Anke Rohwer et al., "Authorship, Plagiarism and Conflict of Interest: Views and Practices from Low/Middle-Income Country Health Researchers," *BMJ Open* 7, no. 11 (2017): e018467.

[3] Esra Eret and Ahmet Ok, "Internet Plagiarism in Higher Education: Tendencies, Triggering Factors and Reasons among Teacher Candidates," *Assessment & Evaluation in Higher Education* 39, no. 8 (November 17, 2014): 1002–16, https://doi.org/10.1080/02602938.2014.880776.

[4] Michael Karikari Appiah and Freeman Awuah, "Plagiarism Is a Crime: Towards Academic Integrity in Higher Educational Institutions in Ghana," *British Journal of Education* 4, no. 12 (2016): 1–12; Isaac Nketsiah et al., "Academic Integrity: Do Socio-Demographic Differences in Perception and Awareness of Plagiarism Matter?," *Cogent Education* 10, no. 2 (December 11, 2023), https://doi.org/10.1080/2331186X.2023.2273175.

[5] Aba Amandzewaa Anaman and Francis Agyei, "Perception of and Attitudes towards Plagiarism among Graduate Students in Ghana.," *Library Philosophy & Practice*, 2021.

[6] Lydia Nyantakyi-Baah and Ernest Afachao, "Reducing Copying and Copyright Infringement: The Case of Ghana Institute of Journalism," *Journal of Communications, Media and Society (JOCMAS)* 6, no. 1 (2019): 64–84.

[7] Nyantakyi-Baah and Afachao, "Reducing Copying and Copyright Infringement: The Case of Ghana Institute of Journalism"; Michael Karikari Appiah, "Incidence of Plagiarism among Undergraduate Students in Higher Educational Institutions in Ghana," *International Journal of Research in Economics and Social Sciences* 6, no. 3 (2016): 269–79; Anaman and Agyei, "Perception of and Attitudes towards Plagiarism among Graduate Students in Ghana."; Eunice Adu Boahen et al., "Plagiarism in Higher Academic Institutions, a Blight on Intellectual Integrity: An Interventionist Approach," *Asian Journal of Education and Social Studies* 26, no. 2 (2022): 88–100; Dickson Okoree Mireku, Prosper Dzifa Dzamesi, and Brandford Bervell, "Plagiarism in Higher Education (PLAGiHE) within Sub-Saharan Africa: A Systematic Review of a Decade (2012–2022) Literature," *Research Ethics* 20, no. 2 (2024): 156–86; Appiah and Awuah, "Plagiarism Is a Crime: Towards Academic Integrity in Higher Educational Institutions in Ghana."

LITERATURE REVIEW

Bakhtin's (1981) Dialogism: Writing as an Intertextual Dialogue

This study is grounded in Bakhtin's dialogism (1981). Bakhtin's conception of language as inherently dialogic posits that all texts are woven from the threads of prior utterances—no writing exists in isolation.[8] His assertion that "words are half someone else's" frames academic writing as a dynamic process of appropriation, reinterpretation, and response. This is what Todorov refers to as the intertextual dimension.[9] This theory legitimises common synthesis practices (e.g., blending source texts with personal insights). Bakhtin's dialogism operationalises as codes for intertextual synthesis (e.g., paraphrasing as "answerability"). Crucially, Bakhtin's emphasis on answerability—the ethical obligation to engage critically with borrowed words—aligns with the goal of this study of distinguishing thoughtful synthesis from uncritical copying.

Studies on Plagiarism in Ghanaian Higher Institutions

The findings and focus of works by Anaman and Agyei, Appiah and Awuah, Boahen et al., Alua et al., and Mireku et al. examine students' awareness, causes, consequences, and institutional efforts related to plagiarism.[10] For example, Appiah[11] investigated the prevalence of plagiarism among undergraduates in the Kumasi Metropolis, identifying widespread academic dishonesty driven by factors such as heavy workloads and difficulties with paraphrasing.[12] The study, based on 278 students, emphasises common punitive measures and highlights students' general awareness of plagiarism. Although offering valuable insight into the frequency and causes of plagiarism, it remains focused on incidence and awareness. In contrast, the present study adopts a conceptual lens, exploring how students define and navigate the boundaries between plagiarism and legitimate knowledge synthesis, particularly in relation to digital and AI writing tools. Rather than quantifying misconduct, it examines students' ethical reasoning, digital literacies, and the norms they negotiate in academic writing.

In a similar vein, Appiah and Awuah's study examined the prevalence of plagiarism among students in higher education institutions within the Wa Municipality of Ghana.[13] Their study emphasised the consequences of academic dishonesty and the need for strong institutional responses. They advocated increased awareness, policy development, and enforcement to address various forms of misconduct, including copying, submitting others' work, and improper citation practices. Their approach was predominantly institutional and prescriptive, focusing on controlling the incidence of plagiarism through top-down measures. In contrast, our present study shifts attention from institutional responses to student perceptions, examining how undergraduates conceptualise and navigate the boundaries between plagiarism and acceptable knowledge synthesis in academic writing. Specifically, we explore how students understand and engage with digital and AI-powered tools, and the ethical reasoning that shapes their writing practices. By prioritizing students' voices and digital literacies, our study offers a bottom-up perspective that complements and extends the policy-driven focus of previous research, shedding light on the underlying motivations and conceptual distinctions that inform student authorship in the digital age.

Drawing on responses from 319 graduate students at the University of Ghana, Anaman and Agyei offer valuable insight into students' general awareness, attitudes, and motivations concerning plagiarism.[14] Their findings reveal that, despite widespread lecturer-led instruction on academic

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[8] Michael Holquist, Caryl Emerson, and Michael Holquist, "Discourse in the Novel," *The Dialogic Imagination: Four Essays by MM Bakhtin*, 1981, 341–49.

[9] Tzvetan Todorov, *Mikhail Bakhtin: The Dialogical Principle*, vol. 13 (Manchester University Press, 1984).

[10] Anaman and Agyei, "Perception of and Attitudes towards Plagiarism among Graduate Students in Ghana."; Isaac Boaheng, *A Handbook for African Mother-Tongue Bible Translators* (Vernon Press, 2022); Mary Ann Alua, Nasir Koranteng Asiedu, and Deborah Mwintierong Bumbie-Chi, "Students' Perception on Plagiarism and Usage of Turnitin Anti-Plagiarism Software: The Role of the Library," *Journal of Library Administration* 63, no. 1 (2023): 119–36; Mireku, Dzamesi, and Bervell, "Plagiarism in Higher Education (PLAGiHE) within Sub-Saharan Africa: A Systematic Review of a Decade (2012–2022) Literature."

[11] Michael Karikari Appiah, "Incidence of Plagiarism among Undergraduate Students in Higher Educational Institutions in Ghana," *International Journal of Research in Economics and Social Sciences* 6, no. 3 (2016): 269–279.

[12] Appiah and Awuah, "Plagiarism Is a Crime: Towards Academic Integrity in Higher Educational Institutions in Ghana."

[13] Appiah and Awuah, "Plagiarism Is a Crime: Towards Academic Integrity in Higher Educational Institutions in Ghana."

[14] Anaman and Agyei, "Perception of and Attitudes towards Plagiarism among Graduate Students in Ghana."

honesty, factors such as poor writing skills, time constraints, and the accessibility of online materials continue to encourage dishonest practices. However, their study did not delve into how students themselves distinguish unethical copying from the legitimate integration of sources. Building on this, our study explores the cognitive and ethical frameworks students actively draw upon when engaging with digital and AI-powered writing tools. We examine not only whether students recognise plagiarism but also how they define and practice knowledge synthesis in their own terms. By focusing on students' reflections, decision-making processes, and everyday digital literacies, our study introduces a practice-oriented perspective to the discourse on academic integrity in Ghanaian higher education—shifting the lens from detection and prevalence to interpretation and agency.

Alua, Asiedu, and Bumbie-Chi examined how Turnitin and the library's information literacy efforts influence students' understanding of plagiarism at a Ghanaian university.[15] Through a survey of 175 undergraduates, they demonstrate that seminars and library-led workshopsimprove awareness of plagiarism, yet reveal significant gaps. Many students are unaware the institution even subscribes to Turnitin, and most cannot properly interpret the originality reports it generates. The authors therefore emphasize the need for more visible plagiarism policies and hands-on training in reading similarity scores. While Alua et al. foreground the technical mechanics of plagiarism prevention—software adoption, report interpretation, and policy communication—our study probes the underlying beliefs and practices that shape how students themselves define and differentiate plagiarism and knowledge synthesis. Instead of focusing on Turnitin as a compliance tool, we explore how digital and AI-driven writing aids (e.g., ChatGPT, QuillBot) challenge traditional notions of authorship and citation, and how students negotiate these blurred lines in their everyday academic writing. In this way, our work moves beyond "how students use anti-plagiarism software" to ask "how students think about originality, ethical sourcing, and the very purpose of synthesis in the digital age."

Boahen et al. adopt a positivist, quantitative approach to investigate the prevalence and forms of plagiarism among undergraduates at KNUST.[16] They conclude that effective interventions necessitate conceptualizing assignments as dynamic processes, employing both covert and overt detection techniques, and establishing formal institutional structures and comprehensive awareness programs for students and faculty. Their study is primarily diagnostic and prescriptive, focusing on organizational strategies to address academic dishonesty. In contrast, our research shifts the emphasis from institutional interventions to students' conceptual frameworks, examining how they define and navigate the distinction between plagiarism and acceptable knowledge synthesis, particularly in relation to the use of emerging digital and AI-driven tools. Rather than focusing on the measurement of incidence or the prescription of detection methods, our study explores the cognitive and ethical aspects of academic writing. It investigates how Ghanaian students interpret citation norms, integrate sources, and engage with technologies such as ChatGPT and QuillBot.

Mireku, Dzamesi, and Bervell's systematic review examines plagiarism research across Sub-Saharan Africa, identifying trends, typologies (self-plagiarism, branded plagiarism, commission plagiarism), and causes, such as digital access and "publish-or-perish" pressures.[17] They highlight institutional challenges, such as insufficient detection and training. Our study shifts focus to how Ghanaian university students define plagiarism and navigate the line between copying and legitimate knowledge synthesis, especially with AI tools, such as ChatGPT and QuillBot. Instead of assessing prevalence or institutional gaps, we explore the ethical reasoning and digital literacy of students, offering insights into how they engage with academic integrity in the digital age.

Empirical Insights into Knowledge Synthesis and Source Use in Academic Writing

The contributions of Adika, Lamptey and Atta-Obeng, Amonoo, Afful & Twumasi, and Twumasi and Afful that highlight the challenges of graduate students with referencing, citation, and source integration

[15] Alua, Asiedu, and Bumbie-Chi, "Students' Perception on Plagiarism and Usage of Turnitin Anti-Plagiarism Software: The Role of the Library."
[16] Boahen et al., "Plagiarism in Higher Academic Institutions, a Blight on Intellectual Integrity: An Interventionist Approach."
[17] Alua, Asiedu, and Bumbie-Chi, "Students' Perception on Plagiarism and Usage of Turnitin Anti-Plagiarism Software: The Role of the Library."

are central to ethical academic writing and knowledge construction.[18] For example, Adika examined how well-prepared Ghanaian graduate students are in understanding and applying referencing conventions in academic writing.[19] Through a questionnaire administered to 125 students at the University of Ghana, the study found that while most of the students reported receiving citation training, there was a gap between theoretical knowledge and its practical application in written tasks. Adika attributes this disconnect to inadvertent plagiarism and calls for improved pedagogical strategies and institutional support. Unlike Adika's focus on referencing knowledge and its implications for plagiarism, our study explores how students conceptualize plagiarism and knowledge synthesis, particularly in relation to AI tools like ChatGPT and QuillBot. While Adika's research identifies gaps in citation training, our study goes beyond this to examine students' ethical reasoning, behaviors, and engagement with digital writing environments, providing a more student-centered, conceptual understanding of plagiarism in the digital age.

Also, Lamptey and Atta-Obeng examined the challenges faced by postgraduate students at Kwame Nkrumah University of Science and Technology (KNUST) in accurately citing references.[20] Their study, based on data from 506 students through questionnaires and interviews, identified issues such as inconsistent citation practices, incorrect referencing, and the use of multiple citation styles within the same department. Many students lacked confidence in using citation formats, particularly for books and journal articles, and often sought help from books, lecturers, or librarians. The study recommended increased involvement of librarians in promoting academic integrity, collaboration with faculty to teach correct citation practices, and standardized citation styles across colleges. Additionally, the study suggested replacing traditional library orientations with information literacy skills training for first- and final-year students.

Amonoo[21] focused on the impact of gender on paragraph unity and coherence in writing among students at Komenda College of Education.[22] Through a mixed-methods approach, the study analyzed the writing of 60 Level 200 students, finding no significant gender-based differences in paragraph unity and coherence. Both male and female students followed similar paragraph structures, but males used terms like "firstly" and coordinating conjunctions, while females preferred phrases like "because" and "for example." Despite these language variations, the study concluded that gender does not influence paragraph writing skills and recommended uniform instruction for both genders.

In addition, Afful and Twumasi investigated the use of evaluative language in Ghanaian academic writing over a period of 20 years. Their qualitative content analysis showed that Ghanaian scholars use evaluative language elements such as reporting verbs, discourse markers, and evaluative lexis in ways consistent with global academic trends, particularly in research articles and theses. The study highlighted the active participation of Ghanaian scholars in international academic practices and aimed to improve the understanding and instruction of the evaluative language within Ghana and internationally.

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[18] Gordon S K Adika, "Ghanaian Graduate Students' Knowledge of Referencing in Academic Writing and Implications for Plagiarism," *Frontiers of Language and Teaching* 5, no. 1 (2014): 75–80; Richard B Lamptey and Hagar Atta-Obeng, "Challenges with Reference Citations among Postgraduate Students at the Kwame Nkrumah University of Science and Technology, Kumasi, Ghana," *Journal of Science and Technology (Ghana)* 32, no. 3 (2012): 69–80; Chris Joynes, Serena Rossignoli, and Esi Fenyiwa Amonoo-Kuofi, "21st Century Skills: Evidence of Issues in Definition, Demand and Delivery for Development Contexts," 2019; Joseph Benjamin Archibald Afful and Rita Akele Twumasi, "The Language of Evaluation in Academic Writing Research in Ghana, 2000-2020: A Synthesis," *International Journal of Research* 11, no. 4 (2022): 103–23; Rita Akele Twumasi and Joseph Benjamin Archibald Afful, "Functions of Citation in the Literature Review Section of MPhil Theses," *Journal of English Language Teaching and Applied Linguistics* 4, no. 2 (2022): 11–26.

[19] Adika, "Ghanaian Graduate Students' Knowledge of Referencing in Academic Writing and Implications for Plagiarism."

[20] Lamptey and Atta-Obeng, "Challenges with Reference Citations among Postgraduate Students at the Kwame Nkrumah University of Science and Technology, Kumasi, Ghana."

[21] Richard B. Lamptey and Hagar Atta-Obeng, "Challenges with Reference Citations among Postgraduate Students at the Kwame Nkrumah University of Science and Technology, Kumasi, Ghana," *Journal of Science and Technology (Ghana)* 32, no. 3 (2012): 69–80.

[22] Lamptey and Atta-Obeng, "Challenges with Reference Citations among Postgraduate Students at the Kwame Nkrumah University of Science and Technology, Kumasi, Ghana."

Finally, Twumasi and Afful[23] examined the rhetorical roles of citations in the literature review sections of 30 MPhil theses from the University of Cape Coast.[24] The study revealed that English theses primarily used citations for exemplification, establishing connections, evaluation, and application, while Curriculum Studies theses emphasized attribution, origin, and double attribution. Interviews with lecturers and graduate students also revealed that citations were used to demonstrate awareness of current research and enhance the scholarly significance of the work. The study emphasized the importance of aligning citation practices with disciplinary conventions and provided insights into academic writing and citation methods.

Studies on Ghanaian academic writing highlight ongoing challenges with referencing, coherence, and knowledge use. Adika found a gap between citation training and practice, leading to inadvertent plagiarism, while Lamptey and Atta-Obeng reported inconsistent citation practices and called for stronger librarian and faculty involvement.[25] Amonoo showed no gender differences in paragraph unity and coherence, recommending uniform instruction.[26] At the discourse level, both Afful and Twumasi and Jujugenia, Kyei and Nanglakong demonstrated Ghanaian students' use of evaluative language in line with global trends, and Twumasi and Afful revealed disciplinary variations in the rhetorical roles of citations.[27] Building on these insights, our study extends this scholarship by shifting focus from technical citation issues to students' ethical reasoning and perceptions of plagiarism in digital contexts shaped by AI tools, offering a student-centered understanding of academic writing in Ghana.

METHODOLOGY

Research Design

According to the methodology outlined by Löfström, this study employed a semi-structured questionnaire comprising both closed-ended and open-ended items, the latter strategically designed to elaborate on and deepen insights derived from students' responses to structured questions.[28] This approach facilitated a comprehensive exploration of students' conceptions of plagiarism and the synthesis of knowledge. The structured questionnaire was developed using Google Forms to collect data from university students in various faculties and levels of study.

Participants

The target population for the study consisted of students from various faculties and year groups within a Ghanaian public university. Convenience sampling was used to select participants, ensuring accessibility and broad representation across academic disciplines and years of study. A total of 2,000 respondents participated in the survey, which was conducted on a voluntary and anonymous basis.

Instrument

The primary instrument for data collection was a Google Form-based questionnaire. The questionnaire was divided into seven sections, each focused on a different aspect of the research:

1. Section A: Demographics – Collected background data such as faculty, year of study, and previous exposure to plagiarism-related training.

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[23] Rita Akele Twumasi and Joseph Benjamin Archibald Afful, "Functions of Citation in the Literature Review Section of MPhil Theses," *Journal of English Language Teaching and Applied Linguistics* 4, no. 2 (2022): 11–26.

[24] Afful and Twumasi, "The Language of Evaluation in Academic Writing Research in Ghana, 2000-2020: A Synthesis."

[25] Adika, "Ghanaian Graduate Students' Knowledge of Referencing in Academic Writing and Implications for Plagiarism"; Lamptey and Atta-Obeng, "Challenges with Reference Citations among Postgraduate Students at the Kwame Nkrumah University of Science and Technology, Kumasi, Ghana."

[26] Joynes, Rossignoli, and Amonoo-Kuofi, "21st Century Skills: Evidence of Issues in Definition, Demand and Delivery for Development Contexts."

[27] Twumasi and Afful, "Functions of Citation in the Literature Review Section of MPhil Theses"; Hlabje Viceroy Jujuju, "Investigating Learning Environment for Teaching Structures in Technology Grade 9: A Case of Sekhukhune East District" (2021).; Jujugenia, Wilson Awiah, Emmanuel Kyei, and Charles Daarta Nanglakong. "Engagement Resources in Project Works Written by Selected Students at St. John Bosco's College of Education, Ghana." *Modern Journal of Studies in English Language Teaching and Literature* 3, no. 2 (2021): 53–66.

[28] Erika Löfström, "Does Plagiarism Mean Anything? LOL: Students' Conceptions of Writing and Citing," *Journal of Academic Ethics* 9, no. 4 (2011): 257–75.

2. Section B: Knowledge & Attitudes – Employed a 5-point Likert scale (1 = Strongly Disagree to 5 = Strongly Agree) to assess students' understanding and beliefs about plagiarism and knowledge synthesis.
3. Section C: Cultural, Linguistic & Institutional Influences – Also used a Likert scale to examine how cultural values, language, and institutional context affect perceptions of plagiarism and citation.
4. Section D: Writing & Citation Practices – Included multiple-choice and short-answer items to explore students' actual writing behaviours and citation challenges.
5. Section E: Digital Writing & Knowledge Synthesis – Combined multiple-response questions, Likert-scale items, and open-ended questions to investigate the role of AI tools and digital aids in academic writing.
6. Section F: Scenarios – Presented brief academic writing scenarios with follow-up open-ended questions to probe ethical reasoning and practical understanding of plagiarism.
7. Section G: Final Reflection – Contained open-ended items that allowed participants to share broader insights and suggestions on academic writing and ethical practices.

Data Collection Procedure

The questionnaire was distributed online through institutional platforms and social media groups to reach a wide range of students. The respondents were assured of confidentiality and informed that their participation was voluntary. The form was accessible for a defined period to allow adequate time for responses.

Data Analysis

Data were analysed using quantitative and qualitative methods. Quantitative data, obtained from Likert-scale and multiple-choice questions, were analysed using descriptive statistics such as frequencies, percentages and means to identify trends and patterns in students' knowledge, attitudes, and practices. Qualitative data, derived from open-ended responses, were subjected to thematic analysis to identify recurring themes and insights, improving the understanding of the cultural, linguistic, and contextual factors influencing plagiarism and knowledge synthesis.

Ethical Considerations

Ethical approval was sought from the appropriate institutional review board. Participants provided informed consent by proceeding with the survey. All responses were anonymized, and data were stored securely.

PRESENTATION OF RESULTS /FINDINGS AND DISCUSSION

Distribution of Respondents by Year of Study (N = 2,000)

The majority of respondents (38.6%, about 772 students) were in Year 1, followed by 32.1% in Year 2 (approximately 642 students). Year 3 accounted for 18.7% (about 374 students), while 8.3% were in Year 4 (around 166 students). Only 2.3% (46 students) indicated "Other." The predominance of Year 1 respondents (38.6%) in the sample suggests that a significant portion of insights into academic writing practices and perceptions are drawn from students who are relatively new to university-level writing. This has important implications for understanding how early-stage students conceptualise issues such as plagiarism and knowledge synthesis.

Understanding Plagiarism vs. Knowledge Synthesis: Ghanaian University Students' Perspectives

The questionnaire was designed to assess the understanding and practices of students about plagiarism and knowledge synthesis. Section B (Questions 5-12) explores students' understanding of plagiarism and knowledge synthesis, including whether paraphrasing without citation is plagiarism. Question 27 focuses on combining sources with personal ideas. Question 24 invites students to discuss the difference between plagiarism and synthesis and the influence of cultural and linguistic factors. The results reveal

important insights into Ghanaian university students' understanding of academic integrity concepts, particularly regarding plagiarism and knowledge synthesis. Table 1 presents the results.

Table 1: Ghanaian University Students' Understanding of Plagiarism vs. Knowledge Synthesis

Item	SD	D	N	A	SA
I clearly understand what plagiarism means in academic writing.	10.3%	9.3%	13.4%	42.3%	26.8%
I clearly understand what is meant by knowledge synthesis.	5.2%	11.3%	17.5%	39.2%	26.8%
Changing the structure of a sentence (but keeping the same ideas) counts as plagiarism if I don't cite the source.	11.3%	11.3%	18.6%	36.1%	22.7%
Combining ideas from two or more sources into my own words is acceptable academic practice.	7.2%	2.1%	11.3%	44.3%	35.1%
If I summarise a source in my own words, I still need to cite it.	10.3%	5.2%	16.5%	36.1%	33%
It is acceptable to use someone's ideas without citation if I rephrase it completely.	32%	20.6%	18.6%	24.7%	6.2%
Plagiarism and knowledge synthesis are the same thing.	50.5%	24.7%	12.4%	9.3%	3.1%
Students often confuse copying with learning and applying ideas.	7.2%	7.2%	23.7%	42.3%	19.6%

SD= Strongly Disagree; A= Agree; N= Neutral; A = Agree; SA =Strongly Agree

Table 1 presents a nuanced view of Ghanaian university students' understanding of plagiarism and knowledge synthesis, highlighting both areas of awareness and persistent misconceptions. A majority of respondents (69.1%) demonstrated confidence in recognising plagiarism, suggesting that awareness campaigns and lecturer-led instruction have had some success.[29] However, as several scholars note, awareness does not necessarily translate into correct practice.[30] This is evident in the present study, where students still showed significant uncertainty about the application of citation rules in practical writing.

Regarding knowledge synthesis, 65.9% of respondents claimed understanding, but the higher neutral responses (17.5%) compared to plagiarism (13.4%) suggest greater ambiguity around this skill. This finding aligns with Boahen et al., who highlight that while Ghanaian students are often informed about plagiarism, their ability to engage in legitimate synthesis is weak due to limited pedagogical emphasis on integration.[31] Similarly, Afful and Twumasi observe that while Ghanaian scholars engage

[29] Anaman and Agyei, "Perception of and Attitudes towards Plagiarism among Graduate Students in Ghana."; Appiah and Awuah, "Plagiarism Is a Crime: Towards Academic Integrity in Higher Educational Institutions in Ghana."
[30] Adika, "Ghanaian Graduate Students' Knowledge of Referencing in Academic Writing and Implications for Plagiarism"; Lamptey and Atta-Obeng, "Challenges with Reference Citations among Postgraduate Students at the Kwame Nkrumah University of Science and Technology, Kumasi, Ghana."
[31] Boahen et al., "Plagiarism in Higher Academic Institutions, a Blight on Intellectual Integrity: An Interventionist Approach."

with global practices of evaluative language, students at earlier stages struggle to operationalise these practices in their writing.[32]

The data also reveal troubling misconceptions about paraphrasing and citation. Although 57.9% of the respondents correctly recognised that restructured sentences require attribution, a majority (52.6%) believed that complete rephrasing eliminates the need for citation. This suggests students often view academic integrity as a surface-level issue of "word replacement," rather than deeper intellectual engagement.[33] Comparable results are seen in Mireku et al.'s systematic review of Sub-Saharan African contexts, where students displayed high awareness of plagiarism in principle but struggled to distinguish between legitimate paraphrasing and copying.[34]

The finding that 75.2% of students conflated synthesis with plagiarism further underscores this conceptual confusion. Such results support Busch and Ahmadi & Shafiee, who argue that students' and teachers' beliefs about grammar and citation often blur the boundary between acceptable knowledge building and dishonest appropriation.[35] By contrast, the recognition by 79.4% of respondents that combining sources in their own words constitutes acceptable practice suggests that students are not entirely unaware, but rather inconsistently apply these principles across contexts.

On a positive note, 69.1% acknowledged the need to cite even when summarising, resonating with Adika's and Lamptey & Atta-Obeng's concerns about training gaps in referencing practices.[36] However, the significant minority who failed to demonstrate this understanding reflects the persistence of what Twumasi & Afful describe as uneven citation practices across Ghanaian higher education.[37]

These findings show that Ghanaian students have a general awareness of plagiarism but remain less confident in applying complex skills such as synthesis and citation. This echoes Mireku et al.'s conclusion that much of African plagiarism research has been institutionally prescriptive, while student-centred conceptual insights remain underexplored.[38] By focusing on how students themselves negotiate these distinctions, the present study adds depth to this discourse, particularly in the context of digital and AI-assisted writing tools where the boundary between synthesis and plagiarism is even more blurred.

Analysis of Student Writing and Citation Practices

To further examine students' understanding of plagiarism and knowledge synthesis, the study analysed their writing and citation practices. The analysis reveals important insights into Ghanaian university students' academic writing approaches. See Figure 1. A majority of respondents (56.7%) report combining source materials with their own thinking when completing assignments, suggesting most students attempt some form of legitimate knowledge synthesis. This finding indicates positive engagement with research practices, though the quality of this synthesis likely varies significantly across students.

However, the data also highlights several concerning trends. Nearly 30% of students admit to primarily using digital tools to generate or rephrase content, while 9.3% acknowledge copying directly from sources before editing the material. These combined behaviours (totaling 39.2% of respondents) represent a substantial portion of students at risk of unintentional plagiarism or improper source use. The heavy reliance on rewriting tools raises questions about the depth of students' engagement with source materials and their understanding of ethical paraphrasing boundaries.

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[32] Afful and Twumasi, "The Language of Evaluation in Academic Writing Research in Ghana, 2000-2020: A Synthesis."
[33] Alua, Asiedu, and Bumbie-Chi, "Students' Perception on Plagiarism and Usage of Turnitin Anti-Plagiarism Software: The Role of the Library."
[34] Mireku, Dzamesi, and Bervell, "Plagiarism in Higher Education (PLAGiHE) within Sub-Saharan Africa: A Systematic Review of a Decade (2012–2022) Literature."
[35] J. W. Kanter, A. M. Busch, and L. C. Rusch, *Behavioral Activation: Distinctive Features* (Routledge/Taylor & Francis Group, 2009); Zainab Alimoradi et al., "Empowerment of Adolescent Girls for Sexual and Reproductive Health Care: A Qualitative Study," *African Journal of Reproductive Health* 21, no. 4 (2017): 80–92.
[36] Adika, "Ghanaian Graduate Students' Knowledge of Referencing in Academic Writing and Implications for Plagiarism"; Lamptey and Atta-Obeng, "Challenges with Reference Citations among Postgraduate Students at the Kwame Nkrumah University of Science and Technology, Kumasi, Ghana."
[37] Afful and Twumasi, "The Language of Evaluation in Academic Writing Research in Ghana, 2000-2020: A Synthesis."
[38] Mireku, Dzamesi, and Bervell, "Plagiarism in Higher Education (PLAGiHE) within Sub-Saharan Africa: A Systematic Review of a Decade (2012–2022) Literature."

These findings echo that of Adika, who noted that although Ghanaian graduate students were familiar with referencing conventions, their application in writing was often weak.[39] Similarly, Lamptey and Atta-Obeng found that many KNUST postgraduates struggled with citation consistency and relied on lecturers and librarians for corrective guidance.[40] The evidence of dependence on digital writing aids in this study reflects these long-standing skill gaps, now intensified in the digital age. This dependence aligns with Alua et al., who showed that while tools such as Turnitin raised awareness, students often lacked the skills to interpret similarity reports or understand ethical implications of source use.[41] The current findings extend this by highlighting similar challenges with generative and paraphrasing tools (e.g., QuillBot, ChatGPT), which blur the line between assistance and misconduct. The 9.3% who admitted to copying directly before editing reflects what Boahen et al. call "surface-level coping strategies," focused more on avoiding detection than on critical engagement.[42]

Overall the findings suggest several critical gaps in current academic writing instruction. Although most students demonstrate good intentions by attempting to work with sources, many likely lack proper training in effective synthesis techniques, appropriate citation of integrated content, and maintaining their own analytical voice. This finding supports the conclusions drawn by Adika[43], who observed that the actual responses of some of the students to assigned writing tasks and their handling of source materials exposed significant deficiencies in their practical application of referencing conventions. The significant tool dependence also indicates a need for clearer guidelines about the ethical use of digital writing aids. The analysis shows that while many students are working to follow academic writing conventions, there is a clear need for more support in developing ethical research writing skills. The findings highlight the importance of moving beyond plagiarism warnings to provide practical training in source use and knowledge transformation. Strategic interventions are needed in three key areas. First, universities should offer capacity-building programs, including workshops on ethical source integration and responsible use of digital tools, to enhance knowledge synthesis. Second, assessment frameworks should focus both on the quality of final submissions and the writing process, encouraging ongoing engagement with ethical practices. Third, clear policies must be established regarding academic originality, the use of digital tools, and consequences for misconduct. These efforts are crucial in fostering academic integrity and preparing students for the ethical demands of scholarship.

Analysis of Citation Challenges among Ghanaian University Students

The study further reveals that students encounter considerable challenges in accurately citing sources, with time constraints identified as the most prevalent obstacle (27.8%). A notable proportion (20.6%) of respondents also experience difficulty in discerning what qualifies as 'common knowledge', reflecting uncertainty regarding the boundaries of attribution—a critical component in preventing unintentional plagiarism. Furthermore, 15.5% of students report challenges with citation formatting, while 8.2% struggle to locate original sources, highlighting deficiencies in research literacy and database navigation. These findings align with those of Appiah, who observed that plagiarism in academic writing often is a result of students' limited ability to demonstrate academic competence in reading, writing, and paraphrasing, thereby reinforcing the notion that skill-related deficiencies significantly contribute to academic dishonesty.[44] These findings highlight that students' difficulties extend beyond mere technical citation rules to deeper conceptual issues, such as evaluating when and how to credit sources appropriately. The results underscore the need for targeted interventions, including workshops on source evaluation, time management strategies, and discipline-specific citation guidelines, to help students develop more efficient and ethical research practices. Addressing these challenges is essential to foster

[39] Adika, "Ghanaian Graduate Students' Knowledge of Referencing in Academic Writing and Implications for Plagiarism."
[40] Lamptey and Atta-Obeng, "Challenges with Reference Citations among Postgraduate Students at the Kwame Nkrumah University of Science and Technology, Kumasi, Ghana."
[41] Alua, Asiedu, and Bumbie-Chi, "Students' Perception on Plagiarism and Usage of Turnitin Anti-Plagiarism Software: The Role of the Library."
[42] Boahen et al., "Plagiarism in Higher Academic Institutions, a Blight on Intellectual Integrity: An Interventionist Approach."
[43] Gordon S. K. Adika, "Ghanaian Graduate Students' Knowledge of Referencing in Academic Writing and Implications for Plagiarism," *Frontiers of Language and Teaching* 5, no. 1 (2014): 75–80.
[44] Appiah and Awuah, "Plagiarism Is a Crime: Towards Academic Integrity in Higher Educational Institutions in Ghana."

academic integrity and improve the quality of scholarly writing in Ghanaian universities. The above finding broadly aligns with Appiah[45], who identified the underlying causes of plagiarism as including time constraints, heavy academic workload, easy access to information via the internet, and challenges related to paraphrasing and referencing.

Understanding the Distinction between Plagiarism and Knowledge Synthesis

The ability to distinguish between plagiarism and knowledge synthesis is crucial in academic writing, particularly in higher education, where ethical scholarship and critical thinking are highly valued. This study sought to explore students' understanding of these two concepts — one being academically dishonest and the other a skilful integration of knowledge. Question 24 invited students to discuss the difference between plagiarism and synthesis and the influence of cultural and linguistic factors. The responses revealed varying levels of conceptual clarity, with the majority demonstrating a sound grasp of the ethical, intellectual, and procedural differences between plagiarism and knowledge synthesis. The following thematic discussion presents six (6) key ideas that emerged from the data, highlighting both common understandings and areas of confusion.

1. Attribution vs. Non-attribution

A dominant theme that emerged from the responses is the distinction between correctly attributing sources and failing to do so. Respondents consistently pointed out that plagiarism involves using someone else's work without proper acknowledgment, which contrasts with knowledge synthesis, where ideas from multiple sources are ethically cited and credited. This suggests that many students are aware that correct attribution is fundamental to academic honesty and distinguishes scholarly work from intellectual theft. However, a few students showed signs of uncertainty in applying this distinction, indicating the need for more instruction on citation practices.

Many respondents distinguished plagiarism and knowledge synthesis based on acknowledgment of sources. They emphasised that plagiarism is marked by the lack of proper citation, while knowledge synthesis involves giving due credit. Examples of responses include the following extracts:

- "Plagiarism is when you take someone's idea and use it without saying where it came from."
- "Knowledge synthesis is when you use information from different books or websites and cite them correctly."
- "Plagiarism is stealing someone's work. Synthesis involves citing people."

These responses highlight a clear understanding of ethical attribution as a fundamental difference.

2. Originality

Another key theme is the emphasis on originality. Respondents noted that plagiarism lacks creativity and innovation, as it involves direct copying, while knowledge synthesis is viewed as a constructive process that requires interpreting, paraphrasing, and blending information to form new insights. This reflects a growing understanding among students of the value of original thought in academic writing. Nevertheless, some students still equated synthesis with simply restating information, suggesting that more work is needed to deepen their understanding of synthesis as an analytical and evaluative activity. Respondents associated plagiarism with a lack of originality, describing it as copying or repeating without personal input. In contrast, they saw knowledge synthesis as involving rewording, analysing, and expressing ideas in one's own way, as in:

- "Plagiarism lacks originality. Knowledge synthesis makes something new."
- "Synthesis is about putting different ideas together to make a new idea."
- "Plagiarism is just copying. Synthesis is using your brain to think and combine."

These illustrate that respondents understand synthesis as a creative and intellectual process, unlike plagiarism.

[45] Michael Karikari Appiah, "Incidence of Plagiarism among Undergraduate Students in Higher Educational Institutions in Ghana," *International Journal of Research in Economics and Social Sciences* 6, no. 3 (2016): 269–279.

3. Academic Integrity

The theme of academic integrity also stands out. Many students described plagiarism in moral and ethical terms, calling it “intellectual theft” or “dishonest,” and acknowledged its potential academic consequences. In contrast, knowledge synthesis was associated with positive academic values such as responsibility, scholarship, and critical thinking. This theme shows that students are beginning to internalize the ethical dimensions of academic writing and the importance of maintaining integrity in their work.

Students recognised plagiarism as dishonest and unacceptable in academia, referring to it as "cheating" or "stealing." Meanwhile, they described knowledge synthesis as a scholarly skill that demonstrates effort and integrity. Find some of their responses below.

- “Plagiarism is wrong and can get you punished.”
- “Synthesis is what lecturers want because it shows you understand what you read.”
- “Plagiarism is intellectual theft. Synthesis is smart work.”

This theme reflects the awareness of the moral and ethical dimensions of both practices of the respondents.

4. Method of Use

The respondents clearly differentiated the methods associated with both practices. Plagiarism was linked to actions such as “copying,” “lifting,” and “claiming ownership” of another’s work, whereas knowledge synthesis was associated with “combining,” “analyzing,” and “creating something new.” This shows that many students understand the procedural and functional differences between the two concepts. However, a few responses that confused the two terms highlight the importance of reinforcing correct academic methods and practices through applied learning.

This theme focused on how the content is used. Respondents differentiated between passively copying (plagiarism) and actively combining and analysing (synthesis). Examples of responses are provided below.

- “Plagiarism is when you just lift things from other books.”
- “In synthesis, you combine things and explain in your own words.”
- “Plagiarism is copying and pasting. Synthesis is reading many texts and making sense of them.”

These show a recognition of the process-based differences between the two.

5. Misunderstanding and Conceptual Ambiguity

Despite the overall clarity, some responses revealed confusion. A few students either conflated the two concepts or provided vague or incomplete definitions, such as “yes,” “don’t know,” or incorrect interpretations of synthesis. These instances point to a lack of conceptual clarity and signal the need for clearer explanations, better academic vocabulary, and more engaging examples to solidify understanding. This theme shows that while the majority grasp the basics, a minority still require foundational support. While most responses were accurate, a few showed confusion or partial understanding, indicating conceptual gaps. Here are some examples of their responses.

- “They are the same thing.”
- “Plagiarism is when you learn something from books.”
- “Knowledge synthesis means you don’t have to cite.”
- “Don’t know.” / “No idea.” / “Yes.”

These responses suggest the need for clearer teaching of concepts and their differences.

6. Language Use and Expression

Lastly, the theme of language and academic expression emerged prominently. While the conceptual grasp was strong for many, some students struggled with expression, evident in grammatical errors, unclear phrasing, and spelling issues. Although many students grasped the concepts, their language accuracy and expression were sometimes weak, with spelling, grammar, and vocabulary issues. Find examples of their problematic responses.

- “Plagiarism is about recitation.” (likely meant "copying" or "repetition")

- "Synthesis is coping many information together." (meant "copying" or "combining")
- "Using book knowledge without citationing is plagiarism." (non-standard usage)

Such examples show the need to strengthen students' academic language and writing skills alongside teaching the concepts. For example, using "coping" instead of "copying" or odd expressions like "plagiarism is about recitation." This suggests that while students may intellectually understand the ideas, their ability to communicate them academically is limited. Addressing this theme requires targeted instruction in academic vocabulary, sentence construction, and writing conventions.

Each of these themes—attribution, originality, academic integrity, method of use, misunderstanding, and language use—provides insight into students' current levels of understanding and highlights specific areas where instructional interventions can help bridge gaps and reinforce ethical and effective academic writing practices. Generally, the findings align with the existing literature, which indicates that students' conceptions of plagiarism and knowledge synthesis are often shaped by a mix of ethical, cultural, and educational influences. Scholars have described plagiarism using themes such as stealing, immorality, deception, dishonesty, and cultural misunderstanding, all of which resonate with the perspectives uncovered in this study.[46]

The study reveals that while there is a general awareness of plagiarism among students, deeper and more complex academic practices—such as knowledge synthesis, paraphrasing, and proper citation—are less understood. Specifically, the results yield several important implications for academic instruction. First, current pedagogical approaches may place disproportionate emphasis on the avoidance of plagiarism, potentially neglecting the development of constructive academic writing skills. Second, there is a critical need for more explicit instruction that helps students distinguish between superficial paraphrasing and meaningful synthesis, appropriate versus inappropriate use of sources, and the varying attribution requirements across different types of source material. Third, incorporating discipline-specific examples and practical exercises could bridge the gap between theoretical understanding and actual application. Fourth, the relatively high number of neutral responses suggests that many students would benefit from clearer and more concrete instructional guidance. Finally, educators should prioritise the development of students' higher-order academic writing competencies through discipline-oriented instruction, scaffolded practice, and well-defined frameworks for ethical source integration.

Digital Tools and Academic Integrity: Student Perceptions, Practices, and Ethical Dilemmas

The second research question sought to explore how digital writing tools are shaping students' ethical reasoning, their perception of originality, and their citation behaviours, while uncovering the challenges that arise in applying academic integrity standards in the digital age. Three questions were particularly relevant to answering this research question:

Q30: *I always check whether content generated by AI tools needs citation* (Likert-scale),
Q33: *Give an example of how you have used a digital tool in your academic writing* (short answer), and
Q41: *What recommendations would you give your university to improve students' understanding of plagiarism and ethical writing?* (short answer).

The subsequent sections discuss the findings based on these three questions.

(1) Awareness of Citation Requirements for AI-Generated Content

The study examined the awareness of Ghanaian university students about ethical citation practices for AI-generated content. The question—*I always check whether content generated by AI tools needs citation*—reveals a critical disconnect between digital tool adoption and academic integrity norms that demands urgent curricular intervention.

[46] Appiah and Awuah, "Plagiarism Is a Crime: Towards Academic Integrity in Higher Educational Institutions in Ghana"; Mohd Hishamuddin Abdul Rahman et al., "GAMIFICATION ELEMENTS AND THEIR IMPACTS ON TEACHING AND LEARNING – A REVIEW," *The International Journal of Multimedia & Its Applications* 10, no. 06 (December 31, 2018): 37–46, https://doi.org/10.5121/ijma.2018.10604; Julianne East, "Aligning Policy and Practice: An Approach to Integrating Academic Integrity," *Journal of Academic Language and Learning* 3, no. 1 (2009): A38–51.

Item	SD	D	N	A	SA
I always check whether content generated by AI tools needs citation.	54.6%	11.3%	9.3%	16.6%	5%

SD= Strongly Disagree; A= Agree; N= Neutral; A = Agree; SA =Strongly Agree

Analysis of student responses reveals a troubling disconnect between tool usage and understanding of academic integrity principles. A striking 65.9% of students do not consistently verify whether AI-generated content requires citation, reflecting fundamental misconceptions about authorship and originality in the digital age. This suggests that many students perceive tools like ChatGPT as neutral content generators rather than sources requiring attribution, potentially confusing machine output with common knowledge. The convenience and accessibility of these tools appear to have fostered a writing culture that prioritises efficiency over ethical rigour, with students relying on Grammarly and Turnitin for post-hoc corrections rather than engaging in authentic knowledge synthesis from the outset.

The findings reveal critical insights into how digital writing tools influence Ghanaian students' conceptions of academic integrity and the ethical dilemmas they face. Three key themes emerge: (1) tool-driven misconceptions about originality; (2) institutional gaps in digital literacy training; and (3) tension between digital efficiency and academic rigour.

1. Tool-Driven Misconceptions About Originality

The findings reveal a widespread misunderstanding among Ghanaian university students regarding what constitutes original work when using digital writing tools. A significant 65.9% of respondents indicated that they do not check whether AI-generated content requires citation, suggesting a perception of tools like ChatGPT and Grammarly as mere extensions of their own thinking rather than as sources that necessitate attribution. This misconception is shaped by multiple factors. First, there is ambiguity in authorship, as students often regard AI-generated text as "common knowledge" rather than derived content, overlooking the fact that even paraphrased machine outputs may include proprietary or copyrighted material. Secondly, there is an over-reliance on automated fixes; tools like Grammarly are often used primarily for surface-level grammar correction rather than for critical engagement with source material, leading to superficial edits that fail to address deeper issues of originality. Lastly, cultural influences play a role. Ghana's communal traditions of knowledge sharing may obscure the boundary between individual and collective authorship, causing students to underestimate the importance of citation according to Western academic standards. These factors imply that, without targeted intervention and education, such misconceptions may lead to the normalization of unintentional plagiarism, where students unknowingly submit AI-assisted work as their own, unaware of the ethical implications involved.

2. Institutional Gaps in Digital Literacy Training

The data underscore a significant deficiency in institutional support for ethical digital writing practices within Ghanaian universities. With only 21.6% of students consistently citing AI-generated content, it is clear that many institutions are not offering adequate guidance or training on the responsible use of digital writing tools. One major gap is the absence of AI-specific citation policies; most universities have yet to establish clear standards on how to reference tools, such as ChatGPT, in formats such as APA or MLA, leaving students to navigate these practices on their own. Furthermore, existing training tends to prioritise technical proficiency over ethical understanding—while workshops may teach students how to use plagiarism-detection software like Turnitin, they often neglect the foundational principles of why citation is essential to academic work. Disparities across academic disciplines further complicate the issue. These institutional oversights contribute to a culture in which students approach digital tools pragmatically—to evade plagiarism accusations—rather than ethically, as a means of engaging critically and transparently with knowledge.

3. Tension Between Digital Efficiency and Academic Rigour

The growing use of AI writing assistants has introduced a complex tension between convenience and scholarly rigour in Ghanaian universities. A notable 9.3% of the respondents expressed uncertainty about whether using such tools constitutes academic dishonesty, highlighting the blurred boundaries students face. One major challenge lies in distinguishing paraphrasing from plagiarism. Many students who rely on tools, such as QuillBot assume that superficially edited text is original, overlooking the fact that reproducing the underlying structure or ideas without proper citation still amounts to plagiarism. Additionally, the perception of AI tools like ChatGPT as "co-authors" rather than sources further complicates matters, raising questions about authorship and responsibility for generated content. As a result, this reliance on AI risks diminishing critical thinking and deep learning, shifting student priorities from intellectual engagement to procedural compliance with academic regulations. These themes intersect to create a perfect storm, that is, students misunderstand originality, institutions fail to guide them, and tools prioritize efficiency over rigor.

Addressing these challenges requires a comprehensive institutional response that combines policy reform, curriculum development, and cultural sensitivity. Universities must develop clear guidelines for AI tool usage that align with international standards while remaining responsive to local educational contexts. This includes creating discipline-specific citation protocols for digital tools and integrating them systematically across all academic programs. Pedagogical approaches should emphasize the writing process as much as the final product, requiring students to submit draft iterations and source logs that demonstrate their engagement with course materials. Crucially, training programs must move beyond technical instruction to foster critical digital literacy, helping students understand the ethical implications of their tool choices. By framing academic integrity as complementary to—rather than conflicting with—Ghanaian cultural values of communal knowledge sharing, institutions can develop more nuanced approaches to digital writing ethics.

The study underscores the urgent need for Ghanaian universities to develop more sophisticated frameworks for digital writing ethics. As AI tools become increasingly embedded in academic practice, institutions must proactively address the conceptual gaps they create in students' understanding of authorship and originality. Future studies should explore how varying disciplines engage with these tools and how cultural perceptions of knowledge ownership mediate their use. Ultimately, the goal should be to cultivate digital writing practices that harness technological innovation while maintaining rigorous academic standards—a balance that requires ongoing dialogue between educators, students, and tool developers. By addressing these challenges holistically, Ghanaian universities can position themselves at the forefront of ethical digital scholarship in the Global South.

Students' Use of Digital Tools in Academic Writing: Trends and Implications

The analysis of student responses reveals clear patterns in how digital tools are used to support academic writing. Grammar and clarity tools dominate usage, with approximately 40% of the respondents relying heavily on Grammarly for proofreading, sentence structure improvement, and plagiarism detection through its premium features. Students frequently described using these tools to polish final drafts, with one noting how Grammarly helped "identify errors and suggest clearer phrasing." Along with grammar checkers, about 15% of the students mentioned Turnitin as a critical tool to verify originality before submission, demonstrating growing awareness of plagiarism prevention. This finding aligns with Alua et al., who observed that while Turnitin and library-led workshops improved awareness of plagiarism, many students could not interpret originality reports effectively.[47] The present study confirms this limitation, revealing that students view such tools more as compliance mechanisms than as aids to develop critical academic literacy.

Citation management emerges as another key area, with 20% of students utilising reference organizers like Zotero and Mendeley to streamline the research process. These tools were praised for automating bibliography formatting and saving significant time in source organization. Similarly, Lamptey and Atta-Obeng highlight postgraduate students' struggles with inconsistent citation practices

[47] Alua, Asiedu, and Bumbie-Chi, "Students' Perception on Plagiarism and Usage of Turnitin Anti-Plagiarism Software: The Role of the Library."

and multiple referencing styles, recommending greater librarian involvement in building citation literacy.[48] The use of digital citation managers in this study suggests students are adopting solutions to these challenges, though their effectiveness depends on proper training and critical application.

Research assistance tools also featured prominently, with a quarter of respondents using Google Scholar's advanced search functions to locate credible sources efficiently, while others turned to AI tools like ChatGPT for brainstorming and concept clarification—though often with cautious acknowledgment of the need for verification. This reflects wider global debates on the role of generative AI in education. While some scholars, such as Nanquil, argue that digital disruption requires rethinking grammar and writing pedagogy, others caution that AI tools may encourage superficial engagement with knowledge if students lack critical AI literacy.[49]

The most concerning finding involves the emerging use of generative AI tools, reported by 10% of respondents. Although some students demonstrated awareness of the need to verify AI outputs, others appeared to uncritically incorporate machine-generated content. This tendency echoes concerns raised by Mireku et al. in their review of plagiarism research in Sub-Saharan Africa, which highlighted how digital access and "shortcuts" often blur the boundaries between originality and misconduct. Our study extends this concern by showing how AI-driven tools may short-circuit the process of genuine synthesis, leading to dependence rather than intellectual growth.[50]

The responses collectively depict a writing ecosystem where digital tools serve as band-aids for skill deficits rather than catalysts for deeper learning. While students effectively leverage technology for grammar correction, citation management, and research efficiency, gaps remain in critical AI literacy and collaborative writing practices. Few responses addressed evaluating AI-generated content or using collaborative platforms like Google Docs for peer review. This mirrors Adika's concern that, although students often receive training in referencing, their actual practice remains flawed, and underscores the need for universities to move beyond surface-level compliance training.[51]

For Ghanaian universities, these insights suggest the need for targeted training programs that teach ethical tool use while emphasizing original synthesis of ideas. By combining technical instruction with academic integrity education, institutions could help students maximize the benefits of digital writing aids while avoiding pitfalls like over-reliance on automated paraphrasing or uncritical acceptance of AI outputs. The data ultimately reflect a generation of learners actively engaging with technology to enhance their writing, but requiring structured guidance to do so with scholarly rigor. As Collins and Ruivivar emphasize, grammar and writing research must adapt to evolving classroom realities, where digital and AI tools are no longer supplementary but integral to student practice.[52]

Overall, the patterns revealed in this study suggest Ghanaian universities must rethink how writing is taught in the digital age. Although tools can support learning, current usage trends reveal an overemphasis on technical compliance at the expense of deeper academic competencies. Institutions should therefore redesign writing instruction to emphasize critical engagement with sources, ethical tool use, and the development of authentic scholarly voice—ensuring that technology enhances rather than replaces cognitive processes. These findings reinforce the urgent need for pedagogical interventions that address the opportunities and risks posed by the growing array of writing technologies in higher education.

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[48] Lamptey and Atta-Obeng, "Challenges with Reference Citations among Postgraduate Students at the Kwame Nkrumah University of Science and Technology, Kumasi, Ghana."

[49] Jasmine Matope, "Making Wine Without Grapes: The Case for Quality Teaching With Limited Resources," *Educational Research for Social Change* 10, no. 2 (September 1, 2021): 33–46, https://doi.org/10.17159/2221-4070/2021/v10i2a3; Gul Afshan, Subhan Shahid, and Muhammad Nawaz Tunio, "Learning Experiences of Women Entrepreneurs amidst COVID-19," *International Journal of Gender and Entrepreneurship* ahead-of-print (May 2021), https://doi.org/10.1108/IJGE-09-2020-0153; Leylanie Adao et al., "Teachers' Challenges, Capabilities, and Needs in Teaching Learners with Reading Difficulties," *Journal of Science and Education (JSE)* 3, no. 3 (March 20, 2023): 221–31, https://doi.org/10.56003/jse.v3i3.173.

[50] Mireku, Dzamesi, and Bervell, "Plagiarism in Higher Education (PLAGiHE) within Sub-Saharan Africa: A Systematic Review of a Decade (2012–2022) Literature."

[51] Adika, "Ghanaian Graduate Students' Knowledge of Referencing in Academic Writing and Implications for Plagiarism."

[52] Patricia Hill Collins et al., "Intersectionality as Critical Social Theory," *Contemporary Political Theory* 20, no. 3 (September 17, 2021): 690–725, https://doi.org/10.1057/s41296-021-00490-0.

Analysis of Students' Recommendations on Plagiarism Education

The student responses collectively highlight a critical gap between institutional plagiarism policies and practical student needs in Ghanaian universities. Three dominant themes emerge from the analysis, revealing insightful demands and overlooked opportunities for academic integrity reform.

Proactive Education as a Foundational Need

A striking 60% of responses emphasised the necessity for early, interactive training on plagiarism and ethical writing. Students specifically called for mandatory workshops integrated into freshman orientation programs, with many noting that current training occurs too late or fails to provide hands-on practice. The repeated mention of "real examples" and "discipline-specific citation practice" suggests dissatisfaction with generic, theory-heavy approaches. This aligns with global research showing that one-time lectures on academic integrity have a limited impact compared to embedded, skill-building sessions. Notably, students advocated continuous reinforcement throughout their degree programs, indicating awareness that ethical writing is a developmental skill rather than a one-off competency.

Resource Accessibility and Cultural Relevance

About 30% of students recommended improved access to support tools, notably writing centres and pre-submission plagiarism checks. Strikingly, fewer than 5% mentioned AI tools such as ChatGPT, despite their growing use in academia. This silence suggests limited awareness of AI-related risks or the belief that such tools lie outside plagiarism concerns. Students' call for draft-checking privileges with Turnitin further reflects a preference for formative rather than punitive approaches to plagiarism detection.

Systemic Barriers and Unmet Needs

While most recommendations targeted student-facing interventions, a minority (10%) identified structural issues like inconsistent policy enforcement and curricular misalignment. Several respondents noted discrepancies in how lecturers apply plagiarism rules, creating confusion about institutional standards. Few students proposed faculty-focused interventions, despite evidence that instructors' ability to model and teach source integration strongly shapes outcomes.[53] This gap highlights the need for sustained lecturer training in ethical writing and AI use. Also absent were peer-learning initiatives—effective in other Global South contexts—which could foster collaborative, student-driven approaches to academic integrity. Their omission reflects both a missed opportunity and a reliance on compliance-driven rather than community-oriented solutions.

These findings challenge universities to move beyond scare-tactic plagiarism policies toward pedagogies that make ethical writing achievable. The Ghanaian context demands solutions that: 1) respect oral knowledge traditions while teaching Western citation norms, 2) address resource limitations through low-tech paraphrasing drills alongside digital tools, and 3) prepare students for AI-augmented writing environments. A "whole-institution" approach would integrate early training, discipline-specific modules, and consistent assessment criteria while leveraging students' own calls for practical support. Future research should explore why critical issues like AI ethics and peer mentoring were overlooked in student responses—whether due to awareness gaps or cultural factors shaping their academic help-seeking behaviours.

RECOMMENDATIONS

Based on the findings of this study, university teachers are encouraged to teach academic integrity with a focus on the ethical use of digital tools like ChatGPT, Grammarly, and Turnitin. They must clearly explain plagiarism, citation, and authorship using simple and relevant examples. Teachers should also demonstrate how to cite AI tools properly, employ reflective assessments to confirm students' authorship, and organize academic integrity workshops to reinforce good practices. Teachers can guide students to write responsibly in the digital age by cultivating a supportive learning environment and continuously updating their digital literacy.

[53] Howard E Gardner, *Frames of Mind: The Theory of Multiple Intelligences* (Basic books, 2011).

The responsibility of promoting academic integrity cannot be solely on teachers. Other stakeholders particularly school leadership and policymakersm must also be proactive in this quest. University administrators should establish clear, student-friendly policies on the ethical use of digital tools, ensure consistent enforcement, and provide institutional support such as writing centres, library training, and digital literacy programs. Policymakers, in turn, must integrate academic integrity into national higher education frameworks, funding initiatives, and accreditation requirements to ensure uniform standards across institutions. Together, these efforts can create a culture of integrity that extends beyond the classroom.

Further research could investigate how Ghanaian university students use digital writing tools for knowledge synthesis and the extent to which their practices align with academic integrity norms. Such inquiries would provide valuable insights into shaping policies and pedagogical interventions that balance technological innovation with ethical scholarship.

CONCLUSION

This study has provided a critical examination of the conceptions of plagiarism and knowledge synthesis by Ghanaian university students, particularly in the context of digital writing technologies such as Grammarly, ChatGPT, and Turnitin. Although the majority of the respondents demonstrated a theoretical understanding of these academic constructs, substantial challenges persist in their practical application, notably in relation to the ethical use of AI-generated content. The findings revealed a significant proportion of students who lack clarity about authorship, originality, and the need for citation when engaging with digital tools. These issues are further compounded by institutional deficiencies, including the absence of explicit policies on AI citation and a predominant focus on the functional rather than ethical dimensions of digital tool usage. The students' recommendations—emphasising the implementation of mandatory academic integrity workshops, the provision of accessible learning resources, and the integration of ethics-focused instruction into academic curricula—underscore the demand for structured and context-sensitive interventions. This research contributes meaningfully to ongoing international discourses on academic integrity by foregrounding student perspectives within a culturally and linguistically distinct educational environment. The findings affirm the imperative for higher education institutions to establish clear, locally relevant academic policies and pedagogical frameworks that not only uphold scholarly standards but also equip students with the critical competencies necessary for ethical engagement in the digital age.

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