

ARTIFICIAL INTELLIGENCE TOOLS ADOPTION AND ACADEMIC PERFORMANCE OF STUDENTS IN FEDERAL POLYTECHNIC ILARO, OGUN STATE

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Abstract

Artificial intelligence tools adoption and student academic performance is crucial for developing evidence based educational practices and optimizing learning environment. The study therefore examined the effect of Artificial intelligence on student academic performance at Federal Polytechnic Ilaro, Ogun state. The study adopted a survey research design with the aid of structured questionnaire. The population of this study are the HND Final year students of Federal Polytechnic Ilaro with the total population of two thousand, six hundred and thirty-nine (2,639) as at December, 2024. The study adopted the sample of 347 respondents with aid of Taro Yamane sample calculator. Regression and correlation statistical model was utilized to determine the relationship between the variables. The finding of the study revealed that there is significant relationship between dimensions of Artificial Intelligence tools i.e. ChatGPT, QuillBot and Turnitin on student academic performance at Federal polytechnic Ilaro. The study concluded that integration of Artificial Intelligence tools will play a critical role in facilitating effective teaching and learning within the institution. The study therefore recommended that the management of the institution should educate their student on moderate usage of Artificial Intelligence tools in order to instill critical thinking to embrace academic integrity.

Keywords: *Artificial Intelligence, Adoption, Tools, Student, and Academic performance.*

Introduction

In the 21st century, when the world is moving at a speed beyond imagination, everything needs a massive update to be in the race. From tech industries to the business world, the health sector to military organizations, everything is getting updated with the new-coming technologies, often profiting like never before. Mishra (2017) Artificial Intelligence (AI) is one such tool helping everything to advance faster than ever before. We are edging towards a world where robots will play an important role with hand in hand with humans. For this advancement, Artificial Intelligence can be thought of as a “Brahmastra” as in the “Hindu Shashtra”. Bauer (2017) Artificial Intelligence has impacted almost every sector of our world, from technological advancements to

business administration, security agencies, navigation, research and more; resulting in massive improvement and growth (Chatterjee 2021). These are all profitable fields. Various non-profit sectors like health or education are also not left behind. Various studies have highlighted how AI has helped to improve the infrastructure of the health (Jiang 2017 Davenport & Kalakota, 2019) and the education sectors (Subrahmanyam & Swathi, 2018; Chen 2020). Aleven (2016) AI is a broad field that is comprised of many disciplines including computer science, statistics, linguistics, psychology, and decision science. It is essentially concerned with getting a computer to replace human intelligence in assigned tasks. (Hwang, 2020, Luan, 2020 Luckin 2016). Rich and Knight (2017) state that “Artificial Intelligence (AI) is the study of how to make computers do things which, at the moment, people do better” (Barr & Feigenbaum, 2018) For the propose of this paper we take AI’s meaning in the broadest sense, any use of a computer to replicate or substitute human intelligence to provide insights through the application of various machine enabled analytical processes to large data sets. Sari (2021) Technologies act as facilitators, utilizing the computing power of AI to speed up previously time-consuming and arduous operations. Sari (2021) Technologies are growing more sophisticated as AI advances, changing the way we tackle complicated issues and challenges. As AI tools influence decision-making processes and automate tasks, transparency, accountability, and bias mitigation become essential focal points. Hwang (2012). The ethical implications span various dimensions, including algorithmic fairness, privacy preservation, and the societal implications of AI-mediated processes. Acknowledging these considerations is pivotal to ensuring that AI tools are developed and deployed in a manner that aligns with societal values and norms. Alhashmi (2019) While AI tools hold the promise of efficiency gains and cost savings, concerns regarding job displacement and the need for reskilling and upskilling arise. Striking a balance between harnessing AI tools for innovation and safeguarding livelihoods requires a thoughtful and holistic approach.

The integration of artificial intelligence (AI) tools in educational settings is becoming increasingly common, with significant potential implications for student academic performance. However, there is a notable lack of empirical research specifically examining the adoption of AI tools and their impact on academic performance within the context of Federal Polytechnic, Ilaro.

Also, user trust and acceptance of AI systems are critical for the successful adoption of AI technologies. Tools like QuillBot, ChatGPT and Turnitin which enhance writing, play a crucial

role in this regard. Ensuring transparency, implementing robust privacy measures, and providing clear information about data handling practices are essential to fostering trust and promoting widespread adoption of AI, as emphasized by Fitria (2021). Therefore, balancing the benefits and challenges of AI tools in education is essential for their effective integration and positive impact on student academic performance.

Literature Review

Artificial Intelligence

Artificial Intelligence (AI) is the process of modeling human thinking and designing a machine so that it can behave like humans or other terms called cognitive tasks, namely how machines can learn automatically from programmed data and information. Zhang, Z. (2021). Artificial intelligence or (AI) is a technology where machines can learn and understand logic like humans. This technology is said to be able to help simplify human life which is very complex (Fitria, 2021a). The role of Artificial Intelligence (AI) technology is increasingly evident in various sectors, including the education sector. The presence of AI technology has transformed the educational curriculum, especially in the fields of technology, science, mathematics, and engineering. But AI will also change the face of the world of education as a whole.

Dimension of Artificial Intelligence

ChatGPT

ChatGPT, developed by OpenAI, is an advanced language model based on the Generative Pre-trained Transformer (GPT) architecture. It is designed to understand and generate human-like text by processing vast amounts of textual data. ChatGPT can perform a wide range of language tasks, including answering questions, generating text, translating languages, and summarizing information. It leverages deep learning techniques to predict the next word in a sentence, allowing it to produce coherent and contextually relevant response.

Challenges and Difficulties of ChatGPT

The introduction of ChatGPT in higher education has sparked concerns regarding academic integrity, highlighting issues like inaccuracies, biases, and the potential for plagiarism (Liu 2023). This AI technology's limitations, such as its inability to form opinions, reliance on outdated information, inaccessibility to external databases, lack of referencing, susceptibility to mathematical errors, and limited creativity and critical thinking, present significant challenges. Mufdalifah, M. (2017) Despite its potential to revolutionize mentoring and personalized learning, ChatGPT's propensity to invent plausible-sounding data raises concerns about the dissemination of incorrect information. Issues regarding copyright, privacy, and data security also need addressing. As educational institutions embrace AI, it becomes imperative to establish protocols that safeguard academic integrity and fair assessment.

Turnitin

Turnitin is a text-matching software that checks a student's written work against electronic texts from the Internet, published works (such as journal articles and books), and assignments previously submitted by other students Howard (2021). Turnitin is a plagiarism detection tool commonly used in academic settings to check for originality in students' work. It compares submitted papers to a vast database of academic and online content to identify any similarities. When students use Turnitin, it can help promote academic integrity by encouraging original writing and proper citation practices. It also provides feedback on potential areas of plagiarism, allowing students to correct and improve their work before final submission.

Concerns about a toxic culture of student-instructor mistrust inform one view of Turnitin, a platform that Brabazon (2005) ominously calls "the panopticon of plagiarism." This is a skeptical perspective about Turnitin, its limitations and its effect on student-instructor relationships (Bruton and Childers 2016). Some at the Teaching Center share a hesitant view of Turnitin. Cressida Magaro, manager of Educational Software Consulting, the unit that principally supports Turnitin at Pitt, notes that technology is not a cure-all for the academic integrity problems that can vex an institution of higher learning: "Academic integrity is an issue of institutional culture, not technology."

Quillbot

QuillBot is an AI-powered writing tool designed to assist users in enhancing their writing through paraphrasing, summarizing, and grammar-checking features. It leverages advanced machine learning algorithms to provide intelligent suggestions that improve clarity, coherence, and fluency in written texts (Fitra, 2021). QuillBot offers particular advantages for academic writing. Firstly, it improves writing fluency by assisting writers in producing coherent and well-structured texts. According to Fitra (2021), QuillBot helps writers communicate their thoughts more clearly and effectively by providing recommendations for sentence construction, word choice, and synonym selection. This functionality ensures that ideas are presented in a logical and polished manner, which is crucial for academic contexts.

QuillBot enhances writing efficiency by offering alternative sentence options and paraphrasing suggestions. By utilizing this tool, writers can edit and refine their work more quickly, thereby reducing the time required for extensive manual editing (Fitra, 2021). This feature not only saves time but also allows writers to focus on the content and quality of their ideas rather than getting bogged down in repetitive revisions.

Application of Artificial Intelligence Tools in Educational Measurement and Assessment

AI has been transforming education in recent years. This increasing significance of AI has garnered the interest of numerous scholars actively exploring diverse methods to incorporate various AI tools within the classroom environment (Halaweh, 2023; Mena-Guacas 2023; Papapicco, 2020). With the increasing availability of data and the growing sophistication of machine learning algorithms, AI has the potential to revolutionize the way we learn, teach, and assess student progress. Several benefits of using AI in education have been advanced. For example, Adiguzel (2023) presented some benefits of using AI for administrators, teachers and learners. AI has been found to play a crucial role in motivating students (Lin 2021; Xia, 2022), raising their engagement levels (Huang 2023 and Nazari 2021), learning interest (Hou, 2022), learners' interaction (Karsenti, 2019), anxiety reduction (Hawes & Arya, 2023; Ren, 2020), prediction of students' future outcomes (Kumar, 2019; Luo 2022) and academic performance (Khan 2021).

Artificial Intelligence and student academic performance

Artificial intelligence (AI) integration in education has brought dramatic developments in the digital age, changing instructional strategies, curriculum design, and student involvement (Hwang G, and others, 2002). Artificial intelligence (AI) is a technical development that has profoundly impacted this area. The quick advancement of AI-driven solutions creates several prospects for society and the educational field. Artificial intelligence can automate various time-consuming and repetitive jobs in the workplace, boosting efficiency and productivity. Individualized learning options in the classroom benefit students, and teachers can use cutting-edge teaching strategies. Education has always been known for being flexible and receptive to new technological developments. Before the advent of computers and other associated technologies, instructors and pupils reportedly delivered lessons and learned through the mechanical application of natural human effort (Chen & Lin, 2020). AI has become a potent instrument in this digital age that promises to improve education in various ways. According to Huang AY (2021) artificial intelligence (AI) can revolutionize digital learning, enhance teaching techniques, and affect the direction of digital education. Several departments in educational institutions or the education sector have incorporated artificial intelligence. Motlagh NY (2023) stated that artificial intelligence has had a significant impact on the learning process in many ways, including increased effectiveness and efficiency in school administration, global learning, individualized learning, innovative content, and motivational teaching. It is crucial to comprehend this relationship because it can help politicians and educational institutions realize the full potential of AI.

The relationship between artificial intelligence (AI) and academic performance can be multifaceted. AI can positively impact academic performance through personalized learning experiences, adaptive assessments, and intelligent tutoring systems tailored to individual students' needs. It can also assist educators in analyzing student data to identify areas for improvement and provide targeted interventions. However, concerns arise regarding AI's potential to widen educational inequalities, data privacy issues, and the need for ethical AI implementation in educational settings. Overall, the relationship between AI and academic performance depends on how effectively it is integrated into educational systems and its alignment with educational goals and values.

Theoretical Review

Theoretical framework explains the synopsis of the construct, concepts and fundamentals and the ideas that is under review (Hassan, 2023; Vinz, 2022). This is to aid the process and planning of the research activities, show a clear direction of the research journey, establish the significance of study and interpret the findings. This is why this study is underpinned by Computation learning Theory of Leslie Valiant

Computational Learning Theory

Computational Learning Theory (CoLT) was initially formalized in the early 1980s, most notably through the work of Valiant (1984), who introduced the Probably Approximately Correct (PAC) learning framework. This framework significantly strengthened the theoretical understanding of machine learning by providing a rigorous mathematical basis for analyzing learnability under uncertainty and computational constraints. As a theoretical framework, Computational Learning Theory is used to define the conditions under which learning algorithms can efficiently learn from data, focusing on criteria such as sample complexity, computational efficiency, generalization ability, and robustness to noise (Kearns & Vazirani, 1994).

Since its inception, CoLT has been widely applied in the study of machine learning algorithms, artificial intelligence, and data-driven decision-making systems. It has contributed to foundational developments in areas such as concept learning, model generalization, and algorithmic complexity. The theory has also been extended to address practical learning settings, including learning with noise, online learning, boosting, and agnostic learning, thereby broadening its applicability to real-world data environments (Shalev-Shwartz & Ben-David, 2014).

Computational Learning Theory has been regularly utilized across disciplines such as computer science, statistics, robotics, and information theory, where understanding the theoretical limits of learning is essential. In recent years, it has played a critical role in analyzing modern machine learning approaches, including kernel methods and deep learning, particularly in explaining generalization performance and computational statistical trade-offs. As a result, CoLT is widely recognized as one of the most influential and consistently used theoretical models in machine learning research, providing a foundational framework for both classical and contemporary learning theory.

In computer science, computational learning theory is a subfield of artificial intelligence devoted to studying the design and analysis of machine learning algorithms. Computational learning theory (CoLT) is a branch of AI concerned with using mathematical methods or the design applied to computer learning programs. It involves using mathematical frameworks for the purpose of quantifying learning tasks and algorithms.

It seeks to use the tools of theoretical computer science to quantify learning problems. This includes characterizing the difficulty of learning specific tasks.

Computational learning theory can be considered to be an extension of statistical learning theory or SLT for short that makes use of formal methods for the purpose of quantifying learning algorithms.

- Computational Learning Theory (CoLT): Formal study of learning tasks.
- Statistical Learning Theory (SLT): Formal study of learning algorithms.

This division of learning tasks vs. learning algorithms is arbitrary, and in practice, there is quite a large degree of overlap between these two fields.

Computational learning theory is essentially a sub-field of artificial intelligence (AI) that focuses on studying the design and analysis of machine learning algorithms.

These are sub-fields of machine learning that a machine learning practitioner does not need to know in great depth in order to achieve good results on a wide range of problems.

Methodology

The study adopted a quantitative research approach using a survey research design to examine the relationships among the variables under study. The population of the study comprised all Higher National Diploma II (HND II) students of the Federal Polytechnic Ilaro during the 2023/2024 academic session, totaling 2,639 students across all faculties in the institution. This population was considered because they are more experienced among the level of students on campus. A sample size of 348 respondents was determined using Taro Yamane's (1967) formula, which ensures a representative sample while maintaining an acceptable margin of error. A convenience sampling

technique was employed in selecting respondents based on their availability and willingness to participate in the study.

Data for the study were collected using a structured questionnaire, which was designed to elicit information relevant to the variables under study. The questionnaire consisted of clearly structured sections, with items measured using a Likert-scale format to enable respondents to express the degree of their agreement or disagreement with the statements presented. The development of the questionnaire were based on literature with focus on the goals of the study for content validation.

The collected data were analyzed using descriptive and inferential statistical techniques. Data analysis was conducted using the Statistical Package for the Social Sciences (SPSS), with all statistical tests evaluated at a 0.05 level of significance.

Data Analysis

Table 4.1: Correlations

		ChatGPT	Turnitin	Quilbot	Students' Academic Performance
ChatGPT	Pearson Correlation	1	.322**	.322**	-.101
	Sig. (2-tailed)		.000	.000	.064
	N	336	336	336	336
Turnitin	Pearson Correlation	.322**	1	.412**	.001
	Sig. (2-tailed)	.000		.000	.979
	N	336	336	336	336
Quilbot	Pearson Correlation	.322**	.412**	1	.008
	Sig. (2-tailed)	.000	.000		.881
	N	336	336	336	336
Students' Academic Performance	Pearson Correlation	-.101	.001	.008	1
	Sig. (2-tailed)	.064	.979	.881	
	N	336	336	336	336

** . Correlation is significant at the 0.01 level (2-tailed).

The correlations table above shows that there is a weak negative relationship between ChatGPT and Students' Academic Performance, with the correlation value of -0.101. This suggests that students who use ChatGPT tend to have slightly lower academic performance, the significance level (Sig. = 0.064) is above 0.05, meaning that ChatGPT is not statistically significant with Students' Academic Performance in Federal Polytechnic, Ilaro, Ogun state.

Turnitin and Quilbot with correlations value of 0.001 and 0.008 respectively which are very close to zero, indicate that, there is no meaningful relationship between the use of these AI tools and students' academic performance. The p-values (0.979 and 0.881) are very high, meaning these results are not statistically significant, further confirming that Turnitin and Quilbot usage does not directly impact students' academic performance.

The lack of significant correlations between these AI tools and students' academic performance suggests that the use of these AI tools (ChatGPT, Turnitin and Quilbot) does predict students' academic performance in Federal Polytechnic, Ilaro, Ogun state.

ANOVA^a

Table 4.2

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	.149	3	.050	1.411	.239 ^b
	Residual	11.703	332	.035		
	Total	11.852	335			

a. Dependent Variable: Students' Academic Performance

b. Predictors: (Constant), Quilbot, ChatGPT, Turnitin

The ANOVA table above indicates that Quilbot, ChatGPT, and Turnitin has a significant value of 0.239, which is greater than the conventional threshold of 0.05. This implies that Quilbot, ChatGPT, and Turnitin is statistically insignificant with students' academic performance. According to this result, AI tools adopted for this study are not good predictors of students' academic performance. Hence, Artificial Intelligence has no significant effect on students' academic performance in Federal Polytechnic, Ilaro, Ogun state.

Table 4.3: Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	3.798	.124		30.561	.000
	ChatGPT	-.059	.029	-.121	-2.052	.041
	Turnitin	.013	.031	.025	.413	.680

Quillbot	.019	.033	.037	.599	.550
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a. Dependent Variable: Students' Academic Performance

Test of Hypotheses

Decision Rule: if p-value is greater than 0.05, accept the null (H_0) and reject the alternative (H_1). However, if p-value is lesser than 0.05, reject the null (H_0) and accept the alternative (H_1).

Hypothesis One

H₀: ChatGPT has no significant effect on students' academic performance in Federal polytechnic Ilaro, Ogun state.

H₁: ChatGPT has significant effect on students' academic performance in Federal polytechnic Ilaro, Ogun state.

The above table indicates that ChatGPT has a significant value of 0.041, which is less than the conventional threshold of 0.05. This suggests that ChatGPT is statistically significant with students' academic performance. According to this result, alternate hypothesis is accepted. Hence, we conclude ChatGPT has significant effect on students' academic performance in Federal polytechnic Ilaro, Ogun state.

Hypothesis Two

H₀: Turnitin has no significant effect on students' academic performance in Federal polytechnic Ilaro, Ogun state.

H₁: Turnitin has significant effect on students' academic performance in Federal polytechnic Ilaro, Ogun state.

The coefficient table further shows that Turnitin has a significant value of 0.680 which is greater than 0.05 level of significance. This inferred that Turnitin is statistically insignificant with students' academic performance. Therefore, null hypothesis is accepted. Thus, we conclude that Turnitin has no significant effect on students' academic performance in Federal polytechnic Ilaro, Ogun state.

Hypothesis Three

H₀: quillbot has no significant effect on students' academic performance in Federal polytechnic Ilaro, Ogun state.

H₁: quillbot has significant effect on students' academic performance in Federal polytechnic Ilaro, Ogun state.

The coefficient table revealed that Quillbot has a significant value of 0.550, which is greater than the conventional threshold of 0.05. This suggests that quillbot is statistically insignificant with students' academic performance. According to this result, null hypothesis is accepted. Therefore, we conclude quillbot has no significant effect on students' academic performance in Federal polytechnic Ilaro, Ogun state.

Discussion of Findings

The implication of the negative effect of ChatGPT on students' academic performance in Federal polytechnic Ilaro, Ogun state was revealed by the first hypothesis, where ChatGPT help students to understand complex concepts better and it improve their ability to generate ideas for assignments. More so, ChatGPT was easy for students, thereby contributing to their overall learning experience.

The first hypothesis of this study evidenced that ChatGPT has a weak negative significant effect on students' academic performance in Federal polytechnic Ilaro, Ogun state. This implies that ChatGPT help students to understand complex concepts better and it improve their ability to generate ideas for assignments. More so, ChatGPT was easy for students, thereby contributing to their overall learning experience.

Based on the table, the simple regression equation is formed as: $Y = 3.798 + (-0.059) X$.

The linear regression equation shows that the coefficient value for the intercept term, denoted as " β_0 " is estimated to be 3.798. This implies that when the value of ChatGPT is at zero, the corresponding students' academic performance is expected to have a value of 3.798. The coefficient value for ChatGPT (X) determined to be -0.059, indicate that a one-unit increase in ChatGPT will result in a corresponding rise of -5.9% in students' academic performance (Y).

More so, the study revealed that Turnitin has no significant effect on students' academic performance in Federal polytechnic Ilaro, Ogun state. This shows that many students were not using Turnitin to improve the originality of their assignments and their writing skills. It also shows that there was no awareness for proper citation of copied authors. Therefore, students failed to accurately detect plagiarism in their works.

Based on table 4.1.27, the linear regression equation is formed as: $Y = 3.798 + 0.013X$.

The simple linear regression equation suggests that the coefficient for the intercept term, denoted as " β_0 " is estimated to be 3.798. This implies that when Turnitin takes a value of zero, the corresponding students' academic performance is expected to have a value of 3.798. The coefficient value for Turnitin (X) is determined to be 0.013, indicating that a one-unit increase in turnitin will results in a corresponding rise of 1.3% in students' academic performance (Y).

Lastly, the findings of the study showed that quillbot has no significant effect on students' academic performance in Federal polytechnic Ilaro, Ogun state. This means students are not using quillbot to paraphrase their works which affects the clarity and coherence of their writing. More so, the students are not exploring quillbot to enhance their ability to rewrite sentences without losing meaning.

Based on the coefficients table, the simple regression equation is formed as: $Y = 3.798 + 0.019X$.

The linear regression equation shows that the coefficient value for the intercept term, denoted as " β_0 " is estimated to be 3.798. This implies that when the value of quillbotis at zero, the corresponding students' academic performance is expected to have a value of 3.798. The coefficient value for quillbot (X) determined to be 0.019, indicate that a one-unit increase in quillbot will result in a corresponding rise of 1.9% in students' academic performance (Y).

Conclusion

The first objective of this study was to evaluate the effect of ChatGPT on student academic performance at Federal Polytechnic Ilaro, Ogun State. Results revealed a weak yet statistically significant negative relationship between ChatGPT usage and academic performance ($\beta = -0.059$, $p = 0.041$). Is findings suggest that ChatGPT has a measurable impact, as it influences may slightly hinder academic success when over-relied upon, potentially due to reduced engagement with independent study skills. Consequently, the study concludes that ChatGPT significantly affects students' academic performance at Federal Polytechnic Ilaro, emphasizing the need for balanced use to foster optimal learning outcomes. This conclusion is also in line with the findings and conclusion of (Adedeyi & Okon 2023) who conducted similar research among university students in southwest Nigeria

The second objective of this study focused on assessing the impact of Turnitin on student academic performance at Federal Polytechnic Ilaro, Ogun State. The results indicated a weak and statistically insignificant positive effect of Turnitin on academic performance ($\beta = 0.013$, $p = 0.680$). This finding suggests that turnitin may contribute to academic integrity by discouraging plagiarism, it does not have a significant direct influence on academic performance outcomes in Federal Polytechnic Ilaro. The study concludes that Turnitin play significant role in enhancing integrity test achievement at Federal Polytechnic Ilaro. This because every final year students must subject their academic research to turnitin test to avoid high similarly index and this has significant helps in improving academic performance of student and boasted the integrity of the institution. This conclusion is also in line with the conclusion of Obafemi, S., & Adebayo, T. (2022). Who conducted similar research among the tertiary institution student south East Nigeria.

The third objective of this study investigated the impact of QuillBot on student academic performance at Federal Polytechnic Ilaro, Ogun State. The findings indicated a weak positive effect of QuillBot on student academic performance, which was statistically insignificant ($\beta = 0.019$, $p = 0.550$). This suggests that QuillBot may assist students in enhancing their writing skills, it does not have a significant direct influence on their overall academic outcomes Therefore, the study concludes that QuillBot does not significantly affect students' academic performance at Federal Polytechnic Ilaro, highlighting the need for complementary educational strategies to bolster student learning and writing skills. This conclusion also opined with the conclusion of Okeke, and Oladele, (2023). Who conducted similar research among the students at Federal University Abeokuta, Ogun State.

Recommendations

- The management of the Federal Polytechnic Ilaro, should educate their students on moderate use of ChatGPT for their assignment and other related academic work in order to instill critical thinking skill and avoid any form of limitation that may arise a result of over usage of Chat GPT in violation of academic integrity test.
- Turnitin be integrated into the curriculum across all departments. This can involve making the use of Turnitin mandatory for all major assignments and research projects, thereby reinforcing its importance in maintaining academic integrity and improving writing quality.

- The management should establish training programs to educate students and faculty member on the effective use of QuillBot. These sessions should focus on how to utilize this tool for improving writing skills, enhancing paraphrasing abilities, and avoiding plagiarism. Providing hands-on workshops will ensure that users understand the capabilities and limitations of the tool.
- Implementing a curriculum component focused on AI literacy can help students understand the capabilities and limitations of tools like ChatGPT. This will prepare them to use these technologies responsibly and enhance their overall academic performance

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