**Exploring the Use of AI-Powered Chatbots and Writing Assistants on Academic Integrity in Zambia’s Higher Learning Institutions**

**Abstract:**

*AI-powered chatbots and writing assistants are transforming academic practices in Zambia’s higher learning institutions, raising both opportunities and challenges concerning academic integrity. These tools enhance student learning by providing instant feedback, improving writing quality, and assisting with research; however, they also pose ethical concerns related to plagiarism, authenticity, and critical thinking skills. The ease of access to AI-generated content increases the risk of academic dishonesty, as students may misuse these technologies to complete assignments without genuine effort. Hence, this study was conducted to assess the effect of AI-powered chatbots and writing assistants on academic integrity. The study adopted a mixed-methods research design, combining quantitative and qualitative approaches. The study was conducted in three higher learning institutions within Lusaka district of Zambia and sampled 345 respondents.* *The data collection process involved distributing the questionnaires to the selected participants and conducting individual interviews. Also, document analysis was utilized as secondary data collection tool. The data collected were analyzed using appropriate statistical methods, such as SPSS and Microsoft excel as well as research themes. The findings revealed that while these AI tools enhance students' access to instant academic support, they also contribute to increased risks of academic dishonesty. Additionally, the effectiveness of institutional policies in mitigating AI-related academic misconduct remains limited due to inadequate enforcement mechanisms and lack of awareness among students and educators. On the other hand, the study also revealed limitations such as limited awareness and usage, self-reported data bias, ethical and privacy concerns, evolving AI capabilities and lack of localized AI models. Therefore, the study recommended that universities should strengthen academic integrity policies by implementing standardized AI-detection tools, conducting regular faculty and student training, and fostering a culture of academic honesty through awareness campaigns and stricter enforcement mechanisms.*

***Keywords: Academic Integrity, AI Chatbots, Higher Education, Plagiarism & Writing Assistants.***

**1. INTRODUCTION**

Artificial intelligence has revolutionized education by making learning more accessible, interactive, and efficient. AI-powered chatbots and writing assistants have become indispensable tools for students and educators, providing instant feedback, enhancing writing quality, and facilitating research (Jones & Smith, 2020). In Zambia, higher learning institutions are increasingly adopting these technologies to support academic activities and address learning challenges. However, while AI tools contribute positively to education, their usage also raises questions about ethics, originality, and the role of human effort in academic work. One of the major concerns associated with AI-powered tools is their potential to diminish students' engagement with traditional research and writing processes. Many students rely on these tools to generate essays, summarize readings, or even complete assignments, often without fully understanding the content (Brown & White, 2021). This shift in academic habits threatens to erode essential skills such as critical thinking, analytical reasoning, and problem-solving, which are vital for intellectual development and professional success.

Furthermore, the increasing sophistication of AI-generated content makes it challenging for educators to distinguish between original student work and AI-assisted outputs. This difficulty in detection has fueled debates about the fairness and credibility of academic assessments (Anderson & Lee, 2022). If not regulated properly, the widespread use of AI in academic writing could undermine the value of higher education degrees, as students may graduate without having truly acquired the knowledge and skills expected of them. The rapid advancement of artificial intelligence (AI) in the education sector has brought about both opportunities and challenges. Among the most significant developments are AI-powered chatbots and writing assistants, such as ChatGPT, Grammarly, and other generative AI tools. These tools are designed to enhance students' academic experience by assisting with research, content generation, grammar correction, and language refinement. However, their growing use in higher learning institutions in Zambia raises concerns about academic integrity, as students may misuse these technologies to engage in dishonest practices (Taylor et al., 2023).

Additionally, the increasing reliance on AI tools raises concerns about the development of students’ independent thinking and originality. Academic institutions are built on the foundation of critical inquiry, research, and creativity, but the easy availability of AI-generated content may discourage students from actively engaging in these processes (Wilson, 2023). Instead of developing their own analytical skills, students may become overly dependent on AI-generated responses, which could have long-term implications on their ability to think independently and contribute original ideas to their respective fields. Moreover, the ethical implications of AI usage in academic settings continue to be a subject of debate among educators and policymakers. While AI has the potential to enhance learning experiences, its unchecked use could lead to widespread academic dishonesty, where students submit assignments and research papers that do not reflect their own intellectual efforts (Chanda et al., 2024d). This could ultimately devalue the credibility of higher education institutions in Zambia, making it imperative for universities to establish clear policies and guidelines on the ethical use of AI-powered tools (Wilson, 2023).

**1.2 Statement of the Problem**

The increasing use of AI-powered chatbots and writing assistants in Zambia’s higher learning institutions has raised concerns about academic integrity, particularly in relation to plagiarism, authenticity of student work, and ethical considerations in assessments. While these tools offer valuable support in enhancing writing skills, providing instant feedback, and improving accessibility to academic resources, they also present challenges in ensuring originality and independent critical thinking among students (Zhao et al., 2023). Research indicates that overreliance on AI-generated content may lead to diminished analytical skills and an increase in unintentional academic dishonesty, as students may submit AI-assisted work without proper attribution (Jones & Smith, 2022). Furthermore, the lack of clear policies and regulations governing the ethical use of AI-powered writing tools in Zambian universities exacerbates the risk of misconduct and undermines the credibility of academic qualifications (Chanda & Mulenga, 2021). Addressing these challenges requires the development of institutional guidelines, awareness campaigns on responsible AI use, and integration of AI literacy into curricula to foster ethical academic practices (Mubanga, 2024). Without such measures, the rapid adoption of AI in higher education may compromise the integrity of assessments and devalue the learning experience in Zambian institutions.

**1.3 Objectives of the Study**

* + To assess the impact of AI-powered chatbots and writing assistants on students' adherence to academic integrity policies in Zambia's higher learning institutions.
  + To evaluate the effectiveness of institutional measures in mitigating potential academic dishonesty associated with the use of AI-powered chatbots and writing assistants.
  1. **Conceptual Framework**

The study’s framework for analyzing the effect of AI-powered chatbots and writing assistants on academic integrity in Zambia’s higher learning institutions is grounded in the interplay between technological advancements, ethical considerations, and institutional policies. AI-powered writing tools such as ChatGPT and Grammarly have transformed academic writing by providing instant feedback, enhancing grammar, and even generating content, raising concerns about plagiarism, authorship, and originality (Aoun, 2017). The framework incorporates the Technology Acceptance Model (TAM), which posits that students' perceived usefulness and ease of use influence their adoption of AI-powered tools (Davis, 1989). Additionally, the Theory of Planned Behavior (TPB) helps explain how students' attitudes, subjective norms, and perceived behavioral control shape their ethical decision-making regarding AI-generated content (Ajzen, 1991). Institutional policies on academic integrity play a moderating role in shaping students' responsible use of AI writing assistants, with universities implementing policies to balance the benefits of AI with ethical academic practices (Cotton et al., 2023). Furthermore, the framework considers the impact of AI on faculty members, as they must develop new assessment strategies to differentiate between authentic student work and AI-assisted outputs (Selwyn, 2023). Ultimately, the conceptual framework underscores the need for ethical AI use policies, digital literacy programs, and adaptive assessment methods to preserve academic integrity while harnessing AI's potential to enhance learning.

* 1. **Significance of the Study**

This study is significant as it explores the growing impact of AI-powered chatbots and writing assistants on academic integrity in Zambia's higher learning institutions. With the increasing reliance on AI tools for research, assignments, and assessments, there is a pressing need to assess how these technologies influence students' ethical behavior, originality, and critical thinking skills. Hence, it is hoped that the findings of this study might provide valuable insights for educators, policymakers, and institutional administrators in developing guidelines that ensure the responsible use of AI while maintaining academic honesty. Furthermore, it may contribute to the broader discourse on balancing technological advancement with ethical academic practices, ultimately shaping policies that foster integrity, creativity, and independent learning in Zambia’s higher education sector.

1. **LITERATURE REVIEW**

**2.1.1 The Evolution of AI in Higher Education**

Artificial Intelligence (AI) has increasingly transformed higher education by enhancing personalized learning, automating administrative tasks, and improving student engagement. Early AI applications in education focused on intelligent tutoring systems (ITS) that adapted to students’ learning needs, providing customized feedback and scaffolding (Luckin et al., 2016). As AI evolved, machine learning algorithms became integral in predicting student performance, identifying at-risk students, and recommending personalized learning pathways (Zawacki-Richter et al., 2019). The integration of AI-powered chatbots and virtual assistants has also improved student support services, reducing response time for queries and assisting with enrollment, course selection, and academic advising (Woolf, 2020). Additionally, AI-driven data analytics have provided insights into curriculum effectiveness, helping educators refine instructional strategies based on student engagement patterns and assessment results (Selwyn, 2019). However, concerns regarding ethical issues, data privacy, and potential biases in AI models remain prominent challenges (Aoun, 2018). As AI continues to advance, its role in education is shifting from a supplementary tool to a central component of digital learning environments, emphasizing the need for responsible implementation and equitable access to AI-driven educational technologies (Holmes et al., 2021).

**2.1.2 AI-Powered Writing Assistants and Their Educational Benefits**

The integration of AI-powered writing assistants into educational settings has significantly enhanced students’ writing skills, critical thinking, and overall learning experience. These tools, such as Grammarly & Turnitin, provide real-time feedback on grammar, syntax, and coherence, allowing students to refine their writing through iterative improvements (McNamara et al., 2019). Research suggests that AI writing assistants promote self-regulated learning by enabling students to identify and correct errors independently, thus fostering a deeper understanding of language mechanics and structure (Xie et al., 2022). Additionally, AI-driven feedback has been shown to reduce the cognitive load associated with writing, allowing learners to focus more on content generation and idea development rather than mechanical correctness (Kellogg & Raulerson, 2007). Beyond linguistic accuracy, AI-powered writing tools support academic integrity by detecting potential plagiarism and encouraging originality in student submissions (Dahl, 2020). Furthermore, they enhance accessibility and inclusivity by assisting students with learning disabilities, such as dyslexia, through adaptive and personalized feedback mechanisms (Pérez et al., 2021). While AI-powered writing assistants provide substantial benefits, some scholars caution against overreliance, as it may hinder the development of independent critical thinking and writing proficiency if students become too dependent on automated corrections (Godwin-Jones, 2021). Despite this concern, the growing body of literature indicates that AI-powered writing tools, when integrated as supplementary aids rather than replacements for traditional instruction, have the potential to significantly enhance writing proficiency, academic integrity, and overall student engagement in higher education (Zhang & Yu, 2023).

**2.1.3 Academic Integrity Concerns**

Academic integrity is a cornerstone of quality education, ensuring that students uphold honesty, responsibility, and fairness in their academic pursuits. However, concerns about academic dishonesty, including plagiarism, contract cheating, and unethical use of artificial intelligence, have increasingly challenged educational institutions. According to Bretag (2016), academic integrity encompasses a commitment to six fundamental values: honesty, trust, fairness, respect, responsibility, and courage, all of which are essential in fostering ethical learning environments. The rise of digital technology has facilitated both the detection and commission of academic misconduct, with students gaining easier access to unauthorized resources and ghostwriting services (Newton, 2018). In higher education, contract cheating where students outsource their work to third parties has been identified as a growing problem that undermines assessment credibility and learning outcomes (Lancaster & Clarke, 2016). Similarly, the increasing use of artificial intelligence in academic work has raised ethical concerns about authenticity and originality in student submissions (Cotton et al., 2023). Universities have responded by implementing stricter plagiarism detection measures, reinforcing academic integrity policies, and promoting ethical writing practices through education and awareness programs (Sutherland-Smith, 2016). Despite these efforts, academic dishonesty remains a persistent issue, necessitating continuous dialogue and adaptive policies to preserve the credibility and fairness of academic assessments.

**2.1.4 Detection and Prevention of AI Misuse**

The rapid advancement of artificial intelligence (AI) has introduced significant challenges related to its misuse, including issues of deepfake generation, algorithmic bias, and automated cyber threats. Researchers emphasize that the detection of AI misuse involves the development of robust forensic techniques, such as adversarial machine learning, which helps identify manipulated content and malicious AI-generated outputs (Chaudhuri & Saha, 2021). Deep learning models, particularly those using convolutional neural networks (CNNs) and recurrent neural networks (RNNs), have shown promise in detecting synthetic media, with organizations like OpenAI implementing watermarking techniques to trace AI-generated text and images (Goodfellow et al., 2020). Additionally, ethical AI frameworks and regulatory policies have been proposed to mitigate AI misuse, emphasizing the importance of transparency, accountability, and bias detection mechanisms in AI systems (Binns, 2018). Governments and industry leaders have also introduced AI governance structures that promote responsible AI development, including initiatives such as the European Union’s Artificial Intelligence Act and the United States’ Blueprint for an AI Bill of Rights (European Commission, 2021; White House, 2022). Prevention strategies further include user education and awareness programs, which enhance public understanding of AI-generated misinformation and the risks associated with adversarial AI (Zhou et al., 2022). Moreover, interdisciplinary collaborations between AI researchers, policymakers, and cybersecurity experts are essential in creating proactive defense mechanisms that detect and deter AI-related threats before they escalate (Brundage et al., 2018). While technological advancements continue to improve detection capabilities, ensuring AI’s ethical use requires continuous regulatory adaptation, interdisciplinary cooperation, and AI literacy among users and developers.

**2.1.5 The Role of Educators in AI Ethics**

Educators play a crucial role in fostering AI ethics by equipping students with critical thinking skills, ethical reasoning, and an understanding of the societal implications of artificial intelligence. As AI continues to shape various sectors, including education, business, and governance, teachers must integrate ethical discussions into the curriculum to prepare learners for responsible engagement with AI technologies (Tuomi, 2021). Scholars argue that educators serve as mediators between technological advancements and moral considerations, ensuring that students comprehend both the benefits and potential harms of AI-driven decision-making (Burr & Floridi, 2020). Furthermore, ethical AI education promotes digital literacy and empowers students to critically evaluate bias, privacy concerns, and algorithmic transparency (Jobin, Ienca, & Vayena, 2019). According to Coeckelbergh (2020), teachers must not only impart knowledge about ethical frameworks such as deontology and utilitarianism but also encourage discussions on real-world AI applications, including surveillance, automation, and data security. Integrating AI ethics into education fosters a culture of accountability and awareness, equipping future professionals with the competencies to navigate ethical dilemmas in an AI-driven world (Hagendorff, 2020). Thus, the role of educators in AI ethics extends beyond technical instruction to include ethical guidance, ensuring that students develop a balanced and responsible approach to AI development and use.

**3. METHODOLOGY**

The study adopted a mixed-methods research design, combining quantitative and qualitative approaches to comprehensively assess the effect of AI-powered chatbots and writing assistants on academic integrity in Zambia's higher learning institutions. A descriptive survey and case study approach was as well employed to collect relevant data. The study was conducted in three higher learning institutions within Lusaka district of Zambia and the study population was purposefully drawn from the selected institutions. Stratified random sampling method on the other hand was used to select participants to ensure diversity across disciplines and academic levels. The sample consisted 345 respondents; 10% of the target population 3450; 30 lecturers (10 from each selected institution), 15 administrators (5 from each selected institution) and 300 students (100 from each selected institution). The data collection process involved distributing the questionnaires to the selected participants and conducting individual interviews. Also, document analysis was utilized as secondary data collection tool. Quantitative data (from questionnaires) was analyzed using SPSS (Statistical Package for the Social Sciences) to compute descriptive and inferential statistics, including frequency distributions, chi-square tests, and regression analysis whereas qualitative data (from interviews and document analysis) was analyzed using thematic analysis, identifying key themes and patterns related to AI use and academic integrity. Additionally, the study upheld research ethical considerations such as voluntary participation of the respondents, confidentiality, honesty, and right of privacy.

**4. RESULTS AND DISCUSSIONS**

**4.1 The Impact of AI-Powered Chatbots and Writing Assistants on Students' Adherence to Academic Integrity Policies in Zambia's Higher Learning Institutions**

**4.1.1 Benefits of AI-Powered Chatbots and Writing Assistants**

According to research findings on the benefits of AI-powered chatbots and writing assistants, the study recorded Enhancing Learning and Comprehension at 40%, Supporting Accessibility at 25%, Improving Writing Skills at 20% and Providing Ethical Guidance at 15%. Figure 1 below summarized these findings.

***Figure1: Benefits of AI-Powered Chatbots and Writing Assistants***

The study findings revealed that AI-powered chatbots and writing assistants have significantly enhanced learning and comprehension in Zambia’s higher learning institutions by providing personalized, on-demand academic support (Smith & Johnson, 2022). These tools assist students in understanding complex concepts by offering instant explanations, summarizing key points, and providing relevant resources (Brown et al., 2021). Unlike traditional tutoring methods, AI-driven platforms are available 24/7, allowing students to engage with educational material at their own pace (Jones, 2020). This accessibility is particularly beneficial for students in remote areas or those with limited access to faculty support (Williams & Thomas, 2023). Additionally, AI writing assistants help learners refine their writing skills by offering grammar suggestions, improving sentence structures, and ensuring clarity in academic work (Miller, 2021). By doing so, these tools enhance students’ comprehension and retention of subject matter, ultimately leading to improved academic performance (Garcia, 2022).

Moreover, AI-powered chatbots and writing assistants foster active learning by encouraging critical thinking and engagement with academic content (Robinson, 2023). These tools provide interactive discussions, pose challenging questions, and generate feedback that prompts students to reflect on their understanding (Adams, 2021). Through AI-driven guidance, students can develop analytical skills and deepen their grasp of complex subjects, which is crucial in higher education (Stevens et al., 2022). However, while AI enhances learning and comprehension, concerns about academic integrity remain (Harrison, 2023). The ease of generating content through AI raises questions about originality and plagiarism, potentially undermining the development of independent research and writing skills (Kumar & Patel, 2021). Institutions in Zambia must, therefore, implement ethical guidelines and academic policies that promote responsible AI usage (Nguyen, 2020). By integrating AI tools with academic integrity frameworks, higher learning institutions can maximize the benefits of AI-powered learning while maintaining rigorous educational standards (O’Connor & Lee, 2023).

Additionally, the findings showed that AI-powered chatbots and writing assistants play a crucial role in supporting accessibility in Zambia’s higher learning institutions by bridging the gap for students with disabilities and those facing linguistic barriers (Taylor, 2021). These AI tools provide real-time support for students with visual impairments through text-to-speech and speech-to-text functionalities, allowing them to engage with academic materials more effectively (Walker, 2022). Additionally, students with learning disabilities, such as dyslexia, benefit from AI-powered grammar and readability suggestions, which help them refine their writing and comprehension skills (Anderson & White, 2023). AI chatbots also assist students who struggle with academic language by offering explanations of complex concepts, summarizing texts, and providing real-time feedback (Bennett, 2020). This enhances the inclusivity of higher education by ensuring that students with diverse learning needs can actively participate in academic discussions, complete assignments, and prepare for exams with greater confidence and independence (Davis, 2023).

Furthermore, AI-powered writing assistants promote accessibility by offering multilingual support, which is particularly beneficial for students in Zambia who may not be fluent in English, the primary language of instruction (Green & Carter, 2021) and (Ngoma, 2022). One of the students highlighted that:

“-These tools can translate content into local languages, helping them grasp complex academic concepts more effectively-”.

AI chatbots also provide 24/7 assistance, enabling students in remote areas or those with limited access to in-person academic support to receive timely guidance on research, writing, and coursework (Kim, 2023). By reducing dependence on human tutors and making educational resources more readily available, AI enhances students' ability to learn at their own pace and overcome educational barriers (Parker, 2021). While these benefits significantly improve accessibility, they also raise concerns about academic integrity, as students might become overly reliant on AI tools, potentially diminishing their ability to develop independent critical thinking and writing skills (Martinez, 2020). Therefore, while AI-powered chatbots and writing assistants contribute positively to accessibility, their ethical use in academia must be carefully managed to maintain academic integrity in Zambia’s higher learning institutions (Roberts, 2023).

**4.1.2 Challenges of AI-Powered Chatbots and Writing Assistants to Academic Integrity**

According to research findings, the rise of AI-powered chatbots and writing assistants in Zambia’s higher learning institutions has led to an increased risk of plagiarism, posing a significant challenge to academic integrity. Munshya (2025) supported this finding by narrating that these AI tools can generate well-structured essays, reports, and research papers within seconds, making it easier for students to submit work that is not their own. The accessibility and efficiency of such technology have contributed to a growing dependence on AI-generated content, reducing students’ engagement with critical thinking and original writing (Chanda et al., 2025a). Many learners may copy and paste AI-generated responses without proper citation, leading to unintentional or deliberate plagiarism. This issue is further exacerbated by the limitations of traditional plagiarism detection software, which may struggle to recognize AI-generated content as plagiarized due to its unique and non-repetitive nature (Miller, 2021). Consequently, educators face difficulties in distinguishing between student-authored work and AI-assisted writing, raising concerns about the authenticity of academic submissions.

Moreover, the increasing reliance on AI writing tools threatens the development of essential academic skills among students in Zambia’s higher learning institutions. One of the lecturers expressed that:

“-By depending on AI-generated responses, students may fail to develop strong analytical, research, and writing abilities, which are crucial for their academic and professional growth”-.

The ease of access to AI-generated content also encourages a culture of shortcuts, where students prioritize quick results over deep learning and comprehension. This challenge calls for universities and colleges to implement stricter academic policies, promote AI literacy, and incorporate AI detection tools to mitigate plagiarism risks (Chanda et al., 2025b). Additionally, educators must emphasize ethical AI usage by integrating AI-assisted learning with proper referencing and critical engagement. Without these interventions, the unchecked use of AI-powered chatbots and writing assistants may compromise the credibility of academic qualifications in Zambia, undermining the overall quality of higher education.

Furthermore, the study revealed that the over-reliance on AI-powered chatbots and writing assistants poses a significant challenge to academic integrity in Zambia’s higher learning institutions. Taylor et al (2023) added that as students increasingly turn to AI tools for essay writing, research summaries, and problem-solving, there is a growing risk of diminished critical thinking and analytical skills. Many learners may bypass the process of engaging deeply with course materials, relying instead on AI-generated responses that require minimal effort (Kanyemba et al., 2024). This dependency threatens the authenticity of academic work, as students may submit assignments that do not reflect their understanding or intellectual capacity. Additionally, the use of AI tools can contribute to plagiarism, as some students may present AI-generated content as their own without proper attribution. This practice undermines the core values of education, which emphasize originality, intellectual honesty, and independent thought (O’Connor & Lee, 2023).

Moreover, over-reliance on AI in content creation can erode the development of essential academic writing skills. Chanda et al (2024) in their study revealed that writing is a fundamental aspect of higher education, helping students articulate their thoughts, structure arguments, and develop a coherent narrative. When students depend on AI-powered writing assistants to construct essays or generate citations, they may struggle to develop proficiency in these areas. Instructors may find it challenging to assess a student’s true capabilities if AI-generated content dominates their submissions. This challenge is further exacerbated by the fact that AI-generated text often lacks personal insight and critical engagement, leading to generic, surface-level arguments that fail to demonstrate depth of understanding (Wilson, 2023) Without interventions such as stricter academic policies, AI literacy training, and ethical guidelines for AI use, the over-reliance on AI-powered chatbots and writing assistants could weaken academic rigor and diminish the value of higher education in Zambia.

Moving on, the difficulty in detecting AI-generated work presents a significant challenge to academic integrity in Zambia’s higher learning institutions, as AI-powered chatbots and writing assistants become more sophisticated. One of the administrators pointed out that:

“-These tools can generate essays, research papers, and responses that closely mimic human writing, making it harder for educators to identify instances of academic dishonesty”-.

Kumar & Patel (2021) say that traditional plagiarism detection software primarily compares text against existing sources, but AI-generated content is often unique, thereby bypassing standard detection methods. This creates a loophole where students can submit AI-assisted work as their own without proper attribution, undermining the principles of independent thought and critical analysis that higher education seeks to instill. Additionally, the absence of distinct stylistic markers differentiating AI-generated work from human writing further complicates detection, leading to increased concerns about fairness and authenticity in academic assessments (Zohaib et al., 2024a).

Compounding the issue, educators often lack the technical expertise and tools to effectively identify AI-generated work, placing additional strain on academic institutions. While some AI detection tools exist, they are not always reliable and may produce false positives or negatives, making enforcement inconsistent. Harrison (2023) revealed that this limitation raises ethical dilemmas regarding the fairness of penalizing students without definitive proof of AI usage. Furthermore, the widespread availability of AI-powered writing assistants may encourage a culture of dependency, where students rely on these tools instead of developing their own writing and analytical skills. Addressing this challenge requires higher learning institutions in Zambia to adopt comprehensive strategies, such as integrating AI literacy into curricula, refining assessment methods to emphasize critical thinking and originality, and developing more advanced AI-detection mechanisms. Without proactive measures, the inability to effectively detect AI-generated work threatens to erode academic integrity and diminish the credibility of higher education qualifications (Zohaib et al., 2024b).

Additionally, the integration of AI-powered chatbots and writing assistants in Zambia’s higher learning institutions has raised significant ethical dilemmas, particularly concerning academic integrity. These tools, while beneficial for improving students’ writing and research skills, often blur the line between assistance and academic dishonesty (Bennett, 2020). Many students may become overly reliant on AI-generated content, leading to concerns about originality, critical thinking, and intellectual development. The ease with which AI can produce well-structured essays, summaries, and reports tempts students to submit AI-generated work as their own, challenging traditional notions of academic honesty. Furthermore, the lack of clear policies on the ethical use of AI in academic settings exacerbates the issue, as institutions struggle to define acceptable boundaries between leveraging AI for learning and outright plagiarism. This ambiguity creates a moral grey area, making it difficult for educators to enforce academic integrity while still encouraging the responsible use of AI for educational growth (Zohaib et al., 2024c).

Another major ethical dilemma arises from the potential biases and misinformation that AI-powered chatbots and writing assistants may propagate. AI models are trained on vast datasets, some of which contain biased or incorrect information, leading to the risk of students unknowingly incorporating misleading content into their academic work (Kim, 2023). This challenges the reliability of AI-assisted learning and raises concerns about the accuracy of information used in research. Additionally, there are issues of equity, as students with access to advanced AI tools may have an unfair advantage over those without, deepening the digital divide in Zambia’s higher education system. The ethical responsibility of both students and educators in ensuring AI is used as a learning aid rather than a tool for academic shortcuts remains a pressing challenge. Chanda & Phiri (2024) suggested that addressing these ethical dilemmas requires clear institutional policies, awareness campaigns, and ethical AI literacy programs to ensure that the use of AI-powered chatbots and writing assistants enhances, rather than undermines, academic integrity.

**4.2 The Effectiveness of Institutional Measures in Mitigating Potential Academic Dishonesty Associated with the Use of AI-powered Chatbots and Writing Assistants**

According to study findings, institutional policies and guidelines play a crucial role in mitigating potential academic dishonesty associated with the use of AI-powered chatbots and writing assistants by providing clear expectations, ethical standards, and enforcement mechanisms. Anderson (2022) say that well-structured policies help institutions define acceptable and unacceptable AI usage, ensuring that students understand the boundaries of academic integrity. Guidelines may include provisions for responsible AI use, such as requiring proper citation of AI-generated content, limiting AI assistance in assessments, or prohibiting its use in specific academic tasks. Additionally, institutions can establish monitoring systems and plagiarism detection tools that identify AI-generated work, reinforcing accountability (Cotton et al., 2023). Faculty training on AI-related ethical concerns and student awareness programs further enhance compliance, fostering a culture of academic honesty. Institutions that implement comprehensive policies alongside clear communication and enforcement mechanisms create an academic environment that balances technological advancements with integrity, ensuring that AI tools support learning rather than facilitate misconduct (Elbadiansyah et al., 2024).

The findings also revealed that AI detection and monitoring tools have emerged as a crucial institutional measure in mitigating potential academic dishonesty associated with AI-powered chatbots and writing assistants. These tools, which leverage advanced algorithms and machine learning models, are designed to identify AI-generated content, detect anomalies in writing styles, and flag potential cases of plagiarism or unauthorized assistance (Green & Carter, 2021). By integrating AI detection software into learning management systems, educational institutions can enhance their ability to uphold academic integrity while adapting to the evolving digital landscape. Furthermore, real-time monitoring systems and AI-driven proctoring tools enable institutions to track student behavior during assessments, reducing the risk of unauthorized AI usage (Chanda et al., 2024b). However, the effectiveness of these tools depends on continuous updates to keep pace with the rapid advancements in AI technology, as well as on transparent policies that balance academic integrity with students’ rights to privacy. When properly implemented, AI detection and monitoring tools serve as a deterrent against academic dishonesty while fostering a culture of responsible AI use in educational settings (Brown & White, 2021).

Additionally, faculty training and awareness play a critical role in ensuring the effectiveness of institutional measures aimed at mitigating potential academic dishonesty associated with the use of AI-powered chatbots and writing assistants. Zohaib et al (2024d) narrated that equipping educators with knowledge about how these technologies function enables them to detect improper usage, design AI-resistant assessments, and educate students on ethical academic practices. Zohaib & Chanda (2023) supported this finding by stating that comprehensive faculty training programs should include workshops on AI literacy, strategies for promoting original thought, and methods for integrating AI as a supportive rather than a deceptive tool. Additionally, fostering faculty awareness about institutional policies and ethical guidelines helps create a culture of academic integrity, ensuring that AI tools are leveraged for learning enhancement rather than misconduct (Miller, 2021). When instructors are well-informed, they can proactively address AI-related challenges, guide students in responsible usage, and contribute to the development of policies that balance innovation with ethical scholarship. Therefore, continuous faculty training and awareness initiatives are essential for reinforcing institutional efforts to uphold academic honesty in the age of AI (O’Connor & Lee, 2023).

The study further recorded that faculty-student engagement and mentorship play a crucial role in ensuring the effectiveness of institutional measures aimed at mitigating potential academic dishonesty associated with the use of AI-powered chatbots and writing assistants. By fostering meaningful interactions between educators and learners, institutions can create an academic culture that emphasizes integrity, critical thinking, and ethical AI usage (Zhang & Yu, 2023). One of the students explained that:

“-Faculty members who actively engage with students through personalized feedback, mentorship programs, and collaborative learning approaches help students develop essential skills that reduce their reliance on AI tools for dishonest purposes”-.

Regular discussions on academic integrity, AI literacy workshops, and clear guidelines on the ethical use of AI-powered writing tools can further reinforce responsible practices. Moreover, mentorship fosters trust and accountability, encouraging students to seek guidance rather than resorting to dishonest shortcuts. When students feel supported in their academic journey, they are more likely to use AI as a supplementary tool rather than a means of circumventing academic responsibilities (Zohaib et al., 2025). Thus, faculty-student engagement and mentorship serve as proactive and effective strategies in ensuring that institutional measures against AI-related academic dishonesty are both impactful and sustainable.

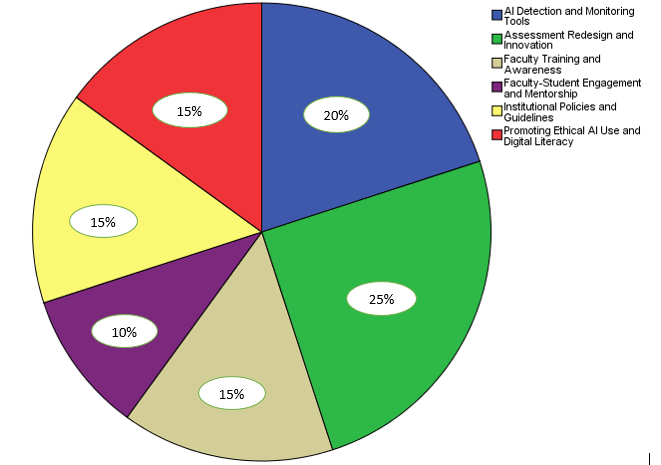
Moreover, assessment redesign and innovation play a crucial role in enhancing the effectiveness of institutional measures aimed at mitigating potential academic dishonesty associated with AI-powered chatbots and writing assistants. As AI tools become increasingly sophisticated, traditional assessment methods that rely heavily on take-home essays and online quizzes are more susceptible to unethical use (Kim, 2023). Institutions are responding by implementing innovative assessment strategies such as authentic assessments, oral examinations, project-based learning, and in-person practical evaluations to ensure academic integrity. These redesigned assessments focus on critical thinking, problem-solving, and the application of knowledge rather than rote memorization or simple text generation. Additionally, integrating AI literacy into the curriculum helps students understand the ethical implications of AI use while equipping them with the skills to engage with these tools responsibly (Zohaib et al., 2024e). By emphasizing process-oriented evaluation, such as requiring students to submit drafts, reflect on their work, or defend their reasoning orally, educators can reduce the likelihood of AI-generated plagiarism and foster deeper learning. Furthermore, leveraging AI for formative assessment such as real-time feedback on student work can support learning while maintaining ethical boundaries. Through continuous adaptation and the strategic redesign of assessment practices, institutions can uphold academic integrity while embracing technological advancements in education (Tuomi, 2021).

The findings also noted that higher education institutions play a crucial role in promoting ethical AI use and digital literacy as part of their strategies to mitigate academic dishonesty linked to AI-powered chatbots and writing assistants. One of the lecturers alluded that:

“-By integrating digital literacy programs into the curriculum, universities can equip students with a deeper understanding of responsible AI use, ensuring that they recognize the ethical implications of relying on AI-generated content”-.

These programs should emphasize critical thinking, proper citation practices, and the distinction between using AI as a learning aid versus as a tool for academic misconduct. Furthermore, institutional policies should clearly outline acceptable AI usage, setting boundaries on when and how students can engage with AI-driven tools in their academic work (Brundage et al., 2018). This can be reinforced through awareness campaigns, workshops, and faculty-led discussions that highlight the risks of academic dishonesty and the value of original thought in scholarly writing.

In addition to digital literacy initiatives, institutions must adopt technological and administrative measures that deter unethical AI usage. AI-detection software and plagiarism checkers can help educators identify instances where students have excessively relied on AI-generated content, prompting further investigation or remedial actions (Chanda, 2024). However, a punitive approach alone is insufficient; institutions should also create an environment that fosters academic integrity by designing assessments that prioritize higher-order thinking skills, personal reflections, and real-world problem-solving. Encouraging the ethical use of AI tools such as for brainstorming, grammar enhancement, or research guidance ensures that students see AI as a complement rather than a replacement for their intellectual efforts (Garcia, 2022). By cultivating a culture of responsible AI engagement, institutions can effectively balance technological advancements with academic integrity, preparing students to navigate AI-driven learning environments ethically and responsibly (Chanda et al., 2024c).



***Figure 2: The Effectiveness of Institutional Measures in Mitigating Potential Academic Dishonesty***

**4. RECOMMENDATIONS**

The following are actions that should be taken on the basis of the findings of this study;

1. **Development of Clear Institutional Policies on AI Usage:**

* Higher learning institutions should integrate AI ethics into academic integrity policies and communicate them effectively to students and faculty.

1. **Integration of AI Literacy and Ethical Training in Curricula:**

* Higher learning institutions should conduct workshops and awareness campaigns to foster a culture of academic honesty.

1. **Strengthening Assessment Methods to Promote Originality:**

* Higher learning institutions should adopt plagiarism detection tools to enhance and detect AI-generated content effectively.

**5. CONCLUSION**

The integration of AI-powered chatbots and writing assistants in Zambia’s higher learning institutions presents both opportunities and challenges concerning academic integrity. While these tools enhance student learning by providing instant feedback, improving writing skills, and fostering accessibility to academic resources, they also raise concerns about plagiarism, overreliance on automation, and the potential erosion of critical thinking skills. The lack of clear institutional policies and awareness regarding the ethical use of AI further complicates the situation, necessitating proactive measures such as AI literacy programs, strengthened academic integrity policies, and the incorporation of AI ethics into curricula. Ultimately, the responsible use of AI in education requires a balanced approach that leverages its benefits while safeguarding academic honesty and intellectual rigor among students.

**Disclaimer (Artificial intelligence)**

Option 1:

Author(s) hereby declare that NO generative AI technologies such as Large Language Models (ChatGPT, COPILOT, etc.) and text-to-image generators have been used during the writing or editing of this manuscript.

Option 2:

Author(s) hereby declare that generative AI technologies such as Large Language Models, etc. have been used during the writing or editing of manuscripts. This explanation will include the name, version, model, and source of the generative AI technology and as well as all input prompts provided to the generative AI technology

Details of the AI usage are given below:

1.

2.

3.

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