Impact of Diversity and Inclusion of Artificial Intelligence on Students' Learning Academic Performance of Senior Secondary School Students in Nigeria

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The increasing integration of Artificial Intelligence (AI) in education has sparked concerns regarding its effect on students' learning and academic performance. This study examined the impact of Diversity and Inclusion of Artificial Intelligence on students' learning and academic performance in Kosofe LGA Lagos State secondary schools. The study population comprises all commercial students from the four (4) selected senior secondary schools in Kosofe LGA of Lagos State. A descriptive survey research design was adopted for this study. Stratified sampling techniques based on clustering were used to select 120 students from the study population. A structured questionnaire was designed and administered to the respondents to gather in-depth information about the student's insight and experience of using AI in their study. To ensure the validity and reliability of the instrument, the questionnaire was pilot-tested with a small group of students outside the respondent schools with a reliability coefficient of 0.75 on Cronbach Alpha's scale. Inferential Statistics was used to analyze the data collected on the impact of diversity and inclusion of AI on students' academic performance. The study revealed that students exposed to inclusive and diverse learning environments enhanced and improved academic performance compared to their peers who learned with the traditional teaching method. Additionally, the study showed that fostering diversity of AI in student's learning academic encourages creative problem-solving, and strengthens their thinking skills. These results underscore the importance of prioritizing diversity and inclusion of AI in the academic performance of students. The study recommended that school management should ensure that the school has adequate instruments for AI installation and advancement in the school environment to promote equitable learning opportunities and better academic performance for all students.

Keywords: Artificial Intelligence (AI), Diversity, Inclusion, Academic Performance, Learning Environments.

Introduction

The rapid evolution of technological interaction has led to the development of various innovations that facilitate communication between users and digital systems. Among these, virtual assistants powered by artificial intelligence (AI) have gained prominence by leveraging computer algorithms to simulate human intelligence, providing users with an experience that closely resembles human interaction (Ayeni, 2024; Bancoro, 2024). In educational environments, AI has emerged as a transformative force, significantly improving communication between teachers and students. By utilizing virtual assistants that mimic human-

like responses, these technologies not only facilitate more engaging interactions but also adapt and refine their performance over time, leading to a richer learning experience. As students engage with AI-driven tools, their academic performance often benefits, further reinforcing the integration of AI technologies in education (Zhang, 2024).

Academic performance is a critical indicator of educational success, encompassing cognitive, behavioral, and contextual factors that measure how effectively students achieve their learning goals. It reflects their knowledge, skills, and competencies, serving as a key metric for evaluating AI's part in education. AI-driven assessments improve the accuracy and efficiency of evaluations while offering personalized feedback and recommendations for improvement (Bano et al., 2023). Beyond test scores, academic performance reflects both theoretical understanding and practical application, demonstrating students' ability to translate learning into real-world scenarios (Crompton & Burke, 2023). Many educational institutions worldwide are integrating AI into their systems to enhance teaching methodologies and optimize learning outcomes.

A fundamental principle of AI in education is ensuring equitable access to learning opportunities for all students, regardless of race, ethnicity, geographic location, or disability (Julien, 2024). AI-driven assessments provide tailored feedback, supporting individualized learning paths and fostering academic growth (Crisha et al., 2023; Dwi & Hidayatullah, 2024). Additionally, AI enhances learning experiences by allowing students to revisit recorded lessons and receive personalized guidance, addressing specific learning challenges (Abbasgholizadeh et al., 2024). While AI's inclusion in education offers significant benefits, challenges remain in ensuring full integration into mainstream curricula. Successful AI adoption requires time, attention, and adjustments to traditional educational frameworks.

The growing presence of AI in academia has transformed teaching methodologies, particularly in fostering inclusivity (Diana, 2024). Mathai (2024) highlights that AI applications create more flexible learning environments, increasing student engagement and performance in core subjects. Furthermore, diversity and inclusion play a crucial role in AI development, ensuring that training datasets are representative and inclusive of underrepresented groups (Mishra et al., 2024). The advancement of digital educational materials continues to enhance learning outcomes, making AI-driven tools a compelling complement to traditional teaching methods.

Despite the rapid growth, increasing inclusivity, and diversity of AI in education, several ethical concerns must be addressed to ensure student well-being and educational equity. While previous studies have highlighted AI's positive influence on student learning and academic performance (Pagliara et al., 2024; Bancoro, 2024), research also reveals potential drawbacks (Goralski & Tan, 2023; Darwish et al., 2023), with findings that remain inconclusive. Furthermore, disparities in technology access and varying levels of digital literacy among students pose significant challenges, leading to unequal AI adoption, difficulties in integrating AI into school activities, and limited assessment of AI tools across different subjects (Sasikala & Ravichanda, 2024; Werder et al., 2024). Addressing these challenges is crucial in ensuring AI's effective and equitable implementation in education. Despite these barriers, AI has shown great potential in improving student academic performance. Therefore, this study aims to examine the impact of AI diversity and inclusion on student learning and academic achievement in secondary schools within Kosofe LGA, Lagos State. In line with the above-mentioned issues the following research questions were answered in this study:

1. To what extent does the induction of AI applications impact students' learning and academic performance in secondary schools?
2. How does the diversity of AI improve learning and academic performance among secondary students?

The general objective of this study is to examine the impact ofAI induction and diversity on students' learning and academic performance among secondary school students. Other specific objectives of the study are to

1. Examine the extent to which AI application induction impacts students' learning and academic performance among secondary school students.
2. Investigate how AI diversity improves learning and academic performance among secondary students.

Literature Review

Artificial Intelligence

Artificial Intelligence (AI) is a broad field of computer science dedicated to developing systems capable of performing tasks that typically require human intelligence. AI involves creating algorithms and systems that enable machines to simulate cognitive functions such as learning, reasoning, problem-solving, perception, and language understanding. Algorithms—sets of rules

or instructions that guide AI systems—can be either symbolic (rule-based) or statistical (data-driven), depending on the problem being solved (Bano et al., 2023). A specialized form of machine learning, deep learning utilizes multi-layered neural networks to process vast datasets. It has been instrumental in advancements in areas such as natural language processing and computer vision Pagliara et al., (2024). The ultimate goal of AI is to create intelligent agents capable of operating autonomously in complex environments. Machine learning, a subset of AI, enables systems to learn from experience without explicit programming. It is categorized into supervised, unsupervised, and reinforcement learning (Shahzad et al., 2024). on the other hand, allows machines to understand, interpret, and generate human language, facilitating applications like chatbots and translation services.

As AI becomes increasingly integrated into society, ethical considerations regarding fairness, accountability, and transparency have gained importance. Addressing biases in AI algorithms is essential to ensure equitable outcomes for all users (Nabila et al., 2021). He further explained that AI, often referred to as "man-made brain power," has driven advancements across academic, public, and business sectors, enhancing efficiency and optimizing various processes. AI plays a vital role in education by promoting equity, diversity, and inclusion for all students. Zhang & Lu (2021) described AI as a knowledge-based system that collects, analyzes, and categorizes multidisciplinary information before presenting outcomes based on given commands. They also highlighted AI's revolutionary impact on labor efficiency, cost reduction, and the optimization of human resources, contributing to job creation and economic growth.

Impact of Artificial Intelligence on Academic Performance

AI's impact on education is profound, particularly in enhancing personalized learning experiences (Mishra et al., 2024). AI systems can assess individual student performance, identify unique learning needs, and tailor instructional materials accordingly. This personalized approach not only supports diverse learning abilities but also helps pinpoint areas where students struggle, enabling timely intervention and targeted support. Additionally, AI has the potential to streamline administrative tasks like grading, report writing, and feedback provision (Yilmaz & Karaoglan, 2023). By automatically grading exams and analyzing student responses, AI frees instructors to focus more on teaching rather than routine administrative work. Furthermore, AI offers opportunities to improve students' critical thinking skills. For example, creating lesson plans, a key exercise in many special education teacher preparation programs can now be done

by AI in under a minute. Rather than spending time on this task, instructors can guide preservice teachers in analyzing and discussing AI-generated lesson plans in small groups, fostering critical discourse that deepens understanding of the content.

AI has the potential to transform scientific research methodologies, particularly at research-intensive universities. Advanced data analytics, predictive modeling, and AI automation can enhance both the efficiency and accuracy of research processes (Xu et al., 2021). Picture a conversational AI methodologist in the social sciences, providing personalized support to researchers as they design studies or analyze data. With AI agents offering expert guidance, educational research could become more accessible, accelerating discovery and facilitating new interdisciplinary collaborations. AI also introduces innovative pedagogical approaches in fields like art, video, audio, and creative work production. These AI-driven tools can support new editing methods, presenting, and publishing creative projects, contributing to a more inclusive and diverse educational environment.

Academic performance is commonly measured through grades, test scores, and the successful completion of educational milestones such as diplomas or degrees. It reflects a student's ability to achieve specific academic goals within a given timeframe and their capacity to respond to educational stimuli (Martínez et. al., 2015). However, academic performance extends beyond grading, encompassing the acquisition of both theoretical knowledge and practical skills. It demonstrates how effectively students can apply their learning to real-world situations.

Multiple internal and external factors influence academic performance, including cognitive abilities, motivation, study habits, and persistence (Castrillón et. al., 2020). Additionally, personal attributes such as aptitude and emotional well-being, along with external elements like socioeconomic status, teaching quality, and institutional support, play crucial roles in shaping student success. These factors collectively determine a student’s level of engagement, ability to overcome challenges, and overall academic achievement. Moreover, academic performance is closely linked to future career success, influencing opportunities for scholarships, job prospects, and access to higher education pathways. Given its impact on personal and professional growth, understanding and enhancing academic performance remains a key focus in educational research and practice.

Artificial Intelligence Inclusive and Learning Academic Performance

Inclusive education is an approach in modern education systems that seeks to meet the diverse needs of all students, particularly those from underrepresented groups, by ensuring equal access to quality education. It values each child and fosters an environment where differences are embraced and celebrated. At its core, inclusive education ensures that all students, regardless of their background or specific needs, have the opportunity to learn and thrive.

Wang et al. (2023) defined AI as the science and skills of problem-solving through technologies that integrate principles of science, technology, engineering, and mathematics (STEM). Yilmaz and Karaoglan (2023) emphasized the importance of AI in education, noting that it merges knowledge from various disciplines and technologies. Likewise, Nemorin et al. (2023) argued that AI is essential to education, Bano et al. (2023) and Shams and Zowghi (2023) highlighted the rapid growth of AI in educational settings. According to Mishra et al. (2024), inclusion is a vital aspect of education as it enhances educational equity and quality, fosters intelligence, and contributes to a more equitable society. Inclusive education is essential for building a fairer society, as noted by Sasikala and Ravichandran (2024).

This aligns with findings from Nabila et al. (2024), which underscore the role of AI in promoting equity and inclusion. Research shows that AI can significantly enhance learning for students with disabilities by providing customized tools tailored to their specific needs (Pagliara et al., 2020). These tools not only create personalized learning experiences but also help strengthen the emotional connection between teachers and students, which boosts motivation and engagement—critical components for inclusion (Ramadan, 2022). The integration of AI tools in schools is an important advancement in supporting students with disabilities.

$H0_1$: There is no significant relationship between the induction of AI applications on learning academic performance of Secondary School students.

Artificial Intelligence Diversity and Academic performance

In academia, there has been a rise in the use of AI, particularly in using AI-powered tools that are used by both instructors and students. These tools have been used across various disciplines taught by educational institutions but mainly influenced developments in Information and Communication Technologies (ICT). Based on the study conducted by Crompton & Burke (2023), it was revealed that 72% of AI users in academic institutions are students who use AI as an aid to access learning materials, answer student assessments, and do self-testing purposes.

Aravantinos et al. (2024) explained that using AI in higher education yields several benefits including increased outcomes, access, and retention; lower costs; and a substantial decrease in completion time. They emphasized that AI provides aid, not only in learning and instruction but also in absorbing this knowledge and applying them in the field.

AI tools can help create personalized learning that tackles individual student issues, especially for those with disabilities or other learning challenges. But to make inclusive education work well, it requires not just new technology but also a focus on thorough teacher training and getting the community involved so that education structures mirror the diversity of students. Therefore, an inclusive strategy must combine new methods with ethical practices, making sure that all students have fair chances to succeed in their education. Putting AI into personalized learning systems requires complete training and support for teachers. Another important component of inclusive education is determining the expectations of students and teachers. Educators can develop a Google Doc and spur students to establish the rules and guidelines of the activity with which they wish to comply. Darwish et al., (2024) accepted that it is important to guarantee that diversity is maintained in the delivery of the syllabus and designed to meet the needs of all students.

Hooijer et al. (2021) emphasized that educators must engage in regular and consistent reflection—both essential for challenging them to reconsider, rethink, and reevaluate their approach to fostering an inclusive learning environment. Research indicates that while many educators recognize the benefits of AI, they face significant barriers to its implementation, such as inadequate training and limited resources, which negatively impact student outcomes (Nguyen et al., 2023). Customized training programs can equip teachers with the necessary skills to effectively integrate AI tools, enhancing instructional methods and promoting inclusive learning environments (García-Martínez et al., 2023). Moreover, continuous institutional support is crucial—not just in terms of technical assistance but also by providing opportunities for collaboration and the exchange of best practices among educators.

Studies on diverse learning needs suggest that AI has the potential to transform teaching approaches, particularly for students with disabilities, underscoring the necessity of a strong support system (Hopcan et al., 2023). However, challenges such as limited digital skills among teachers and inadequate infrastructure must be addressed to ensure equitable access to personalized learning solutions (Aravantinos et al., 2024). A comprehensive strategy is essential

to ensure educators feel confident and capable of leveraging AI for personalized learning. As Hopcan et al. (2023) highlighted, major obstacles—including insufficient teacher training and the absence of well-structured implementation plans—must be resolved to maximize AI's impact on inclusive education. Ultimately, inclusive education is not merely a teaching approach but a commitment to social justice one that values and embraces the diverse abilities of all learners, thereby enriching the educational experience for everyone. This commitment necessitates significant pedagogical shifts to accommodate students' varied needs, as emphasized by Nguyen et al. (2023).

$H0_2$: There is no significant relationship between the diversity of AI on learning academic performance of Secondary School students.

Theoretical Review

Social Learning Theory (SLT)

Social Learning Theory (SLT) by Albert Bandura, a Canadian-American psychologist, developed the Social Learning Theory in the 1960s. The theory posits that individuals acquire new behaviors and knowledge through the observation of others within a social context. This theory emphasizes the significance of modeling, imitation, and the interplay between cognitive, behavioral, and environmental factors in the learning process. In contemporary education, the integration of Artificial Intelligence (AI) offers novel avenues to enhance learning experiences, promote diversity, and improve academic performance. With the help of SLT individuals can learn by observing the behaviors of others and the outcomes of those behaviors, without direct personal experience. Hwang et al (2020) believe that enlightening young students on the strategic deployment of AI and social media bolsters both their academic endeavors and mental wellness. In doing so, we construct a navigational blueprint for the youth to capitalize on smart learning methodologies for holistic self-improvement. AI can analyze individual learning patterns and tailor educational content to meet specific needs, thereby accommodating diverse learning styles and promoting inclusivity. This is consistent with prior studies that have endorsed the positive influence of Internet use on student academic performance (Seldon & Abidoye,2018). Corroborating the arguments, extant literature provides policy directives aimed at fostering a balanced digital ecosystem to buttress academic success and emotional well-being (Chen, et al. 2020). The theory believes that AI has the potential to address some of the biggest challenges facing education today.

Multiple Intelligences Theory.

Multiple Intelligences was proposed by Howard Gardner, an American cognitive psychologist, in 1983 with the publication of his book "Frames of Mind". This theory challenged the traditional view of intelligence as a single entity, suggesting instead that individuals possess multiple distinct types of intelligence. The integration of MI theory with AI-driven personalized learning systems presents promising avenues for addressing the diverse needs of learners. By aligning instructional strategies with individual intelligence and leveraging AI to customize learning experiences, educators can enhance student engagement and academic performance. A study by Liu, S., & Wang, Y. (2024) emphasizes the practical application of MI theory in classroom settings, advocating for instructional strategies that cater to diverse intelligence.

One of the most significant results of the theory of multiple intelligences is how it has provided eight different potential pathways to learning, the theory of multiple intelligences suggests several other ways in which the material might be presented to facilitate effective learning such as words, numbers or logic, Pictures, music, self-reflection, a physical experience and social experience The research suggests that by recognizing and nurturing individual strengths, educators can create more inclusive and effective learning environments. Recent scholarly work continues to validate and expand upon Gardner's MI theory, particularly through the incorporation of AI technologies in education. This synergy holds significant potential for advancing personalized learning and accommodating the diverse cognitive profiles of students. The study examines various techniques aligned with different intelligences, aiming to improve learners' engagement and proficiency in English. The rise of Artificial Intelligence (AI) has significantly influenced personalized learning approaches. A comprehensive review by Zawacki-Richter et al. (2019) discusses how AI can tailor educational experiences to individual learner needs, thereby enhancing engagement and learning outcomes. However, it is crucial to remain cognizant of ethical considerations, such as data privacy and algorithmic bias, to ensure equitable and inclusive educational practices. This study is anchored on this theory as many educators have already embraced this theory, it is time for educational administrators to take notice of new techniques and technologies that can improve the academic success of students.

Empirical Review

Diana (2024) investigated the paradigm in research regarding the inclusion of artificial intelligence (AI) in education, particularly concerning meeting the diverse needs of students, including those with disabilities. The findings of the study revealed that AI enhances personalized learning by adapting content to fit individual needs and providing immediate feedback through intelligent tutoring systems. Additionally, the use of AI in teaching methods increased engagement among students from underrepresented groups, addressing existing gaps in educational success. However, challenges such as inadequate infrastructure and insufficient teacher training persist, making effective implementation difficult. These results open the door for future discussions on the impact of AI on inclusive education, emphasizing both its potential and the obstacles that need to be overcome to create equitable learning environments. Similarly, Mallillin (2024) found that AI effectively targets specific learning needs, identifies struggling learners, and provides necessary interventions and support. Fahd et al. (2024) demonstrated a positive impact of AI on students' attitudes toward learning, motivation, and study habits, supporting the view that AI can foster a more engaging and supportive learning environment.

García-Martínez et al. (2023) examined the quantitative and qualitative impact of AI and computational sciences on student performance, conducting a systematic review and meta-analysis of 25 articles from the Web of Science (WOS) and Scopus databases. Their study concluded that AI and computational sciences had a positive impact on student performance, with improvements in learning attitudes and motivation. This aligns with Gabriel's (2024) findings, which emphasized the transformative potential of AI in inclusive education, particularly through adaptive learning platforms, intelligent tutoring systems, and automated assessment tools. Gabriel also noted challenges in implementing AI for inclusive education, such as technological difficulties, poor connectivity, and limitations in databases. Zhihao (2024) examined the impact of AI on college students' learning, focusing on learning motivation, learning styles, and academic performance. Using a combination of quantitative and qualitative methods, the study found that AI not only enhances motivation and diversifies learning styles but also leads to better academic performance. Students who used AI performed better academically than those who did not, indicating the positive effect of AI on academic outcomes.

Studies by Hopcan et al. (2022) and Salas-Pilco (2020) suggested that diversity and inclusion should be integral components of the curriculum, incorporating technology for all students, particularly those from underrepresented groups. Abidova (2023) further hypothesized that an

inclusive educational environment stimulates growth and development among students, reinforcing the need for AI-driven inclusivity in education. The Organization for Economic Cooperation and Development (OECD, 2024) evaluated AI's role in promoting equity and inclusion in education. The evaluation highlighted the importance of balancing the potential benefits of AI with ethical considerations, cautioning that AI could exacerbate existing disparities. The OECD stressed the need to maintain educational integrity while navigating the growing influence of commercial interests in educational tools.

Yaghoob and Hossein (2016) explored the relationship between multiple intelligences and academic achievement levels in high school students. Their study found that verbal-linguistic and visual-spatial intelligence were moderately correlated with academic performance, whereas musical intelligence negatively predicted achievement. These findings highlight the importance of recognizing individual differences in cognitive styles when implementing AI in education. Shahzad et al. (2024) examined the relationship between AI, social media use, academic performance, and mental well-being. Their study, using partial least squares–structural equation modeling (PLS-SEM) with 401 Chinese university students, revealed that both AI and social media had positive effects on academic performance and mental well-being. Smart learning was identified as a mediating variable that amplified the benefits of AI and social media on both academic success and mental health.

Finally, Bancoro (2024) analyzed the extent of AI usage among Business Administration students, examining factors like functionality, availability, complexity, and academic performance. The study found that while AI usage was moderately prevalent among students, there was no significant relationship between AI use and academic performance. Shams and Zowghi (2023) suggested that AI and emerging technologies foster innovation, improving teaching and learning practices. Nabila et al. (2021) also supported the view that emerging technologies, including AI, can enhance the multisensory aspects of learning, further contributing to the inclusivity of education.

Methodology

This study examined the impact of Diversity and Inclusion of Artificial Intelligence on students' learning and academic performance in secondary Schools in Kosofe LGA Lagos State. The study population comprises all commercial students from the four (4) selected senior secondary schools in Kosofe LGA of Lagos State. A descriptive survey research design was

adopted for this study. Stratified sampling techniques based on clustering were used to select 120 students from the study population. A structured questionnaire was designed and administered to the respondents to gather in-depth information about the student's insight and experience of using AI in their study. The questionnaire was structured on a Likert scale with options of four variables which range from Strongly Agree (SA) 5, Agree (A) 4, Neutral 3, Strongly Disagree (SD) 2, Disagree (D) 1. To ensure the validity and reliability of the instrument, the questionnaire was pilot-tested with a small group of students outside the respondent schools with a reliability coefficient of 0.75 on Cronbach Alpha's scale. The instrument was administered by the researcher through personal contact. One hundred questionnaires administered were duly filled and returned. This represented a 100% rate of return. Data generated from the questionnaires were analyzed using, percentages, mean, and standard deviation. Pearson Correlation was also used to test the hypotheses at a 0.05 level of significance on the impact of diversity and inclusion of AI on students' academic performance.

Data Presentation and Analysis.

Characteristics of the Respondents

Table 1: **Descriptive Statistic of Respondents of the Secondary School, level, and Gender**

Biodata	Statutory Distribution	Frequency	Percentage (%)	Number
School	Isheri Senior Secondary School	31	26	
	Ojota Senior Secondary School	30	25	
	Anthony Village Senior High School	30	25	
	Ogudu Grammar School	29	24	120
Class	SS1	50	41.7	
	SS2	30	25	
	SS3	40	33.3	120
Gender	Male	74	61.7	
	Female	46	38.3	120

Source: Researchers' computation (2025).

Table 1 shows the name of the student schools with percentage rates of 26,25,25, and 24, respectively. The classes showed that 41.7% of the respondents were from SS1, 25% were from SS2, and 33.3% were from SS3. The gender of the students was also shown, with 74 female respondents, equivalent to 61.6 %, and 46 male respondents, equivalent to 38.4%, who filled out the questionnaire.

Table 2: AI induction and students' learning and academic performance.

S/N	ITEMS	SA	A	N	D	SD	MEAN	S.D	DECISION
1	Have you noticed any changes in your grades since you have been using AI tools for your school work?	50	49	5	11	5	4.07	1.08	Accepted
2	Do you find it easy to access and use AI tools for your study without struggling?	70	32	3	7	8	4.24	1.17	Accepted
3.	Do you believe AI can replace traditional learning methods?	53	61	0	4	2	4.33	0.71	Accepted
4	Do AI tools affect your motivation to learn?	54	45	2	13	6	4.07	1.15	Accepted
5	Do the use of AI tools influence your development and critical thinking skills?	46	38	7	21	8	3.78	1.28	Accepted
6	Do you notice any negative effects of using AI for academic work	40	40	5	28	7	2.65	1.31	Accepted
7.	Do you think AI improves your academic performance	53	39	2	20	6	3.94	1.03	Accepted
8.	Do you think AI tools provide the personalized learning experience you need for your school work?	29	54	3	19	15	3.53	1.33	Accepted

Source: Field work, 2025

Table 2 showed that the respondents acknowledged grade improvements with AI tools usage of the means and standard deviation of 4.07 and 1.08 respectively suggesting that AI tools enhance student learning efficiency. With the mean and standard deviation of 4.24 and 1.17, the students agreed that they could easily access and use AI tools. The student agreed that AI tools increased their motivation with the mean and standard of 4.07, and 1.15. The student means a rating of 3.78 and 1.28 implied that the use of AI enhances their critical thinking skills. The majority of the student agreed that the use of AI has negative effects on their academic work

with a mean of 2.65 and 1.31 respectively. The student also believes that AI improves their learning and academic performance with 3.94 and 1.03 mean and standard deviation. The means of 3.53 and 1.33 indicate that AI provides a personalized learning experience and that AI adapts lessons to individual student needs. The student agreed that AI should be fully integrated into education with the mean rating of, AI-driven learning improves efficiency, provides real-time feedback, enhances engagement, and complements traditional methods. However, it should be balanced with teacher-led instruction to maintain human-centered education (Zawacki-Richter et al., 2020). This implied that the induction of AI applications impacts students 'learning and academic performance in secondary schools in Kosofe Local govt.

Table 3: AI Diversity and Students Learning and Academic Performance

S/N	ITEMS	SA	A	N	D	SD	MEAN	S.D	DECISION
1	Do AI tools help explain concepts better than traditional textbooks?	44	32	16	20	18	3.78	1.08	Accepted
2	Have AI tools made learning more interesting for you?	46	28	11	30	5	3.67	1.31	Accepted
3.	Do AI tools help you complete your homework faster?	49	35	0	28	8	3.74	1.37	Accepted
4	Do you feel more confident in your academic abilities after using AI tools?	33	38	17	16	16	3.22	1.50	Accepted
5	Should AI tools be part of your regular school curriculum?	51	40	13	14	12	3.53	1.42	Accepted
6	Do AI tools you use provide diverse learning methods (e.g., videos, text, interactive quizzes)?	99	35	2	24	20	3.41	1.51	Accepted
7.	Do you believe AI can improve the way you learn?	51	33	1	19	16	3.7	1.48	Accepted
8	Do you think AI tools are fair to all types of learners?	47	38	5	20	10	3.7	1.54	Accepted
	GRAND MEAN								

Source: Field work, 2025

The mean and standard deviation of 3.78 and 1.08 from Table 3 revealed that most students agree that AI tools help explain concepts more effectively than traditional textbooks, Also, AI

tools are perceived to make learning more interesting for students, though with a slightly higher variability in responses with the means and S.D of 3.67 and 1.31 respectively. Students agree that AI tools help them complete homework faster with means of Mean of 3.74 and SD of 1.37, though with some variation in their responses (indicated by the higher SD). The student responses showmoderate agreement that AI tools boost students' confidence in their academic abilities with amean of 3.22 and an SD of 1.50. also, students seem to support the idea of incorporating AI tools into the regular school curriculum with a mean of 3.53 and an SD of 1.42. The mean value suggests a favorable attitude, though the moderate SD indicates that some students might have reservations. It is likely that students see the value in AI tools, but may also acknowledge the importance of traditional teaching methods. Moreover, the lowest mean (3.41) suggests that while students acknowledge the diversity of learning methods offered by AI tools, some students may not fully benefit from them. The high SD (1.51) shows variability, indicating that some students value diversity, while others might not find it as useful or accessible. Students generally believe that AI can improve the way they learn. The mean of 3.7 suggests a positive attitude, though the relatively high SD of 1.48 indicates some differing opinions. AI's ability to adapt to individual learning styles is viewed favorably by many. Students believe that AI tools are generally fair to all types of learners with the mean of 3.7 and S.D of 1.54 suggesting that not all students feel this way, with some possibly perceiving AI tools as biased or not tailored to their specific needs. The study revealed that the inclusion of AI tools in secondary schools has a positive impact on student learning and academic performance. However, the effectiveness and perception of AI tools vary among students, with some benefiting more than others depending on individual learning styles and preferences.

Testing of Research Hypotheses

Hypothesis One: There is no significant relationship between the Induction of AI applications on the learning academic performance of Secondary School students.

Table 4:

Variable	AI -Inclusion in learning	Academic Performance
AI Inclusion in Learning	1	0.487**
Learning Academic Performance Correlation Coefficient Sig. (2-tailed)	0.487**	1

There is a significant Correlation Pearson Coefficient. Sig. (2-tailed)	-	0.000
N	120	120

Correlation is significant at the 0.05 level (2-tailed)

Source: Researcher's Computation (2025).

Table 4 revealed the results of the correlations between AI inclusion and learning Academic performance of senior secondary school students. This indicated a moderate positive correlation between AI inclusion in learning and Academic performance. It was discovered that the P- P-value 0.487 was greater than alpha 0.05 showing that the null hypothesis was rejected. This means that the result is statistically significant at $p < 0.01$. This revealed that AI inclusion in learning and Academic performance of senior secondary school students were positively significant

Hypothesis Two:There is no significant relationship between the diversity of AI on learning academic performance of Secondary School students.

Table 5 :

Variable	AI -Diversity in learning	Academic Performance
AI Diversity in Learning	1	0.756**
Learning Academic Performance Correlation Coefficient Sig. (2-tailed)	0.756**	1
There is a significant Correlation Pearson Coefficient. Sig. (2-tailed)	-	0.001
N	120	120

Correlation is significant at the 0.05 level (2-tailed)**Source:** Field work, 2025

Table 5shows the results of the correlations between AI diversity and learning Academic performance of senior secondary school students. This revealed a positive correlation between AI diversity in learning and Academic performance. It was discovered that the P-valueof 0.756 was greater than alpha 0.05 showing that the null hypothesis was rejected. This indicated that the result is statistically significant at $p < 0.01$. This revealed that AI diversity in learning and Academic performance of senior secondary school students was significantlypositive.

Conclusion

The integration of artificial intelligence (AI) applications in secondary schools has been shown to have a significant and positive impact on students' learning experiences and academic performance. The findings from this study highlighted several key benefits of AI tools, including enhanced understanding of complex concepts, increased engagement with learning materials, and improved efficiency in completing assignments. Students reported feeling more confident in their academic abilities after using AI tools, underscoring the positive role of these technologies in boosting students' self-assurance and motivation and the induction of AI tools into secondary education has proven beneficial for major of the students. The study concluded that integrating diverse AI in learning environments enhanced and improved academic performance compared to their peers who learned with the traditional teaching method and the study further revealed that fostering diversity of AI in student's learning academic encourages creative problem-solving, and strengthens their thinking skills.

Recommendations

The study recommended that school management should design AI tools to meet the diverse learning styles of secondary school students. Tools that adapt to different cognitive levels, learning preferences (e.g., visual, auditory, kinesthetic), and academic needs to ensure that all students benefit equally from the technology. This can be achieved by offering a variety of learning methods such as videos, interactive quizzes, and personalized content. Also, AI tools are to be incorporated into the learning environment that is the curriculum to promote equitable learning opportunities and better academic performance for all students. Schools should consider using AI as a supplementary resource, alongside traditional learning methods, to offer a more personalized and adaptive learning experience, educators should prioritize diversity and inclusion of AI applications to foster an equitable and effective learning atmosphere for all students. However, it is important to carefully consider the potential benefits and drawbacks of using artificial intelligence and to ensure that the algorithms are designed and trained in a way that promotes fairness and inclusivity, without raising the risk of human exclusion or discrimination. They should seek opportunities to gain AI literacy, regardless of their major, as this knowledge will become fundamental across all professions.

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