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## Empowering Educators: Harnessing Artificial Intelligence to Revolutionize English Proficiency Among Primary School Teachers

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### Abstract

The research examines the transformative impact of Artificial Intelligence (AI) on enhancing English language skills among primary school teachers in Rwanda. As Rwanda's education sector undergoes significant reforms, the adoption of AI tools, such as Grammarly and Meta, has become a vital resource for educators seeking to improve their language abilities while teaching English as a second language. The study is guided by two theoretical frameworks: the Constructivist Learning Theory and the Technology Acceptance Model (TAM). It utilizes both qualitative and quantitative research methods to gather and analyze data. The findings illustrate how AI offers personalized learning experiences, instant feedback, and customized resources that assist teachers in improving their writing and communication skills. The research highlights that by addressing the diverse needs of educators, AI creates a supportive environment that encourages professional development and peer collaboration. The results demonstrate how AI technology complements Rwanda's national strategy for enhancing English proficiency, emphasizing its importance in preparing teachers and students for a competitive global environment. Therefore, the study suggests that strategic utilization of AI in education not only improves teaching practices but also fosters a more engaging and effective learning experience for both teachers and students.

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## Introduction

In recent years, the integration of technology in education has transformed the landscape of teaching and learning across the globe (Redecker, 2017; Selwyn, 2019). Particularly in Rwanda, where the education sector has been undergoing significant reforms, the role of technology in enhancing language skills has become increasingly paramount (Ministry of Education, Rwanda [MINEDUC], 2022). Among various technological innovations, Artificial Intelligence (AI) stands out as a powerful ally for educators, especially for primary school teachers seeking to improve their English language proficiency. The ability of AI to provide personalized learning experiences, instant feedback, and tailored resources has revolutionized how teachers engage with language learning concepts (Zawacki-Richter et al., 2019; Holmes et al., 2022).

Rwandan primary school teachers often face the challenge of teaching English, a second language for many students, while also trying to improve their own language skills. This difficulty stems from their background, as most of them are certificate graduates from Teacher Training Colleges (TTCs). The English course content at these TTCs lacks sufficient focus on communication skills (Murape & Zimuto, 2023; Zimuto et al., 2025). This inadequacy puts pressure on teachers to learn as they teach. Such dual pressure can cause feelings of inadequacy and hinder effective teaching (Uwizeyimana & Yizengaw, 2020). However, extensive research shows that AI applications, such as Grammarly and other intelligent writing assistants, have helped to close this gap in countries like China, providing teachers with tools to enhance their writing and communication skills (Jiang et al., 2020). Therefore, this paper argues that by using these AI tools, Rwandan educators can improve their language abilities and serve as role models for their students.

AI tools are designed to cater to diverse learning needs. Teachers can customize their language learning experience based on their existing proficiency levels and specific learning goals (Fischer et al., 2020; Zimuto & Mutseekwa, 2025). The current research argues that this level of personalization is particularly beneficial in a context like Rwanda, where educators come from varied backgrounds and may have differing experiences with the English language (Nizeyimana, 2021). The argument is premised on the basis that by meeting teachers where they are, AI applications provide avenues for growth that were previously limited. In the context of professional development, AI technology is seen as enabling teachers to access a wealth of resources, including online courses and instructional materials focused on language improvement (Holmes & Tuomi, 2022). These resources often include interactive exercises, video demonstrations, and peer collaboration tools, all of which contribute to a more holistic learning experience. The convenience of accessing these materials anytime, anywhere, aligns perfectly with the busy schedules of primary school teachers who may juggle multiple responsibilities throughout their day (Nguyen et al., 2021).

The collaborative nature of AI platforms encourages community building (Zimuto, 2025) among educators. Teachers can share insights, challenges, and successes as they navigate their language learning journeys. This sense of camaraderie not only boosts morale but also fosters a supportive environment where educators feel inspired to share best practices (Zawacki-Richter et al., 2019). Thus, this paper argues that as Rwandan primary school teachers learn from one another, their collective proficiency in English strengthens, ultimately benefiting

their students. Critics may argue that reliance on AI can hinder the development of intrinsic skills or that it may not fully substitute traditional learning methods (Selwyn, 2019). However, the research argues that when used appropriately, AI serves as an enhancement rather than a replacement. The real-time feedback provided by platforms like Grammarly does not negate traditional grammar instruction; instead, it enriches the learning process by marrying well-established teaching methods with innovative technology (Fischer et al., 2020). This synergy can facilitate deeper understanding and retention of language concepts.

Rwanda's commitment to promoting English proficiency, as part of its national development strategy, makes the role of AI even more critical (MINEDUC, 2022; Ndahiro, 2019). As the country continues to position itself as a regional hub for trade and innovation, equipping teachers with superior language skills is essential for preparing students to compete on a global stage. By investing in AI-assisted learning, the Rwandan education system is taking proactive steps towards achieving these ambitious goals (Uwizeyimana & Yizengaw, 2020). As more educators embrace AI technology, the future of English language instruction in Rwandan primary schools appears promising. The potential for AI to elevate teaching practices and enhance learning experiences is enormous (Holmes et al., 2022). Through partnering with AI, teachers can shift their focus more towards pedagogical strategies and student engagement. As they become more skilled in English, their ability to influence and inspire students grows exponentially.

Accordingly, the focus of this research is on finding the effects of the integration of AI applications like Grammarly and Facebook Meta in English as a second language learning and how they can offer a myriad of benefits for Rwandan primary school teachers seeking to enhance their English language proficiency. The personalized learning experiences, instant feedback mechanisms, and collaborative opportunities available through these platforms are given as the possible benefits that provide a significant step forward in the journey towards improved language skills. The paper argues with the support of empirical research findings that with continued support and integration of such technologies, Rwandan educators are well-positioned to overcome the challenges they face and foster a more robust educational environment that promotes excellence in English language teaching and learning. This transformation holds the potential to shape not only the future of individual educators but also the broader educational landscape in Rwanda. The research seeks to answer the following three questions. How does the integration of Artificial Intelligence (AI) tools, such as Grammarly and Meta, influence the English language proficiency of Rwandan primary school teachers? What are the perceptions of Rwandan primary school teachers regarding the effectiveness of AI in enhancing their teaching practices and language skills? In what ways do AI applications cater to the diverse learning needs of Rwandan primary school teachers, and how does this personalization impact their professional development? These questions helped the researchers to evaluate the role of Artificial Intelligence in improving English language proficiency and teaching effectiveness among Rwandan primary school teachers while identifying the factors that influence their acceptance and use of these technologies.

## Literature Review

The rapid rise of artificial intelligence (AI) in educational settings has stimulated a growing body of scholarship

examining both its pedagogical potential and practical limits. Systematic reviews show that AI applications in education, adaptive tutors, automated feedback systems, intelligent assessment, and analytics can tailor instruction, provide timely feedback, and support scalability of learning interventions (Zawacki-Richter et al., 2019; Wang et al., 2024). However, these reviews also highlight a recurrent gap: many AIED studies focus on technology capabilities rather than teacher-centered adoption and the socio-cultural conditions required for meaningful pedagogical change (Zawacki-Richter et al., 2019; Holmes et al., 2019).

One strand of the literature most relevant to this study concerns automated writing evaluation (AWE) and intelligent writing assistants such as Grammarly. Recent systematic reviews and empirical studies indicate that AWE systems can reliably detect surface mechanics (spelling, grammar) and offer stylistic suggestions, accelerating iterative revision cycles and increasing learner engagement with revision processes (Ding et al., 2024; McCarthy et al., 2022). Empirical work suggests AWE's strengths are greatest for formative, low-stakes writing practice where students (or teachers) can use immediate corrections to scaffold learning; yet scholars caution that AWE may inadequately address higher-order rhetorical and discourse concerns unless coupled with pedagogically oriented teacher mediation (Li, 2023; McCarthy et al., 2022). In short, AWE is a powerful tool for improving mechanical accuracy and revision fluency, but its pedagogical value depends on how it is integrated into instructional practice.

Contextualizing these technological affordances in Rwanda requires attention to language-in-education policies and the lived realities of primary teachers. Rwanda's policy shifts toward English as a medium of instruction, and its national ICT/education agendas have created both impetus and pressure for teachers to develop English proficiency while also adopting digital tools (MINEDUC, 2023; Ministry of ICT & Innovation, 2023). Reviews of ICT integration in Rwanda point to important opportunities, government commitment, growing digital infrastructure, and policy frameworks, but also to persistent barriers such as uneven access, variable digital literacy, and limited localized professional development (Mushimiyimana et al., 2025; MINEDUC, 2023). Studies of English medium instruction (EMI) in Rwanda and similar contexts find that many primary teachers lack confidence and sufficient English skills, which undermines effective EMI implementation and places additional professional development demands on teachers (Samuelson & Freedman, 2010; Pearson, 2014).

Teacher professional development (TPD) and the socio-technical factors influencing technology adoption are central in the literature. Models such as the Technology Acceptance Model (TAM) and its extensions show that perceived usefulness and ease of use predict educators' acceptance of new educational technologies, mediated by contextual supports like training, access, and school leadership (Davis, 1989; Venkatesh & Davis, 2000; Teo, 2011). Empirical studies in low-resource and Sub-Saharan African settings emphasize that teacher uptake of ICT depends not only on attitudes but on structural enablers, reliable connectivity, relevant content, and alignment with local pedagogies (Kwihangana, 2025). Consequently, the literature recommends coupling AI tools with sustained, contextually sensitive TPD that positions technology as a cognitive and collaborative aid rather than a plug-and-play fix (Holmes et al., 2019; Chilisa, 2020).

Scholars also stress socio-cultural and equity considerations. African-centered and sociocultural perspectives

caution against uncritical technological transfer: educational innovations must be culturally relevant, aligned with local language practices, and attentive to community norms (Tabulawa, 2013; Wane, 2008). Studies argue that for AI to genuinely empower Rwandan teachers, tools and training should respect local pedagogical traditions—such as collaborative learning and community-based knowledge sharing—while addressing concerns about algorithmic bias, data privacy, and the potential for techno-centric policies to exacerbate existing inequities (Holmes et al., 2019; Mushimiyimana et al., 2025). Finally, recent critical commentary cautions about over-reliance on AI, arguing that generative and automated tools may encourage surface-level engagement or create new forms of dependency if not bounded by sound pedagogical design and assessment practices (McCann & Sweeney, 2025). This critique reinforces the consensus in the literature: AI tools like Grammarly hold promise for improving aspects of English proficiency, particularly mechanical accuracy and revision practices, but realizing that promise in Rwanda requires integrated approaches combining robust teacher development, infrastructural investment, and culturally responsive implementation strategies. In sum, the literature indicates three guiding implications for the present study: (1) AWE/AI tools can improve specific dimensions of English proficiency but are pedagogically bounded; (2) teacher uptake depends on perceived usefulness, ease of use, and systemic supports; and (3) contextually anchored, culturally responsive TPD and policy alignment are essential to translate technological affordances into classroom-level gains.

## Theoretical Framework

This study is grounded in *constructivist learning theory*, which posits that knowledge is actively constructed by learners rather than passively received from educators (Devi, 2019; Vygotsky & Cole, 2018). According to Devi (2019), constructivism serves as a theoretical framework for learning that emphasizes the active role of learners in the construction of knowledge. This approach posits that individuals draw upon their prior experiences and knowledge to engage with and make sense of new learning contexts. As such, the responsibility for knowledge acquisition lies predominantly with the learners themselves, who actively interact with and reflect upon their experiences to create meaningful understanding. Thus, constructivism emphasizes learner engagement, reflection, and contextual meaning-making, making it highly relevant for understanding the role of AI in enhancing English language skills among Rwandan primary school teachers. Through employing AI-assisted tools such as Grammarly and other intelligent writing platforms, teachers can engage in a personalized learning process, allowing them to build upon their existing knowledge and skills. This approach aligns with the constructivist philosophy that stresses the importance of creating meaningful, learner-centered experiences where educators refine their language proficiency while also developing effective teaching strategies (Jonassen, 1999; Siemens, 2005).

AI tools also provide opportunities for *scaffolded learning*, where feedback and adaptive support guide users toward higher proficiency levels (Holmes et al., 2022). Such features resonate with Vygotsky's concept of the *zone of proximal development*, wherein learners progress through the assistance of technological mediation or peer collaboration (Vygotsky, 1978; Rahman, 2024). The Proximal Development Zone refers to the gap between a child's capacity to complete a task with adult support and the child's skill level in addressing a problem on their own (Rahman, 2024). In this sense, AI functions as a "cognitive tool" that fosters both independent learning and

professional growth (Kim, 2018). For Rwandan educators, who often face challenges related to limited exposure to English, AI-driven support offers a pathway for incremental and sustained improvement within a constructivist paradigm.

In addition to constructivism, this study employs the *Technology Acceptance Model (TAM)* (Davis, 1989) to analyze how teachers perceive and use AI tools in their professional development. TAM has been widely applied in educational technology research to explain user attitudes and behavioral intentions toward adopting digital tools (Teo, 2011; Šumak & Šorgo, 2016). As Rwandan educators begin to integrate AI into their practice, factors such as *perceived usefulness* and *perceived ease of use* will heavily influence their acceptance of these technologies (Venkatesh & Davis, 2000). By examining these dimensions, this study seeks to uncover both barriers and enablers to AI adoption in professional development.

The integration of TAM within this framework is particularly significant for contexts like Rwanda, where infrastructural challenges, digital literacy gaps, and socio-cultural perceptions may shape the ways teachers interact with AI tools (Uwizeyimana & Yizengaw, 2020). By addressing both the technical and pedagogical aspects of AI integration, TAM provides insights into strategies that policymakers and educational leaders can employ to encourage widespread use of AI for language improvement.

Beyond constructivism and TAM, this study is also informed by *sociocultural and Afrocentric perspectives on education*. Vygotsky's sociocultural theory highlights the role of cultural context, social interaction, and language in learning processes (Vygotsky, 1978). In the African context, learning is often collective and dialogic, embedded within community practices and values (Tabulawa, 2013). This perspective resonates with the philosophy of *Ubuntu*, which emphasizes interconnectedness, cooperation, and shared responsibility in the learning process (Letseka, 2012). Applied to AI integration, these perspectives underscore the importance of viewing digital tools not merely as individual learning aids but as catalysts for collaborative knowledge-building among teachers and their communities.

Moreover, African-centered pedagogies stress the need for educational innovations to be culturally relevant and responsive to local realities (Msila, 2014; Wane, 2008). For Rwandan teachers, this means that AI tools should not only enhance English proficiency but also complement indigenous ways of knowing and align with Rwanda's broader national development and language-in-education policies. Such a culturally grounded approach ensures that AI adoption is not perceived as an externally imposed agenda but as a tool that strengthens teachers' professional agency and the linguistic capacities of their learners (Tikly, 2019).

Taken together, *constructivist learning theory, TAM, and African sociocultural frameworks* form a complementary foundation for this study. Constructivism explains the pedagogical and cognitive processes underpinning teachers' engagement with AI, TAM accounts for the socio-technical factors influencing their acceptance, and Afrocentric/sociocultural theories emphasize the collective, culturally embedded dimensions of learning in Rwanda. This holistic theoretical orientation provides a robust basis for analyzing the impact of AI on English language proficiency among Rwandan primary school teachers while remaining sensitive to the broader

socio-cultural and policy context of Sub-Saharan Africa.

## Methodology

This study was conducted in a public school in Rwanda and examined how teachers can utilize AI tools to improve English proficiency. In the context of this study, every teacher is regarded as a teacher of English, regardless of their specific subject area. This is because English serves as the Language of Instruction (LoI) in Rwandan schools. All subjects and assessments, with the exceptions of Kinyarwanda, KiSwahili, and French, are taught in this language. Therefore, when referring to English in this study, it is understood as a representation of the LoI, which every teacher is encouraged to master. The study employs a *mixed-methods approach* to investigate the impact of Artificial Intelligence (AI) assistance on improving the English language skills of Rwandan primary school teachers. Mixed-methods research combines the strengths of both quantitative and qualitative paradigms to provide a comprehensive understanding of complex educational phenomena (Creswell & Plano Clark, 2018; Tashakkori & Teddlie, 2010). By integrating numerical data with rich narratives, this design captures not only measurable outcomes of AI use but also the lived experiences of teachers engaging with these tools. In particular, the study focuses on the role of AI applications such as Grammarly in enhancing teachers' language proficiency and shaping their teaching practices.

The *quantitative component* involved a structured survey administered online to a sample of 20 Rwandan primary school teachers at a public school in Kayonza district. The survey elicited the teachers' sentiments, rating them on a 5-point Likert scale (SA=Strongly Agree, A=Agree, N=Neutral, D=Disagree, SD=Strongly Disagree) on various aspects of AI use. Surveys are a widely used method in educational research for gathering data from large populations cost-effectively and systematically (Dillman et al., 2014). The instrument included questions designed to measure teachers' self-perceived English proficiency before and after the use of AI tools, as well as their frequency of engagement with specific AI features (e.g., grammar correction, style suggestions, and vocabulary support). Data were analyzed using descriptive statistics to examine patterns, trends, and potential correlations between AI tool usage and improvements in language skills (Cohen et al., 2018).

The *qualitative component* comprised semi-structured interviews, observations on teaching, and document analysis with five (5) of the twenty teachers who had actively integrated Grammarly into their professional development routines. To preserve their anonymity, they were codenamed Teacher Participant (TP) 01-05. Semi-structured interviews allow researchers to probe deeply into participants' experiences while maintaining comparability across cases (Kvale & Brinkmann, 2015). Three of the five purposively selected teachers were observed teaching. Two of them taught English, and one was observed teaching Science. The teachers' pedagogical documents, such as the class diary, scheme of work, lesson plan, teaching notes, and remedial records, were analyzed. This analysis provided for triangulation of instruments, and it offered authentic and non-reactive data that gave contextual and historical background information about the participants (Morgan, 2022). The data generated were thematically analyzed, a process that involves identifying, analyzing, and reporting patterns within qualitative datasets (Braun & Clarke, 2006). Thematic analysis enables the exploration of challenges, benefits, and contextual factors influencing teachers' use of AI tools.

Ethical considerations are central to this research. *Informed consent* will be obtained from all participants, ensuring their voluntary participation and awareness of the study's aims (BERA, 2018). Issues of *anonymity and confidentiality* were strictly observed, with personal identifiers removed during data handling and reporting (Cohen et al., 2018). Data were securely stored with access limited to the research team. Moreover, the study acknowledges the importance of conducting culturally sensitive and respectful research in African educational contexts, where power relations and historical legacies may shape participants' engagement (Chilisa, 2020).

## Findings and Discussion

This study aimed to evaluate the impact of Artificial Intelligence (AI) tools on the English language proficiency of Rwandan primary school teachers. Through a mixed-methods approach, data were collected from an online survey, interviews, document analysis, and classroom observations, focusing on the experiences and outcomes associated with the use of AI applications, particularly Grammarly, in enhancing language skills.

### Bio Data

The participating teachers comprised sixty per cent (60%) males and forty per cent (40%) females, and the majority (80%) of them were in the 21-30 years age range. These teachers specialized in Early Childhood and Lower primary (ECLP) (50%), Mathematics, Science Education and Technology (MSET) (30%), Languages Education (LE) (10%), and Social Studies (SS) (10%), and taught across the levels from nursery up to Primary six (P6). Furthermore, a majority (90%) of them were teaching for the first time with less than three years of teaching experience.

### Enhanced Language Proficiency

The online survey aimed to gauge participants' sentiments on the frequency of AI use and other related aspects. Table 1 shows their responses.

Table 1. The Teachers' Perceptions on AI Use (N=20)

	SA	A	N	D	SD
I have a responsibility to improve my communication skills and those of the learners.	90%	10%	-	-	-
With the coming of Artificial Intelligence (AI), I now use it frequently to improve my English proficiency (e.g., to write, search content, etc.)	70%	30%	-	-	-
These AI tools have improved my skills both in English communication and teaching	40%	60%	-	-	-
If formalized in schools, AI fosters greater learner engagement and participation in English lessons.	40%	60%	-	-	-
AI provides accessible and relevant resources for teaching English in the Rwandan primary school context.	50%	50%	-	-	-

	SA	A	N	D	SD
I feel confident integrating AI tools into my English language teaching practices.	50%	50%	-	-	-

The majority (90%) of the teachers were fully aware of their responsibility to improve communication skills and those of the learners in the Language of Instruction (LoI). Seventy percent (70%) strongly felt that the advent of AI had helped them improve their proficiency in the LoI. This finding was confirmed in their pedagogical documents made available to the researchers. The teachers used ChatGPT to help them frame lesson objectives that were in line with the child-centered approach requirements in a competency-based curriculum (CBC). Furthermore, the interviews revealed that the teachers had received an AI application from the MINEDUC that helps with lesson planning. TP 05 said:

*We have received an application that is a Smart Lesson Planner. It is from the Ministry of Education, and we are still learning to use it. But I think once we master it, our planning for the lessons will be greatly improved. Because presentation matters. I think that if your plans are presented in good English, the lesson objectives are clear, and the instruction is coherent and well sequenced, the result is improved learning.*

Thus, a significant majority of teachers (SA=60%; A=40%) reported noticeable improvements in their English writing skills and use of LoI in other subjects after using AI tools. The instant feedback on grammar, punctuation, and style provided by Grammarly contributed to increased writing clarity and correctness. This finding aligned with the observations in the MINEDUC document, Mwalimu Tools (2025), that AI assisted the teachers to generate professional lesson plans that aligned with the Rwanda Education Board Competency-Based Curriculum (CBC) and Rwanda TVet Board session plans by creating complete, standards-compliant lesson plans from your basic information.

This MINEDUC AI tool has the potential to revolutionize the English proficiency of teachers in Rwanda. While its design is targeted at assisting teachers with quick lesson planning, it has other features that make it revolutionary. According to Teach Smart Africa (2025), the tool works online, covers all subjects (English, Kinyarwanda, Mathematics, Science, Social Studies, ICT, and others), and suggests to teachers CBC-aligned skills and activities that foster problem-solving, active engagement, collaboration, and research. For instance, a Primary four (P4) teacher of English can type, "P4, English- Reported Speech," and the AI (Smart Lesson Planner) tool will provide a step-by-step plan that outlines the content and activities that immerse the learners in language practice through dialogues, games, quizzes, group work, and even homework.

However, the teachers' level of confidence in the formal adoption of AI in schools and its ability to foster greater learner engagement and participation in English lessons was somewhat reduced. Forty per cent (40%) strongly agreed, while the majority (60%) only agreed that if formalized in schools, AI fosters greater learner engagement and participation in English lessons. Moreover, it was also found that teachers felt less confident SA=50%; A=50%) in integrating AI tools into their English language teaching practices. In their English language abilities after consistently using AI tools. TP 01 captured the general sentiment when she said:

*Yes, AI can be very useful. I have used it personally to create content, draw up lesson notes, and organize my planning, but the challenge comes when you are now in front of the learners making a presentation. You cannot anticipate everything you are going to say to the learners and how the interaction will progress. It therefore demands proficiency in the language of instruction at a personal level and not at the level of AI.*

The teachers seemed to agree that proficiency of the LoI needed mastery at a personal and individual level, despite the claims of AI fostering personalized learning experiences.

### **Sustained Engagement with Language Learning**

Teachers expressed that AI tools helped maintain their interest in language learning, with 80% indicating that the engaging format of AI applications led to more sustained practice and usage over time. Table 2 shows the teachers' sentiments on the nature of AI applications.

Table 2. The Teachers' Sentiments on the Nature of AI Applications (N=20)

	SA	A	N	D	SD
I mostly use AI tools like Grammarly, Meta AI on my WhatsApp, and ChatGPT.	40%	40%	20%	-	-
AI's customized features allow for personalization of learning experiences.	80%	10%	-	10%	-
Collaborative features of AI platforms encourage peer-to-peer learning among educators	60%	40%	-	-	-
AI helps mitigate the challenges I face in teaching English (e.g., limited teaching materials, lack of training).	50%	50%	-	-	-
An engaging format of AI applications led to more sustained practice and usage over time.	80%	10%	-	10%	-
AI tools complement traditional teaching methods rather than replacing them.	70%	20%	-	10%	-

Grammarly, Meta AI on my WhatsApp, and ChatGPT featured as some applications that the teachers used to improve content delivery in the LoI. However, twenty per cent (20%) were not sure which AI applications they used. This may suggest that a good number of teachers may be ignorant about AI-mediated language learning (Liu & Fan, 2025; You & Zhang, 2025). To align with findings presented in existing literature (Mushimiyimana et al., 2025; MINEDUC, 2022; Liu & Fan, 2025; You & Zhang, 2025), respondents emphasized the necessity of various support mechanisms and resources to enhance the integration of artificial intelligence (AI) within Rwanda's educational framework. First, a strong digital infrastructure is essential; schools need reliable internet, electricity, and access to computers or tablets (Uwizeyimana & Yizengaw, 2020). Second, teacher training must be expanded to help educators understand AI, use it responsibly, and integrate it effectively into lessons (Bekdemir, 2024). Third, policy and curriculum frameworks should guide ethical AI use, data privacy, and include

AI literacy for students (Khan, 2024).

Despite that the respondents did not quite agree on the AI applications, the gamification aspects of some tools were particularly mentioned in the open-ended responses as a way to make learning more enjoyable. One respondent said:

*I was motivated to start using AI assistance in my language learning and teaching practice because it provides instant access to explanations, examples, and corrections, which helps me improve both accuracy and fluency. It also supports my teaching by offering diverse resources, interactive activities such as games, quizzes, and alternative ways to explain concepts to students with different learning needs. Additionally, AI saves time in lesson preparation and helps me explore creative approaches to language learning that keep learners engaged.*

Despite concerns about over-reliance on technology, the majority (70%) of teachers reported that AI tools complemented traditional teaching methods rather than replacing them. One of the interviewees, TP 04, said this about AI-mediated language learning:

*In my opinion, AI tools offer several key benefits for language learning compared to traditional methods. They provide personalized feedback that adapts to each learner's pace and level, something that traditional one-size-fits-all methods often lack. AI also allows for instant correction and practice opportunities, helping learners improve accuracy and fluency more quickly. In addition, AI exposes students to authentic materials and interactive activities, making learning more engaging and practical. Finally, AI offers flexibility and accessibility, enabling learners to practice anytime and anywhere, beyond the limits of classroom hours.*

Many teachers appreciated the synergy between AI feedback and structured language instruction, noting that it resulted in deeper understanding and retention of language concepts. Integrating AI tools and novel interactive teaching approaches presented new possibilities for personalizing language instruction to meet diverse learning needs, as AI aided in facilitating the identification of students' unique intelligence profiles and tailoring instruction accordingly (Pitychoutis & Al Rawahi, 2024). This adaptability is crucial in educational settings, particularly in language learning, where traditional approaches may not effectively cater to all students.

### **Personalized Learning Experiences**

Approximately 80% of participants appreciated the customizable features of AI tools, noting that they could tailor their learning experiences to address specific challenges they faced in their language use. Teachers highlighted the adaptability of AI tools to cater to individual proficiency levels and learning goals. However, the qualitative data from the interviews did not clearly support this assertion. In some open-ended survey questions, the respondents were asked how they felt about the level of personalization that AI tools provided in their language learning process. While the teachers thought that AI tools in the language learning process were incredibly important, as they offered them personalized, adaptive support that met individual needs, they lamented the lack of AI language applications in Kinyarwanda.

Echoing Niyezimana's (2021) sentiments that AI-mediated personalization would benefit the Rwandan teachers in their diversity, the other respondents reported that AI assisted in breaking down complex grammar, suggested context-aware vocabulary, and provided instant feedback, making learning faster and more intuitive. One of the online survey respondents said:

*I feel that the level of personalization AI tools provide in my language learning process is very helpful and motivating. AI adjusts to my learning pace, strengths, and weaknesses, which makes the experience more relevant and effective. For example, it gives me targeted grammar or vocabulary exercises based on my mistakes, and recommends activities that match my interests. This individualized feedback helps me focus on specific areas I need to improve. However, while AI is excellent at identifying patterns and offering practice, it sometimes lacks the human touch, such as understanding emotions, context, or cultural nuances. Therefore, I see AI personalization as a powerful support tool, but it works best when combined with human guidance and real communication practice. Overall, I appreciate how AI makes my learning journey more engaging, flexible, and responsive to my needs.*

The responses that came from the open-ended section of the online survey were very accurate and coherent, raising the suspicion that some of the participants submitted AI-generated responses. This suspicion seemed to be confirmed in the interviews and observations made on their teaching. The majority of the participants interviewed barely spoke coherently, as they did with written responses. Furthermore, the observations revealed that some of the teachers struggled to communicate in English, a trend that Ingabire et al. (2024) have associated with many primary and secondary school teachers in Rwanda. This raises critical questions on AI use, such as this one cited in Mahajan (2025, p. 11):

Are we engineering systems that elevate human dignity, deepen ethical consciousness, and nurture inner presence—or are we accelerating a world in which emotional resonance, relational depth, and spiritual awareness are sacrificed for convenience, efficiency, and predictive accuracy?

In Mahajan's (2025) work, there is a compelling call for researchers, educators, and other stakeholders in the field of education to engage in critical reflection regarding the quality of content generated through school homework, continuous assessment tasks, and other unsupervised assessments undertaken by learners. This raises a pertinent question regarding the reliability of findings in empirical studies that exclusively employ this singular approach as their primary data collection instrument. Would the conclusions drawn from such studies be robust and trustworthy if they were predicated solely on this method? This inquiry underscores the necessity for a multifaceted approach to assessment that considers diverse methodologies to ensure the validity and reliability of educational research outcomes.

### **Professional Development Opportunities**

AI-assisted resources provided access to a wide range of online courses and instructional materials. Teachers reported that this accessibility helped them engage in ongoing professional development. The participants actively sought out additional resources, including webinars and interactive exercises, beyond the basic features of AI applications. The real-time suggestions allowed educators to learn from their mistakes without the fear of negative

repercussions, fostering a growth mindset. The collaborative features of AI platforms encouraged peer-to-peer learning among educators.

Teachers formed informal networks for sharing best practices, challenges, and successes. This communal approach was cited by 60% of respondents as a significant motivator in their language learning journeys. This approach aligned with the national development goals of the Republic of Rwanda. PT 02 observed:

*MINEDUC and REB have set the last 2 periods of the day every Wednesday as the time for Continuous Professional Development (CPD). Teachers engage in collaborative activities that develop their teaching. In fact, recently it has been announced that an online English proficiency program for teachers is going to be part of the CPDs on Wednesday. So with AI, we are already a step ahead.*

In line with the set programs in MINEDUC (2022), the teachers recognized the role of improved English proficiency in achieving Rwanda's broader educational and economic objectives. Many reported feeling a sense of responsibility to enhance their skills as part of the national commitment to fostering a competitive workforce capable of engaging in regional and global markets.

## Conclusions and Recommendations

The findings from the study indicate a positive correlation between the utilization of artificial intelligence (AI) tools and the enhancement of English language skills among primary school teachers in Rwanda. Teachers expressed that AI tools helped maintain their interest in language learning, with a majority indicating that the engaging format of AI applications led to more sustained practice and usage over time. Specifically, the personalized support offered by AI applications enables educators to receive tailored feedback and resources, thereby addressing their unique challenges in language acquisition. This personalized approach has been shown to significantly boost teachers' confidence in their English proficiency, which is crucial for their effectiveness in the classroom.

Moreover, the enhanced professional development opportunities facilitated by AI technologies equip teachers with innovative teaching methods and strategies, leading to more engaging and effective language instruction. As a result, these advancements not only improve teachers' language competencies but also enrich the overall teaching and learning environment. The results suggest that with sustained investment in AI technologies, along with their thoughtful integration into the educational framework, the Rwandan education system can make significant strides in elevating the language skills of educators. This transformation is poised to have a positive ripple effect, ultimately benefiting their students and contributing to the broader community's literacy and communication capabilities.

Future endeavors should delve into the long-term impacts of AI-assisted language learning. It would be beneficial to explore its scalability across various regions and diverse educational contexts in Rwanda, considering factors such as infrastructure, teacher training, and curriculum alignment. By addressing these dimensions, policymakers and educators can develop a more comprehensive strategy for effectively leveraging AI in the pursuit of improved

language education.

## Statements and Declarations

**Generative AI Use Disclosure:** No generative AI tools were used for the core content creation or intellectual authorship of this book. Where applicable, AI tools (such as grammar checkers or formatting assistants) were used solely for editorial support. Their outputs were critically evaluated, and the final content remains the sole responsibility of the authors.

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