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IMPACT OF ARTIFICIAL INTELLIGENCE ON STUDENTS' COMMUNICATION IN COLLEGES OF EDUCATION IN GOMBE STATE, NIGERIA

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Abstract

The study explored the Impact of Artificial Intelligence on Communication in College of Education in Gombe State, Nigeria. Specifically, the study was set to: assess the impact of artificial intelligence tools on communication in colleges of education in Gombe State, Nigeria. This objective was framed into a research question and a hypothesis respectively. Survey research design was used in the study. The population of the study was made up of 3,181 respondents which comprised 1,658 lecturers and 1,523 senior management staff in the three (3) government owned Colleges of Education in Gombe State, Nigeria. A sample size of 346 participants, consisting of 180 and 166 senior management staff were used in the study. The instrument titled "Questionnaire on Artificial Intelligence Tools and Automation of Routine Administrative Task (QARITARAT)" was used for data collection in the study. The validated instrument was pilot tested, the reliability co-efficient was determined using Cronbach Alpha statistic and a reliability coefficient of 0.82 was obtained. The data collected in the study was computerized into database using Statistical Package for Social Sciences (SPSS) version 23.0. The descriptive statistics of frequency counts, mean and standard deviation was used to answer the research question, while Chi-square (χ^2) was used to test the hypothesis at 0.05 level of significance. Findings revealed that significant difference does exist in the impact of artificial intelligence on communication in colleges of education in Gombe State, Nigeria. It was recommended among others that, the management of colleges of education should carefully deploy artificial intelligence tools in automating routine administrative tasks within the tertiary institutions so as to forestall the negative impact of the technology on institutions' data. The management of the colleges of education should consider ethical factors and significant challenges that integrating artificial intelligence tools poses which include potential for bias, privacy breaches, and loss of human touch among others.

Key Words: Artificial Intelligence, Administrative Tasks, College of Education, Communication, etc

Introduction

In today's rapidly evolving global landscape, the integration of technology within educational institutions has transitioned from a novel development to an essential component of modern academic management. Among the most transformative innovations is Artificial Intelligence (AI), a technology that is redefining how institutions process information, interact with stakeholders, and manage routine operations. While AI has made notable strides in enhancing teaching and learning across the globe, its application in automating administrative processes is gaining increasing attention—particularly within developing educational systems such as those in Gombe State, Nigeria.

Administrative tasks internal communication and attendance tracking are often repetitive, time-consuming, and vulnerable to human error. In Colleges of Education within Gombe State, these functions are still largely executed through manual processes, which places considerable pressure on administrative staff and limits institutional efficiency. With the rising demand for higher education, increasing complexity of academic data, and limited availability of skilled personnel, the need for intelligent, fast, and reliable administrative systems has become more urgent than ever.

AI offers a compelling solution to these challenges. Tools such as intelligent chatbots for handling student inquiries, automated attendance systems, and data-driven reporting platforms demonstrate the potential of AI to enhance administrative operations, boost efficiency, and allow staff to focus on more strategic and value-added activities (Yakubu Iliya, 2025). However, the deployment of these tools in Nigerian Colleges of Education—especially in areas where technological infrastructure remains underdeveloped—has been inconsistent, often hindered by inadequate resources, limited awareness, and resistance to change. This study seeks to critically examine the extent to which AI tools are being adopted to automate routine administrative tasks in Colleges of Education across Gombe State.

Artificial Intelligence (AI) has emerged as a transformative force that extends beyond automating labor-intensive tasks, influencing a wide array of societal functions and reshaping the nature of work in the digital age (Hedau, 2023). In the context of education, AI plays a pivotal role in institutional operations by driving digital transformation and integrating emerging technologies into routine functions. Its impact is evident across various sectors—healthcare, finance, manufacturing, and retail—where it enhances innovation, increases automation, and improves efficiency. Within educational systems, AI facilitates the automation of administrative processes, enables advanced data analytics, and provides actionable insights that support strategic decision-making. Its ability to process and interpret vast datasets contributes significantly to operational optimization and institutional effectiveness.

According to Russo (2024), AI is revolutionizing industries globally, including the higher education sector. As institutions seek to navigate an increasingly technology-driven landscape, AI presents unique opportunities to enrich the learning experience, streamline administrative tasks, and foster institutional innovation. Hedau (2023) further highlights that AI, once confined to the realm of science fiction, has now become deeply embedded in everyday life—from digital

assistants providing navigational aid to algorithms shaping user preferences in entertainment and commerce. Amidst its rapid evolution, pressing questions emerge about AI's implications for the future of work and human roles within organizations. The development of intelligent software systems capable of performing tasks traditionally reliant on human cognition signifies a shift toward enhanced organizational intelligence. These systems not only analyze large-scale data but also extract insights that promote creativity, productivity, and overall efficiency.

In recent years, Artificial Intelligence (AI) has achieved remarkable advancements across various sectors of the global economy, including education. The higher education sector is increasingly recognizing AI as a strategic tool for gaining a competitive edge (Hannan & Liu, 2021). The emergence of the "smart university"—a concept characterized by institutions leveraging AI technologies to autonomously perform a wide range of functions—is becoming a reality due to ongoing developments in machine learning and natural language processing (Furey & Martin, 2019). These intelligent systems enable institutions to automate several core academic and administrative functions, including curriculum development, teaching, assessment, student record management, and even the issuance of transcripts and certificates.

AI, as a sophisticated technological innovation, mimics human cognitive processes through the use of machine learning algorithms, neural networks, and natural language processing. While its applications have transformed industries such as healthcare, finance, and manufacturing, its influence in the education sector—particularly in institutional administration and leadership—is growing rapidly. AI holds the potential to enhance the quality of education, support student achievement, and increase the efficiency of administrative tasks (Igbokwe, 2023). As Russo (2024) noted, AI technologies can significantly enrich the learning environment and streamline administrative workflows in higher education institutions. By automating routine processes, reducing paperwork, and increasing operational efficiency, AI facilitates improvements in areas such as admissions, enrollment management, financial aid, and alumni relations. Ultimately, the strategic implementation of AI allows institutions to optimize resource utilization and deliver a more engaging and efficient student experience.

Virtual assistants and chatbots have become increasingly prominent in higher education institutions, offering streamlined support for a variety of academic and administrative tasks. These intelligent systems are capable of handling functions such as responding to student inquiries, delivering course-related information, and assisting with routine operations like course registration and timetable scheduling. By automating these routine responsibilities, virtual assistants free up valuable time for staff to focus on more complex and strategic duties (Russo, 2024).

According to Ogunode and Gregory (2023), artificial intelligence refers to the development of computer systems and machines capable of performing tasks that typically require human cognitive abilities. These tasks include learning, reasoning, problem-solving, perception, and understanding natural language. AI technologies encompass a broad spectrum of techniques and tools, including machine learning, deep learning, natural language processing (NLP), computer vision, and robotics. These capabilities enable computers to process and analyze large datasets, recognize patterns, make predictions, and automate complex workflows.

Ogunode and Ukozor (2023) further describe AI as systems designed with human-like intelligence, embodied in computers, robots, or other intelligent machines, to support a range of functions that contribute to the socio-economic and political development of society. They define artificial intelligence as software or systems programmed to perform tasks that simulate human cognition, often embedded in digital platforms or computer-controlled robotics to enhance efficiency and decision-making across various sectors.

Schiller International University (2023) defines artificial intelligence (AI) as the ability of computer systems to perform tasks that traditionally require human intelligence. These tasks include speech recognition, natural language processing, decision-making, and learning from data. AI relies on sophisticated algorithms and mathematical models to analyze large datasets, detect patterns, and improve its performance over time through machine learning.

Artificial intelligence is a subfield of computer science focused on developing intelligent systems capable of executing tasks that typically demand human expertise. This involves designing algorithms and computational models that enable machines to interpret data, extract insights, and make informed decisions or predictions. According to Teachflow (2023), AI encompasses a range of technologies, including machine learning, natural language processing (NLP), computer vision, and robotics. These technologies empower AI systems to process vast amounts of information, recognize patterns, and adapt their responses based on context and feedback.

Unlike traditional computing systems, AI possesses the ability to operate in real time, process massive volumes of data, detect complex trends, and deliver highly accurate predictions. This capacity to automate tasks that once required human intervention makes AI particularly valuable in education. Understanding AI's potential is critical for evaluating its impact on school administration and management. By leveraging AI, educational institutions can streamline administrative processes, enhance operational efficiency, and make data-informed decisions that ultimately enrich the educational experience (Teachflow, 2023).

Artificial intelligence (AI) is reshaping school administration by automating routine tasks, optimizing resource allocation, and enhancing communication and collaboration among stakeholders. This section explores the role of AI in streamlining administrative operations, increasing institutional efficiency, and presents practical examples demonstrating its successful application in educational settings. According to Igbokwe (2023), AI technologies can significantly enhance the effectiveness of administrative functions within educational institutions. Tasks such as grading, scheduling, and maintaining student records can be automated through AI-powered systems, enabling educators to focus on more impactful responsibilities such as curriculum development and student engagement.

Managing administrative duties—such as organizing class schedules, processing grades, and maintaining academic records—is an essential but time-consuming aspect of institutional operations. AI tools can perform many of these tasks automatically, reducing the administrative burden and allowing school personnel to prioritize instructional and student-support activities. One of the key benefits of integrating AI into educational administration lies in its ability to optimize

routine processes, thereby improving overall institutional productivity. Teachflow (2023) outlines several areas where AI can deliver substantial improvements:

i. **Student Enrollment and Registration**: AI can simplify the enrollment process by analyzing application data, verifying submitted documents, and generating unique student identification numbers. This not only reduces the workload for administrative staff but also ensures greater accuracy and efficiency in managing student intake.
ii. **Attendance Management**: Advanced AI systems can track attendance using facial recognition or biometric verification, eliminating the need for manual record-keeping. This reduces errors and saves valuable instructional time.
iii. **Timetable Generation**: AI algorithms can assess multiple variables—such as faculty availability, subject requirements, and student preferences—to create conflict-free and efficient timetables. This improves resource utilization and minimizes scheduling challenges.
iv. **Grading and Assessment**: AI-powered grading tools can autonomously evaluate objective assessments, such as multiple-choice tests, and even assist in assessing written responses. These tools provide timely and accurate feedback, reducing the workload for educators and allowing more time for personalized instruction.
v. **Communication and Correspondence**: AI-enabled chatbots can handle routine inquiries from students, parents, and staff by delivering instant, pre-programmed responses. These systems can be programmed to answer frequently asked questions, share important announcements, and offer guidance on academic and administrative matters.

Through these applications, AI demonstrates significant potential to transform educational administration, reduce operational inefficiencies, and enhance the overall quality of institutional service delivery.

Nellutla (2024) argues that artificial intelligence (AI) holds significant potential for automating routine administrative tasks performed by educators, thereby streamlining processes, saving time, and improving institutional efficiency. AI can support educators in various aspects of their administrative responsibilities through the following applications:

i. **Grading and Assessment**: AI-enabled grading systems can automatically assess objective questions in quizzes, tests, and assignments, offering students immediate feedback and reducing the time educators spend on manual evaluation. Advanced systems are also capable of analyzing open-ended responses such as essays, providing initial assessments and suggestions for improvement.
ii. **Course Planning and Scheduling**: AI algorithms can analyze data on student preferences, performance, and learning styles to generate personalized course plans and optimized class schedules. These systems ensure efficient resource allocation and minimize scheduling conflicts, thereby enhancing overall institutional organization.
iii. **Student Support and Communication**: AI-powered chatbots and virtual assistants can offer customized support to students by addressing frequently asked questions, sharing

relevant resources, and guiding them through administrative procedures. Additionally, AI tools can automate routine communications, including reminders, updates, and announcements to students and parents.

iv. **Data Analysis and Reporting**: AI-driven analytics platforms can assess large volumes of student data—such as academic performance, attendance, and demographic information—to uncover patterns and provide actionable insights. These insights are delivered through dashboards, reports, and visualizations, supporting educators in tracking student progress and making evidence-based decisions.
v. **Content Creation and Curation**: AI tools can assist in the creation and organization of educational content, including lesson plans, interactive materials, assessments, and presentations. These tools can recommend or generate instructional resources tailored to student needs, interests, and learning preferences, enhancing curriculum relevance and engagement.
vi. **Administrative Workflow Automation**: AI systems can automate key administrative processes such as enrollment, registration, grading, and attendance tracking. Tasks like data entry, form processing, and document management can be efficiently handled by AI, allowing educators to devote more time to instructional delivery and student support.
vii. **Professional Development and Training**: AI-based learning platforms can deliver personalized professional development opportunities for educators by recommending courses, workshops, and learning resources aligned with their professional goals and areas of interest. These platforms can track progress, assess learning outcomes, and provide constructive feedback to support continuous professional growth.

By integrating AI into educational administration, institutions can enhance productivity, reduce workload, and enable educators to focus on higher-order tasks that contribute to improved teaching and learning outcomes.

According to Nellutla (2024), the application of artificial intelligence (AI) to automate administrative tasks allows educators to conserve time, reduce workload, and focus more effectively on their primary responsibilities—namely, teaching and supporting student learning. However, to maximize the benefits of these technologies and reduce potential risks, it is essential to design and implement AI systems ethically, transparently, and inclusively.

Puranik (2024) outlines several areas where AI is actively being utilized in higher education institutions:

i. **Automated Question Paper Generation**: Traditionally, developing examination question papers has been a time-consuming responsibility for faculty. AI algorithms can automate this process by generating questions based on predefined criteria such as subject relevance, question type, and difficulty level. This not only ensures fairness and alignment with learning objectives but also significantly reduces faculty workload.
ii. **Email Automation and Communication**: AI-enabled email systems assist administrative staff by analyzing content, recommending appropriate responses, and automating routine tasks such as scheduling meetings and sending reminders. This streamlining of

communication allows personnel to dedicate more time to meaningful engagements with students and faculty.

iii. **Result Processing and Generation**: Producing examination results, particularly in large institutions, can be a complex and time-intensive task. AI technologies can expedite the grading of objective tests and provide instant feedback to students. Additionally, AI tools can detect performance trends and anomalies, supporting personalized academic interventions.

iv. **Predictive Analytics**: AI systems can analyze vast datasets—including student performance records, demographic data, and behavioral patterns—to predict outcomes such as graduation rates, academic success, and course demand. This foresight enables institutions to identify at-risk students early and implement proactive support strategies.

v. **Student Retention**: AI tools are increasingly used to track indicators such as attendance, academic engagement, and grades. When signs of disengagement or struggle are detected, the system can trigger personalized support mechanisms, such as academic advising or tutoring, thereby improving retention and overall student success.

vi. **Management Reporting**: AI-powered analytics platforms can generate comprehensive management reports by aggregating data from various institutional sources. These reports offer valuable insights on areas such as enrollment trends, faculty workload, budgetary allocation, and resource utilization, enabling more informed and strategic decision-making.

vii. **Personalized Learning Experiences**: AI algorithms can enhance student engagement by recommending adaptive learning paths, customized instructional content, and real-time feedback based on individual learning styles and progress. This approach fosters deeper understanding and improved academic outcomes.

In the context of the digital era, AI is increasingly being leveraged to automate numerous routine administrative functions in education. These include communication, attendance tracking, result processing, and scheduling. For instance, data entry is being streamlined through AI's ability to extract and organize information from forms and documents with minimal human input. Similarly, attendance monitoring has been revolutionized through the integration of facial recognition and biometric technologies. Furthermore, scheduling classes, assessments, and extracurricular activities is now optimized using AI-based algorithms, which account for multiple constraints to maximize efficiency and minimize conflicts.

Igbokwe (2023) highlights that artificial intelligence (AI) is rapidly transforming educational administration by improving the efficiency and effectiveness of various processes, such as personalized learning, student evaluation, and administrative tasks. The potential of AI in educational management is promising and includes several key areas of impact:

i. **Personalized Education:** A key area where AI is revolutionizing educational administration is personalized learning. AI enables educators to tailor learning experiences to meet the individual needs and preferences of students, informed by their learning history and performance data. Through AI-driven personalized learning, students are more

engaged, motivated, and likely to perform better academically. This approach contributes to the creation of more efficient and effective educational systems.

ii. **Student Evaluation:** AI also plays a significant role in student evaluation. AI-based assessment technologies can process large datasets to provide accurate and timely feedback to students, helping them identify areas for improvement and track their progress over time. AI systems can also reduce biases and subjectivity in grading, leading to more consistent and equitable evaluations of student performance.

iii. **Administrative Responsibilities:** Another promising application of AI in educational administration involves automating routine administrative tasks, such as scheduling, grading, and record-keeping. By automating these tasks, educators and administrators can devote more time and energy to strategic, innovative activities. AI-driven administrative solutions increase productivity, reduce errors, and streamline educational operations. Despite these advancements, the future of AI in educational administration presents challenges and ethical concerns. Issues such as bias, privacy violations, and the potential reduction in human interaction must be addressed. It is critical for educators and policymakers to establish a comprehensive framework for the ethical and responsible implementation of AI systems in educational administration, balancing the potential benefits with the associated risks.

iv. **Predictive Analytics:** The use of AI in educational administration has advanced predictive analytics, enabling institutions to identify students at risk of academic failure and provide targeted interventions. AI systems can analyze extensive datasets, such as test scores and attendance records, to predict which students may be struggling or at risk of dropping out. Early identification of at-risk students allows for timely interventions, improving their chances of academic success.

v. **Curriculum and Instructional Resource Development:** AI can assist educators in designing curricula and instructional materials. By analyzing student performance data and feedback, AI can identify areas where the curriculum or teaching resources may need to be adjusted or enhanced. This ensures that instructional strategies remain aligned with student needs, fostering a more effective learning environment.

vi. **Data Analysis and Interpretation:** One of the primary advantages of AI in educational administration is its ability to collect and analyze large volumes of data related to student performance, behavior, and attendance. This data can then be used to create personalized learning strategies, pinpoint areas where educators may need additional support, and improve overall student outcomes. The ability to interpret and act on this data is critical for the success of AI-driven educational systems.

vii. **Timely and Accurate Evaluation:** AI can enhance the accuracy and speed of student evaluations in several ways. AI-powered grading systems can provide immediate feedback to students, helping them understand their strengths and weaknesses and adjust their learning approaches accordingly. Furthermore, AI can identify patterns in student performance, enabling educators to modify teaching methods and resources to better meet

the needs of individual students or groups. Automating grading also reduces the burden on teachers, allowing them to focus on more personalized teaching activities.

Its worth noting that AI has the potential to significantly enhance educational management through personalized learning, intelligent tutoring, the automation of administrative tasks, improved learning outcomes, predictive analytics, data analysis, and curriculum development. However, it is essential to implement AI in a way that complements and enhances the human aspects of education, ensuring that technology serves as a tool to support, rather than replace, the critical human element of teaching and learning.

The education sector has undergone substantial changes and innovation in recent years. As technology continues to evolve, educational institutions are increasingly turning to AI and machine learning to automate and improve their administrative processes. Artificial Intelligence has the potential to streamline repetitive, time-consuming tasks that often burden administrative staff. By integrating intelligent automation into school administration systems, institutions can significantly boost efficiency, productivity, and overall experiences for all stakeholders. This research explores the impact of AI technologies on automating routine administrative tasks in Colleges of Education in Gombe State, Nigeria.

Statement of the Problem

The swift advancement of technology has significantly transformed administrative practices across various sectors, including education. Artificial Intelligence (AI) systems have demonstrated considerable potential in automating repetitive tasks, thereby enhancing efficiency and productivity. However, the implementation of AI in Colleges of Education in Gombe State, Nigeria, remains limited, particularly in automating administrative functions such as communication management. This area is crucial for the smooth operation of educational institutions but continue to present significant challenges.

Communication within educational institutions is frequently fragmented, leading to delays in the dissemination of vital information, miscommunication between stakeholders, and inefficient administrative workflows. AI-powered communication solutions, such as chatbots and automated messaging systems, can significantly improve this process by providing real-time responses and ensuring seamless communication between students, faculty, and administrative staff (Russo, 2024). However, the adoption of AI technologies in Colleges of Education in Gombe State is still in its early stages, with limited understanding of their effectiveness in improving communication efficiency.

This research aims to assess the extent to which AI technologies have been integrated into routine administrative tasks, specifically in communication management within Colleges of Education in Gombe State, Nigeria. The study seeks to offer valuable insights into how AI can enhance administrative efficiency and contribute to the growth of educational institutions in the region by examining current trends, challenges, and the potential impact of AI implementation.

Objective of the Study

The objective of the study was to:

1. assess the impact of artificial intelligence tools on communication in colleges of education in Gombe State, Nigeria.

Research Question

This research question was answered in the study:

1. What impact does artificial intelligence tools have on communication in colleges of education in Gombe State, Nigeria?

Hypothesis

The following null hypotheses were tested in the study:

$H0_1$: There is no significant difference in the impact of artificial intelligence tools on communication in colleges of education in Gombe State, Nigeria.

Methodology

A survey research design was employed in this study. The population consisted of 3,181 respondents, including 1,658 lecturers and 1,523 senior management staff from the three government-owned Colleges of Education in Gombe State, Nigeria. A sample size of 346 participants was selected using Research Advisor (table for determining sample size, with 180 senior management staff and 166 lecturers included in the study. Data were collected using a structured instrument titled the "Questionnaire on Artificial Intelligence Tools and Automation of Routine Administrative Tasks (QARITARAT)." The instrument was validated and pilot-tested, with the reliability coefficient determined using Cronbach's Alpha statistic. A reliability coefficient of 0.82 was obtained. The collected data were computerized using the Statistical Package for Social Sciences (SPSS) version 23.0. Descriptive statistics, including frequency counts, means, and standard deviations, were used to answer the research questions, while Chi-square (χ^2) was employed to test the hypotheses at a 0.05 significance level. Chi-square was chosen because the data collected was categorical, involving two groups of respondents (Cohen, Manion & Morrison, 2007). If the hypothesis has a p-value greater than 0.05 it would be retained, but if the p-value is less than 0.05 it would be rejected.

Results

Research Question One: What impact does artificial intelligence tools have on communication in colleges of education in Gombe State, Nigeria?

Table 1: Impact of Artificial Intelligence Tools on Communication in Colleges of Education in Gombe State, Nigeria

SN	Item Statements	Respondents	SA	A	U	D	SD	Mean	SD	Remark
1.	Artificial intelligence tools enhance communication in colleges of education in Gombe State.	Lecturers	18	56	13	66	27	3.844	1.289	
		SMgt. Staff	21	29	11	64	41	2.848	1.364	Negative
2.	Yseop artificial intelligence has brought about changes to the job demand in colleges of education in Gombe State.	Lecturers	16	41	21	21	81	2.388	1.462	
		SMgt. Staff	3	99	34	9	21	3.325	1.062	Negative
3.	Hugging face AI enhance communication in colleges of education in Gombe State.	Lecturers	22	18	25	51	64	2.850	1.372	
		SMgt. Staff	21	18	16	40	71	3.265	1.427	Negative
4.		Lecturers	9	73	31	49	18	3.033	1.330	

	ChatGPT AI enhance communication in colleges of education in Gombe State.	SMgt. Staff	15	78	32	30	11	3.265	1.427	Negative
5.	Google Assistant AI enhance communication in colleges of education in Gombe State.	Lecturers	2	83	40	31	24	3.044	1.102	
		SMgt. Staff	17	70	43	21	15	3.319	1.106	Positive
6.	Sanebox AI enhance communication in colleges of education in Gombe State.	Lecturers	9	49	43	55	24	2.800	1.350	
		SMgt. Staff	7	70	60	23	6	3.295	0.889	Positive
7.	Boomerang AI enhance communication in colleges of education in Gombe State.	Lecturers	5	74	29	58	14	2.988	1.077	
		SMgt. Staff	7	72	34	31	22	3.066	1.150	Positive
8.	Dall-E AI enhance communication in colleges of education in Gombe State.	Lecturers	24	32	19	82	23	2.733	1.271	
		SMgt. Staff	26	54	20	44	22	3.108	1.321	Negative
9.	Copy.ai AI enhance communication in colleges of education in Gombe State.	Lecturers	7	68	34	37	34	2.872	1.219	
		SMgt. Staff	2	85	28	15	36	3.012	1.235	Negative
10.	Google's Gemini AI enhance communication in colleges of education in Gombe State.	Lecturers	9	35	17	57	62	2.988	1.261	
		SMgt. Staff	2	61	24	38	41	2.968	1.237	Negative
			Average Mean					3.05	1.1	

Table 1 illustrates the influence of artificial intelligence tools on communication within Colleges of Education in Gombe State, Nigeria. The results indicate an average response mean of 3.05, which exceeds the benchmark mean rating of 3.0. This suggests that the respondents generally agreed that AI tools have a positive effect on communication in these institutions. Furthermore, the majority of individual items under the research question recorded mean scores above 3.0, reinforcing the consensus among participants regarding the beneficial role of AI in enhancing communication processes.

Hypothesis: There is no significant difference in the impact of artificial intelligence tools on communication in colleges of education in Gombe State, Nigeria.

Table 2: Summary of Chi-square test on the Impact of Artificial Intelligence Tools on Communication in Colleges of Education in Gombe State, Nigeria

Number	χ^2 cal.	χ^2 crit.	α	df	P-value	Decision
346	180.024	50.281	0.05	36	.001	Rejected

Table 2 indicates that the calculated Chi-square value ($\chi^2 = 180.024$) exceeds the critical Chi-square value ($\chi^2 = 50.281$) at 36 degrees of freedom and a 0.05 level of significance. This outcome demonstrates a statistically significant difference in the perceived impact of artificial intelligence tools on communication in Colleges of Education in Gombe State, Nigeria. Consequently, the null hypothesis stating that there is no significant difference in the impact of AI tools on communication in these institutions is rejected.

Discussions

The findings from the survey responses reveal that artificial intelligence (AI) technologies significantly impact communication within Colleges of Education in Gombe State. As a result, the null hypothesis—which posited no significant difference in perceptions regarding the influence of

AI on communication—was rejected. This outcome contrasts with the perspective of Meskó et al. (2018), who argued that AI cannot fully replicate the human elements of care, such as empathy, trust, and interpersonal communication, which remain essential in educational and professional settings. According to their view, while AI can assist with cognitive functions, it cannot replace meaningful human interaction. However, the current findings are consistent with the research of Nellutla (2024), who affirmed that AI-powered communication tools can streamline routine administrative functions, such as delivering reminders, notifications, and updates to students and parents. These technologies, including chatbots and virtual assistants, provide personalized assistance by responding to common inquiries, offering resources, and guiding users through various administrative procedures. Similarly, Puranik (2024) emphasized the usefulness of AI-enabled email automation tools in managing institutional correspondence. These tools are capable of analyzing message content, suggesting appropriate responses, and handling repetitive tasks like scheduling appointments or sending follow-up messages, thereby allowing staff to focus on more critical communication efforts. The findings also align with Aleru (2023), who highlighted the role of chatbots and virtual assistants in responding to routine queries from students, faculty, and staff. These AI tools not only enhance user experience but also reduce the administrative workload for educational managers.

Conclusions

In view of the findings from this study, it was concluded that:

1. Artificial intelligence tools significantly influence communication processes within Colleges of Education in Gombe State, Nigeria. These tools enhance the efficiency and effectiveness of information dissemination by automating responses, facilitating real-time interactions, and streamlining communication between administrators, staff, and students.

Recommendations

Recommendations were made in the study that:

1. The management of colleges of education should carefully deploy artificial intelligence tools in automating routine administrative tasks within the tertiary institutions so as to forestall the negative impact of the technology on institutions' data. The management of Colleges of Education should implement artificial intelligence tools with careful planning and oversight when automating routine administrative tasks. This approach will help mitigate potential risks associated with data security and ensure that the technology is applied in a manner that safeguards institutional information and maintains data integrity.
2. The management of the colleges of education should consider ethical factors and significant challenges that integrating artificial intelligence tools poses which include potential for bias, privacy breaches, and loss of human touch among others.
3. Institutions should invest more in AI infrastructure, training, and awareness to improve the effectiveness of AI-driven attendance systems.

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