Plagiarism Policies in Higher Learning Institutions and Their Effectiveness in Mitigating Artificial Intelligence Breach of Originality in Arusha Region, Tanzania

Betrod Msigwa
Olmotonyi Forest Secondary School, Arusha.
Email: betrod00031@gmail.com

Kennedy Omondi Otieno
St. Augustine University of Tanzania (SAUT), Arusha.
Email: omondiken2016@gmail.com

Charles Gervas Rufyiriza
St. Augustine University of Tanzania (SAUT), Arusha.
Email: rufcharles@gmail.com

Abstract: *This study assessed the plagiarism policies in public and private higher learning institutions (HLIs) and their effectiveness towards mitigating Artificial Intelligence (AI) assisted breach of originality. The study tested if there is statistically significant difference between the effectiveness of the plagiarism detection software in public and private HLIs on mitigating AI assisted breach of originality and significant difference between the number of times students' work is subjected to testing for plagiarism in public and private HLIs. The study was grounded on Deterrence Theory. The study employed convergent mixed methods and correlational research design and tested hypotheses using T-test and Chi-square. Target population included 200 course instructors, 1200 students and 7 IT experts from 7 public and private HLIs, with a final sample of 147 respondents. Criterion purposive sampling was used to select seven system administrators while 20 course instructors and 120 students were selected using stratified and simple random sampling. Questionnaire and structured interview were used to collect data. Cronbach coefficient Alpha was employed to test for reliability of instruments; QS=0.759 & QCI=0.738. Credibility and dependability of qualitative data was established through detailed reporting of the research process. Descriptive statistics and thematic analysis were employed. All the two hypotheses yielded the results of p> 0.05 hence the null hypotheses were accepted. In conclusion, both public and private HLIs have established plagiarism policies aimed at addressing AI-assisted breach of originality although they're not effective and recommended that institutions should more advance tools and guidelines in detecting AI plagiarism in academic work.*

Keywords: *Plagiarism, Policies, Effectiveness, Mitigating, Artificial Intelligence, Originality*

1. Introduction

Plagiarism in all its forms has long been a critical issue in academic settings. Traditionally plagiarism is defined as an act of using someone else' work, ideas, or intellectual

property without giving appropriate credit or acknowledgment. This includes the direct copying of text, ideas, or data, or presenting them as one's own without proper citation (APA, 2020). Plagiarism undermines academic integrity by violating the principles of honesty, originality, and respect for intellectual property. In recent years, however, the emergence of advanced technological tools, particularly Artificial Intelligence (AI), has given rise to a new form of breaches that is more difficult to detect and combat. AI-assisted plagiarism refers to the use of AI tools, such as generative language models such as chatGPT to create or alter written content in a manner that constitutes academic dishonesty (Parks 2022).

Artificial Intelligence tools such as Open AI's, ChatGPT or other large language models can be exploited by students or professionals to create papers, essays, or reports without engaging in genuine intellectual labour (Johnson and Foster, 2023). These technological advancements, while beneficial in other aspects of education, have the potential to erode academic integrity if not properly managed (Choi and Kim, 2023). The rapid development of AI technologies has led to significant challenges for educational institutions in managing academic integrity. Unlike traditional forms of plagiarism, AI-assisted plagiarism is not a mere act of copying and pasting; rather, it involves the use of sophisticated algorithms capable of generating unique, human-like text. These systems can produce written content in response to prompts, making it difficult for both educators and plagiarism detection software to identify instances of academic misconduct (Sullivan and Fields, 2023). As a result, universities worldwide are being forced to reconsider their policies and strategies to prevent, detect, and address plagiarism.

The emergence of AI can aid learning, though it also poses the risk of enabling students to engage in AI-assisted plagiarism, where the work submitted may appear original but is, in fact, generated by AI models (Klein, 2024). The ability to generate content without engaging with the material intellectually may result in a decline in critical thinking and learning outcomes (Williams and Zhang, 2022). Consequently, stakeholders in education and institutions may be unable to effectively identify and prevent AI-assisted breach of originality, which weakens the mechanisms intended to uphold integrity of academic work. Universities worldwide have adopted different approaches to tackle plagiarism, including the implementation of plagiarism detection software, academic integrity workshops, and clear policies outlining consequences for academic dishonesty (Alzahrani, 2021). However, the effectiveness of these policies, particularly in the context of emerging AI technologies, remains uncertain. There is a general focus on traditional forms of plagiarism, with little exploration into the nuanced challenges posed by AI tools (Katz and Li, 2023).

Prevention strategies focus on proactively educating students and faculty members about the ethical implications of AI tools and plagiarism, as well as promoting proper citation practices (Williams and De Santis, 2022). Detection strategies often involve the use of AI-based plagiarism detection software, which can analyze written content to identify potential instances of AI involvement. Finally, response strategies emphasize how institutions handle suspected cases of AI-assisted plagiarism, including disciplinary actions and the importance of transparency in reporting.

According to Mlay (2022), HLIs are increasingly confronted with the dilemma of ensuring academic integrity while also accommodating technological advancements. Despite the growth in technology use, there is limited research on how universities in this region are addressing the issue of AI-assisted plagiarism. Plagiarism policies aimed at mitigating AI-assisted breach of originality can be broadly categorized into prevention, detection, and response strategies. Despite the growing attention to AI-assisted plagiarism, there is limited research on the specific effectiveness of policies designed to mitigate this issue. This gap in the literature called for further investigation into plagiarism policies in public and private HLIs and their effectiveness in mitigating AI breach of originality in Arusha region.

1.1 Research Questions

The study was guided by the following research question;

i. How effective are the implementation strategies for mitigating artificial intelligence assisted breach of originality in public and private higher learning institutions in Arusha region?

2. Literature Review

This study was grounded on Deterrence Theory. The classical theory of deterrence was developed from the work of three
philosophers: Hobbes (1651), Beccaria (1872) and Bentham (1789).

2.1 Deterrence Theory

The proponent of the theory postulates that if punishment is severe, certain and swift, a rational individual will weigh potential gains and losses before engaging in illegal activity and will be discouraged from breaking the law if the loss is greater than the gain. It is primarily used to prevent bad practices by threatening to impose unacceptable costs in response to aggression or hostile

actions. The key idea is that if the cost of an attack outweighs the potential benefit, the aggressor will be deterred from acting.

2.1.1 Strengths of Deterrence Theory

Deterrence has proven effective in preventing unacceptable practices, by establishing clear red lines and consequences deterrence creates as a sense of stability. If parties believe the costs of aggression will outweigh the benefits, they are less likely to initiate unacceptable behaviours. Also, deterrence works by influencing the perception of the adversary. A credible threat of severe retaliation can lead to caution and self-discipline in the opponent's decision-making process.

2.1.2 Application of Deterrence Theory

Higher learning institutions could use deterrence theory by establishing strict policies and clearly communicating severe consequences such as academic penalties, expulsion, or revocation of degrees for AI-assisted plagiarism. The threat of punishment especially in the form of academic sanctions can deter students from using AI tools to cheat. In the context of combating AI-assisted breaches of originality, deterrence theory could be effectively applied in the creation of policies that clearly outline the consequences of academic dishonesty thereby emphasizing the importance of ethical AI use, and use technology to detect violations. However, for deterrence to work, institutions must ensure that their policies are credible, well-communicated, and enforced consistently. By balancing deterrence with education and fairness, institutions can mitigate AI-assisted plagiarism effectively.

2.2 Empirical Review

The empirical literature review discusses the context of plagiarism policies in addressing artificial intelligence assisted breach of originality in public and private higher learning institutions basing on the themes derived from research questions.

2.2.1 Effectiveness of Implementation Strategies for Mitigating Artificial Intelligence Assisted Breach of Originality in Public and Private Higher Learning Institutions

A study in U.S by Pritchard and O'Connor (2020) examined the sufficiency of existing plagiarism policies in U.S. higher education institutions in the context of AI-generated content. The study found that many institutions lacked clear guidelines specifically to address the use of AI tools, which led to confusion among students and faculty members regarding acceptable practices. The study concluded that institutions must evolve their policies to explicitly incorporating AI-related breaches, ensuring clarity and effectiveness in maintaining academic integrity. Johnston et al. (2024) conducted a survey involving 2,555 students at the University of Liverpool to understand their perspectives on the use of generative AI technologies in academic settings. The study found that while over half of the students had used or considered using AI tools like ChatGPT for academic purposes, a significant majority (70.4%) were unsupportive of students using such tools to write entire essays. The findings suggest that students require clear policies on the use of generative AI and that these technologies should not be banned from universities but considered in a way that ensures equal access for all students. However, the gap of this finding is that the researcher used a single institution which might limit the generalizability of the findings, to fill this gap the current study selected data from 7 higher learning institutions in Arusha region.

In another empirical investigation, Watson and McGowan (2021) in U.S assessed the perceptions of faculty members regarding the adequacy of current plagiarism policies in addressing AI-assisted cheating. Their qualitative study revealed that while faculty recognized the potential for AI to facilitate academic dishonesty, they felt inadequately supported by existing policies. Many faculty members advocated for the development of more robust guidelines that specifically address AI-generated content to effectively deter misconduct. The studies were done in U.S that might have different circumstances than Tanzania. A study by Perkins et al. (2024) examined the efficacy of six major Generative AI (GenAI) text detectors when confronted with machine-generated content that had been modified using techniques designed to evade detection. The results demonstrated that the detectors have low accuracy rates (39.5%) showing major reduction in accuracy when faced with manipulated content, with some techniques proving more effective than others in detection. These findings underscore the challenges educators face in maintaining inclusive and fair assessment practices, especially in contexts like the United States, where reliance on AI detection tools is prevalent.

Ghimire and Edwards (2024) surveyed 102 high school principals and higher education provosts to examine the policy viewpoint concerning the ethical deployment of AI tools like ChatGPT in educational settings. The study revealed a prominent policy gap, with the majority of institutions lacking specialized guidelines for the ethical use of AI tools. Administrators recognized the necessity of these policies, primarily to safeguard students' safety and mitigate plagiarism risks, highlighting the urgent need for

flexible and iterative policy frameworks in educational contexts which this study sought to work on.

Chan (2023) developed an AI education policy hypothesis by examining the perceptions and implications of text-generative AI technologies among 457 students and 180 teachers and staff across various disciplines in Hong Kong universities. The study proposed an AI Ecological Education Policy Framework organized into three dimensions: Pedagogical, Governance, and Operational. This framework aims to address the multifaceted implications of AI integration in university teaching and learning, ensuring that stakeholders are aware of their responsibilities and can take appropriate actions accordingly. A study by Prokhorova et al. (2024) analyzed the current plagiarism policies at selected South African universities amidst the emergence of AI-generated content. The authors argued that plagiarism policy review should be expedited, and AI-specific policies need to be implemented to empower staff to engage with AI-generated content. The study emphasized the importance of clear policy guidelines to ensure that individuals are aware of what is expected of them and can act accordingly, safeguarding individuals' rights and ensuring they are not penalized for engaging in conduct that is not clearly defined as illegal or prohibited by law or policy.

Moreover, a comparative study between China and United States by Liu et al. (2022) analyzed plagiarism policies across several countries, focusing on their effectiveness in addressing AI-assisted breaches. The authors found significant disparities in how institutions defined and responded to AI-related plagiarism. Their findings indicated that countries with proactive, well-defined policies were more successful in mitigating AI-assisted breaches compared to those with vague or outdated guidelines. This study therefore sought to fill that gap

In addition, a mixed-methods study by Lee et al (2023) evaluated the effectiveness of plagiarism detection software in identifying AI-generated content. Their research found that while traditional detection tools were effective for conventional plagiarism, they struggled to detect AI-generated text effectively. The strengths of the mixed-methods study by Lee et al (2023) relied in its comprehensive approach, which combines qualitative and quantitative data to explore plagiarism detection tools. This allows for a richer understanding of how these tools function in detecting AI-generated content. However, the study falls short in providing specific details about which plagiarism detection tools were tested and the criteria used to evaluate their effectiveness. This was the focus of the current study.

Also, a longitudinal study by Chen and Zhao (2023) based in China explored how institutions adapted their plagiarism policies over time in response to the advancements in AI. The researchers found that institutions that regularly updated their policies in alignment with technological changes were more successful in curbing AI-assisted breaches. The strengths of this review include its ability to track institutional responses over time, offering valuable insights into how policies evolve with technological advancements. Mislay and Anania, (2024) asserts that plagiarism remains a significant concern in higher education, prompting institutions worldwide to implement strict policies to uphold academic integrity. At the University of Dar es Salaam (UDSM) in Tanzania, plagiarism detection is facilitated through the use of Turnitin software, particularly for postgraduate theses, dissertations, and assignments. The institution has set a similarity index threshold of 30%. However, scholars have noted that this benchmark may be too lenient and ineffective in detecting plagiarism in segmented sections of work, such as individual chapters. This has led to recommendations for policy revisions that could incorporate more stringent and nuanced strategies.

2.2.2 Practices in Enforcing Plagiarism Policies against Artificial Intelligence Assisted Breach of Originality in Public and Private Higher Learning Institutions in Arusha Region

An empirical study by Halbert et al (2023) outlines Adler University's model for tackling plagiarism facilitated by AI. It highlights the importance of faculty training, the use of plagiarism detection tools like Turnitin, and developing best practices for AI usage in academic settings. The research suggests that proactive faculty engagement with plagiarism detection tools and clear academic integrity policies are essential in minimizing AI-assisted academic misconduct. The model proposes comprehensive training for faculty and the integration of technology into the academic environment. However, this model is centered on a single institution, which raises questions about its generalizability across diverse academic contexts. The study's reliance on a specific case, limits its broader application in institutions with different resources and challenges.

A study conducted in Phillipines by Gustilo et al. (2024) investigates how educators manage AI-assisted writing tools, focusing on the need for clear policies and guidelines to maintain academic integrity in the face of evolving technologies. It explores education stakeholders' perceptions and challenges in identifying AI-generated content. The study reveals that while stake holders in education generally recognize the risks of AI-assisted plagiarism, many are unsure how to incorporate AI detection into their teaching practices. It stresses the

importance of consistent academic integrity policies and the need for institutional support in navigating AI challenges. Likewise, Cotton et al. (2024) emphasized the dual nature of ChatGPT in academia, highlighting both its potential benefits for student engagement and its risks related to academic integrity. The study reported that institutions implement clear policies, create assessment tasks that require critical thinking, and provide training to guide ethical AI use. Integrating AI literacy into the curriculum can help students understand the ethical implications of AI tools and promote responsible usage.

Hall and Patterson (2023) highlight the need for institutions to adopt advanced AI detection tools, such as Turnitin and Copyleaks to effectively identify AI-generated content. The study stress the importance of integrating these tools into the submission and grading process to detect plagiarism early. Educating both students and faculty about AI's ethical use and the risks of plagiarism is another key strategy. Jones et al (2024) recommend regular workshops and training to foster a culture of integrity, emphasizing the value of independent thinking and originality in academic work. But the review does not discuss the limitations of these tools, particularly their potential inability to detect more sophisticated AI-generated content or the ethical concerns around using such software. Therefore, to bridge the gap this study was done in Arusha, to investigate perceptions and implications of text-generative AI technologies

3. Methodology

This study employed correlational and convergent mixed methods research designs. According to Okendo et al., (2020), correlation survey design can be adopted in a quantitative research which aims at collecting data in terms of numbers for the purpose of testing hypothesis and verifying theories. Correlation studies involve the collection of data on two or more variables on the same group of subjects and followed by computing a correlation coefficient (Creswell and Creswell, 2018). In the present study, the researcher found the difference between the mean scores of students and course instructors on the effectiveness of the plagiarism detection software in HLIs on mitigating AI assisted breach of originality in Arusha Region. The hypothesis was tested using t-test analysis at 0.05 confidence level. The study also adopted convergent mixed methods research designs to collect both quantitative and qualitative data. The quantitative and qualitative findings were later integrated.

In this research, the target population included 200 course instructors, 1200 final year (third and fourth year) and masters students and 7 IT experts from 7 public and private higher learning institutions (TCU, 2025). As postulated by

Airasian and Gay (2021), a sample of 10% to 30% of the target population is representative enough for a research study. Consequently, the researcher selected 20 (10% of 200) course instructors, 120 (10% of 1200) students, 7 system administrators who are experts in IT from seven selected HLIs in Arusha region. The sampling technique included stratified sampling technique where the researcher identified undergraduate and postgraduate groups of students. In each group, 60 respondents were selected. Simple random sampling was employed to select 20 course instructors while Criterion purposive sampling technique was used to select system administrators. These groups were potential in the provision of the helpful and relevant information about the study. The respondents are well versed with issues concerning the AI assisted breach of originality and have capacity to determine the best practices in enforcing plagiarism policies against AI assisted breach of originality in public and private higher learning institutions in Arusha region.

The study employed questionnaires, interview guides and document analysis in the process of collecting primary data from the respondents. Questionnaires were used to collect data from students and course instructors while system administrators were interviewed. Document analysis was employed to collect secondary data from various secondary sources. The secondary data collected includes document analysis on preferred plagiarism policies in public and private HLI's, information on Effectiveness of the Plagiarism Detection Software in Public and Private HLI's, and information on the number of times students' work is subjected to each tool. For the purpose of content validity, research instruments were refined through the comments from research IT experts, researchers' supervisor and researchers' fellow students. To check for the reliability of quantitative research instruments; the researcher conducted a pilot study among 10% samples that was not included in the actual study. The data obtained was tested in the statistical package for social sciences (SPSS) version 22. The reliability coefficient obtained using Cronbach's Alpha method yielded the result of $r=0.759$ for Students' questionnaires and $r=0.738$ for Course Instructors' questionnaires. According to George and Malley (2003), the instruments were found to be fairly reliable for the study. Questionnaires were then issued to the respondents and collected after one day while personal interview was conducted the same day of visit. The researcher audio recorded the conversation for later transcription with the consent of the interviewee. Researcher carefully observed research rules and regulation during preparation and conducting of research in the field. The researcher ensured the anonymity of the respondents. Also, respondent's feedback was kept private. Results of the study were accurately and honestly communicated while plagiarism was avoided by acknowledging the sources of information.

4. Results and Discussion

The findings are discussed in accordance with the themes generated from research hypotheses and the research questions that the study sought to answer.

4.1 Effectiveness of Implementation Strategies for Mitigating AI Assisted Breach of Originality in Public and Private HLIs

In the second question, the current study sought to assess the effectiveness of implementation of plagiarism policies towards mitigating AI assisted breach of originality in public and private HLIs. The questionnaires comprising of 10 items was administered to students and course instructors who were required to respond according to their level of agreement using a five-point Likert scale where 5=Extremely Effective(EE), 4=Effective(E), 3= Moderately Effective (ME), 2= Slightly Effective(SE) and 1= Not Effective(NE). However, it was necessary to collapse cells where the categories of "Extremely Effective" were merged with "Effective" to imply effective for clarity of reporting, and "Moderately Effective" and "Slightly Effective" categories were equally merged to imply moderately effective. In addition, a mean score greater than 3 indicated Extremely Effective strategies in mitigating AI assisted breach of originality, while a mean score lower than 3 suggested otherwise. A mean score exactly equal to 3 implies inconsistence in the strategies in mitigating AI assisted breach of originality (Chyung and Hutchinson, 2023). Table 1 presents the summary of the responses.

Table 1: Students' Responses on the Effectiveness of Implementation of Plagiarism Policies in Mitigating AI Assisted Breach of Originality (n=120)

Statement	Extremely Effective		Effective		Moderately Effective		Slightly Effective		not effective		
	f	%	f	%	f	%	f	%	f	%	
Workshops and training sessions offered to educate students and staff about the ethical use of AI	39	33	33	28	17	14	24	20	7	6	3.61
Manual checking by lecturers or academic committees	19	16	57	48	18	15	19	16	7	6	3.52
Peer review processes	21	18	39	33	29	24	22	18	9	8	3.34
Advanced Turnitin plagiarism detection software increasingly adopted by institutions	16	13	41	34	27	23	25	21	11	9	3.22
Advanced Copyleaks plagiarism detection software increasingly adopted by institutions	18	15	31	26	26	22	36	30	9	8	3.12
Advanced Plagscan plagiarism detection software increasingly adopted by institutions	23	19	42	35	19	16	28	23	8	7	3.37
Emphasis on personal responsibility and ethical standards	33	28	33	28	17	14	27	23	10	8	3.43
Periodical review and an update of plagiarism policies	33	28	37	31	17	14	24	20	9	8	3.51
Involving students in policies formulation & implementation on the use of AI tools.	30	25	42	35	12	10	27	23	9	8	3.48

The use of traditional assessment methods, such as written exams.	41	34	35	29	16	13	15	13	13	11	
											3.63
Grand mean score											

In table 1, the findings indicate that workshops and training sessions on ethical AI use received a relatively high mean score of 3.61, with 61% of students rating it as either extremely effective (33%) or effective (28%). Only 6% viewed it as not effective. These results suggest that educational efforts aimed at promoting awareness and ethical understanding are generally well-received and are seen as effective and beneficial in addressing AI-assisted breaches of originality. From this perspective, this highlights the importance of integrating ethical training into institutional practices. Such workshops are not only informative but also preventative thereby shaping a culture of responsible AI use among students.

Manual checking by lecturers or academic committees, with a mean score of 3.52, is perceived as effective by a majority of students, with 16% rating it as extremely effective and 48% as effective. This approach benefits from human judgment, which can identify obvious ethical violations that automated tools might overlook. For instance, AI is common with possession noun such as Tanzanian's, Indonesian's or Nigerian's schools in its expression. Also words such as educators are prevalent with AI. These can easily be detected by human judgment but the tools might overlook. However, 22% viewed it as only slightly effective or not effective, pointing to concerns about inconsistency, subjectivity, or time constraints. This method holds strong value when paired with technological tools, offering a balanced and thorough evaluation process.

Peer review received a moderate mean score of 3.34, with 51% of respondents rating it as extremely or moderately effective. The mixed response suggests that while some students trust peer evaluations, others may question their reliability and rigor. Thus, although peer review encourages critical thinking and collective responsibility, its success depends heavily on the structure and oversight embedded in the academic structure.

Despite being a widely recognized tool, use of advanced Turnitin software earned a moderate mean score of 3.22, with only 13% of students rating it as extremely effective and 34% as effective extremely while 23% reported that it is moderately effective. Additionally, Copyleaks as software for detecting AI assisted plagiarism was rated lower than other tools, with a mean score of 3.12 that is below the Grand mean score of 3.63. Only 15% of students found it extremely effective while 38% considered it slightly effective or not effective. The finding demonstrates that most tools are not effective in detecting AI assisted plagiarism. These findings are corroborated by Chen and Zhao (2023) who conducted a longitudinal study in Fuzhou and Hubei Universities and revealed that the institutions have began integrating AI-detection tools into thesis review processes. If a high risk of AI-generated content is detected, students are required to revise their submissions. Also, Tianjin University of Science and Technology has Introduced dual thresholds 30% for plagiarism and 40% for AI-generated content. Any plagiarism check exceeding these triggers formal warnings and action for remedy.

From table 2, Plagscan received a mean score of 3.37, with a significant portion (54%) of students rating it as extremely effective or effective. The almost evenly spread responses suggests a general acceptance of the tool, albeit with moderate enthusiasm. Another portion (23%) viewed it as slightly effective while 7% expressed contrary opinion, possibly due to its limitations in detecting AI-generated content or adapting to rapidly evolving technologies. In this regard, this study highlights that while students may recognize the utility of these detection systems, the perceived effectiveness among tools remains relatively indistinct unless supported by transparent communication and demonstrable impact. Consequently, there is need for continuous updates to plagiarism detection tools to maintain their relevance and credibility in an AI-driven academic landscape. An empirical study by Halbert et al. (2023) lends credence to this finding by further outlining Adler University's model for tackling plagiarism facilitated by AI. It highlights the importance of faculty training, the use of plagiarism detection tools like Turnitin, and developing best practices for AI usage in academic settings. The research suggests that proactive faculty engagement with plagiarism detection tools and clear academic integrity policies are essential in minimizing AI-assisted academic misconduct.

Emphasis on personal responsibility and ethical standards earned a mean score of 3.43, with 56% of students viewing it as effective. However, a notable 31% found it only slightly effective or not effective. This divide may reflect understandings that while personal ethics are important; they may not suffice without institutional support and enforcement. This underscores the importance of combining individual ethical understanding with robust institutional policies to reinforce academic integrity. In this

regard, the study by Johnston et al. (2024) found that while over half of the students had used or considered using AI tools like ChatGPT for academic purposes, a significant majority (70.4%) were unsupportive of students using such tools to write entire essays.

Periodical review and update of plagiarism policies scored a mean of 3.51. This measure received 59% support from students who deem it extremely or moderately effective. These results indicate strong students' support for keeping institutional policies aligned with technological developments and evolving academic challenges. This shows students value not only policy enforcement but also institutional adaptability and transparency in the face of ongoing changes. In line with this, Cotton et al. (2024) emphasized the dual nature of ChatGPT in academia, highlighting both its potential benefits for students' engagement and its risks related to academic integrity. According to the study, institutions should implement clear policies, create assessment tasks that require critical thinking, and provide training to guide ethical AI use. Integrating AI literacy into the curriculum can help students understand the ethical implications of AI tools and promote responsible usage.

Additionally, the initiative of involving students in policy formulation and implementation received a respectable mean score of 3.48, with 60% of respondents finding it extremely or moderately effective. Engaging students in the creation and application of policies can enhance ownership and ensure that rules reflect real learning experiences.

Traditional assessment methods recorded the highest mean score of 3.63, with 63% of students rating them as extremely effective or effective. This strong endorsement suggests that students trust the reliability of in-person and controlled evaluations to curb AI-related academic misconduct. From this viewpoint, it highlights the enduring relevance of traditional exams as a means of authentic knowledge assessment, especially when supplemented by innovative, AI-conscious strategies. Zeb et al. (2024) also supported this by recommending the need to incorporate oral examinations and presentations as effective strategies to prevent AI-assisted plagiarism. These assessment methods require students to demonstrate their understanding and critical thinking skills in real-time, making it challenging to rely solely on AI-generated content. Implementing oral assessments can enhance academic integrity by ensuring that students engage actively with the material.

In addition to the existing strategies, when responding to the open ended question the respondent suggested that "*One of the most promising approaches is the redesigning of assessment formats. Assignments that emphasize critical thinking, personal reflection, live presentations and contextual analysis rather than rote responses have shown to be less susceptible to AI manipulation. Tasks such as oral presentations, project-based assessments, and in-class written exercises promote authentic students' engagement and discourage reliance on generative AI tools*".

From course instructors' responses regarding the effectiveness of implementation of plagiarism policies towards mitigating artificial intelligence assisted breach of originality in public and private higher learning institutions in Arusha region are as summarized in the table 2.

Table 2: Course Instructors' Responses on the Effectiveness of Implementation of Plagiarism Policies in Mitigating AI Assisted Breach of Originality in Public and Private HLIs in Arusha Region

Statement	Extremely Effective		Effective		Moderately Effective		Slightly Effective		not effective		mean score
	f	%	f	%	f	%	f	%	f	%	
The use of traditional assessment methods, such as written exams.	10	50	9	45	0	0	1	5	0	0	4.40
Manual checking by lecturers or academic committees	9	45	8	40	1	5	2	10	0	0	4.20
Peer review processes	4	20	13	65	2	10	0	0	1	5	3.95
Advanced Turnitin plagiarism detection software increasingly adopted by institutions	6	30	8	40	5	25	1	5	0	0	3.95
Emphasis on personal responsibility and ethical standards	7	35	7	35	3	15	3	15	0	0	3.90
Periodical review and an update of plagiarism policies	2	10	11	55	4	20	2	10	1	5	3.55
Workshops and training sessions offered to educate students and staff about the ethical use of AI	4	20	6	30	6	30	3	15	1	5	3.45
Advanced Plagscan plagiarism detection software increasingly adopted by institutions	3	15	9	45	3	15	4	20	1	5	3.45
Advanced Copyleaks plagiarism detection software increasingly adopted by institutions	2	10	9	45	5	25	2	10	2	10	3.35
Involving students in policies formulation & implementation on the use of AI tools.	1	5	4	20	5	25	7	35	3	15	2.65
Grand mean											3.69

Source: Field Data (2025)

The data in table 2 shows that use of traditional assessment methods such as written exams as a policy for mitigating AI assisted breach of originality received the highest level of endorsement from course instructors with a mean score of 4.40. A substantial 95% of respondents rated it as either extremely effective (50%) or effective (45%). Only 5% found it slightly effective, and none considered it ineffective. This strong consensus reflects the trust in traditional assessments as a reliable means of evaluating originality in the age of AI. Such methods remain essential especially in high-stakes assessments because they minimize opportunities for AI-assisted cheating and encourage genuine students' effort.

The data also demonstrate that manual checking by lecturers or academic committees was rated high, with a mean score of 4.20 that was above the grand mean score of 3.69. This policy is viewed by 85% of lecturers as extremely effective since it has a mean score above 3.0. Only a small minority (15%) rated it as less effective. This high level of support suggests confidence in human judgment to detect irregularities and uphold academic integrity. This reflects the continued relevance of expertise, especially in identifying context-specific issues that software may miss, though it must be balanced against the time and workload involved.

In addition, peer review processes recorded a mean score of 3.95. This measure of peer review processes was largely regarded as effective (65%) or extremely effective (20%), though a small number (10%) expressed moderate while 5% indicated low confidence in them. Although the practice encourages collaborative learning and mutual accountability, its effectiveness may depend heavily on training and structure. Thus, peer review can contribute to academic integrity, but it should be supported by clear criteria and oversight to be truly important.

The data in table 2 indicate that advanced Turnitin plagiarism detection software scored a mean of 3.95, this indicate that Turnitin was recognized as a valuable tool by 70% of lecturers indicating extremely effective or

effective. Still, a notable 25% saw it as only moderately effective. This indicates that while Turnitin remains a cornerstone in plagiarism detection, lecturers are aware of its limitations in identifying AI-generated text. From the findings, this suggests that while Turnitin remains relevant, institutions must integrate newer AI software detection capabilities to stay ahead. A related study by Mislay and Anania (2024) at the University of Dar es Salaam (UDSM) in Tanzania confirmed this finding. The study revealed that plagiarism detection is facilitated through the use of Turnitin software, particularly for postgraduate theses, dissertations, and assignments. Most institutions have set a similarity index threshold of 30%. However, scholars have noted that this benchmark may be too lenient and ineffective in detecting plagiarism in segmented sections of work, such as individual chapters.

Emphasis on personal responsibility and ethical standards was another policy that was researched and this policy garnered a mean of 3.90, with 70% of lecturers finding it extremely or effective. However, the remaining 30% were either neutral or slightly cynical. This signifies recognition of the ethical dimension in combating AI misuse, but also a possible belief that promoting values alone is insufficient without enforcement. Therefore, ethical education is foundational but must be part of a broader, systemic framework that includes accountability mechanisms. Consequently, assignments that require personal insight and unique analysis should be designed to help cultivate students' skills and reduce AI usage. In line with this finding, Varga and Han (2023) suggest that assessments should be designed to encourage originality and critical thinking, making it is more difficult for students to rely on AI.

Periodical review and update of plagiarism policies, with a mean score of 3.55 received moderate support. This accounted for 65% comprising of 10% extremely effective and 55% effective, while 20% indicated moderately effectiveness, 10% less effective and 5% not effective. The results suggest that while policy updates are important, they may not be seen as directly impactful unless followed by actionable changes. This highlights the need for not only frequent reviews but also transparent communication and practical policy implementation. A study in Pakistan commissioned by the Higher Education Commission (HEC) proposed and issued a national-level anti-plagiarism policy that categorizes plagiarism offenses as minor, moderate, or major. Penalties are assigned accordingly, ranging from warnings and grant freezing for minor cases to dismissal and blacklisting for major ethical offenses. Notably, the policy also protects individuals from malicious or unfounded accusations by allowing disciplinary action against accusers if claims are proven false (HEC, 2023).

Workshops and training sessions on ethical AI posted a mean score of 3.45, with just 50% finding it effective. Another 45% found it moderately effective and only 5% registered that it is not effective. This moderate rating suggests that while workshops are valued, concerns remain about their depth, frequency, or relevance. From the perspective of this finding, for workshops to be more effective, they must move beyond awareness-raising and focus on applied, case-based learning that resonates with both students and faculty members. In this regard, Green and Nelson (2024) propose offering academic support services, such as tutoring and writing centres to guide students towards producing original work. Providing resources and clear guidelines for ethical AI use in academic tasks can further prevent plagiarism.

Both Plagscan and Copyleaks received moderately positive but mixed evaluations from respondents, with Plagscan earning a slightly higher mean score of 3.45 compared to Copyleaks' 3.35. While 60% rated Plagscan as effective, 25% expressed lower confidence, indicating a divide possibly rooted in varying levels of familiarity or trust in the software. Copyleaks fared slightly inferior, with less than 55% viewing it as effective and 20% perceiving it as only slightly or not effective, hinting at limited understanding of its AI-driven detection capabilities. These findings collectively highlight the need for stronger institutional support, clearer communication on tool functionality, and targeted training to enhance both faculty competence and confidence in using advanced plagiarism detection software.

Involving students in policy formulation and implementation emerged as the least supported policy, with a mean score of 2.65; only 25% of respondents rated it as extremely or effective, while half perceived it as slightly or not effective. This reflects notable uncertainty, likely tied to concerns about students' objectivity, maturity, or policy expertise. To buttress this finding, a study by Mutuma et al. (2023) in Meru County, Kenya, found that involving students in decisions regarding their welfare significantly improved discipline in public secondary schools. This would be far much better if the issue is related to academic ethics that has discipline connotation.

While responding to the theme on the effectiveness of current plagiarism detection tools in identifying and preventing AI-generated content in student submissions, IT expert "2" pointed out that;

> I would say that current plagiarism detection tools are only partially effective in identifying and preventing AI-generated content in students' submissions. Traditional tools were primarily designed to detect text that matches existing

sources, such as previously published material or online content. However, AI-generated content particularly from advanced models like GPT-4 or Claude often produces entirely original, non-matching text, which can bypass these traditional checks (Personal Interview with IT experts "2"on 17th May, 2025)

Another IT expert "4" from HLI responded that ….I observed that while most public and private HLIs in Arusha Region have established plagiarism policies, their effectiveness in addressing AI-assisted breaches of originality remains limited. Many institutions rely on traditional plagiarism detection tools that are not equipped to identify content generated or heavily edited by AI tools like ChatGPT. Moreover, existing policies are often outdated and do not explicitly address the use of AI in academic work, leading to inconsistent enforcement. To enhance effectiveness, institutions need to revise their policies to include AI-specific guidelines, invest in more advanced detection technologies, and provide ongoing training and ethical education to promote a culture of academic honesty (Personal Interview with IT expert "4"on 19th May, 2025).

The response highlights a critical limitation in current academic integrity systems where traditional plagiarism detection tools are increasingly inadequate in the face of advanced AI-generated content. The implication is that existing tools, which rely on matching text to known sources, fail to detect content that is original but still inauthentic, such as AI-generated text. This points out to a growing technological gap between the tools institutions normally use and the sophistication of generative AI models like GPT-4 or Claude. As a result, HLIs risk relying on outdated detection methods that may give a false sense of security, potentially allowing undetected academic dishonesty. This situation calls for urgent investment in AI-aware detection tools, revision of academic policies, and the development of alternative assessment methods that are less vulnerable to AI misuse. Ultimately, it also reflects the need for continuous adaptation in institutional practices to keep pace with rapidly evolving technology. These findings were expounded by a study by McCabe and Treviño (2020) in United States while exploring the effectiveness of academic integrity policies across various higher education institutions. The researchers found that institutions with clearly defined policies and regular training programmes reported lower instances of academic dishonesty, including plagiarism.

Generally, the overall grand mean of 3.69 indicates a universal positive perception of current plagiarism policies and interventions among lecturers, though with notable room for improvement. The highest support is given to traditional, human-centered methods, while newer technological tools and student-inclusive approaches receive more cautious evaluations. From perspective established by this study, this reflects a transitional period where institutions thoughtfully blend traditional academic values with modern, adaptive solutions to effectively counter AI-assisted academic misconduct.

In addition, the researcher conducted statistical analysis to find whether the observed difference among the obtained mean scores from students and course instructors in HLIs was significant. The mean scores from students and course instructors in HLIs are summarized in Table 3.

Table 3: Mean Scores from Students and Course Instructors in HLIs

Statement	Student's mean score	Course Instructors' mean score
Workshops and training sessions offered to educate students and staff about the ethical use of AI	3.61	3.45
Manual checking by lecturers or academic committees	3.52	4.2
Peer review processes	3.34	3.95
Advanced Turnitin plagiarism detection software increasingly adopted by institutions	3.22	3.95
Advanced Copyleaks plagiarism detection software increasingly adopted by institutions	3.12	3.35
Advanced Plagscan plagiarism detection software increasingly adopted by institutions	3.37	3.45
Emphasis on personal responsibility and ethical standards	3.43	3.9
Periodical review and an update of plagiarism policies	3.51	3.55
Involving students in policies formulation & implementation on the use of AI tools	3.48	2.65
The use of traditional assessment methods, such as written exams	3.63	4.4

Source: Field Data (2025)

Research Hypothesis

The following hypothesis was formulated and tested using independent sample t-test analysis.

Null hypothesis

H_{01}: There is no statistically significant difference between the mean scores of students and course instructors on the effectiveness of the plagiarism detection software in HLIs on mitigating AI assisted breach of originality in Arusha Region.

Assumptions of independent sample t-test

1 The independent variable is measured on a continuous scale.
2. The independent variable consists of two categorical, independent groups.
3. Independent observations are made.
4. There are no significant outliers.
5. The samples are drawn from a normally distributed population.
6. There is homogeneity of variances.
The results of hypothesis testing are presented in Table 4.

Table 4: Results of Hypothesis

	Levene's Test for Equality of Variances		t-test for Equality of Means				
	F	Sig.	T	Df	Sig. (2-tailed)	Mean Difference	Std. Error Difference
Equal variances assumed	1.738	0. 224	.238	8	.818	.02600	.10934
Equal variances not assumed			.238	6.418	.819	.02600	.10934

Source: Field data (2025)

To achieve this, the researcher conducted an independent sample t-test at 0.05 significant level. The test for homogeneity indicated favourable results (Levene's Test for Equality of Variances: F = 1.738, p = 0. 224). This suggests that the variances were relatively consistent, validating the assumption of equal variances. Further analysis using the t-test for Equality of Means revealed no statistically significant difference between the mean scores of students and course instructors (t = .238, df = 8, p = 0.818). These results (p = 0. 224> 0.05) signify that this difference was not substantial, and according to Okendo et al. (2020) the hypothesis is not rejected. This implies that the effectiveness of plagiarism detection software that is acknowledged by students and course instructors is the same in both private and public HLIs in Arusha region. Implying that from the views of students and course instructors, the effectiveness of the plagiarism detection software on mitigating AI assisted breach of originality in HLIs in Arusha Region is the same. This informs that HLIs should proceed on prioritizing the use of advanced plagiarism detection software in order to uphold the academic integrity.

The information of the hypothesis test implies that university administrations can carry on with the initiative of plagiarism detection software on mitigating AI assisted breach of originality and even improve it further to the required standard. These findings align with the findings by Watson and McGowan (2021) in U.S who reported that faculty members advocated for the development of more robust guidelines that specifically address AI-generated content to effectively deter misconduct. As supported by the results of the hypothesis testing. This implies that any efforts by universities to improve plagiarism detection software will be a step in the right direction towards mitigating AI assisted breach of originality. However, this finding contradicts the findings by Liu (2023), who observed that there are significant differences in how students and lecturers perceive the effectiveness of

plagiarism detection software on mitigating AI assisted breach of originality, though their perception was positive.

Inferential Analysis

The hypothesis two was tested inferentially using Chi-square statistics in the SPSS version 22 in order to ascertain the difference between the number of times students' work is subjected to testing for plagiarism in public and private higher learning institutions in Arusha Region.

Research Hypothesis

The following hypothesis was formulated and tested using Chi-square test analysis.

Null hypothesis

H_{02}: There is no significant association between the number of times students' work is subjected to testing for plagiarism in public and private higher learning institutions in Arusha Region.

To test the hypothesis, a structured questionnaire was developed using a 5-point Likert scale. Respondents were asked to indicate how frequently their academic work such as assignments, term papers, or theses is subjected to plagiarism detection tools, either before or after submission. The scale ranged from 1 (Never), 2 (Rarely – once or twice a semester), 3 (Occasionally – about once a month), 4 (Frequently – almost every assignment), to 5 (Always – every submitted work). This scale was designed to capture the perceived frequency of plagiarism checking from the student's perspective, allowing for comparative analysis between public and private institutions. The collected data were then grouped by institution type and subjected to statistical analysis to determine whether significant differences exist between the two groups. The summary of the responses has been recorded in Table 5.

Table 5: The Number of Times Students' Work is Subjected to Testing for Plagiarism in Public and Private HLIs

HLIs	Turnitin	Copyleaks	Plagscan
Public A	2	1	0
Private B	3	0	2
Public C	2	0	1
Public D	3	1	2
Private E	1	2	3
Public F	3	1	2
Private G	2	2	1

Source: Field Data 2025

Table 5 shows the data on the preferred plagiarism policies in public and private HLIs. The points in the scale were adopted to check how frequently these policies are used.

Assumptions of Chi-square t-test

1   The two variables are categorical (measured at nominal scale).

2.   The two variables consist of two or more categorical, independent groups.

3.   Independent observations are made.

4.   The sample is relatively large.

5.   The sample should be randomly selected and representative of the population.

The results of hypothesis testing are presented in Table 6

Table 6: Summary of Chi-square Test

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	4.029[a]	4	.402
Likelihood Ratio	4.030	4	.402
Linear-by-Linear Association	.141	1	.707
N of Valid Cases	20		

a. 10 cells (100.0%) have expected count less than 5. The minimum expected count is 1.05.

Source: Field Data (2025)

The results presented in Table 6 indicate that there is no statistically significant association in the frequency with which student work is subjected to plagiarism checks between public and private HLIs in the Arusha Region. The Chi-square test yielded $\chi^2(4) = 4.029^a$ with a p-value of 0.402. Since the p-value is greater than the conventional significance level of 0.05, and according to Okendo et al. (2020), the null hypothesis was not rejected. This suggests that any observed differences in the practice of checking student's work for plagiarism between the two types of institutions are likely due to random variation rather than actual institutional differences. Therefore, it can be concluded that both public and private HLIs in the region exhibit similar approaches to plagiarism detection.

5. Conclusion and Recommendations

5.1 Conclusion

Based on the findings of the current study, the following conclusions were drawn:

The study reveals that both public and private HLIs in Arusha Region have established plagiarism policies aimed at addressing AI-assisted breaches of originality; with generally moderate to strong support from both students and instructors. While, there is widespread recognition of the presence of such policies, gaps remain particularly concerning the clarity of AI usage guidelines and the

perceived effectiveness of detection tools.Traditional assessment methods and manual checking by academic staff continue to be highly valued for their reliability in detecting misconduct, especially where automated tools fall short in identifying original AI-generated text.

Technological tools like Turnitin and other plagiarism detection software are foundational but face uncertainty due to limitations in detecting AI-generated content and varying levels of trust and familiarity among users. This highlights an urgent need for institutions to invest in advance AI-software detection technologies. The study also found the need to provide comprehensive training to both students and faculty members to maximize their utility. There is broad consensus on the importance of transparent disciplinary procedures and fostering intrinsic academic integrity, emphasizing that sustainable enforcement must balance punitive measures with education and ethical cultivation. The involvement of institutional IT departments alongside academic leadership is crucial for developing enforceable AI policies and integrating advanced technological solutions effectively.Importantly, statistical analysis showed no significant differences between public and private HLIs in policy adoption, implementation strategies, or effectiveness of detection tools, suggesting a shared institutional commitment across governance types in confronting AI-assisted plagiarism. Overall, the findings advocate for an all-around, integrated approach to mitigating AI-driven academic misconduct, prioritizing education, policy clarity, and technological advancement while nurturing a culture of integrity to uphold academic standards in the evolving digital landscape.

5.2 Recommendations

Based on the study conclusions, the following recommendations were made:

i. In light of the study's findings, it is imperative for HLIs in Arusha Region to enhance the clarity and specificity of their AI usage policies. Institutions should develop clear, accessible guidelines that explicitly define acceptable and unacceptable AI use in academic work. These policies should be regularly reviewed and updated to remain relevant amid rapidly evolving AI technologies.

ii. Technological investment must be prioritized to address limitations in current plagiarism detection tools. Institutions should adopt or develop AI-aware detection technologies capable of identifying AI-generated content. These tools should complement, not replace, manual review processes to ensure accuracy and reliability.

iii. Traditional assessment methods remain essential and should be maintained alongside technological solutions. Diverse evaluation strategies, including oral exams and presentations should be embraced to help reduce opportunities for AI-assisted misconduct.

iv. Institutional collaboration between academic leadership, IT departments, and ethics committees is necessary to create enforceable policies and transparent disciplinary procedures. These measures should balance enforcement with education, emphasizing the development of intrinsic academic integrity.

v. Finally, there is need for ongoing monitoring and evaluation of policies, educational programmes, and detection tools to ensure their effectiveness. Feedback mechanisms should be established, and institutions should stay informed of AI advancements to proactively address emerging risks.

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