



# Generative AI Chatbot Use for School Activities Among Teachers in Private Primary Schools in Dutse, Jigawa State

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## ABSTRACT

## Original Research Article

This study examined generative AI chatbot use for school activities among teachers in private primary schools in Dutse, Jigawa State. Specifically, the study identified the generative AI chatbots used by teachers, assessed their practices for verifying the accuracy and appropriateness of AI-generated information, examined the school activities for which the chatbots were used, and identified the challenges encountered in their use. A descriptive survey design was adopted, with all 266 teachers in the identified private primary schools in Dutse studied through total enumeration. Data were collected using a researcher-developed questionnaire and analysed using frequencies, percentages, means and standard deviations. The findings revealed that ChatGPT was the most commonly used generative AI chatbot (71.4%), followed by Google Gemini (65.4%) and Microsoft Copilot (63.2%). However, teachers demonstrated a low level of adoption of the assessed verification practices, with an overall mean of 2.66. Generative AI chatbots were used for a wide range of school activities, including administrative tasks, providing explanations and feedback to pupils, preparing lesson plans, developing differentiated learning materials, and generating pupils' exercises, with an overall mean of 3.72. Major challenges included inadequate prompting skills (91.4%), absence of clear school policies (91.4%), inadequate knowledge of effective AI use (89.1%), inadequate school guidance (89.1%), difficulty determining the accuracy of AI-generated information (86.1%), and concerns about pupils' privacy (86.1%). The study concludes that although generative AI chatbot use is relatively widespread among teachers, responsible and effective utilisation is constrained by weak verification practices and substantial competency, institutional, ethical and infrastructural challenges. The study recommends regular practical AI competency training, clear institutional guidelines, improved digital infrastructure, and consistent verification of AI-generated information before classroom use.

**Keywords:** Generative Artificial Intelligence, AI Chatbots, Teachers, Primary Schools, School Activities, Information Verification.

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## Introduction

### Background to the Study

Generative Artificial Intelligence (GenAI) has emerged as one of the most significant developments in contemporary educational technology. Unlike conventional digital tools that primarily retrieve, organize, or display existing information, generative AI systems can produce new content in response to users' instructions, including text, explanations, lesson ideas, questions, examples, summaries, stories, and other educational materials. The rapid development of conversational generative AI chatbots has therefore created new possibilities for teachers to obtain information, generate instructional resources, support lesson preparation, and undertake professional and administrative tasks. UNESCO (2024) noted that AI is transforming the conventional teacher–student relationship into a teacher–AI–student relationship and consequently requires teachers to develop appropriate knowledge, skills, values, and judgement for its effective use in education.

The educational relevance of generative AI chatbots lies partly in their ability to support a wide range of teacher activities. Research has identified potential applications in lesson planning, content creation, assessment, feedback, and the design of learning activities. For example, research on GenAI as an educators' assistant demonstrated its potential to support teachers in developing inquiry-based lesson plans and in creating content and assessment activities across different educational contexts (2024). Similarly, a systematic mapping review of 407 publications found that GenAI was being explored for pedagogical enhancement, professional development, writing assistance, productivity, and other educational purposes, although the authors identified a paucity of research concerning K–12 education (Yusuf, Pervin, Román-González, & Noor, 2024). This gap makes it important to examine how teachers at the primary-school level, rather than university lecturers or students, are actually using these emerging tools in their everyday school activities.

The use of generative AI by primary-school teachers is particularly important because teachers at this level work with younger learners whose educational experiences are strongly influenced by the quality, appropriateness, clarity, and developmental suitability of instructional content. A teacher may, for example, use a chatbot to generate lesson explanations, classroom activities, exercises, stories, examples, assessment questions, teaching notes, or ideas for addressing pupils' learning difficulties. Such uses can potentially reduce the time required to develop certain instructional materials and provide teachers with additional sources of ideas. UNESCO's AI Competency Framework for Teachers consequently identifies AI pedagogy and AI for professional learning among the major competency areas required by teachers, while also emphasizing human-centred use and ethical responsibility (UNESCO, 2024).

However, the availability of generative AI does not necessarily mean that the information it produces is accurate, complete, appropriate, or suitable for direct educational use. Generative AI chatbots can produce convincing responses that contain factual errors, misleading information, fabricated references, or inappropriate content. A systematic review of empirical research on ChatGPT in education identified the accuracy and quality of generated information as a significant concern, noting that chatbots can present false information as if it were true (Albadarin et al., 2024). Similarly, Yan et al. (2024), in a systematic scoping review of 118 studies on large language models in education, identified practical and ethical concerns surrounding their use for educational tasks such as question generation, feedback, and assessment. Consequently, the educational value of a generative AI chatbot depends not simply on whether teachers use it, but also on how critically they evaluate and verify the information generated before incorporating it into school activities.

Information verification is therefore an important dimension of teachers' use of generative AI. Teachers need to assess whether AI-generated information is factually correct, relevant to the curriculum, appropriate for pupils' age and level, free from harmful or misleading content, and consistent with authoritative educational sources. UNESCO (2024) places critical judgement, ethical use, human agency, privacy, and responsible integration of AI at the centre of teacher AI competency. The framework specifically emphasizes that teachers should be able to critically evaluate AI applications and appropriately integrate AI-generated content into teaching and learning while maintaining human responsibility for educational decisions. Thus, examining the actual verification practices of primary-school teachers is important because reported use of a chatbot alone does not indicate whether its outputs are being used critically or accepted without adequate scrutiny.

The range of activities for which teachers employ generative AI chatbots also requires empirical examination. Existing literature demonstrates that GenAI can potentially support several aspects of teaching, including lesson preparation, instructional-content development, assessment, feedback, learning-activity design, and administrative work. UNESCO (2024), for instance, identifies the potential use of AI for teaching and learning tasks, administrative activities, and engagement with parents and local communities. Nevertheless, the particular activities for which private primary-school teachers in Dutse use these tools cannot be assumed from studies conducted in other educational levels, countries, or institutional contexts. Determining the actual activities for which teachers use generative AI chatbots will therefore provide context-specific evidence about the emerging role of these technologies in primary education.

The Nigerian context makes this investigation increasingly relevant. AI-related educational initiatives are already beginning to address teacher capacity and the integration of

AI into school education. UNESCO reports the Naija Teacher AI initiative in Nigeria, jointly involving the Teachers Registration Council of Nigeria and other education-sector partners, which is designed to provide AI-powered tools and digital training to Nigerian teachers and includes applications such as lesson planning and assessment. The initiative reflects growing national interest in developing teachers' capacity to use AI in education. At the same time, the existence of such initiatives does not establish how teachers in specific local contexts are independently using publicly available generative AI chatbots or what difficulties they encounter in doing so.

Challenges may arise from several sources, including limited knowledge of effective prompting, inadequate AI literacy, unreliable internet connectivity, cost of access, limited digital infrastructure, uncertainty about appropriate educational uses, concerns about privacy and data protection, difficulty evaluating AI-generated information, and the absence of clear institutional guidance. UNESCO (2024) observes that many education systems have yet to establish adequate frameworks and programmes for developing teachers' AI competencies, while recent research continues to identify ethical, practical, and reliability concerns surrounding the use of generative AI in education. Understanding these challenges is particularly important in private primary schools, where schools may differ considerably in their technological resources, teacher preparation, institutional policies, and access to professional development.

Despite the growing international attention given to generative AI in education, evidence specifically concerning teachers' use of generative AI chatbots in primary-school settings remains limited, particularly in developing-country contexts. Yusuf et al. (2024) explicitly identified the limited attention given to K–12 education in the existing GenAI literature. Much of the available evidence has also focused on general perceptions, adoption, higher education, or the potential of GenAI rather than examining the actual combination of chatbot selection, information-verification behaviour, school activities, and practical challenges experienced by primary-school teachers.

It is against this background that the present study seeks to examine Generative AI Chatbot Use for School Activities among Teachers in Private Primary Schools in Dutse, Jigawa State. Specifically, the study will identify the generative AI chatbots used by teachers, assess the practices they adopt to verify the accuracy and appropriateness of AI-generated information, examine the school activities for which the chatbots are used, and identify the challenges encountered in their use. By focusing on these dimensions, the study will provide empirical evidence on not merely whether generative AI chatbots are being used, but which tools are being used, how their outputs are evaluated, what teachers use them for, and what constrains their effective use in the context of private primary-school education in Dutse.

## Statement of the Problem

Generative artificial intelligence (GenAI), particularly AI-powered chatbots, is increasingly becoming relevant to educational practice because of its capacity to generate text, explanations, questions, instructional materials and other forms of content in response to natural-language prompts. In educational settings, such tools can support teachers in tasks such as lesson preparation, question generation, feedback, content development and other teaching-related activities. A systematic review by Albadarin, Saqr, Pope, and Tukiainen (2024) found that ChatGPT had already been used across different educational contexts and highlighted its potential to support teaching and learning activities. Similarly, Yusuf, Pervin, Román-González, and Noor (2024), in a systematic mapping review of 407 publications, identified pedagogical enhancement, specialised training and practices, writing assistance and productivity, and professional development among the major areas in which GenAI is being explored in education. For teachers, however, effective use is expected to extend beyond simply accessing or prompting an AI chatbot. UNESCO (2024) emphasises that teachers require knowledge, skills and values that enable them to use AI effectively, ethically and responsibly, including the ability to critically evaluate AI outputs and make informed decisions about their use.

This expectation becomes particularly important at the primary-school level, where materials and information generated for pupils need to be educationally appropriate, accurate, understandable and consistent with the intended learning objectives. However, the growing availability of GenAI does not automatically guarantee appropriate or responsible use by teachers. Yusuf, Pervin, Román-González, and Noor (2024) identified a paucity of research and discussion concerning GenAI in K–12 education, indicating that evidence about its application at this level remains comparatively limited. Furthermore, Yan, Sha, Zhao, Li, Martinez-Maldonado, Chen, Li, Jin, and Gašević (2024), in a systematic scoping review of 118 peer-reviewed studies, identified practical and ethical concerns surrounding the use of large language models for educational tasks, while stressing the importance of human-centred approaches to their use. UNESCO (2024) similarly maintains that teachers need competencies in AI ethics, AI foundations and applications, AI pedagogy and human-centred use.

The concern is particularly relevant to teachers in private primary schools, where the emergence of readily accessible AI chatbots creates opportunities for teachers to incorporate these tools into their everyday school activities, but where the extent and nature of such use cannot be assumed. Teachers may use different generative AI chatbots for different purposes, ranging from preparing lesson materials and generating classroom activities to developing questions, simplifying concepts and undertaking other professional tasks. At the same time, the quality of such use depends

substantially on whether teachers can recognise limitations in AI-generated responses and subject the information produced to appropriate verification before incorporating it into school activities. Evidence from Nigeria also indicates that AI integration among teachers is accompanied by contextual concerns. For example, Ayanwale, Adelana, Bamiro, et al. (2025), studying 260 Nigerian in-service teachers, identified issues surrounding teacher readiness and contextual barriers to the integration of ChatGPT and other large language models. Similarly, Eze and Onah (2024) found that ChatGPT and other chatbots were being used for educational functions among Nigerian university lecturers and recommended regular orientation and training on their use. Although these studies provide evidence from Nigerian educational contexts, they do not establish what private primary-school teachers in Dutse specifically use GenAI chatbots for, which chatbots they use, how they verify generated information, or the challenges they encounter in doing so.

Consequently, there is a need for empirical evidence that moves beyond the general question of whether teachers are aware of or willing to use GenAI. What requires clarification is which generative AI chatbots teachers actually use, the practices they adopt to verify the accuracy and appropriateness of AI-generated information before using it, the specific school activities for which they employ these tools, and the challenges that affect their use. Establishing these facts will provide a clearer picture of the emerging use of GenAI chatbots among teachers in private primary schools in Dutse, Jigawa State. The findings can provide an evidence base for identifying areas where teachers may require AI literacy, verification skills, professional guidance or institutional support, consistent with UNESCO's emphasis on developing teachers' competencies for effective, ethical and human-centred AI use.

Accordingly, this study will identify the generative AI chatbots used by teachers, assess the practices they adopt to verify the accuracy and appropriateness of generated information, examine the school activities for which the chatbots are used, and identify the challenges encountered in their use among teachers in private primary schools in Dutse, Jigawa State. By generating empirical evidence on these four dimensions, the study will provide a basis for promoting more informed, responsible and educationally appropriate use of generative AI chatbots in primary-school practice.

## Literature Review

Generative artificial intelligence (GenAI) represents a significant development in educational technology because, unlike conventional information systems that primarily retrieve or display existing information, generative systems can produce new text, explanations, questions, summaries, examples and other forms of content from natural-language prompts. Large language models (LLMs), which underpin many contemporary conversational AI chatbots, have consequently attracted considerable attention in education.

Kasneci et al. (2023) observed that LLMs could support content generation, personalised learning, interaction and other educational functions, while also requiring users to understand their limitations and maintain human oversight. Similarly, Farrokhnia et al. (2024) identified personalised and real-time responses and potential reductions in teaching workload as important strengths of ChatGPT, while noting limitations associated with contextual understanding, response quality, bias and the difficulty of evaluating generated information. These characteristics make GenAI chatbots potentially useful to teachers but simultaneously make their educational use dependent on informed human judgement.

The literature indicates that GenAI has rapidly expanded as a field of educational research. Yusuf et al. (2024) mapped 407 publications on GenAI in education and research and identified major themes including applications and impacts, ethical implications and risks, user perspectives and experiences, adoption, and performance. The review conceptualised GenAI as a tool for pedagogical enhancement, specialised training and practice, writing assistance and productivity, professional development, and interdisciplinary learning. However, the authors identified a paucity of research concerning GenAI in K–12 education. This observation is important because much of the early literature emerged from higher education rather than primary and secondary school contexts. Wang et al. (2024), in a systematic review of 2,223 AI-in-education publications, similarly demonstrated the breadth of AI applications in education while showing that the field encompasses diverse technologies, applications, research designs and educational contexts.

Research specifically examining ChatGPT reinforces the rapid expansion but also the uneven distribution of evidence. Albadarin et al. (2024) systematically reviewed 14 empirical studies on ChatGPT in education and found applications across different educational settings. Mai, Da, and Hanh (2024), through a systematic review of 51 studies, identified 32 themes concerning the strengths, weaknesses, opportunities and threats of ChatGPT in teaching and learning. Their synthesis indicated that ChatGPT can contribute to educational processes but also creates concerns that require appropriate pedagogical and institutional responses. Similarly, Lo (2023), after reviewing 63 publications, observed that much of the early ChatGPT literature was commentary-based and non-empirical, highlighting the need for more empirical investigation. These findings suggest that the growing visibility of GenAI should not be equated with a sufficiently established evidence base about its actual use by teachers.

Teachers occupy a particularly important position in the integration of GenAI because they determine how generated content is selected, adapted, evaluated and incorporated into educational activities. UNESCO's (2024) AI Competency

Framework for Teachers identifies 15 competencies across five dimensions: human-centred mindset, ethics of AI, AI foundations and applications, AI pedagogy, and AI for professional learning. The framework therefore positions teachers not simply as users of AI tools but as professionals who require the knowledge, skills and values necessary to use AI critically, ethically and appropriately. Sperling et al. (2024), in a scoping review of AI literacy in teacher education, similarly found that AI literacy is an emerging research area and emphasised the importance of epistemic, practical and ethical knowledge for teachers.

Empirical evidence indicates that teachers are already exploring ChatGPT and related tools for professional and instructional purposes. Al-khresheh (2024), based on responses from 46 English language teachers from different countries, examined teachers' perspectives on integrating ChatGPT into English language teaching and identified both pedagogical opportunities and challenges. Rahimi and Sevilla-Pavón (2024), in a study of 124 Iranian in-service language teachers, found that teachers' readiness to use ChatGPT, awareness of its opportunities and challenges, and practical ability to employ it were associated with innovative teaching practices. These findings suggest that the mere availability of a chatbot does not sufficiently explain its educational use; teachers' knowledge, readiness and ability to integrate the technology into professional practice are also relevant.

More direct evidence comes from K–12 research. Cheah, Lu, and Kim (2025) examined GenAI preparedness, practices and barriers among 89 U.S. K–12 teachers. Fewer than half of the teachers reported incorporating GenAI into their educational practices, and those who used it tended to employ it more for activities outside real-time classroom instruction, particularly lesson preparation, assessment and administrative work. The study also identified concerns about risks, pedagogical beliefs, ethical considerations, and the absence of institutional policies and guidance. Marzano (2025) similarly reviewed 197 studies on GenAI in K–12 education and found opportunities for personalised learning, assessment and innovative teaching, while identifying the need for continuing teacher training, ethical and privacy guidance, and more empirical research on practical classroom use.

The K–12 literature further shows that the evidence base remains relatively limited compared with the attention given to higher education. Zhang and Tur (2024), in a systematic review of ChatGPT use across K–12 education, synthesised 13 studies and reported potential applications in curriculum development, lesson planning, material generation, differentiation and personalised learning. At the same time, they highlighted concerns about output quality and academic integrity and emphasised the need for pedagogically informed and collaborative approaches. Alfarwan (2025), in another systematic review of GenAI in K–12 education, examined 30 studies and similarly concluded that the field was developing

rapidly while requiring additional evidence concerning how GenAI is actually being used and its educational effects. The concentration of research on broader K–12 settings rather than specifically on primary-school teachers leaves considerable room for studies examining teachers' everyday use of AI chatbots.

Verification represents a critical dimension of responsible GenAI use because the ability of chatbots to produce fluent and plausible responses does not guarantee the accuracy, completeness, currency or appropriateness of the information generated. Kasneci et al. (2023) emphasised the need for critical thinking and fact-checking when LLMs are used in educational settings. Farrokhnia et al. (2024) likewise identified difficulty in evaluating the quality of ChatGPT responses as an important weakness. These concerns are particularly relevant to teachers because information incorporated into teaching materials may subsequently be transmitted to pupils as instructional knowledge.

Yan et al. (2024) provided systematic evidence of the issue through a review of 118 peer-reviewed studies on LLM-based educational applications. They identified 53 educational use cases across nine broad categories, including teaching support, assessment, feedback, content generation and recommendation. However, they also identified practical and ethical challenges involving technological readiness, model performance, transparency, privacy and beneficence. The authors consequently recommended a human-centred approach to the development and application of LLM-based educational technologies. This implies that teachers cannot appropriately delegate educational judgement entirely to an AI chatbot; generated information requires human evaluation before it is incorporated into educational practice.

The need for verification is also evident in research examining AI-generated educational explanations. A study involving 11 teachers and 70 sixth-grade students compared teacher-created and ChatGPT-generated explanations of computer science concepts and examined participants' ability to distinguish between them. The study demonstrates the practical relevance of evaluating AI-generated educational content rather than assuming that fluent explanations are necessarily equivalent to teacher-generated explanations (2024). In a related review, Zhang and Tur (2024) identified output quality as an important concern in K–12 applications of ChatGPT. Together, these studies suggest that verification should involve more than checking whether an AI-generated response appears reasonable; teachers need to consider accuracy, curriculum relevance, age appropriateness and educational suitability.

AI literacy therefore has implications for information verification. Sperling et al. (2024) found that AI literacy in teacher education encompasses epistemic, practical and ethical dimensions and argued for stronger participation by educational researchers, teachers and educators in defining the knowledge required for AI use. UNESCO (2024)

similarly incorporates ethics, human agency and critical application into its teacher competency framework. Consequently, verification of AI-generated information can be understood as an important component of teachers' AI literacy rather than merely a technical procedure. A teacher who understands how AI systems function, recognises their limitations and critically evaluates their outputs is better positioned to determine whether generated content should be accepted, modified, independently verified or rejected.

The literature identifies a broad range of activities for which teachers may use GenAI chatbots. Yan et al. (2024) identified teaching support, content generation, assessment, feedback and recommendation among the major categories of LLM-supported educational tasks. In relation to teachers' practical work, Cheah et al. (2025) found that K–12 teachers who used GenAI tended to apply it to lesson preparation, assessment and administrative tasks rather than primarily to real-time classroom instruction. These findings suggest that the contribution of GenAI to teaching may extend beyond direct interaction with pupils to the wider set of activities that teachers perform before, during and after classroom instruction.

Lesson planning is one of the areas receiving increasing attention. Kim and Lee (2024) examined the use of ChatGPT for lesson planning among prospective English teachers and considered its contribution to lesson-plan components, instructional activities, advantages and challenges. Similarly, a study on GenAI as an educator's assistant examined how different GenAI tools could support inquiry-based lesson planning, content creation, assessment, feedback and learning-activity design. These studies suggest that AI chatbots can function as planning and content-development assistants rather than merely as question-answering systems.

Chatbots may also support the preparation and adaptation of instructional materials. Zhang and Tur (2024) identified curriculum development, lesson planning, materials generation and differentiation as potential K–12 applications. Alfarwan (2025) similarly reported applications of GenAI across K–12 educational processes, while Marzano (2025) identified personalised learning, assessment and innovative teaching practices among areas of potential application. These findings are relevant to primary education because teachers frequently need to adapt content to pupils' varying levels of understanding, produce classroom exercises and prepare supplementary instructional materials. Nevertheless, the literature does not establish that teachers in every educational context use GenAI for all these purposes; the specific activities undertaken by teachers remain context-dependent and therefore require empirical investigation.

Beyond lesson preparation and content generation, AI can support assessment and feedback. Yan et al. (2024) identified question generation, grading, feedback and content generation among documented or proposed LLM-supported educational tasks. Wang et al. (2024) likewise showed that AI

applications in education encompass teaching, assessment, monitoring and administrative processes. A systematic review by Deng and Joshi (2024) further emphasised that the educational value of GenAI depends on how educators manage issues such as critical engagement, bias and the possibility of learners simply reproducing AI-generated material. Thus, the use of GenAI for school activities should be viewed as an augmentation of teachers' professional work rather than an automatic replacement for professional judgement.

Although GenAI chatbots offer potential benefits, the literature identifies several barriers to their effective use. Cheah et al. (2025) identified inadequate preparedness, concerns about technology-related risks, pedagogical beliefs, ethical considerations and the absence of policies or guidance among barriers affecting K–12 teachers' integration of GenAI. Rahimi and Sevilla-Pavón (2024) similarly demonstrated the importance of teachers' readiness, knowledge of opportunities and challenges, and practical ability to use ChatGPT. These findings indicate that teachers' use of GenAI depends not only on access to the technology but also on professional capacity and institutional conditions.

Technological and infrastructural conditions can also affect the practical use of AI tools. Yan et al. (2024) identified technological readiness as one of the dimensions influencing the practicality of LLM-based educational innovations. Marzano (2025) highlighted the need for teacher training and appropriate policy frameworks, while UNESCO (2024) emphasised structured competency development to enable teachers to use AI effectively and responsibly. Consequently, challenges associated with GenAI use may include inadequate AI knowledge, limited training, difficulties in evaluating outputs, inadequate institutional guidance, privacy concerns and technological constraints. The specific prevalence and significance of these challenges, however, may vary according to educational context and therefore should not be assumed without empirical evidence.

Ethical and information-quality concerns constitute another important category of challenges. Deng and Joshi (2024) noted concerns about learners' uncritical reproduction of AI-generated content and the possibility that GenAI may reproduce biases embedded in training data. Yan et al. (2024) similarly identified concerns relating to transparency, privacy, equality and beneficence. Banihashem et al. (2024) identified bias, discrimination, contextual limitations and difficulties in evaluating responses among the weaknesses and threats associated with ChatGPT. These concerns reinforce the importance of teachers maintaining responsibility for the final content used in school activities.

Evidence from Nigeria is beginning to emerge, although it remains limited in comparison with the rapidly expanding international literature. Ayanwale et al. (2025) examined GenAI and LLM use among 260 Nigerian in-service teachers using a structured survey and a hybrid analytical approach.

The study provides important evidence that GenAI is becoming relevant to Nigerian teachers and that teacher-related factors are important in understanding its integration. However, the study addressed Nigerian in-service teachers broadly rather than focusing specifically on teachers in private primary schools in Dutse. Its findings therefore provide a national context but cannot be directly assumed to represent teachers in the study area.

The Nigerian evidence also illustrates the need to move from broad questions of AI readiness towards the actual practices through which teachers employ GenAI. Existing international literature has increasingly examined preparedness, pedagogical use and barriers, but relatively less attention has been devoted to documenting the specific chatbots teachers use, the methods they employ to verify AI-generated information, and the precise school activities for which they use the tools. This is important because different AI chatbots may provide different functionalities, teachers may use them for different purposes, and the same teacher may apply different verification practices depending on the type of information generated.

## Synthesis and Research Gap

The reviewed literature establishes that GenAI chatbots have considerable potential to support educational work, including lesson planning, content development, assessment, feedback, differentiation, administrative activities and professional learning. At the same time, the literature consistently identifies limitations involving output quality, accuracy, bias, privacy, ethical use, teacher preparedness, technological readiness and inadequate institutional guidance. Systematic reviews by Yusuf et al. (2024), Zhang and Tur (2024), Marzano (2025), and Alfarwan (2025) collectively demonstrate that research on GenAI in K–12 education is developing but remains considerably less extensive than research in higher education.

More importantly, the literature reveals a gap between discussing the potential of GenAI and documenting teachers' actual practices. Existing studies have examined teachers' perceptions, readiness, preparedness, pedagogical possibilities and barriers, while systematic reviews have mapped broad educational applications. However, relatively limited empirical evidence simultaneously addresses which GenAI chatbots teachers use, how they verify the accuracy and appropriateness of generated information, which school activities they use the chatbots for, and the challenges they encounter. The gap is even more apparent at the primary-school level and within specific local educational contexts. This study therefore focuses on teachers in private primary schools in Dutse, Jigawa State, to provide empirical evidence on these four interconnected dimensions of GenAI chatbot use.

## Research Objectives

The study will seek to:

1. Identify the generative AI chatbots used by teachers in private primary schools in Dutse, Jigawa State.
2. Assess the practices adopted by teachers to verify the accuracy and appropriateness of information generated by AI chatbots before using it for school activities.
3. Examine the school activities for which teachers use generative AI chatbots in private primary schools in Dutse, Jigawa State.
4. Identify the challenges encountered by teachers in using generative AI chatbots for school activities in private primary schools in Dutse, Jigawa State.

## Methodology

A descriptive survey design was adopted for the study. The design was appropriate because the study sought to examine the use of generative artificial intelligence (GenAI) chatbots for school activities among teachers in private primary schools, with particular attention to the chatbots used, information verification practices, school activities supported by the tools, and challenges encountered. The study was conducted in private primary schools in Dutse, Jigawa State, Nigeria. According to records obtained from the Jigawa State Primary Schools Management Board, there were 266 registered private primary schools and 266 teachers as of December 2025. Because the population was manageable, total enumeration was used, and all 266 teachers constituted the study population and sample.

Data were collected using a researcher-developed questionnaire titled *Generative AI Chatbot Use for School Activities Questionnaire (GAICUSAQ)*. The questionnaire was developed from the study objectives and relevant literature on teachers' use of generative AI. It comprised five sections covering respondents' demographic characteristics, generative AI chatbots used, practices for verifying the accuracy and appropriateness of AI-generated information, school activities for which the chatbots were used, and challenges encountered. The questionnaire employed a four-point Likert scale ranging from Strongly Agree (4) to Strongly Disagree (1), with multiple-response items used where respondents could identify more than one chatbot or school activity.

The instrument was subjected to face and content validation by three experts in Educational Technology, Measurement and Evaluation, and Artificial Intelligence in Education. Their recommendations concerning the relevance, clarity and adequacy of the items were incorporated into the final instrument. A pilot test was conducted among 30 teachers from three private primary schools outside the study area. Cronbach's alpha was used to determine the internal consistency of the instrument. Following approval from the Jigawa State Primary Schools Management Board and the relevant authorities of the participating schools, the questionnaires were administered physically to the teachers in their respective schools. The purpose of the study was explained to the respondents, and the completed questionnaires were retrieved after administration.

The data were coded and analysed using the Statistical Package for the Social Sciences (SPSS), Version 27. Frequencies and percentages were used to analyse the generative AI chatbots used by the teachers and the school activities for which they were used, while mean and standard deviation were used to analyse information verification practices and challenges. A criterion mean of 2.50 was adopted for the four-point Likert scale. Mean scores of 2.50 and above indicated agreement or the presence of a practice or challenge, whereas scores below 2.50 indicated disagreement or its absence. Frequencies and percentages were used for multiple-response items because respondents could select more than one option.

## Data Presentation and Analysis

### Objective One

**Research Objective One:** Identify the generative AI chatbots used by teachers in private primary schools in Dutse, Jigawa State.

**Table 1:** Generative AI Chatbots Used by Teachers

| S/N | Generative AI chatbot         | f   | (%)  |
|-----|-------------------------------|-----|------|
| 1   | ChatGPT                       | 190 | 71.4 |
| 2   | Google Gemini                 | 174 | 65.4 |
| 3   | Microsoft Copilot             | 168 | 63.2 |
| 4   | Claude                        | 165 | 62.0 |
| 5   | Meta AI                       | 151 | 56.8 |
| 6   | Perplexity AI                 | 146 | 54.9 |
| 7   | DeepSeek                      | 140 | 52.6 |
| 8   | Grok                          | 135 | 50.8 |
| 9   | Another generative AI chatbot | 126 | 47.4 |

**Note:** Multiple responses were permitted; therefore, percentages do not add up to 100%.

Table 1 shows that ChatGPT was the most commonly used generative AI chatbot among the teachers, reported by 190 respondents (71.4%). This was followed by Google Gemini with 174 respondents (65.4%), Microsoft Copilot with 168 respondents (63.2%), and Claude with 165 respondents (62.0%). Meta AI was reported by 151 respondents (56.8%), while Perplexity AI was used by 146 respondents (54.9%). DeepSeek and Grok were reported by 140 (52.6%) and 135 (50.8%) respondents, respectively. A further 126 respondents (47.4%) indicated the use of other generative AI chatbots. Since respondents could select more than one chatbot, the results indicate that teachers generally use multiple generative AI platforms rather than relying exclusively on one chatbot.

The findings indicate relatively broad exposure to generative AI chatbots among the teachers, with every listed chatbot being reported by at least 47.4% of the respondents. The

### Ethical Considerations

Ethical principles were observed throughout the study. Participation was voluntary, and respondents were informed about the purpose of the study before completing the questionnaire. They were assured that the information provided would be treated confidentially and used solely for academic purposes. No unnecessary identifying information was collected, and respondents were informed of their right to decline participation or withdraw from the study without penalty. The completed questionnaires and electronic data were securely stored and accessed only for the purposes of the study.

relatively high use of ChatGPT suggests that it is the most prominent chatbot in the study population, although the substantial use of Gemini, Copilot and Claude shows that teachers are also engaging with competing platforms. The use of multiple platforms may provide teachers with alternative sources of generated information and content, but it also reinforces the importance of information verification because outputs can vary across AI systems. The finding therefore provides a useful basis for examining the second objective, which focuses specifically on the practices teachers adopt to verify AI-generated information.

### Objective Two

**Research Objective Two:** Assess the practices adopted by teachers to verify the accuracy and appropriateness of information generated by AI chatbots before using it for school activities.

**Table 2:** Verification Practices Adopted by Teachers

| S/N | Verification practice                                                                            | SA           | A            | UD           | D            | SD           | Mean        | SD          | Decision   |
|-----|--------------------------------------------------------------------------------------------------|--------------|--------------|--------------|--------------|--------------|-------------|-------------|------------|
| 1   | I check information generated by an AI chatbot against approved textbooks before using it.       | 36<br>(13.5) | 57<br>(21.4) | 27<br>(10.2) | 82<br>(30.8) | 64<br>(24.1) | 2.70        | 1.40        | Low        |
| 2   | I compare AI-generated information with the relevant curriculum before using it.                 | 41<br>(15.4) | 62<br>(23.3) | 31<br>(11.7) | 76<br>(28.6) | 56<br>(21.1) | 2.84        | 1.40        | Low        |
| 3   | I consult reliable educational websites to verify information generated by an AI chatbot.        | 30<br>(11.3) | 53<br>(19.9) | 38<br>(14.3) | 84<br>(31.6) | 61<br>(22.9) | 2.65        | 1.37        | Low        |
| 4   | I compare AI-generated information with information from more than one reliable source.          | 34<br>(12.8) | 58<br>(21.8) | 33<br>(12.4) | 80<br>(30.1) | 61<br>(22.9) | 2.71        | 1.39        | Low        |
| 5   | I consult other teachers when I am uncertain about information generated by an AI chatbot.       | 28<br>(10.5) | 51<br>(19.2) | 34<br>(12.8) | 86<br>(32.3) | 67<br>(25.2) | 2.58        | 1.36        | Low        |
| 6   | I consult a subject specialist when I doubt the accuracy of AI-generated information.            | 39<br>(14.7) | 60<br>(22.6) | 32<br>(12.0) | 78<br>(29.3) | 57<br>(21.4) | 2.79        | 1.40        | Low        |
| 7   | I check whether AI-generated information is appropriate for the age of my pupils.                | 25<br>(9.4)  | 46<br>(17.3) | 41<br>(15.4) | 88<br>(33.1) | 66<br>(24.8) | 2.53        | 1.34        | Low        |
| 8   | I check whether AI-generated content is consistent with the learning objectives before using it. | 23<br>(8.6)  | 44<br>(16.5) | 38<br>(14.3) | 92<br>(34.6) | 69<br>(25.9) | 2.48        | 1.32        | Low        |
| 9   | I check AI-generated examples and illustrations for accuracy before presenting them to pupils.   | 37<br>(13.9) | 57<br>(21.4) | 35<br>(13.2) | 81<br>(30.5) | 56<br>(21.1) | 2.76        | 1.39        | Low        |
| 10  | I review AI-generated questions to ensure that they are appropriate for the pupils' level.       | 27<br>(10.2) | 49<br>(18.4) | 39<br>(14.7) | 86<br>(32.3) | 65<br>(24.4) | 2.58        | 1.36        | Low        |
|     | <b>Overall Mean</b>                                                                              |              |              |              |              |              | <b>2.66</b> | <b>1.37</b> | <b>Low</b> |

**Note:** SA = Strongly Agree; A = Agree; UD = Undecided; D = Disagree; SD = Strongly Disagree.

Table 2 indicates that the respondents generally reported low adoption of the listed verification practices, with an overall mean of 2.66 and standard deviation of 1.37. The highest mean was recorded for comparing AI-generated information with the relevant curriculum (Mean = 2.84), followed by consulting a subject specialist when accuracy is doubted (Mean = 2.79) and checking AI-generated examples and illustrations for accuracy (Mean = 2.76). The lowest mean was recorded for checking whether AI-generated content was consistent with learning objectives (Mean = 2.48), followed by consulting other teachers when uncertain about AI-generated information and reviewing AI-generated questions for pupils' level, both with a mean of 2.58. All the reported practices were classified as low according to the decision criterion used in the table.

The findings suggest that although teachers use generative AI chatbots extensively, the verification practices reported in the

table are comparatively weak. In particular, the low mean for checking alignment with learning objectives and the relatively low means for checking age appropriateness and reviewing questions for pupils' level are important because primary-school teaching requires content to be both educationally appropriate and suitable for pupils' developmental levels. The overall mean of 2.66 therefore suggests a gap between using AI-generated information and systematically validating that information before classroom use. This finding is particularly significant because effective educational use of generative AI requires teachers to retain human judgement and critically evaluate AI-generated outputs rather than treating them as automatically reliable.

### Objective Three

**Research Objective Three:** Examine the school activities for which teachers use generative AI chatbots in private primary schools in Dutse, Jigawa State.

**Table 3:** School Activities for Which Teachers Use Generative AI Chatbots

| School activity                                                                       | SA         | A          | UD        | D         | SD        | Mean        | SD          |
|---------------------------------------------------------------------------------------|------------|------------|-----------|-----------|-----------|-------------|-------------|
| Preparing lesson plans                                                                | 113 (42.5) | 101 (38.0) | 14 (5.3)  | 24 (9.0)  | 14 (5.3)  | 4.03        | 1.23        |
| Preparing lesson notes                                                                | 89 (33.5)  | 107 (40.2) | 17 (6.4)  | 32 (12.0) | 21 (7.9)  | 3.8         | 1.3         |
| Generating teaching materials                                                         | 84 (31.6)  | 111 (41.7) | 19 (7.1)  | 33 (12.4) | 19 (7.1)  | 3.77        | 1.27        |
| Simplifying difficult concepts                                                        | 78 (29.3)  | 113 (42.5) | 22 (8.3)  | 34 (12.8) | 19 (7.1)  | 3.74        | 1.25        |
| Developing examples and illustrations                                                 | 73 (27.4)  | 109 (41.0) | 23 (8.6)  | 38 (14.3) | 23 (8.6)  | 3.64        | 1.3         |
| Preparing classroom activities                                                        | 61 (22.9)  | 102 (38.3) | 27 (10.2) | 46 (17.3) | 30 (11.3) | 3.44        | 1.35        |
| Generating exercises for pupils                                                       | 94 (35.3)  | 115 (43.2) | 16 (6.0)  | 26 (9.8)  | 15 (5.6)  | 3.93        | 1.21        |
| Preparing test questions                                                              | 43 (16.2)  | 73 (27.4)  | 38 (14.3) | 63 (23.7) | 49 (18.4) | 2.99        | 1.4         |
| Preparing examination questions                                                       | 55 (20.7)  | 96 (36.1)  | 30 (11.3) | 53 (19.9) | 32 (12.0) | 3.34        | 1.37        |
| Preparing marking schemes or answer guides                                            | 49 (18.4)  | 86 (32.3)  | 34 (12.8) | 58 (21.8) | 39 (14.7) | 3.17        | 1.4         |
| Developing differentiated learning materials for pupils with different learning needs | 100 (37.6) | 111 (41.7) | 14 (5.3)  | 26 (9.8)  | 15 (5.6)  | 3.96        | 1.22        |
| Providing explanations or feedback to pupils                                          | 110 (41.4) | 107 (40.2) | 13 (4.9)  | 22 (8.3)  | 14 (5.3)  | 4.05        | 1.18        |
| Preparing pupils' learning exercises or assignments                                   | 83 (31.2)  | 112 (42.1) | 20 (7.5)  | 33 (12.4) | 18 (6.8)  | 3.79        | 1.26        |
| Classroom assessment activities                                                       | 77 (28.9)  | 105 (39.5) | 23 (8.6)  | 38 (14.3) | 23 (8.6)  | 3.65        | 1.32        |
| Administrative tasks                                                                  | 115 (43.2) | 102 (38.3) | 14 (5.3)  | 22 (8.3)  | 13 (4.9)  | 4.07        | 1.17        |
| Preparing reports or school documents                                                 | 89 (33.5)  | 109 (41.0) | 19 (7.1)  | 31 (11.7) | 18 (6.8)  | 3.83        | 1.25        |
| Writing or responding to professional communication                                   | 86 (32.3)  | 114 (42.9) | 18 (6.8)  | 31 (11.7) | 17 (6.4)  | 3.83        | 1.24        |
| Professional development or learning                                                  | 69 (25.9)  | 100 (37.6) | 25 (9.4)  | 45 (16.9) | 27 (10.2) | 3.53        | 1.38        |
| Searching for ideas for teaching and learning activities                              | 49 (18.4)  | 81 (30.5)  | 31 (11.7) | 62 (23.3) | 43 (16.2) | 3.12        | 1.43        |
| Other school-related activities                                                       | 58 (21.8)  | 94 (35.3)  | 28 (10.5) | 53 (19.9) | 33 (12.4) | 3.34        | 1.42        |
| <b>Overall Mean</b>                                                                   |            |            |           |           |           | <b>3.72</b> | <b>1.29</b> |

Table 3 shows that teachers use generative AI chatbots across a wide range of school activities, with an overall mean of 3.72 and standard deviation of 1.29, indicating a high level of use. The highest mean was recorded for administrative tasks (4.07), followed by providing explanations or feedback to pupils (4.05), preparing lesson plans (4.03), developing differentiated learning materials (3.96), and generating exercises for pupils (3.93). Other frequently reported uses include preparing reports or school documents, professional communication, lesson notes, teaching materials, pupils' assignments, classroom assessment activities, and simplifying difficult concepts. Preparing test questions recorded the lowest mean (2.99) and was classified as not available under the supplied decision criterion.

The findings demonstrate that generative AI chatbots are being used for both instructional and non-instructional school activities. The relatively high means for lesson planning, teaching materials, explanations and feedback, exercises,

differentiated materials, and administrative tasks suggest that teachers employ chatbots as general-purpose assistants rather than limiting them to lesson preparation alone. The particularly high mean for administrative tasks also indicates that teachers perceive value in using generative AI beyond direct classroom instruction. However, the comparatively lower result for test-question preparation suggests that teachers may be more cautious about using AI for activities directly connected with formal assessment. Overall, the result indicates that generative AI has become relevant to several dimensions of teachers' routine professional activities within the study population.

### Objective Four

**Research Objective Four:** Identify the challenges encountered by teachers in using generative AI chatbots for school activities in private primary schools in Dutse, Jigawa State.

**Table 4:** Challenges Encountered by Teachers in Using Generative AI Chatbots

| S/N | Challenge                                                                                          | Yes        | No        |
|-----|----------------------------------------------------------------------------------------------------|------------|-----------|
| 1   | I lack adequate knowledge of how to use generative AI chatbots effectively.                        | 237 (89.1) | 29 (10.9) |
| 2   | I lack adequate skills for writing effective prompts.                                              | 243 (91.4) | 23 (8.6)  |
| 3   | It is sometimes difficult to determine whether information generated by an AI chatbot is accurate. | 229 (86.1) | 37 (13.9) |
| 4   | AI chatbots sometimes generate incorrect information.                                              | 218 (82.0) | 48 (18.0) |
| 5   | AI chatbots sometimes provide information that is inappropriate for primary-school pupils.         | 214 (80.5) | 52 (19.5) |
| 6   | AI-generated information does not always align with the school curriculum.                         | 205 (77.1) | 61 (22.9) |
| 7   | Poor internet connectivity limits my use of AI chatbots.                                           | 200 (75.2) | 66 (24.8) |
| 8   | The cost of internet data limits my use of AI chatbots.                                            | 190 (71.4) | 76 (28.6) |
| 9   | Limited access to suitable digital devices limits my use of AI chatbots.                           | 180 (67.7) | 86 (32.3) |
| 10  | Unreliable electricity supply limits my use of AI chatbots.                                        | 174 (65.4) | 92 (34.6) |
| 12  | My school does not provide adequate guidance on the use of generative AI.                          | 237 (89.1) | 29 (10.9) |
| 13  | There are no clear school policies governing teachers' use of generative AI.                       | 243 (91.4) | 23 (8.6)  |
| 14  | Concerns about pupils' privacy limit my use of AI chatbots.                                        | 229 (86.1) | 37 (13.9) |
| 15  | I am concerned that AI-generated content may contain bias.                                         | 218 (82.0) | 48 (18.0) |
| 16  | I am concerned about exposing pupils to inappropriate AI-generated content.                        | 214 (80.5) | 52 (19.5) |
| 17  | Verifying AI-generated information requires additional time.                                       | 205 (77.1) | 61 (22.9) |
| 18  | Adapting AI-generated content to the needs of my pupils requires additional effort.                | 200 (75.2) | 66 (24.8) |
| 19  | Limited technical support makes it difficult to use AI chatbots effectively.                       | 190 (71.4) | 76 (28.6) |
| 20  | Uncertainty about the appropriate educational use of AI chatbots limits my use of them.            | 180 (67.7) | 86 (32.3) |

Table 4 indicates that the teachers encountered several challenges in using generative AI chatbots for school activities. The most frequently reported challenges were lack of adequate prompting skills, reported by 243 respondents (91.4%), followed by the absence of clear school policies governing teachers' use of generative AI, also reported by 243 respondents (91.4%). Lack of adequate knowledge of effective chatbot use and inadequate school guidance were each reported by 237 respondents (89.1%). Difficulty determining the accuracy of AI-generated information was reported by 229 respondents (86.1%), while concerns about pupils' privacy were also reported by 229 respondents (86.1%). Other prominent challenges included incorrect AI-generated information (82.0%), bias in AI-generated content (82.0%), inappropriate content for primary-school pupils (80.5%), curriculum misalignment (77.1%), and the additional time required to verify AI-generated information (77.1%).

The findings show that the challenges experienced by teachers are both competence-related and institutional, technological and information-quality related. The high proportion reporting inadequate prompting skills and insufficient knowledge suggests a need for stronger practical AI literacy among teachers. At the institutional level, the reported absence of clear policies and inadequate school guidance indicate that teachers may be using generative AI without sufficiently defined institutional frameworks. The difficulty of determining accuracy, together with concerns about incorrect, biased and age-inappropriate content, further

reinforces the importance of verification practices. Interestingly, these challenges correspond closely with the relatively low verification practices reported under Objective Two, suggesting that teachers may recognise the risks associated with AI-generated information but may not consistently possess the skills, guidance or support needed to address them.

## Discussion of Findings

The findings revealed that teachers in private primary schools in Dutse use a variety of generative AI chatbots, with ChatGPT recording the highest level of use (71.4%), followed by Google Gemini (65.4%), Microsoft Copilot (63.2%), Claude (62.0%), Meta AI (56.8%), Perplexity AI (54.9%), DeepSeek (52.6%), and Grok (50.8%). This suggests that teachers' use of generative AI is not restricted to a single platform but extends across several commercially available chatbots. The finding is consistent with Yusuf, Pervin, Román-González, and Noor (2024), whose systematic mapping review identified generative AI as increasingly applied to pedagogical enhancement, writing assistance, productivity, professional development, and specialised practices. It also supports Cheah, Lu, and Kim (2025), who found that generative AI integration among K–12 teachers was emerging across different educational practices, although fewer than half of their respondents had incorporated it into their educational activities. The higher level of reported use in the present study may be associated with the different study context, population and period of investigation. The result

therefore indicates that generative AI chatbots have already gained considerable presence among the teachers studied, while the diversity of platforms suggests that teachers may select tools according to perceived functionality, accessibility or task requirements.

The findings showed that teachers demonstrated a generally low level of adoption of the assessed verification practices, with an overall mean of 2.66. Although teachers reported some effort to compare AI-generated information with the curriculum (Mean = 2.84), consult subject specialists (Mean = 2.79), and check examples and illustrations (Mean = 2.76), practices such as checking alignment with learning objectives (Mean = 2.48), checking age appropriateness (Mean = 2.53), and consulting other teachers (Mean = 2.58) were comparatively weak. This finding is important because the use of generative AI in primary education requires teachers to exercise critical judgement rather than accept generated information without scrutiny. The result agrees with UNESCO's (2024) AI Competency Framework for Teachers, which emphasises human agency, ethical awareness, critical evaluation and the responsible application of AI in educational contexts. It is also consistent with Yan et al. (2024), who identified transparency, technological readiness, privacy, ethicality and other practical concerns as important issues in the educational use of large language models. The finding can therefore be inferred to indicate a gap between teachers' access to and use of generative AI and their capacity to systematically validate its outputs before classroom application. This gap is particularly significant in primary education, where information must be accurate, age-appropriate, curriculum-aligned and educationally suitable.

The findings indicated that teachers use generative AI chatbots for a broad range of school activities, producing an overall mean of 3.72. The most prominent uses included administrative tasks (Mean = 4.07), providing explanations or feedback to pupils (Mean = 4.05), preparing lesson plans (Mean = 4.03), developing differentiated learning materials (Mean = 3.96), and generating exercises for pupils (Mean = 3.93). Other uses included lesson notes, teaching materials, classroom activities, examination questions, marking schemes, reports, professional communication and professional development. This finding strongly corresponds with Yan et al. (2024), who identified 53 educational applications of large language models across areas such as teaching support, feedback, assessment, content generation and recommendation. It also agrees with Cheah, Lu, and Kim (2025), who reported that K–12 teachers used generative AI particularly for lesson preparation, assessment and administrative duties. The present finding therefore suggests that teachers perceive generative AI as a multipurpose professional assistant rather than merely a tool for generating instructional content. However, the relatively lower mean for preparing test questions (2.99) may indicate greater caution in applying AI to some formal assessment activities. Overall, the

evidence suggests that generative AI is being integrated into both instructional and administrative dimensions of teachers' work.

The findings revealed substantial challenges associated with teachers' use of generative AI chatbots. The most prominent challenges were inadequate prompting skills (91.4%), absence of clear school policies (91.4%), inadequate knowledge of effective AI use (89.1%), inadequate school guidance (89.1%), difficulty determining the accuracy of AI-generated information (86.1%), and concerns about pupils' privacy (86.1%). Teachers also reported concerns about incorrect information, bias, inappropriate content for primary-school pupils, curriculum misalignment, poor Internet connectivity, cost of Internet data, limited digital devices, and unreliable electricity. These findings closely correspond with Cheah, Lu, and Kim (2025), who identified technology access, technical support, funding, lack of knowledge and skills, ethical concerns, inadequate policies and guidance, and professional-development needs as barriers to K–12 teachers' integration of generative AI. The findings also support Yan et al. (2024), whose systematic scoping review identified technological readiness, transparency, privacy and ethical considerations among the practical and ethical challenges associated with educational applications of large language models. Similarly, UNESCO (2024) emphasises the need for teacher competencies, ethical awareness, human agency and appropriate institutional support for effective AI use. The present findings therefore suggest that the challenges confronting teachers are multidimensional, extending beyond access to technology to include AI competencies, information evaluation, ethical concerns and institutional preparedness. In particular, the combination of low verification practices and high concerns about accuracy and inappropriate content suggests that teachers recognise some risks of AI use but may lack sufficient skills and institutional guidance to manage those risks effectively.

In all, the findings present a consistent pattern: teachers' use of generative AI chatbots is relatively widespread and extends across numerous school activities, but their verification practices are comparatively weak and their use is accompanied by substantial competence, ethical, infrastructural and institutional challenges. This pattern is broadly consistent with the reviewed literature, which recognises both the expanding educational applications of generative AI and the continuing need for teacher preparedness, critical evaluation, ethical awareness and institutional support. Yusuf et al. (2024) noted the growing application of generative AI in education while identifying K–12 education as an area requiring further research. The present study contributes empirical evidence from private primary schools in Dutse, thereby providing context-specific evidence on the tools teachers use, how they verify AI-generated information, the activities for which they use the tools, and the challenges they encounter.

## Implication of the Study

The study has implications for teachers, school proprietors and administrators, teacher-training institutions, and education policymakers. The findings indicate that generative AI chatbots are already being used for diverse instructional and administrative activities, but teachers' verification practices remain relatively low and several competence, ethical, infrastructural and institutional challenges persist. This implies that providing access to AI tools alone may not ensure responsible and effective use. Teachers require practical competencies in prompting, evaluating AI-generated information, checking accuracy, ensuring curriculum alignment and assessing age appropriateness. Schools also need clear guidance and policies governing the responsible use of generative AI, particularly regarding pupil privacy, inappropriate content and human oversight. These implications are consistent with UNESCO's (2024) framework, which identifies human-centred mindset, ethics of AI, AI foundations and applications, AI pedagogy, and AI for professional learning as essential areas of teacher competence.

## Conclusion

The study concludes that teachers in private primary schools in Dutse are making considerable use of generative AI chatbots, with ChatGPT being the most commonly used platform, followed by several other chatbots. The tools are applied across a wide range of instructional, assessment, administrative and professional activities. However, despite this relatively broad use, teachers' adoption of practices for verifying the accuracy and appropriateness of AI-generated information was low. The teachers also encountered substantial challenges relating to AI knowledge and prompting skills, accuracy of generated information, privacy, inappropriate content, institutional guidance and policies, Internet connectivity and access to digital resources. The study therefore concludes that the effective integration of generative AI in private primary schools requires a shift from simple access and use towards competent, critical, ethical and human-centred use of AI.

## Recommendations

Private primary schools should organise regular practical training for teachers on effective prompting, evaluation and verification of AI-generated information, with emphasis on accuracy, curriculum alignment and age appropriateness.

School administrators and proprietors should develop clear guidelines for the responsible use of generative AI, covering acceptable uses, human oversight, pupil privacy, inappropriate content and ethical considerations.

Schools should strengthen access to reliable Internet connectivity, electricity and suitable digital devices to reduce

technological barriers to teachers' effective use of generative AI.

Teachers should consistently verify important AI-generated information against approved textbooks, curriculum documents and other reliable sources before incorporating it into teaching, assessment or other school activities.

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