

Investigating Perceptions and Practices of Plagiarism among Nigerian Undergraduates in the Fourth Industrial Revolution Era: The Role of ChatGPT



John Olayemi Okunlola¹ 

¹ Department of Education Leadership and Management, Faculty of Education, University of Johannesburg, P.O.BOX 524, Auckland Park 2006, South Africa.

ABSTRACT

One of the technological innovations that characterized the Fourth Industrial Revolution (4IR) is ChatGPT. ChatGPT has been engaged in different academic tasks by tutors and learners. This study examined the perceptions and practices of plagiarism among Nigerian undergraduates in the era of 4IR. The study adopted a quantitative research design, and 120 undergraduates from the Tourism Department of Osun State University were enumerated. Data was collected from the participants with the aid of questionnaires. The data was analyzed using frequency, percentage, and mean indices. The study revealed that ChatGPT has the capacity to promote plagiarism practices among undergraduate students, sometimes unintentionally. The study showed that the lecturers did not have sufficient knowledge and training on plagiarism in ChatGPT-generated content, leading to the inability to promptly address plagiarism among undergraduates from ChatGPT. It is recommended that higher education institutions take training in the ethical usage of ChatGPT seriously to avoid plagiarism practices. This study contributes to scholarship by providing empirical evidence on the influence of ChatGPT on plagiarism practices among Nigerian undergraduates, highlighting the need for enhanced training and awareness for both students and lecturers regarding the ethical use of AI tools in academic writing in the era of the 4IR.

Correspondence

John Olayemi Okunlola
Email: jokunlola@uj.ac.za
jookunlola2@gmail.com

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INTRODUCTION

The Fourth Industrial Revolution, commonly referred to as Industry 4.0 or 4IR, was first put forward by Klaus Schwab, the executive chairman and founder of the World Economic Forum (WEF). He depicted it as an ecosystem where individuals use connected technology to regulate and facilitate their lives while cycling between offline and digital worlds.¹ Technological innovations and revolution are topical discourses in different fora and fields worldwide. Agbaji highlighted several technologies as essential elements, including biotechnology, 3D printing, quantum computing, artificial intelligence (AI), machine

¹ S. H. Xu, M., David, J. M., & Kim, "The Fourth Industrial Revolution: Opportunities and Challenges," *International Journal of Financial Research* 9, no. 2 (2018): 90–95.

learning, and the Internet of Things.² Technological usage and engagement in different quarters and human endeavors have become a norm this century. Its importance cannot be overemphasized for different human endeavors and business engagements. Notably, technology is topical in the 21st century; it is relevant for the education of different nations because it replaces traditional knowledge dissemination.³ The value and influence of technological innovation in the light of internet facilities and its tools cannot be overemphasized in the hospitality, tourism, and travel sectors.⁴ More precisely, among the technologies used for educational purposes, ChatGPT is well-engaged for academic purposes by both teachers and students. Nugraheni et al. noted that ChatGPT is a well-developed Artificial Intelligence system with global recognition for its excellent language-generating capacity; therefore, it is one of the GPT (Generative Pre-trained Transformer) programmes created for generating human-like language outcomes premised on a specific prompt.⁵ In language education, language academics and academic institutes have started expanding to explore infusing ChatGPT in their academic engagements. OpenAI creates ChatGPT, an AI-based large language model that uses deep learning methods to generate human-like outcomes for written inputs.⁶

According to Yu, the origin of ChatGPT lies in OpenAI's 2015 launch regarding the condition of Aegis Sam Alman.⁷ GPT-4 Turbo's most recent development aims to significantly improve customer experiences by incorporating data until April 2023, guaranteeing the transmission of relevant and up-to-date feedback. Based on the improvement of complex language templates, ChatGPT is a forecast of the hypothetical assertion of the maturation of AI to general intelligence.⁸ The open-access, all-purpose ChatGPT chatbot, uses GPT language model technology to function as a sophisticated chatbot.⁹ ChatGPT is the app with the quickest growth rate ever and is predicted to have a wider potential user base across several sectors. According to a Swiss Bank UBS estimate, within five days of launch, it attracted one million subscribers, and within two months, it had 100 million functioning users.¹⁰ However, there are a couple of concerns about the appropriateness of ChatGPT for academic purposes.¹¹ Sallam submitted that different individuals have many issues and controversies over the introduction of ChatGPT and its use in learning.¹² Equally opined that the issues of concern about ChatGPT are inclusive of ethics, copyrights, transparencies, a legitimate issue, risk of biases, plagiarism, absence of authenticity, information inaccuracy, knowledge limitedness, citations that are not correct, cybersecurity issue, as well as risk of infodemics.

There are growing issues about how credible, acceptable, and relevant ChatGPT is in the academic world.¹³ Imran and Almusharraf opined that there are a couple of issues bordering on ethics in regards to

² Daniel Agbaji, Brady Lund, and Nishith Reddy Mannuru, "Perceptions of the Fourth Industrial Revolution and Artificial Intelligence Impact on Society," *ArXiv Preprint ArXiv:2308.02030*, 2023; John Olayemi Okunlola, Suraiya Rathankoomar Naicker, and Chinaza Uleanya, "Digital Leadership in the Fourth Industrial Revolution Enacted during the COVID-19 Pandemic: A Systematic Review," *Cogent Education* 11, no. 1 (December 31, 2024), <https://doi.org/10.1080/2331186X.2024.2317258>.

³ Simin Ghavifekr and Wan Athirah Wan Rosdy, "Teaching and Learning with Technology: Effectiveness of ICT Integration in Schools.," *International Journal of Research in Education and Science* 1, no. 2 (2015): 175–91.

⁴ M.T. Olawuyi, O. S. and Adedara, "Nigeria in the Dynamic World of Internet Facilities Usage and Its Ripple Impact on Hospitality, Travel and Tourism," *African Journal of Sustainable Development* 5, no. 1 (2014): 71–80.

⁵ Nugraheni Widianingtyas, Thomas Wahyu Prabowo Mukti, and Ronald Maraden Parlindungan Silalahi, "ChatGPT in Language Education: Perceptions of Teachers - A Beneficial Tool or Potential Threat?," *VELES (Voices of English Language Education Society)* 7, no. 2 (October 30, 2023): 279–90, <https://doi.org/10.29408/veles.v7i2.20326>.

⁶ Mubin Ul Haque et al., "I Think This Is the Most Disruptive Technology": Exploring Sentiments of ChatGPT Early Adopters Using Twitter Data," *ArXiv Preprint ArXiv:2212.05856*, 2022.

⁷ Hao Yu, "The Application and Challenges of ChatGPT in Educational Transformation: New Demands for Teachers' Roles," *Heliyon*, 2024.

⁸ Anastasia Chan, "GPT-3 and InstructGPT: Technological Dystopianism, Utopianism, and 'Contextual' Perspectives in AI Ethics and Industry," *AI and Ethics* 3, no. 1 (2023): 53–64.

⁹ Ahmad R. Kirmani, "Artificial Intelligence-Enabled Science Poetry," *ACS Energy Letters* 8, no. 1 (January 13, 2023): 574–76, <https://doi.org/10.1021/acsenerylett.2c02758>.

¹⁰ K. Hu, "ChatGPT Sets Record for Fastest-Growing User Base - Analyst Note," Reuters, 2023, <https://www.reuters.com/technology/chatgpt-sets-record-fastest-growing-user-base-analyst-note-2023-02-01/>.

¹¹ V. Emma, S. and Arianna, "Challenges and Ethical Implications," *ChatGPT and Artificial Intelligence in Higher Education* <https://www> (2023): 1–15.

¹² Malik Sallam, "ChatGPT Utility in Healthcare Education, Research, and Practice: Systematic Review on the Promising Perspectives and Valid Concerns," in *Healthcare*, vol. 11 (MDPI, 2023), 887.

¹³ Emmanuel Mensah Bonsu and Daniel Baffour-Koduah, "From the Consumers' Side: Determining Students' Perception and Intention to Use ChatGPT in Ghanaian Higher Education," *Journal of Education, Society & Multiculturalism* 4, no. 1 (2023): 1–29.

ChatGPT, for instance, plagiarism as well as authenticity in terms of data usage and accurate writing outcomes, which could be subjected to questions, for example, ChatGPT could create precise abstract, introduction, and literature segments.¹⁴ ChatGPT leads to generating various conversation-mode responses premised on consumers' queries. It is a dialogue template that responds to different titles from different quarters and businesses. Therefore, it is an engaging facility.¹⁵ Research about ChatGPT and its impacts on academia is evolving. Emma and Arianna opined that the effect of ChatGPT on higher education has been instantaneous and divisive; therefore, many higher institutions have banned it based on the fear of student plagiarism, and it has also been blocked in various Nations.¹⁶ Regrettably, no integrated evaluation of ChatGPT's output quality has been conducted.¹⁷ There is a gap concerning studies that examine the perception and practice of plagiarism in the era of 4IR amongst undergraduate students. Hence, this study seeks to investigate the perceptions and practices of plagiarism in the era of the 4IR among undergraduates: The role of ChatGPT. In achieving this research objective, the study is guided by two research questions which are as follows.

1. To what extent does the emergence of ChatGPT as a tool for academic writing influence plagiarism practices among undergraduate students?
2. How do undergraduates perceive lecturers' knowledge and training in identifying plagiarism involving ChatGPT-generated content?

LITERATURE REVIEW

Student Perceptions of ChatGPT

Students with a perception of the academic environment (for instance, contents of curricula, mode of pedagogy, mode of assessments, resources to learn, learning contexts, and student support service), as well as a confident perception of their capacities, have more tendencies to adopt profound learning approaches, that are inclusive of gaining knowledge as well as connecting ideas. Contrarily, students who have negative perceptions of their academic environments or are doubtful of their capacities might engage in a superficial learning method.¹⁸ Students' perceptions of technology development in an academic setting, for instance, GenAI, students' views, concerns as well as experiences of such technologies could affect their readiness in utilizing the tool as well as consequently how far such technological facility is engaged in the learning processes.¹⁹ Thus, students' impression of ChatGPT's significance plays a crucial role in its engagement by the students.

According to research on chatbots' usage in business education, students had favorable experiences studying because of the chatbots' responsiveness, interactivity, and private learning assistance. The study also revealed positive user feedback.²⁰ In the same vein, Khalil and Er examined the authenticity of the content created by ChatGPT via the usage of two plagiarism detectors and fifty scholarly articles.²¹ It was revealed that ChatGPT can establish authentic content that is hard to distinguish from those authored by humans. Khalil and Er affirmed the outcome of learners' increased software usage

¹⁴ Muhammad Imran and Norah Almusharraf, "Analyzing the Role of ChatGPT as a Writing Assistant at Higher Education Level: A Systematic Review of the Literature," *Contemporary Educational Technology* 15, no. 4 (2023): ep464.

¹⁵ Aidan Gilson et al., "How Does ChatGPT Perform on the United States Medical Licensing Examination (USMLE)? The Implications of Large Language Models for Medical Education and Knowledge Assessment," *JMIR Medical Education* 9, no. 1 (2023): e45312.

¹⁶ Emma, S. and Arianna, "Challenges and Ethical Implications."

¹⁷ Michele Salvagno, Fabio Silvio Taccone, and Alberto Giovanni Gerli, "Can Artificial Intelligence Help for Scientific Writing?," *Critical Care* 27, no. 1 (February 25, 2023): 75, <https://doi.org/10.1186/s13054-023-04380-2>.

¹⁸ J. B. Biggs, *Teaching for Quality Learning at University: What the Student Does* (McGraw-Hill Education, 2011).

¹⁹ Cecilia Ka Yuk Chan and Wenjie Hu, "Students' Voices on Generative AI: Perceptions, Benefits, and Challenges in Higher Education," *International Journal of Educational Technology in Higher Education* 20, no. 1 (July 17, 2023): 43, <https://doi.org/10.1186/s41239-023-00411-8>.

²⁰ T. Chen, Y., Jensen, S., Albert, L. J., Gupta, S., & Lee, "Artificial Intelligence (AI) Student Assistants in the Classroom: Designing Chatbots to Support Student Success," *Information Systems Frontiers* 25 (2023): 161–182, <https://doi.org/https://doi.org/10.1007/s10796-022-10291-4>.

²¹ Mohammad Khalil and Erkan Er, "Will ChatGPT Get You Caught? Rethinking of Plagiarism Detection," in *International Conference on Human-Computer Interaction* (Springer, 2023), 475–87.

as a shortcut to writing scholarly articles.²² Similarly, Ozdemir and Aydin submitted that a review of the article prepared by ChatGPT had a forty percent plagiarism rate.²³

Rudolph stated that AI applications have the extraordinary and unusual potential to enhance learner-support interactions and scaffold students' comprehension in unique ways.²⁴ These applications can also help students adjust to the experiences of others. Firat stated that ChatGPT has a lot of promise as a tool for open education since it can help autodidactic learners become more self-directed and adaptable while maintaining an effective and adaptable system.²⁵ The effects of the students' initial interactions with ChatGPT positively impact their perceptions of the benefits and continuous usability of the AI model. Sok and Heng opined that ChatGPT is essential to boost effective and efficient scholarly outputs, which is, perhaps, one of the challenging areas for university teachers and students, specifically non-native English speakers.²⁶ Graf and Bernadi asserted that large language models like ChatGPT could enhance efficient scholarly write-ups.²⁷ They also noted that ChatGPT can correct sentence structures and grammar and be engaged in writing and editing. Jimenez stated that 22% of the respondents engage in ChatGPT for weekly coursework assistance; likewise, the study revealed that 73% opined that ChatGPT has enhanced learners' performance.²⁸

Based on the fact that learners might experience hardship, which can impact their psychology and emotions while fulfilling their work, ChatGPT can act as a counselor or supportive peer in assisting with their fundamental psychology or emotion-based desires. With respect to its incredible ability to generate timely feedback, ChatGPT can aid learners in dealing with scholarly tasks.²⁹ This style can empower learners to assess their learning and develop approaches to address challenges.³⁰ In as much as ChatGPT responds quickly to inquiries implies that inquisitive students will find it engaging for various tasks. Furthermore, to stimulate learners' critical thought and problem-solving skills, learners from different knowledge and competence levels could be empowered to participate in the classroom via answers or responses generated by ChatGPT.³¹ Meanwhile, learners may habitually generate assessed works instead of undergoing fundamental learning mechanisms.³² Learners lose critical thinking and analytical abilities if they rely on language models without independently checking the material.³³

Technology advancements have enormously affected education, especially for those learning English as a foreign language. This is because language learning and instruction have used technology extensively over the previous few decades.³⁴ It has been of immense help to both teachers and students in finding solutions to different academic queries and problems. ChatGPT chatbot could be used in accomplishing a broad category of duties, like writing, providing answers to questions, writing codes, as well as personal and collaborative guides via productivity.³⁵ It is no gainsaying that ChatGPT has helped many students construct sentences correctly and professionally. Academic and experimental discourse

²² Khalil and Er, "Will ChatGPT Get You Caught? Rethinking of Plagiarism Detection."

²³ E. Ozdemir and S. Aydin, "The Effects of Wiki on Motivation in EFL Writing," *Procedia – Social and Behavioral Sciences* 191 (2015): 2359–63.

²⁴ S. Rudolph, J. Tan, S. and Tan, "ChatGPT: Bullshit Spewer or the End of Traditional Assessments in Higher Education?," *Journal of Applied Learning and Teaching* 6, no. 1 (2023): 342–63.

²⁵ Mehmet Firat, "How Chat GPT Can Transform Autodidactic Experiences and Open Education?," 2023.

²⁶ K. Sok, S., & Heng, "Opportunities, Challenges, and Strategies for Using ChatGPT in Higher Education: A Literature Review.," *Journal of Digital Educational Technology* 4, no. 1 (2024), <https://doi.org/ep2401>. <https://doi.org/10.30935/jdet/14027>.

²⁷ Akseli Graf and Rick E Bernardi, "ChatGPT in Research: Balancing Ethics, Transparency and Advancement," *Neuroscience* 515 (April 2023): 71–73, <https://doi.org/10.1016/j.neuroscience.2023.02.008>.

²⁸ K. Jimenez, "ChatGPT in the Classroom: Here's What Teachers and Students Are Saying," *USA Today*. <https://www.usatoday.com/story/news/education/2023/03/01/what-teachers-studentssaying-ai-chatgpt-use-classrooms/11340040002>, 2023.

²⁹ Sok, S., & Heng, "Opportunities, Challenges, and Strategies for Using ChatGPT in Higher Education: A Literature Review."

³⁰ Jürgen Rudolph, Samson Tan, and Shannon Tan, "ChatGPT: Bullshit Spewer or the End of Traditional Assessments in Higher Education?," *Journal of Applied Learning and Teaching* 6, no. 1 (2023): 342–63.

³¹ Enkelejda Kasneci et al., "ChatGPT for Good? On Opportunities and Challenges of Large Language Models for Education," *Learning and Individual Differences* 103 (April 2023): 102274, <https://doi.org/10.1016/j.lindif.2023.102274>.

³² Artur Strzelecki, "To Use or Not to Use ChatGPT in Higher Education? A Study of Students' Acceptance and Use of Technology," *Interactive Learning Environments*, May 8, 2023, 1–14, <https://doi.org/10.1080/10494820.2023.2209881>.

³³ A. Iskender, "Holy or Unholy? Interview with Open AI's ChatGPT.," *European Journal of Tourism Research* 34 (2023): 3414, <https://doi.org/https://doi.org/10.54055/ejtr.v34i.3169>.

³⁴ Tubagus Zam Zam Al Arif, "Indonesian University Students' Perception and Expectation towards ICT Use in Learning English as a Foreign Language.," *Indonesian Journal of English Language Teaching and Applied Linguistics* 4, no. 1 (2019): 133–45.

³⁵ T. Lund, B. D., & Wang, "Chatting about ChatGPT: How May AI and GPT Impact Academia and Libraries? Library Hi Tech News. <https://doi.org/10.2139/ssrn.4333415>," 2023.

around the globe reveals that ChatGPT could play a substantial role as a writing assistant in accomplishing writing assignments better.³⁶ Imran and Almusharraf noted that ChatGPT fulfills these assignments by depending on effective designs and extensive data storage to understand and interpret the input commands by consumer's request and create pertinent responses.³⁷ It could make available responses, remember the context of previous communications, and engage corrections, and it is also programmed for accepting and declining queries. The introduction of ChatGPT in academic settings is a contentious subject because of its unique features for scholarly articles, essays, poetry, short tales, and communication.³⁸

Lecturer Perceptions of ChatGPT

Lecturers can engage ChatGPT in numerous tasks. Since it has been established that many students are engaging in ChatGPT, lecturers must teach their students about the appropriate usage of ChatGPT. On the other hand, those who support ChatGPT opine that it represents a privilege associated with teaching learners the responsible usage of AI tools ethically and effectively, and training them to engage these tools creatively and critically.³⁹

Meanwhile, a sizable portion of students viewed ChatGPT ought to be prohibited. As a result, teachers must adopt the initiative to offer guidance and guidelines on effectively and ethically using AI in academic environments. The prompt responsiveness of ChatGPT will make it easier for lecturers to teach their students about it. Lo contended that ChatGPT is an advanced conversational chatbot developed by OpenAI that facilitates learners' operationalization of teaching and learning; therefore, it has global recognition for creating coherence and systematic and informative feedback.⁴⁰ Pavlik submitted that teachers are meant to train learners to effectively use generative AI. The more lecturers train their students about the appropriate usage of ChatGPT, the less students misuse ChatGPT.⁴¹ Elkhodr et al. opined that although learners recognized the possible advantages of utilizing ChatGPT, they similarly recognized the potential abuse and dependence associated with its usage.⁴² Students understand that they can engage ChatGPT wrongly; therefore, they need pertinent guidance and training.

The increased pace of technological innovations depicts that teaching in tertiary institutions depends on reconsidering teachers' roles and pedagogies. However, there is a perception that ChatGPT might negatively impair students' essay-writing capacities. McMurtrie opined that a part of the very early and most common issues of using ChatGPT has been that it is a threat to essays as a mode of assessment.⁴³ A few teachers are disturbed that learners would outsource their written assignments to ChatGPT. Rudolph et al. argued that teaching and learning are usually challenging when discussing disruptive education technologies.⁴⁴ Diwan postulated that AI-based methods may automatically create educational materials and integrate them into learning pathways at specific locations.⁴⁵

A variety of factors may be taken into account when determining these trajectories. Based on responses to fundamental online feedback, correct tests of understanding get extremely hard, making it difficult for tertiary institution teachers with responsibilities of engaging in such tasks. Constructing or reconstructing such templates would make up teaching and learning sections as educators try to make

³⁶ Sallam, "ChatGPT Utility in Healthcare Education, Research, and Practice: Systematic Review on the Promising Perspectives and Valid Concerns."

³⁷ N. Imran, M., & Almusharraf, "Analyzing the Role of ChatGPT as a Writing Assistant at Higher Education Level: A Systematic Review of the Literature," *Contemporary Educational Technology* 15, no. 4 (2023): ep464.

³⁸ Ismail Dergaa et al., "From Human Writing to Artificial Intelligence Generated Text: Examining the Prospects and Potential Threats of ChatGPT in Academic Writing," *Biology of Sport* 40, no. 2 (2023): 615–22, <https://doi.org/10.5114/biolSport.2023.125623>.

³⁹ Autumn Hostetter et al., "Student and Faculty Perceptions of Artificial Intelligence in Student Writing," 2023.

⁴⁰ Chung Kwan Lo, "What Is the Impact of ChatGPT on Education? A Rapid Review of the Literature," *Education Sciences* 13, no. 4 (2023): 410.

⁴¹ John V Pavlik, "Collaborating with ChatGPT: Considering the Implications of Generative Artificial Intelligence for Journalism and Media Education," *Journalism & Mass Communication Educator* 78, no. 1 (2023): 84–93.

⁴² Mahmoud Elkhodr et al., "ICT Students' Perceptions towards ChatGPT: An Experimental Reflective Lab Analysis," *STEM Education* 3, no. 2 (2023): 70–88.

⁴³ Beth McMurtrie, "ChatGPT Is Everywhere: Love It or Hate It, Academics Can't Ignore the Already Pervasive Technology.," *The Chronicle of Higher Education* 69, no. 15 (2023): 32–38.

⁴⁴ Rudolph, Tan, and Tan, "ChatGPT: Bullshit Spewer or the End of Traditional Assessments in Higher Education?"

⁴⁵ P. Diwan, C., Srinivasa, S., Suri, G., Agarwal, S. and Ram, "AI-Based Learning Content Generation and Learning Pathway Augmentation to Increase Learner Engagement," *Computers and Education: Artificial Intelligence* 4 (2023): 1–18.

students understand the modus operandi of learning in contemporary times.⁴⁶ Lecturers can also engage ChatGPT to set the template for their questions. In some cases, lecturers can use ChatGPT to draft questions, especially multiple-choice questions of different types. Dijkstra revealed that ChatGPT-3 could outperform other quiz-generating software in terms of efficiency when creating multiple-choice questions with right and wrong answers.⁴⁷ ChatGPT can enable lecturers to develop any assessment tool in tertiary education, thereby creating innovation.⁴⁸ Lecturers who are not native speakers of the English Language can use ChatGPT to structure their notes correctly. With AI tools like ChatGPT, lecturers can render higher-quality instructions to benefit their learners.⁴⁹ In this regard, via ChatGPT, specific tasks that could use up the lecturer's time can be minimized; it allows lecturers to gain adequacy in terms of time for focusing on the adjustment of contents as well as improvement of the quality of assessment items that is more critical and creative.⁵⁰

METHODOLOGY

Research Design

This research adopts a quantitative research approach, and a descriptive research design was used for this study since the variables were not modified as they already existed.

Sampling and sampling procedure

A complete enumeration was adopted as the sampling strategy for this study because the total population can be studied in record time. The population of the respondents is a total of one hundred and twenty students (49 students from the 200 level, 29 students from the 300 level, and 42 students from 400 level students). Hence, data were collected from the Department of Tourism Development, College of Humanities and Culture, Osun State University undergraduate students.

Data Collection Instrument

Data was collected from the respondents using a carefully designed questionnaire. The first instrument was the Undergraduate Plagiarism Practices Questionnaire (UPPQ), while the second instrument was the Undergraduates' Perceptions of Lecturers' Knowledge and Training Questionnaire (UPLKTQ). Test measurement specialists verified the content validity, while the instrument's reliability was ascertained through Cronbach Alpha (α) to measure the internal consistency among the items. A reliability index of 0.77 and 0.7.5 at the 0.05 significance level was obtained from analyzing the generated data using Cronbach alfa.

Ethical Consideration

The researcher obtained permission from the Department of Tourism Development, College of Humanities and Culture, Osun State University. After that, informed consent was sought from undergraduate students who served as respondents. Participants received sufficient information regarding the purpose of the study and the option of quitting at any time because it was optional. The respondents' identities were kept anonymous and confidential.

Data Analysis and Interpretation

The two research questions were answered and analyzed descriptively (percentage and mean).

⁴⁶ K. Fomunyan, "Curriculum Theorising in the Era of the Fourth Industrial Revolution," *African Journal of Inter/Multidisciplinary Studies* 5, no. 1 (2023): 1–17, <https://doi.org/DOI:https://doi.org/10.51415/ajims.v5i1.1320>.

⁴⁷ Jaap. Dijkstra, Ramon. Ge, Zulkuf. Kayal, Subhradeep. Kamps, "Reading Comprehension Quiz Generation Using Generative Pre-Trained Transformers. Aachen. http://Ceur-Ws.Org/Vol-3192/Itb22_p1_full5439.Pdf," 2022.

⁴⁸ Henner Gimpel et al., "Unlocking the Power of Generative AI Models and Systems Such AsGPT-4 and ChatGPT for Higher Education," 2023, <http://opus.uni-hohenheim.de/volltexte/2023/2146/>.

⁴⁹ H. N. Kraugusteliana, K., Indriana, I. H., Krisnanik, E., Muliawati, A., & Irmanda, "Utilization of ChatGPT's Artificial Intelligence in Improving the Quality and Productivity of Lecturers' Work.," *Jurnal Pendidikan Dan Konseling [Journal of Education and Counseling]*, 5, no. 2 (2023): 3245–49.

⁵⁰ Sarin Sok and Kimkong Heng, "Opportunities, Challenges, and Strategies for Using ChatGPT in Higher Education: A Literature Review," *Journal of Digital Educational Technology* 4, no. 1 (January 1, 2024): ep2401, <https://doi.org/10.30935/jdet/14027>.

PRESENTATION OF RESULTS

Research Question 1: To what extent does the emergence of ChatGPT as a tool for academic writing influence plagiarism practices among undergraduate students?

Participants' responses on how ChatGPT's emergence as a tool for academic writing influenced plagiarism practices were subjected to item-by-item analysis using mean statistics. Given that the questionnaire items were structured in a four-response type, a cut-off mean value of 2.50 was used as the baseline for the decision. Thus, items with a mean score equal to or above 2.50 were 'negative' while those with a mean score below 2.50 were 'positive.' The statistics of participants' responses are shown in Table 1.

Table 1: The extent of influence of the ChatGPT tool on plagiarism practices

S/No.	Statement	A (%)	D (%)	Mean
1	The use of ChatGPT encourages plagiarism practices	81 (67.5)	39 (32.5)	3.11
2	I am aware that using ChatGPT can lead to unintentional plagiarism	84 (70.0)	36 (30.0)	3.07
3	I have always used text generated by ChatGPT for academic writing	89 (74.2)	31 (25.8)	2.99
4	Lack of training on ChatGPT affects the avoidance of plagiarism practices	91 (75.8)	29 (24.2)	2.95
5	I am familiar with the concept of plagiarism in the context of ChatGPT	85 (70.9)	35 (29.1)	2.93
6	I prefer ChatGPT due to its speed over independent human writing	91 (75.9)	29 (24.1)	2.92
7	I use the ChatGPT tool for academic writing purposes	97 (80.8)	23 (19.2)	2.91
8	I provide proper attribution when using ChatGPT-generated text in my assignments	96 (80.0)	24 (20.0)	2.88
9	My fellow students employ ChatGPT for academic writing	100 (83.4)	20 (16.6)	2.78
10	ChatGPT is a helpful academic writing tool	108 (90.0)	12 (10.0)	2.45

Source: Author's Field Survey (2024)

In Table 1, the majority of the respondents agreed that the use of ChatGPT encourages plagiarism practices; using ChatGPT can lead to unintentional plagiarism; and undergraduates always used content generated by ChatGPT for academic writing with mean scores of 3.11, 3.07, and 2.99 respectively. Therefore, the ChatGPT tool negatively influences academic writing among undergraduates.

Research Question 2: How do undergraduates perceive lecturers' knowledge and training in identifying plagiarism involving ChatGPT-generated content?

Responses by participants on undergraduates' perceptions of lecturers' knowledge and training on plagiarism ChatGPT-generated content were subjected to item-by-item analysis using mean statistics. Given that the questionnaire items were structured in a four-response type, a cut-off mean value of 2.50 was used as the baseline for the decision. Thus, items with a mean score equal to or above 2.50 were 'true' while those with a mean score below 2.50 were 'false.' The statistics of participants' responses are shown in Table 1.

Table 2: Undergraduates' Perceptions of Lecturers' Knowledge and Training on Plagiarism ChatGPT-generated content

S/No.	Statement	A (%)	D (%)	Mean
1	My lecturers guided me on the ethical considerations of using ChatGPT for academic writing	45 (37.5)	75 (62.5)	2.28
2	Lecturers receive sufficient training on the use of plagiarism detection tools to identify ChatGPT plagiarism	26 (21.6)	94 (78.4)	1.89

3	My lecturers promptly address the issue of plagiarism from ChatGPT	24 (20.0)	96 (80.0)	1.80
4	My lecturers have demonstrated an adequate understanding of the characteristics of ChatGPT-generated content	11 (10.8)	109 (89.2)	1.75
5	My lecturers are knowledgeable about the opportunities and limitations of ChatGPT	24 (20.0)	96 (80.0)	1.75
6	Lecturers have the capacity to differentiate between the original Student's work and content generated by ChatGPT	21 (17.5)	99 (82.5)	1.71
7	My lecturers are equipped with the knowledge to identify plagiarism through ChatGPT-generated content	10 (8.3)	110 (91.7)	1.64

Source: Author's Field Survey (2024)

Table 2 depicts the responses of the participants in this study. A large number agreed that lecturers did not guide them on the ethical considerations of using ChatGPT for academic writing; lecturers did not receive sufficient training on the use of plagiarism detection tools to identify ChatGPT plagiarism; and lecturers did not promptly address the issue of plagiarism from ChatGPT with mean scores of 2.28, 1.89, and 1.80 respectively. As such, lecturers did not have sufficient knowledge and training on plagiarism ChatGPT-generated content.

DISCUSSION

There is no doubt that ChatGPT is a helpful academic writing tool. Alberth opined that ChatGPT has proven to be superior in producing outstanding writing outputs.⁵¹ Based on the fact that ChatGPT is one of the tools that characterizes the 4IR, it is expected that most students in this era will engage ChatGPT for ethical academic writing. Similarly, most students would have used text generated by ChatGPT for academic writing. This is corroborated by Punar, who argued that all the students exhibited their interest and engagement in ChatGPT for educational purposes, and they actively use ChatGPT for different tasks, for instance, to write poems, chat and ask questions, solve mathematical problems, seek help with research and so on.⁵² Chan also noted that all the students engaged in Artificial Intelligence tools for various assignments.⁵³ Information spreads quickly among students because of their use of technology. Most of the respondents are familiar with the concept of plagiarism that emanates from the usage of ChatGPT. The speed with which ChatGPT churns out responses has endeared several students to it. This is premised on the fact that ChatGPT can be used for various academic engagements. This is in agreement with, who stated that ChatGPT can generate scholarly concepts and produce literature reviews, and, hopefully, it will have the capacity to carry out more complex assignments such as the generation of hypotheses, design of research experiments, drafting of articles, and even peer review of scholarly manuscripts.⁵⁴ Most students claimed they provide attribution when using ChatGPT-generated text in their assignments.

Meanwhile, using ChatGPT could unintentionally result in plagiarism. This aligns with Salvagno who noted that reports show that ChatGPT creates write-ups with higher similarity indices with other sources.⁵⁵ Alberth submitted that it is evident that heavily relying on ChatGPT for writing papers (that is, copy-paste-created text) can create copyrighting and attribution issues. Therefore, it encourages plagiarism in different ways.⁵⁶ The fact that most students are not well trained in using ChatGPT ab initio makes them fall victim to plagiarizing with ChatGPT.

How the lecturers assessed students' write-ups with ChatGPT made the students realize that their lecturers are not well equipped to identify plagiarism via ChatGPT-generated content. This means that the

⁵¹ U. Alberth, "The Use Of Chatgpt In Academic Writing: A Blessing Or A Curse In Disguise?," *TEFLIN Journal - A Publication on the Teaching and Learning of English* 34, no. 2 (October 22, 2023): 337–52, <https://doi.org/10.15639/teflinjournal.v34i2/337-352>.

⁵² Nermin Punar Özçelik and Gonca Yangın Ekşi, "Cultivating Writing Skills: The Role of ChatGPT as a Learning Assistant—a Case Study," *Smart Learning Environments* 11, no. 1 (March 18, 2024): 10, <https://doi.org/10.1186/s40561-024-00296-8>.

⁵³ A. Chan, "GPT-3 and Instruct GPT: Technological Dystopianism, Utopianism, and 'Contextual' Perspectives in AI Ethics and Industry," *AI and Ethics* 3 (2022): 53–64, <https://doi.org/https://doi.org/10.1007/s43681-022-00148-6>.

⁵⁴ Eva A. M. van Dis et al., "ChatGPT: Five Priorities for Research," *Nature* 614, no. 7947 (February 9, 2023): 224–26, <https://doi.org/10.1038/d41586-023-00288-7>.

⁵⁵ Salvagno, Taccone, and Gerli, "Can Artificial Intelligence Help for Scientific Writing?"

⁵⁶ Alberth, "THE USE OF CHATGPT IN ACADEMIC WRITING: A BLESSING OR A CURSE IN DISGUISE?"

lecturers do not have a sufficient understanding of the characteristics of ChatGPT-generated content. This contradicts Teherani et al, who reported that higher education institutes and teachers have sounded alarm bells about a high plagiarism risk and cheating when learners engage ChatGPT in preparing or writing essays and exams.⁵⁷ Invariably, this implies that the lecturers do not have adequate training in using plagiarism detection tools to identify ChatGPT plagiarism.⁵⁸ Baidoo- Anu and Ansah posited that several academics have advocated prohibiting these innovations in academic contexts despite their enormous potential and the near-unquestionable reality that they are here to stay.⁵⁹ Some have begun using tools to identify whether staff members or students are ethically utilizing these technologies in their research projects. This assertion must depend upon the lecturers' capacities to differentiate between the original Student's work and content generated by ChatGPT.

Hence, lecturers must teach the students the ethics of using ChatGPT for writing. The lecturers equally need to show they are knowledgeable about the opportunities and limitations of ChatGPT. The lecturers must promptly address students' plagiarism issues from the use of ChatGPT and appropriately guide and correct them.⁶⁰ Ratheeswari further noted that staff member training could ensure that the lecturers support learners and stakeholders instead of replacing what Chatbot/tool offers and enhance confidence in the engagement of technologies.⁶¹ Guiding students appropriately will help students to gain essential knowledge from ChatGPT. Thus, enabling students to engage in innovative technology while learning allows them to gain pertinent 21st-century knowledge.⁶² ChatGPT, a 4IR tool, can be used for different purposes, just like other technological innovations. For instance, Olawuyi noted that a web portal could be used to conduct business transactions by prospective customers, such as booking and sales.⁶³ However, the difference between ChatGPT and other internet-driven innovations is that ChatGPT could enhance people's knowledge about different issues and topics.

RECOMMENDATIONS

There is a need to implement training programmes for faculty members to enhance their awareness and understanding of plagiarism detection in AI-generated content like ChatGPT. There is also a need to develop educational resources and materials specifically focused on teaching students about the ethical use of AI tools in academic contexts to prevent unintentional plagiarism. Higher education institutions must establish institutional policies and guidelines that address the use of AI-generated content in academic work, outlining expectations for proper citation and attribution. There is also a need to incorporate AI-based plagiarism detection software to facilitate the identification of plagiarized content originating from ChatGPT and related tools.

CONCLUSION

It is pertinent to note that there are conflicting perceptions of the pitfalls and the advantages of using ChatGPT in academia. Van Dis et al. contended that many assumed that ChatGPT might improve research performance if used properly, while others thought that disruptive technology innovation would negatively impact academia.⁶⁴ Therefore, there are arguments for and against using ChatGPT in academia, although both arguments harp on correctly and appropriately engaging ChatGPT. Alberth noted that, on the contrary, AI could lead to the maximization of scholarly training, for example, when it offers feedback to aid them in becoming better at writing and thinking.⁶⁵ However, ChatGPT is essentially one of the indicators of the topical issues bordering on the 4IR. Peters argued that the 4IR is based on "cyber-physical

⁵⁷ Arianne Teherani et al., "Choosing a Qualitative Research Approach," *Journal of Graduate Medical Education* 7, no. 4 (2015): 669–70.

⁵⁸ Baidoo-Anu and Ansah (2023)

⁵⁹ Baidoo-Anu, D. and Ansah, "Education in the Era of Generative Artificial Intelligence (AI): Understanding the Potential Benefits of ChatGPT in Promoting Teaching and Learning."

⁶⁰ Teherani et al., "Choosing a Qualitative Research Approach."

⁶¹ K. Ratheeswari, "Information Communication Technology in Education," *Journal of Applied and Advanced Research* 3, no. 1 (2018): 45–47, <https://doi.org/https://doi.org/10.21839/jaar.2018.v3S1.169>.

⁶² Ratheeswari, "Information Communication Technology in Education."

⁶³ Olawuyi Olakunle Shakur, Jimoh Sikiru Abiola, and Bukola Olorunniyi, "Sustainable Tourism Development Through Modern Information Systems (Case Study: Trans Amusement Park)," *Library Philosophy & Practice*, 2017.

⁶⁴ van Dis et al., "ChatGPT: Five Priorities for Research."

⁶⁵ Alberth, "The Use Of Chatgpt In Academic Writing: A Blessing Or A Curse In Disguise?"

systems," which offer system impact, velocity, and scope.⁶⁶ From the findings of this study, it is clear that ChatGPT has an immense influence on entrenching plagiarism among undergraduate students. The lack of adequate training about the usage of ChatGPT has resulted in tonnes of plagiarized write-ups from undergraduate students who used ChatGPT. The study also revealed that the lecturers do not have sufficient training in the detection of ChatGPT-generated content. Unsurprisingly, the 4IR has attendant advantages and pitfalls; hence, ChatGPT has apparent pitfalls, such as plagiarism, that could be easily addressed via appropriate training and mentoring.

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⁶⁶ M. A. Peters, "Technological Unemployment: Educating for the Fourth Industrial Revolution," in *The Chinese Dream: Educating the Future*, ed. M. A. Peters (Routledge, 2019).

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ABOUT AUTHOR

John Olayemi Okunlola (PhD) is a Senior Postdoctoral research fellow in the Department of Education Leadership and Management, University of Johannesburg, South Africa. His research interests include quality assurance in education, human resource management, educational policy, conflict management, and leading in the Fourth Industrial Revolution (4IR).