

# ARTIFICIAL INTELLIGENCE AND COMMUNICATION IN TERTIARY INSTITUTIONS: RELEVANCE AND CHALLENGES

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## Abstract

*Artificial intelligence (AI) communication tools have been found to improve internal communication and teamwork in any organization, and if applied in the tertiary institutions will help to improve communication. AI technologies such as voice-based assistants, embodied robots, automated programs, news-writing programs, among others have been identified to function as communicators. This study looked at the opportunities and challenges that artificial intelligence (AI) presents for tertiary institution communication. The paper discussed the evolution of AI, the concept and role of AI in communication, AI communication tools, AI and communication in Nigerian tertiary institutions, opportunities of AI in communication, and challenges of AI in communication. It was concluded that Artificial intelligence (AI) communication in higher education offers a revolutionary chance to improve students' learning and operational effectiveness as they have numerous beneficial ways of transforming student-teacher relationships, optimizing administrative procedures, and promoting cooperative and global research endeavours. It was recommended, among others, that there is a need for tertiary institutions to establish clear policies and ethical guidelines to ensure fair and transparent use of AI in educational settings, and allocation of resources for the necessary infrastructure upgrades and continuous professional development of staff.*

**Keywords:** Artificial Intelligence, Communication, Tertiary Institutions, Relevance, Challenges.

## Introduction

Communication is an essential aspect of any workplace environment, the effective use of which plays a vital role in facilitating goal attainment of individuals, groups, and teams within organizations. Communication, the process of sending and receiving information, ideas, knowledge and facts from one person to another in an organization is an important tool for achieving organizational success (Fasae, 2024). Sabbah, Hallabieh and Hussein (2020) described communication as a meaningful process of expressing, receiving, and comprehending messages containing

factual information, emotions, ideas, and needs by two or more people through common symbols.

A common language provides the means for effective communication in any context. Obadare (2020) asserted that ability to communicate is critical in all communications, being measured by the amount of information that the speaker is able to accurately get across to the target audience. Adesina (2018) on the other hand viewed language as a system of communication among people which involves the utilization of conventional and any vocal symbols for communicating information and

observations. As noted by Sabbah, et al. (2020), there are diverse skills associated with communication like, active listening, supplying and collecting feedback, comprehending body language, feeling, emotion, asking questions, and speaking all of which aid one to decode and be decoded by other people.

AI is the word utilized to explain the way technology, specifically computer systems, can simulate people's intelligence processes. Robinson (2018) opined that it is the capability of a digital computer, computer-controlled machine or robot to carry out work specifically related to intelligent beings like people. Siau and Wang (2018) maintained that the processes include learning, reasoning, and, self-correction. [In addition, Ggunkel \(2020\)](#) observed that communication and AI are deeply associated, seeing it as most especially, interaction between people that supplies AI with its defining test case and experimental evidence. He averred that current improvements in AI bring new problems and privileges for communication studies

Also, conversational AI is the group of technologies that enable machines to simulate discussions such as chat-bots, messaging applications, and speech-based assistants. Utilizing these instruments, commercial activities involve with their customers at scale – to quickly address their queries, assist them choose correct goods and services, and develops gross experience of customers ([Katyal, 2020](#)).

It is imperative to know that any organization, be it educational, medical, business, or whatever requires people to work there and the essential thing that keeps them working together is communication. It is an essential tool in achieving success in tertiary institutions as it is a means of

transferring learning, ideas, decisions and other important messages among stakeholders – students, lecturers, administrators, non-staff, visitors to the organization, among others. Luckin, Holmes, Griffiths and Forcier (2016) asserted that AI has been incorporated into education more and more to improve a variety of administrative and instructional tasks. AI technologies, such as Machine Learning (ML), Natural language (NL) processing, and data analytics, are revolutionizing the educational environment by facilitating more effective and individualized learning. AI may automate a variety of administrative duties, including scheduling, enrolment procedures, and student communications, which lessen the workload for staff members and boosts productivity generally (Dwivedi, Hughes, Ismagilova, Aarts, Coombs, Crick & Williams, 2021). Outside of the classroom, artificial intelligence greatly enhances administrative procedures. Educational institutions can function more efficiently and concentrate more on the achievement of their students due to improved data management, automation of repetitive work, and streamlined communication (Zawacki-Richter, Marín, Bond & Gouverneur, 2019). AI-driven chatbots, for example, can respond instantly to a variety of students' queries, from technical support to course information, freeing up staff members to work on more complicated problems (Luan, Geczy, Lai, Gobert, Yang, Ogata, Baltes, Guerra, Li, & Tsai, 2020).

However, Zawacki-Richter et al., (2019) observed a number of difficulties with integrating AI into communication such as worries about technology and infrastructure, privacy and ethics, and staff and student reluctance to change. It therefore becomes imperative to address these issues by creating strong policies,

funding, training and infrastructure, and encouraging an innovative and acceptable practices in educational institutions.

### **Evolution of AI**

According to [Guzman](#) and [Lewis](#) (2019), for more than seven decades, the research in the areas of AI and communication have continued along different paths. Study in the area of AI has centered on ways to recreate aspects of human intelligence, which include the capability to disseminate information, within the machine ([Frankish and Ramsey, 2014](#)). Historically, in another dimension, communication has been viewed as most important, a human process, ([Dance, 1970](#)) orchestrated by technology ([Schramm, 1972](#)). According to Craig (1999), study in this discipline as a whole centers on the way people exchange messages among themselves and what it implies. Presently, this separation between AI and communication research is becoming smaller, connected by technologies of AI developed to work as communicators. Current advancement in AI has resulted to more strong and consequential AI technologies being utilized across daily life ([Campolo, Sanfilippo, Whittaker, et al., 2017](#)). People always communicate through several digital assistants ([Pew Research Centre, 2017](#))

### **The Concept and Roles of AI in Communication**

Artificial Intelligence (AI) is the simulation of human intelligence in machines, programmed to think and learn like humans, involving the development of algorithms and computer systems able to performing tasks that ordinarily require human intelligence such as problem-solving, speech recognition, learning, planning, perception, and natural language

understanding Daniel (2023). In communication, it is the use of technologies to simulate human intelligence to think, talk and transfer information from person to machine or vice versa, undertaking the activities of understanding and translating spoken and written language.

For communication to meet its target, it must be functional, encompassing components of communication in totality, objectively clear with the utilization of a language that is well comprehended by the receivers. For a tertiary institution to achieve effective coordination among the different parts, the use of a clear language, usually a two-way process which can be internal or external (Fasae, 2024) is ensured.

The role of AI in communication is transformative, offering significant benefits across various sectors. AI-powered apps like chatbots and virtual assistants are improving customer service, streamlining internal communication, and providing personalized experiences. Engagement of AI in various industries describes its diverse applications and positive impact in communication because as it continues to evolve, its potential to further revolutionize communication and improve efficiency will also grow.

According to Daniel (2023), AI enhances personalized learning in education by customizing educational content based on individual student performance, adapting to different learning styles. On administrative automation, AI streamlines administrative tasks, such as grading, scheduling, and data management. Its increasing role across various industries has transformative effects on the nature of work, job roles, and the skills required in the workforce. AI technologies have the potential to enhance efficiency, productivity, and innovation.

AI also facilitates language learning through tools that assist with pronunciation, grammar, and language translation in language processing. It also optimizes network performance, predicts potential issues, and enhances the efficiency of telecommunications infrastructure.

Artificial intelligence, being so deep in our lives, can affect our surroundings. For some time now, many professionals have already shown concerns about the adverse effects of AI, but seldom voiced the way computer with knowledge of our language can influence the way we utilize that language, which is like a living organism, consistently improving to adapt to our inconstant needs. Presently, the patterns of language consistently evolve and this is orchestrated by many factors, like contact with other languages, effectiveness, trade and migration, imprecise usage, analogy, prestige, technology and new inventions. Several areas of our surroundings can cause change of language which is why technology, such as AI, which people utilize for communication, is causing change or will cause language change ([RSI Industry, 2022](#)).

Guzman and Lewis (2019) identify three aspects of AI in communication which are:

- (i) The functional aspects of AI as communicator: This centers on the major components of the communication process, i.e. the way certain technologies of AI are developed as communicators and the way people visualize them within this responsibilities.
- (ii) The relational aspects of AI as communicator: From the view of HMC, the research into social positioning of technology involves how people interpret what a specific technology is, in relation to themselves, the factors adding to such interpretations, and, in

turn, the way such conceptualizations inform their interactions. AI involves how people make sense of themselves in their communication with particular technologies and how individuals leverage these technologies to “revisualize” the kind of persons they are.

(iii) The metaphysical aspects of AI as communicator: Historically, theory of communication has conceptualized individuals as communicators and technology as mediators, and it is around this line between group of individuals and thing that theoretical and institutional borders have been based within the communication profession in totality.

### AI Communication Tools

Several AI tools are being utilized in communication which make it easier for both parties to understand and enjoy the process. According to [Broussard \(2018\)](#) and [Frankish and Ramsey \(2014\)](#) in Guzman and Lewis (2019), the concept AI is polysemous, comprising steps to comprehend human intelligence (HI) by recreating a mind within a machine and to develop technologies that perform activities that relate to some level of HI. Examples of communicative AI comprises conversational agents, social robots, and automated-writing software, which have been majorly designed out of advancement within the AI subfields of Natural Language Processing (NLP) and Natural Language Generation (NLG) ([Allen, 2003](#)). Chatbots are artificial intelligence (AI) driven computers that mimic human-user conversation. They can be included into messaging apps, social networking sites, and websites to offer real-time customer service, respond to often requested queries, and assist users with procedures. Chatbots can now comprehend and answer questions from users, with a high

degree of accuracy. As an illustration, chatbots, such as Replika and Mitsuku leverage machine learning to enhance their conversational skills over time, resulting in more engaging and natural conversations (Max 2024). Chatbots that can plan meetings, manage tasks, and provide updates can be included into AI-driven platforms like Microsoft Teams and Slack. This enhances team productivity and reduces the need for manual coordination. (Kumar & Srivastava, 2019).

Virtual assistants are another well-known AI tool in communication, made to handle a variety of duties, including messaging, reminding people to do things, and managing smart home appliances. Virtual assistants can increase efficiency and simplify daily tasks by interacting with a variety of services and apps. Their increased usefulness for both personal and professional communication stems from their ability to understand complicated requests and reply contextually, which is made possible by their natural language processing skills (MoldStud, 2024). The uses of AI-powered communication tools can improve internal communication and teamwork.

### **AI and Communication in Nigerian Tertiary Institutions**

Improving the efficacy and efficiency of communication is one of the main opportunities that artificial intelligence (AI) offers. A vital component of education is communication which includes exchanges of information between students, teachers, and administrative personnel. Managing administrative procedures, giving feedback, and presenting instructional content all depend on effective communication.

To students, AI-powered solutions can help students to communicate with themselves and

their teachers smoothly while getting immediate access to knowledge and assistance (Holmes, Bialik & Fadel, 2019). Virtual assistants can plan study sessions, aid students with navigating course materials, and provide timely reminders regarding tasks and deadlines (Dwivedi et al., 2021). Lecturers AI is revolutionizing academic writing by managing complex ideas and extensive information. This are the in the areas of idea generation, content structuring, literature synthesis, data management, editing and ethical compliance (Khalifa and Albadawy (2024).

Artificial Intelligence (AI) has revolutionized many aspects of communication in tertiary institutions in Nigeria by facilitating more intelligent, efficient, and personalised interactions and has demonstrated a high possibility of improving corporate and interpersonal communication in these institutions. Luan et al. (2020) emphasized that by automating repetitive processes like processing applications and sending alerts, AI can enhance administrative communication by speeding up response times and increasing overall effectiveness.

AI has several applications in interpersonal communication which can be used with the tertiary institution community. Wagwu, Okpala, Oladokun, & Ajani (2023) averred that AI-driven chatbots and virtual assistants tools provide real-time support and information by understanding and responding to human language through natural language processing (NLP). Social media chatbots can have meaningful discussions with users (students and lecturers), answering their questions and making tailored recommendations. Oyebamiji (2024) noted that language barriers have been closed by AI-driven translation technologies, improving

interlanguage understanding and communication in tertiary institutions in Nigeria. Hence, such technologies are indispensable in a nation like Nigeria with its diverse linguistic population. It is imperative to know that language barriers have been broken down and inclusivity has been promoted by AI-powered translation services and these services have made communication easier in both personal and professional contexts.

Furthermore, Ibrahim and Nwobilor (2020) noted that Artificial Intelligence has simplified communication procedures in enterprises, improved productivity and effectiveness, and also has the ability to assess enormous quantity of data and produce insights that guide strategic planning and decision-making. AI systems are capable of processing employee feedback from a variety of communication channels and spotting patterns and trends that assist the management of tertiary institutions in Nigeria in proactively addressing problems. Also, scheduling assistants and automated email replies have reduced administrative work and freed up staff members of tertiary institutions to concentrate on more strategic endeavours. These tools guarantee accurate and timely communications, in addition to saving time. According to Victor and Konya (2021), increased productivity and employee satisfaction are the results of using AI in organizational communication.

### **Relevance of AI in Communication**

Gomez (2023), emphasizing what communication teams can do with AI, noted that every year, managing communications brings a new problem, whether in meeting up with people's interests, surviving economic challenges or even defusing sudden

brand challenges. She stressed that AI has the ability to redesign the corporate communication landscapes as corporate communication teams have become responsible for protecting their products from likely mistake orchestrated by AI technology. It was further asserted that AI does not only make us more efficient, it makes us go further through: streamlining content ideation and creation; collecting social insights; and gaining a global advantage.

The following are the relevance of artificial intelligence in communication:

- ❖ *Real-time feedback and Support:* Students can receive instant feedback from AI systems, which enables them to recognize and quickly fix errors. According to Robert, Potter and Frank (2024), an immediate feedback loop is crucial for efficient learning and has the potential to greatly enhance students' performance. Furthermore, AI chat-bots and virtual assistants can enable 24/7 assistance, responding to questions from students and offering direction outside of scheduled class times (Lee, 2022).
- ❖ *Administrative Efficiency:* AI can improve and automate communication in educational settings, increasing efficiency. For instance, AI-enabled systems can arrange meetings, respond to regular questions from parents and students, and remind users of upcoming dates and events (Thompson, 2020). Staff members can concentrate on more important duties because of the automation's reduction of their administrative workload.
- ❖ *Enhanced Student-Teacher Interaction:* AI can customize learning experiences to meet the needs of specific pupils, enabling

a more individualized approach to education. AI-powered platforms, for instance, can evaluate students' strengths and shortcomings and modify the curriculum accordingly (Hasan, 2024). A more individualized educational experience that accommodates a range of learning styles while speed is made possible by this adaptive learning technology (Hyperspace ND).

- ❖ *AI Tools for collaborative Projects:* AI makes it easier for teachers and students to collaborate by giving them access to tools that help with project management and group work. Team members may communicate, share resources, and coordinate easily, through platforms like AI-driven collaborative learning environments (Williams & Taylor, 2019). This encourages a more dynamic and cooperative learning environment.
- ❖ *Facilitating International Research Partnerships:* Additionally, AI can be extremely important in fostering cross-national research partnerships. Artificial Intelligence (AI) facilitates international collaboration among academics by offering sophisticated tools for data analysis, translation, and communication (Martinez, 2020). Research findings that are more inventive and diversified may result from this international partnership.
- ❖ *Data Management and Analysis:* Large data sets can be managed and analysed by AI systems, which can provide educators with insights that support well-informed decision-making. By monitoring attendance, engagement, and performance,

these systems can spot trends and forecast results (Garcia, 2021). The evidence-based tactics for enhancing educational practices and policy are supported by this data-driven approach.

### **Challenges of AI in Communication**

It is important to know that with the numerous advantages that AI has in communication and in various fields, it is not without its challenges. One of these is data privacy because large datasets are frequently essential for AI systems to function effectively, which calls for concerns concerning the collecting, keeping, and usage of personal data. Strong data protection to preserve people's privacy and stop information misuse is imperative (Afolabi, 2024).

[Hohenstein](#), et. al. (2021) stress that understanding that AI can explain how we communicate, makes it essential for researchers and professionals to put into consideration the wider social effects when developing algorithms that assist communication. Their research shows that:

- i. AI can reshape the way people communicate with others, having both positive and negative results.
- ii. As participants cogitate that their partner is utilizing more algorithmic responses, they see them as less collaborative and appear less to be less associated with them. This could be associated with general beliefs about the negative implications of AI in social interactions where people are already susceptible to believe other people over computers (Promberger & Baron, 2006)
- iii. AI has capacity to change the language that people utilize when conversing with other people; AI-

- generated reactions altered the expression of emotion in human interactions;
- iv. Relationships among people are possible to be influenced, possibly in a good way; that we could possibly miss our own styles of communication, with language becoming more and more the same over time, having the capacity to change our language when communicating with other people.
  - v. the benefits of AI are associated with changes to emotional areas of our language and a proportionate likely loss of individual's expression.

Furthermore, Katyal (2020) noted many disadvantages of chat-bots other tools of communication, which is causing problems to the utilization of conversational AI at scale. Six of such obstructions are:

- *Basic assistance:* Most likely, the greatest challenges that conversational AI has is its inability to process complicated questions or hold conversations with human being – it can process only simple queries.
  - *Lack of human context:* Bots can react to human being solely to the level they have been developed. If a question is far above what the machine has been developed for, it cannot comprehend or react, which can be frustrating.
  - *High installation costs:* Although bots can be available always to take care of several questions simultaneously, deploying them is a costly proposition because every bots requires to be programmed and tutored independently, based on what it should do.
  - *Decisioning, or the lack of it:* Machines can neither perform operation on its own nor assist to
- take decisions. The lack of the capacity to know which one is good or bad can have adverse effects.
- *Repetition:* Machines are designed to supply standard clues to questions. In a situation when the machine still gives the same clues to different questions, this can prove irritating.
  - *No empathy:* Machines do not have emotions so they cannot feel for customers who may be feeling low, angry, or frustrated. Live, human customer agents can comprehend and respond to the feelings of the customer, however machines cannot. Therefore, chat-bots cannot establish a connection with the customers, which is very important and goes a long way in business improvement.
- RSI Industry (2022), noted that:
- The technology is not perfect like the brain of human beings as it cannot comprehend feelings, subtext, and, most importantly, context. It is imperative to know that when AI speaks or writes, it has no idea what its saying. Even though it can supply us with the translation of numerous words from other languages, it cannot comprehend where the translation falls short.
  - It could cause our speech less expressive and inhibit individuals from learning new ones.
  - Despite its accessibility and commonness, AI has many things to learn because it cannot yet understand the language above simple grammar, specific keywords, and literal interpretation of vocabulary. Thus, it might not be dependable in situations where interpretation is needed.

- AI is gaining grounds by making foreign languages simple to understand. However, a dependable interpreter is required to preserve the language and its nuances.

Some of the identified challenges of artificial intelligence in communication in tertiary institutions are:

- *Ethical Implications of AI Decision-Making:* AI systems have the ability to make choices that affect students' academic careers, which presents moral dilemmas. Crucial concerns include the possibility of bias in AI algorithms and the openness of decision-making procedures. To prevent maintaining current disparities, it is crucial to guarantee that AI choices are impartial, transparent, and fair (Garcia & Martinez, 2022). For AI to be used in education responsibly, these ethical issues must be resolved (Lee, 2021).
- *Faculty and Student Adaptation:* In educational contexts, resistance to implementing new technologies is a regular problem. It's possible that educators and students will be reluctant to abandon long-standing procedures and adopt AI-driven strategies (White, 2021). Effective change management techniques and showcasing the concrete advantages of AI in improving the educational process are necessary to overcome this reluctance (Brown, 2020).
- *Data Security and Student Privacy:* The security and privacy of student data are major concerns raised by the incorporation of AI in educational settings. Since AI systems frequently need access to large volumes of personal data in order to operate properly, protecting sensitive information from breaches and misuse is crucial (Roberts & Hernandez, 2021). Maintaining trust and adhering to legal rules necessitate the implementation of strong data protection procedures (Smith, Jones & Williams, 2020).
- *Implementation Costs and Resource Requirements:* For many educational institutions, the upfront expenditures of deploying AI technologies can be unaffordable. These expenses cover both the required infrastructure upgrades and the procurement of AI tools and software (Johnson & Brown, 2020). Furthermore, substantial financial resources are needed for continuous upkeep and updates, which puts a pressure on constrained school budgets (Thompson, 2021).
- *Need for Technical Expertise and Training:* A certain degree of technical proficiency is necessary for educators and administrators to apply AI in education effectively. Employees must have sufficient training in order for them to be able to use AI tools efficiently (Williams, 2020). The successful integration of AI technology may be significantly hampered by this requirement for specific knowledge and abilities (Taylor & Smith, 2021).
- *Cultural and Institutional Barriers:* Significant obstacles to the deployment of AI may also come from institutional culture and current regulations. It's possible that educational organizations have ingrained beliefs and procedures that hinder innovation (Garcia, 2021). A comprehensive strategy that

incorporates stakeholder participation, legislative changes, and a distinct future vision is needed to address these institutional and cultural hurdles (Martinez, 2022).

### Conclusion

Artificial intelligence (AI) communication in higher education offers a revolutionary chance to improve students' learning and operational effectiveness. Artificial intelligence (AI) technologies have numerous beneficial ways of transforming student-teacher relationships, enhancing administrative procedures, and promoting cooperative and global research endeavours. However, other difficulties in implementing AI such as data security, resistance to technical change, ethical issues, and expensive implementation costs need to be properly addressed.

### Recommendations

- ✚ There is a need for management of tertiary institutions to establishment clear policies and ethical guidelines to ensure the fair and transparent use of AI in educational settings.
- ✚ Government and management of institutions should allocate resources for the necessary infrastructure upgrades and continuous professional development of staff.
- ✚ Institutional culture that embraces technological advancements should be encouraged in all tertiary institutions.
- ✚ Tangible benefits of AI should be highlighted to stakeholders of tertiary institutions to reduce resistance and foster a positive attitude towards change.
- ✚ Management of tertiary institutions should provide platforms and tools that enable seamless communication and data sharing among teachers and students and researchers globally.
- ✚ Management of tertiary institutions should implementation AI systems that offer real-time feedback and support to students by ensuring that these systems are accessible and user-friendly that will provide assistance beyond traditional classroom settings.

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