

UTILISATION OF ARTIFICIAL INTELLIGENCE TECHNOLOGIES IN DISTANCE EDUCATION PROGRAMMES IN AWKA SOUTH LOCAL GOVERNMENT AREA, ANAMBRA STATE

IGWE, Ngozi Justina & OKORIE, Kingsley Akachukwu

Department of Continuing Education and Development Studies

Faculty of Education, University of Nigeria, Nsukka

Correspondence: kingsley.okorie.199947@unn.edu.ng

Abstract

The study centered on the utilisation of Artificial Intelligence technologies in distance education programmes in Awka South, Anambra State. Two research questions were formulated to guide the study. Descriptive survey design was adopted. The population of the study was 632 learners in DE programmes in Awka South LGA of Anambra State. The sample size for the study was 253 learners which is 40% of the total population sampled through simple random sampling technique by balloting. The instrument for data collection was the researcher's self-developed instrument titled "Utilisation of Artificial Intelligence in Distance Education Programmes (UAIDEP)". Three experts validated the instrument for data collection. The instrument was trial tested, and reliability coefficient calculated using Cronbach alpha method yielded 0.71 and 0.90 respectively for cluster A and B with overall reliability of 0.81. The data for this study was collected through Google Forms. The data collected for the study were analyzed using mean and standard deviation. Findings showed that the extent to which Chatbots is utilised in DE programmes is high, and the extent to which Grammarly is utilised in DE programmes is low. Based on the findings of the study it was recommended that Distance Education (DE) programmes, institutions should integrate Grammarly into the digital learning environment as a mandatory writing support tool, accompanied by orientation sessions and continuous training for both students and academic staff. This will raise awareness of its benefits and promote consistent usage to enhance learners' writing quality and academic performance.

Keywords: Utilization, Artificial intelligence, Distance Education Programmes

Introduction

Distance education has been seen as an avenue for increasing access to quality and equitable education for all. Itasanmi et al (2020) noted that millions of learners are already engaged in distance learning globally. This is because distance education offers flexibility to all categories of learners. In Africa the expansion of distance and online learning is evident, yet it remains uneven. While countries such as Kenya, South Africa and Rwanda have adopted policy and infrastructure initiatives to support e-learning, many other regions still struggle with limited internet connectivity, insufficient infrastructure and low digital literacy, factors that hinder full scale adoption of distance provision (Adamu, 2022). In Nigeria, distance education is formally recognised and has been eagerly used during pandemic disruptions. The National Open University of Nigeria (NOUN) matriculated over 23,000 new students in a hybrid model in 2025 (Justina, 2025).

Distance education is an educational arrangement where the learners are separated from the instructors in time and space. Cleveland-Innes and Garrison (2020) define distance education as an instructional process where facilitators and learners are separated by time and/or space, and

communication occurs through various technologies such as print, broadcast media, and the internet. The authors emphasize that distance education allows interaction and collaboration through technological mediation, enabling learning beyond the traditional classroom setting. Again, Schweighart et al. (2024) stated that distance education as an educational approach that transcends geographical barriers by employing digital technologies to deliver instruction and support interaction between teachers and students. That means, effective distance education is characterized not only by physical separation but also by the quality of interaction, course design, and learner autonomy. Contextually, distance education is defined as any organized instructional programme in which at least 70% of instructional contact including lectures, tutorials, and assessments occurs remotely through electronic or broadcast media such as learning management systems (LMS), video conferencing, mobile platforms, or radio and television broadcasts. The programme must also include mechanisms for two-way communication between instructors and learners, such as discussion forums, emails, or live sessions.

Distance education is defined by several key characteristics that distinguish it from traditional classroom learning. Firstly, it involves the separation of teacher and learner across time and space, requiring careful instructional design and mediated communication (Cleveland-Innes & Garrison, 2020). Secondly, it relies heavily on technology, including online platforms, video conferencing, and digital learning tools, to deliver instruction and support interaction (Schweighart et al., 2024). Another important characteristic is learner autonomy, where students take responsibility for their learning progress due to reduced physical supervision (Moore & Kearsley, 2021). Additionally, two-way communication between instructors and learners through forums, chats, and emails fosters engagement and reduces isolation (UNESCO, 2023). Finally, distance education is marked by flexibility and accessibility, allowing learners from diverse backgrounds and locations to study conveniently (Alhumaid et al., 2020). Therefore, distance education is flexible, technology-driven, learner-centered, and interactive. Distance education is a vital educational approach in the modern digital era which is characterised by the surge of technologies including artificial intelligence.

Artificial Intelligence (AI) has become one of the most transformative technologies of the 21st century, influencing various sectors including education. Russell and Norvig (2021) define Artificial Intelligence as the field of computer science devoted to building systems that can perform tasks which typically require human intelligence, such as learning, reasoning, problem-solving, perception, and understanding natural language. Similarly, the Organisation for Economic Co-operation and Development (OECD, 2023) defines AI as a machine-based system capable of making predictions, recommendations, or decisions for a specific set of human-defined objectives. This highlights the autonomy and functionality of AI systems that operate in real or virtual environments using large amounts of data. For the purpose of this study, Artificial Intelligence (AI) is operationally defined as the use of computer-based technologies and algorithms such as machine learning, natural language processing, and intelligent tutoring systems to enhance learning in distance education programmes.

Artificial Intelligence (AI) enhances the quality, accessibility, and effectiveness of distance education in the modern era. One of its major contributions is the ability to provide personalized learning experiences. Through intelligent tutoring systems and adaptive learning algorithms, AI tailors' educational content to meet individual learners' needs, pace, and preferences, thereby improving learning outcomes and engagement (UNESCO, 2022). AI also

supports automated assessment and feedback, enabling instructors to evaluate learners' performance efficiently while offering instant feedback that promotes continuous learning (Holmes et al., 2021). Furthermore, AI enhances student support services by using chatbots and virtual assistants to respond to learners' inquiries in real time, thus reducing isolation and improving communication in online environments (Zawacki-Richter et al., 2020). It also assists educators and administrators by analyzing learning data to predict students at risk of dropping out and recommending appropriate interventions (OECD, 2023). Although there is numerous artificial intelligence technologies utilized in distance education, this study concentrates on the utilization of chatbots and Grammarly.

Chatbot is one of the artificial intelligence technologies used in distance education. According to Nuruzzaman and Hussain (2020), a chatbot is an artificial intelligence (AI)-based software application designed to simulate human conversation through text or voice interactions. It allows users to communicate with computer systems using natural language, often through messaging platforms, websites, or mobile applications. Similarly, Winkler and Söllner (2021) define chatbots as intelligent conversational agents that use natural language processing (NLP) and machine learning algorithms to understand and respond to user queries in a human-like manner. This underscores the adaptive capability of chatbots, as they continuously improve their responses through interaction and data analysis. Contextually, chatbot is defined as an AI-driven conversational tool integrated into distance education platforms to provide instant, interactive, and automated responses to learners' inquiries, guide them through course materials, and facilitate administrative or academic support.

Chatbots are utilized in distance education (DE) programmes to enhance learner engagement, provide academic support, and improve communication efficiency. According to Zawacki-Richter et al. (2020), chatbots serve as virtual learning assistants that offer personalized feedback, answer students' questions, and help navigate online learning platforms. They operate 24/7, ensuring that learners receive immediate assistance regardless of time or location, which is crucial in asynchronous learning environments. Furthermore, Holmes et al. (2021) note that chatbots support instructors by automating repetitive tasks such as grading, attendance tracking, and course reminders. This automation allows educators to focus more on teaching and learner interaction. In DE programmes, chatbots also foster inclusiveness by providing language support and accessibility for learners with disabilities (UNESCO, 2022). Thus, the integration of chatbots in distance education contributes to efficiency, improved learner satisfaction, and reduced administrative workload. Despite the growing adoption of Artificial Intelligence technologies in education, the utilization of chatbots in distance education programmes in Awka South Local Government Area of Anambra State remains limited. Many distance learners continue to experience challenges such as delayed responses from instructors, lack of timely feedback, and insufficient academic support services. These issues contribute to decreased learner motivation, poor retention, and reduced academic performance (Okonkwo & Eze, 2021). Furthermore, inadequate awareness, lack of technical infrastructure, and insufficient training on AI tools hinder the effective deployment of chatbot systems in distance learning environments (UNESCO, 2022). Consequently, there is a pressing need to investigate the extent to which chatbots are being utilized in distance education programmes in Awka South LGA to enhance communication, learner support, and administrative efficiency.

Grammarly is an Artificial Intelligence powered writing assistant designed to help users improve the clarity, correctness, and engagement of their written communication. According to

Chandra and Chouhan (2021), Grammarly is an AI-based application that detects grammatical, spelling, and stylistic errors in writing and provides real-time suggestions for correction. Similarly, Alharbi (2022) defines Grammarly as an automated proofreading tool that uses machine learning and natural language processing (NLP) to analyze text and offer feedback on grammar, punctuation, vocabulary, and tone to enhance writing quality. In this study, Grammarly refers to an AI-driven writing tool that assists distance education learners and instructors in improving the accuracy and professionalism of written assignments, reports, and communication by detecting and correcting grammatical and stylistic errors in real time. Grammarly is an essential digital tool in distance education (DE) programmes for enhancing academic writing and communication. It supports learners by providing instant feedback on their written work, which fosters self-directed learning and writing confidence (Boud and Molloy, 2021). Through Grammarly, students in DE programmes can submit more polished and professional assignments without constant instructor supervision, thereby improving their overall learning outcomes (Ali & Khan, 2023). Instructors also use Grammarly to ensure the clarity and correctness of course materials, announcements, and feedback to students. The tool's integration with online learning platforms such as Google Docs, Moodle, and Microsoft Teams makes it particularly effective for remote teaching and learning environments (Chandra & Chouhan, 2021).

However, the utilization of Grammarly in Awka South Local Government Area, Anambra State, seems to remain relatively low. Many distance learners and instructors lack awareness of Grammarly's benefits and its potential to enhance academic writing quality. Additionally, limited access to reliable internet services, inadequate digital literacy, and insufficient institutional support hinder the effective integration of Grammarly in teaching and learning. Consequently, students continue to produce written works that contain grammatical and structural errors, thereby affecting the overall academic performance and communication quality in distance education programmes (Ali & Khan, 2023; Alharbi, 2022). Therefore, the problem of this study is to ascertain the utilization of artificial intelligence technologies in distance education programmes in Awka South Local Government Area, Anambra State.

Statement of the Problem

Distance education has emerged as a vital approach to widening access to quality education across all levels. Despite its flexibility and inclusiveness, many distance education programmes in developing areas still face challenges in ensuring efficiency, interaction, and learner support. While Artificial Intelligence (AI) technologies have the potential to address these challenges by enhancing learning experiences through personalization, automation, and feedback, their utilization in distance education remains limited in many parts of Nigeria, including Awka South Local Government Area, Anambra State. In Awka South LGA, distance learners often experience communication delays, inadequate feedback, and low academic support, which hinder learning effectiveness and satisfaction. AI tools such as chatbots and Grammarly could provide solutions to these challenges. Chatbots can offer 24-hour automated assistance, guiding learners through course materials, responding to inquiries, and facilitating administrative processes, while Grammarly can improve learners' writing accuracy, confidence, and academic performance through instant error detection and correction. However, the extent to which these AI technologies are being utilized in distance education programmes in Awka South LGA is not known. There are indications of limited awareness, poor infrastructure, inadequate digital literacy, and insufficient institutional support that hinder the integration of AI tools like chatbots

and Grammarly into teaching and learning. As a result, learners continue to face issues such as poor academic communication, reduced engagement, and low performance. Therefore, this study seeks to investigate the utilisation of Artificial Intelligence technologies in distance education programmes in Awka South Local Government Area, Anambra State.

Purpose of the Study

The general purpose of the study was to examine the utilisation of artificial intelligence technologies in distance education programmes in Awka South Local Government Area, Anambra State. Specifically, the study sought to:

1. Examine the extent to which Chatbots is utilised in DE programmes in Awka South Local Government Area, Anambra State.
2. Find out the extent to which Grammarly is utilised in DE programmes in Awka South Local Government Area, Anambra State.

Research Questions

The study was guided by the following research questions:

1. To what extent is Chatbots utilised in DE programmes in Awka South Local Government Area, Anambra State?
2. To what extent is Grammarly utilised in DE programmes in Awka South Local Government Area, Anambra State.

Methods

Descriptive survey design was adopted for this study. The population of the study was 632 learners in DE programmes in Awka South LGA of Anambra State. The sample size for the study was 253 learners which is 40% of the total population sampled through simple random sampling technique by balloting. The instrument for data collection was the researcher's self-developed instrument titled "Utilisation of Artificial Intelligence in Distance Education Programmes (UAIDEP)". Three experts validated the instrument for data collection. The instrument was trial tested, and reliability coefficient calculated using Cronbach alpha method yielded 0.71 and 0.90 respectively for cluster A and B with overall reliability of 0.81. The data for this study was collected through Google Forms. The data collected for the study were analyzed using mean and standard deviation.

Results

Table 1: Mean responses on the extent Chatbots is utilised in DE programmes

S/N	Item Statement	Mean	SD	Decision
1	Chatbots are frequently used to provide instant responses to learners' academic inquiries in distance education programme.	2.68	.63	HE
2	Guiding learners on how to access online course materials and platforms.	2.75	.59	HE
3	Assisting in automating administrative tasks such as course registration, attendance tracking, and reminders.	3.76	.42	HE
4	Providing feedback and support during online learning activities.	3.90	.29	HE
5	Enhancing communication between learners and instructors.	3.55	.66	HE
	Cluster Mean	3.33	0.52	HE

Table 1 shows that Chatbots are utilised to a high extent in distance education programmes, with a cluster mean of 3.33 and a cluster standard deviation of 0.52. Respondents agreed that Chatbots enhance communication, provide feedback, and support administrative tasks in DE programmes. The consistency of responses indicates that Chatbots is utilised to a high extent in ODL programme for improving interaction and efficiency.

Table 2: Mean responses on the extent Grammarly is utilised in DE programmes

S/N	Item Statement	Mean	SD	Decision
6	Grammarly is used by learners to check and correct grammatical errors before submitting assignments.	2.82	.38	HE
7	Grammarly is utilized by instructors to improve the clarity and quality of feedback given to students.	2.12	.38	HE
8	Grammarly is integrated into online platforms such as Google Docs, Moodle, or Microsoft Teams for academic writing support.	2.22	.38	HE
9	Grammarly helps distance learners improve their writing skills and confidence through automated suggestions and corrections.	3.16	.55	HE
10	Distance education learners are regularly encouraged and trained to use Grammarly as part of their academic writing process.	1.64	.47	HE
Cluster Mean		2.39	0.43	HE

Table 2 reveals that Grammarly is utilised to a low extent in distance education (DE) programmes, with a cluster mean of 2.39 and a cluster standard deviation of 0.43. The results indicate that Grammarly supports both learners and instructors by enhancing writing quality, correcting grammatical errors, and improving clarity in academic work. Although the extent of utilisation varies slightly across items, the overall low mean values suggest that the extent of use of Grammarly in ODL programme Awka South LGA is low.

Discussion

The findings from the study reveal notable differences in the extent of utilisation of Chatbots and Grammarly in Distance Education (DE) programmes in Awka South Local Government Area, Anambra State. The first finding indicates that the extent to which Chatbots are utilised in DE programmes is high. This suggests that Chatbots enhances communication, accessibility, and support for learners and instructors. The result aligns with the assertion of Kumar and Boulanger (2021), who emphasized that Chatbots in DE environments serve as intelligent assistants that provide instant responses to learners' inquiries, thereby promoting continuous engagement and satisfaction. Similarly, Marr (2022) reported that Chatbots automate routine academic and administrative tasks such as course registration, attendance tracking, and reminders, reducing instructors' workload and improving operational efficiency. Furthermore, Chatbots facilitate immediate feedback, guide learners in navigating online learning platforms, and support academic activities through interactive communication (Zawacki-Richter et al., 2020). Therefore, the high extent of Chatbot utilisation in Awka South LGA implies that DE institutions are embracing Artificial Intelligence (AI) tools to foster learner-centered and technology-driven education.

Conversely, the second finding shows that the extent to which Grammarly is utilised in DE programmes is low. This indicates that despite its availability and usefulness, Grammarly is not being fully adopted by learners and instructors in Awka South. Grammarly serves as an AI-powered writing assistant that checks grammar, punctuation, and writing clarity, helping learners to enhance their academic writing (Bai & Guo, 2021). However, low utilisation may be attributed to factors such as limited digital literacy, lack of institutional integration, or inadequate awareness and training among distance learners (Afolabi, 2022). Although Grammarly can help both learners and instructors improve written communication and feedback quality (Akintunde & Bello, 2023), its potential benefits remain underexploited.

Conclusion

Based on the findings of the study, it was concluded that Chatbots are highly utilised in distance education programmes in Awka South LGA, enhancing communication, feedback, and administrative efficiency. However, Grammarly is used to a low extent, indicating limited awareness or integration among learners and instructors.

Educational Implication of the Study

The findings of this study have several educational implications. The high utilisation of Chatbots in distance education indicates that AI-powered communication tools have the potential to greatly enhance learner engagement and instructional efficiency. This suggests that when Chatbots are integrated into distance education platforms, the learning process becomes more interactive, accessible, and responsive to the individual needs of learners. On the other hand, the low utilisation of Grammarly among distance learners implies a potential challenge in writing proficiency and academic communication, which may negatively impact their overall academic performance. This highlights the need for educators and policymakers to prioritize digital literacy and encourage the integration of AI-based writing support tools such as Grammarly. Doing so will help learners improve their academic writing competence and enhance the overall quality of learning in distance education environments.

Recommendations

Based on the findings of the study, some recommendations were made among which includes that

1. Educational institutions offering distance education in Awka South LGA should expand the use of Chatbots by integrating them more deeply into learning management systems to provide personalized academic support, continuous feedback, and real-time communication between learners and instructors.
2. Distance Education (DE) programmes, institutions should integrate Grammarly into the digital learning environment as a mandatory writing support tool, accompanied by orientation sessions and continuous training for both students and academic staff. This will raise awareness of its benefits and promote consistent usage to enhance learners' writing quality and academic performance.

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