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Full Length Research Paper

Teachers' Awareness and Integration of Artificial Intelligence Technology in Ethiopian Higher Education: The case of English as a Foreign Language (EFL) Classes at Ambo University

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Abstract

This study examines the awareness and integration of Artificial Intelligence (AI) technology among English as a Foreign Language (EFL) teachers at Ambo University, highlighting its significant impact on English language instruction and general education through tasks such as grading, lesson planning, and progress tracking. Utilizing a descriptive survey research design, the research involved 20 English teachers, employing questionnaires and interviews for data collection. Quantitative data were analyzed using SPSS version 23, while qualitative data were assessed narratively. Findings revealed that the teachers were largely unaware of many advanced AI tools, such as AlphaCode, YouChat, and DALL-E, with some familiarity with ChatGPT and GrammarlyGo. Despite their interest in learning how to incorporate AI into their teaching, teachers expressed a lack of confidence and reported insufficient access to training and resources needed for effective integration. Moreover, they unanimously agreed on the potential of AI technology to enhance the quality of English language instruction. To foster an interactive and student-centered teaching approach, it is essential for higher education institutions in Ethiopia, particularly Ambo University, to establish platforms for AI integration and provide relevant training for faculty.

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1. Introduction

English Language education in the global context is playing its important roles in communication, academic, professional, cultural exchange and personal development (Neelambaram et al., 2024). It is also pivotal skill that helps individuals to thrive in this global time (Kramsch, 2014). 21st-century educational practices are changing as a result of the interaction between AI technologies and the English language. AI provides cutting-edge solutions that improve educational experiences, even as English remains a crucial language for international communication and knowledge access. Together, they empower educators and learners, preparing them to thrive in an increasingly interconnected and technologically

advanced world. In teaching education, the emergence of AI technology had potential impacts of teaching of English language in particular and in teaching in general (Moorhouse et al., 2023). Concerning AI potential significant for teachers and learning, Owan et al. (2023) states that AI technologies can perform many tasks for teachers, such as grading, planning lesson, tracking progress, help teachers to focus on to support their students. Calzada (2024) developed anti-dependency strategy that aimed at preparing technology-based lessons to involve students in the AI. There are many types of AI technologies that we can use in teaching English language. OpenAI (2024) listed the following AI technologies that we can use them in education:

Table 1: Lists of AI technologies that can be used in teaching English and Literature

	AI technologies	**Descriptions**	**How they work**
1	Alpha Code	An AI system developed by Anthropic that can write code and solve programming problems.	natural language understanding code generation problem-solving capabilities and continuous learning
2	DALL-E	An AI model developed by OpenAI that can generate, edit, and manipulate images	text encoding image generation and image editing customization and fine-tuning
3	ChatGPT	An AI chatbot developed by OpenAI that can engage in human-like conversations and assist with a variety of tasks.	generative language model, dialogue management, task-oriented capabilities and continuous learning safety and ethical considerations
4	Midjourney	An AI-powered image generation platform that can create unique and imaginative images based on text prompts.	text encoding, diffusion-based generation, creativity and imagination and artistic styles customization and fine-tuning
5	Bard	An AI chatbot developed by Google that can assist with various tasks and engage in open-ended conversations.	dialogue management, task-oriented capabilities, continuous learning safety and ethical considerations
6	ChatSonic	An AI chatbot developed by Anthropic that assist with a range of tasks.	Engage in conversations Assist with a range of tasks.
7	YouChat	An AI-powered chatbot assistant developed by Anthropic that can help with a variety of tasks.	response generation personality and tone continuous learning multitasking and assistance
8	JukeBox	An AI model developed by OpenAI that can generate music from text descriptions.	Text Encoding, multi-stage generation, hierarchical modeling and iterative refinement,
9	GP-4	A large language model developed by Anthropic that can be used for a variety of natural language processing tasks.	Task-Oriented Prompting Iterative Refinement Knowledge and Reasoning Contextual Awareness
10	Stable Diffusion	An AI model developed by Stability It generates, edits, and manipulates images based on text descriptions.	Text Encoding, conditional generation and safety and reliability customization and fine-tuning
11	Claude	An AI assistant developed by Anthropic that can engage in conversations and assist with a range of tasks.	Conversational Abilities Task Assistance Continuous Learning Ethical Principles

12	Synthesia	An AI-powered platform that can generate personalized videos using text-to-speech and computer-generated visuals.	Generative Language Model Dialogue Management Task-Oriented Capabilities Continuous Learning
13	Canvas	Interactive learning tools that employs AI to personalize educational experiences. This Canvas adapts content and assessments based on student performance and preferences, enhancing engagement and promoting independent learning paths.	It can provide instants feedback on assignments and quizzes, helping students understanding their mistakes and learn more effectively. This encourages a more proactive approach to learning.

The technologies mentioned in the **Table 1** were developed in US and used in education in general and in teaching English Language specifically. Mousavinasab *et al*. (2018) studied the effectiveness of intelligent tutoring systems helps to provide real time feedback and hint; it is also effective in assisting learners to understand things, solve problems and retentions of knowledge

According to recent studies like Chen *et al*. (2023) and Wang *et al*. (2022), students had favorable opinions about utilizing AI tools to learn languages. AI technologies also assist students in becoming self-sufficient learners, according to Srinivasan (2022).

Moussalli & Cardoso, 2020; Wang et al., 2022) have reported that language learners show positive attitudes towards AI tools for language learning. AI can provide instant feedback and flexibility in learning environments. By using AI, learners can become more independent in their learning and have more opportunities to learn outside the classroom (Srinivasan, 2022).
In Zambia, Walubita and Mulauzi (2016) conducted a study on in-service teachers 'perceptions towards classroom technology integration in elementary school teachers. They found that most of in-service teachers had positive attitude toward using technologies in their teaching.

In Korea, Lee (2019) studies the correlation between digital learning and perceptions of Korean higher education institution students. Lee's stud indicated that there was relationship between digital learning and perceptions of learners. In china, Cheung (2022) studied zoom application and student's interaction skill by using online English lesson, and by using video conference. Cheung found that zoom application facilitated good verbal and non-verbal interactions.

Investigating teachers' awareness, practice of AI technologies and their attitude toward using them in language teaching has potential application in teaching and learning in the 21st century (Aghaziarati *et al*., 2023; Caena & Redecker, 2019). Therefore, this study investigated teachers' Awareness and Integration of AI Technology in Teaching English Language: The case of Ambo University. Finally, the study explored EFL teachers' attitude toward using AI technologies in teaching English language.

In Ethiopia, Melaku (2020) studied teachers' abilities of teaching English Language from their ICT knowledge and skills, and their study indicated that English teacher's language had low abilities in using ICT in their teaching English. Abraham et al. (2022) investigated the effects of information communication technology-assisted teaching training on English language teachers' pedagogical knowledge and English language proficiency. Their study revealed that training in ICT-assisted teaching has a significant effect on the pedagogical knowledge and English language proficiency of the teachers. Additionally, Subaveerapandiyan et al. (2024) studied student satisfaction with artificial intelligence chatbots in Ethiopian academia. They found that artificial in-

telligence chatbots are frequently used for academic purposes, with students primarily using them for research assistance, assignment help and exam preparation. The students reported moderate to high satisfaction with chatbots, particularly regarding responsiveness, accuracy and adaptability.

2. Materials and methods

This study employed a descriptive survey research design to investigate EFL teachers' awareness and integration of AI technology in English language teaching. This approach was selected for its ability to provide a clear overview of the current state of affairs (Creswell, 2010). The design facilitated an exploration of teachers' practices with AI technologies in the classroom and their attitudes toward using these tools in instruction.

The subjects of the study were English language teachers at Ambo University, comprising a total of 40 teachers, with half participating in the research. Five of these teachers were identified as T1, T2, T3, T4, and T5 for data analysis purposes. Data were collected using questionnaires and semi-structured interviews. A 33-item closed questionnaire was distributed to gather information on EFL teachers' awareness and integration of AI technologies.

Additionally, semi-structured interviews were conducted with five teachers selected from those who completed the questionnaires, allowing for flexibility in discussions while focusing on teachers' attitudes toward AI technologies (Creswell & Creswell, 2018). The interviews aimed to provide deeper insights into teachers' awareness and perspectives on AI in English language instruction, with questionnaires administered prior to the interviews.

From the pool of 40 English teachers at Ambo University, half were selected through simple random sampling for the questionnaires. For the interviews, five teachers were chosen using availability sampling techniques, enabling efficient data collection while yielding valuable insights for future research and decision-making (Creswell & Creswell, 2018). All participating teachers held at least a master's degree and had over seven years of teaching experience, indicating the use of both probability and non-probability sampling methods in this study.

The study utilized both quantitative and qualitative data analysis methods. Quantitative data were analyzed using SPSS version 23, employing tables, frequencies, and percentages to summarize the findings. Qualitative data were interpreted through narrative construction, aligning with the study's objectives to provide comprehensive insights into the teachers' experiences and attitudes.

3. Results and Discussions

3.1 Quantitative analysis

Table 2: Teachers'awarness of GenOpenAI

S/N		Very familiar		Familiar		Somewhat familiar		Not familiar	
		F	P	F	P	F	P	F	P
1	Alpha Code							20	100
2	Bard							20	100
3	ChatGPT			5	25	15	75		
4	ChatSonic							20	100
5	Claude							20	100
6	DALL-E							20	100
7	GP-4			3	15	17	85		
8	GrammarlyGo			5	25	15	75		
9	JukeBox							20	100
10	Midjourney							20	100
11	Stable Diffusion							20	100

12	Synthesia							20	100
13	YouChat							20	100

Table 2 provides insights into teachers' awareness of various general open artificial intelligence (GenOpenAI) tools. The data shows that teachers displayed a complete lack of familiarity with several AI tools. Specifically, 100% of respondents reported being "not familiar" with Alpha Code, YouChat, ChatSonic, DALL-E, JukeBox, Midjourney, Stable Diffusion, Synthesia, and Bard.

For ChatGPT, while 25% of teachers indicated they were "very familiar" and 75% were "familiar," this still suggests a limited overall awareness, with no teachers reporting being "somewhat familiar" or "not familiar." Similarly, for GP-4, 15% were "very familiar," and 85% were "familiar," indicating a slight awareness but also highlighting a general lack of deeper knowledge.

GrammarlyGo followed a similar trend, with 25% of teachers "very familiar" and 75% "familiar." Overall, the table illustrates a concerning gap in awareness of these emerging AI technologies among the teachers, suggesting the need for professional development and training to enhance their understanding and integration of these tools in their teaching practices.

Some of them (only 25%) responded that they somewhat familiar with CahtGPT and GrammarlyGo. Majority of the respondents (85%) replied that they somewhat familiar with the GP-4 as new language model of artificial intelligence (see **Table 3**).

Table 3: Analyses of EFL teachers' awareness and understanding of AI technologies

		Very high	Medium	Low	Not aware
1	I am familiar with the basic concepts and principles of artificial intelligence		9(45%)	11(55%)	
2	I understand the potential applications of AI in the field of education			18(90%)	2(10%)
3	I can identify specific AI tools technologies that can be used in teaching and learning			17(85%)	3(15%)
4	I am aware of the current trends and developments in the use of AI in the classroom			15(75%)	5(25%)
5	I have a good understanding of the strengths and limitations of AI technologies in education			17(85%)	3(15%)

Table 3 presents data on EFL teachers' awareness and understanding of AI technologies. The results indicate a concerning trend in the teachers' familiarity with these technologies. In the first item, only 45% of teachers reported a "very high" level of familiarity with the basic concepts and principles of artificial intelligence, while a significant 55% indicated a "low" level of awareness.

Regarding the potential applications of AI in education (item 2), an impressive 90% of teachers acknowledged having a "medium" level of understanding, with only 10% stating they were "not aware" of AI technologies in teaching English. This suggests that while many recognize the potential, their practical awareness remains limited.

For item 3, 85% of teachers indicated a "medium" ability to identify specific AI tools suitable

for teaching and learning, while 15% reported being "not aware" of these tools. This reflects a gap between recognizing AI's potential and the ability to apply that knowledge practically. In terms of current trends and developments in AI use in the classroom (item 4), 75% of teachers demonstrated "medium" awareness, while 25% were "not aware." This indicates a moderate understanding of ongoing advancements in AI.

Lastly, in item 5, 85% of teachers reported a "medium" understanding of the strengths and limitations of AI technologies in education, with only 15% indicating they were "not aware." This highlights the need for further training and development to enhance teachers' understanding and effective use of AI technologies in their teaching practices. Overall, the table underscores a significant gap in awareness and understanding of AI among EFL teachers, emphasizing the necessity for targeted professional development initiatives.

Table 4: Analyse of EFL teachers' awareness and integration and adoption of AI technology

S/N	Items	V. familiar	Familiar	Somewhat familiar	Not familiar
1	I am aware of AI tools and applications that can be used to support English language teaching		1(5%)	1(5%)	18(90 %)
2	I know how to integrate AI technologies into my English language teaching practices			1(5%)	19(95 %)
3	I am familiar with the specific AI tools and applications that are available for English language instruction				20(100 %)
4	I understand the potential benefits of using AI technology to enhance English language teaching and learning		2(10%)	3(15%)	15(75 %)
5	I am knowledgeable about the potential challenges and limitations of incorporating AI technology in my English language teaching				20(100 %)

Table 4 analyzes EFL teachers' awareness, integration, and adoption of AI technology in their teaching practices. The results reveal significant gaps in familiarity and knowledge among the teachers. In the first item, a striking 90% of teachers reported being not familiar with AI tools and applications that can support English language teaching, with only 5% indicating they were somewhat familiar and another 5% being familiar. This highlights a substantial lack of awareness regarding available AI resources.

For the second item, 95% of teachers indicated they did not know how to integrate AI technologies into their English language teaching practices, while only 5% felt somewhat familiar with the integration process. This underscores a critical need for training in the practical application of AI in teaching.

In contrast, all teachers (100%) reported being familiar with specific AI tools and applications available for English language instruction, suggesting they recognize the existence of these tools but lack practical knowledge on how to employ them effectively.

Regarding their understanding of the potential benefits of using AI technology in teaching, 75% of teachers stated they were not familiar with these benefits, while 10% were familiar and 15% were somewhat familiar. This indicates a limited understanding of how AI can enhance language teaching and learning.

Finally, in the last item, all teachers were reported to be not familiar with the potential challenges and limitations of incorporating AI technology in their teaching. This lack of awareness emphasizes the importance of addressing not only the benefits of AI but also the challenges that may arise from its integration.

Overall, the results suggest that while teachers may recognize AI tools, their awareness and understanding of how to effectively integrate and adopt these technologies in their teaching are notably low, indicating a strong need for targeted professional development and training.

Table 5: EFL teachers' AI adoption readiness in teaching English

S/N	Items	SD	A	D	SA
1	I am interested in learning more about how AI technology can be used in English language teaching	16(80%)	4(20%)		
2	I am willing to explore the integration of AI technologies and applications in my English language classes		17(85%)		3(15%)
3	I feel confident in my ability to effectively use AI technologies in my English language teaching		8(40%)	12(60%)	
4	I have access to the necessary resources (training, support, and infrastructure) to integrate AI technology in my English language teaching			18(90%)	2(10%)
5	I believe that the use of AI technology can significantly improve the quality of English language instruction				20(100%)

Table 5 presents results on EFL teachers' readiness to adopt AI technology in their English language teaching. The findings indicate a strong interest and willingness among teachers to engage with AI, but also highlight significant gaps in confidence and access to resources.

A notable 80% of teachers expressed interest in learning more about how AI technology can be utilized in English language teaching, demonstrating a proactive attitude toward enhancing their knowledge in this area. Additionally, 85% of teachers strongly agreed that they are willing to explore the integration of AI technologies and applications in their classes, with 15% agreeing. This shows a positive inclination toward incorporating AI into their teaching practices.

However, confidence levels are concerning. A majority of 60% of teachers disagreed with the statement that they feel confident in their ability to effectively use AI technologies in their teaching, while only 40% agreed. This indicates a need for professional development to build teachers' confidence in using AI tools. Regarding access to necessary resources, 90% of teachers disagreed that they have the required training, support, and infrastructure to integrate AI technology effectively, with 10% expressing strong disagreement. This lack of resources presents a significant barrier to successful integration.

Finally, all teachers (100%) strongly agreed that they believe AI technology can significantly improve the quality of English language instruction. This unanimous belief underscores the potential impact of AI on teaching, but it also highlights the urgency of addressing the gaps in confidence and resource availability to facilitate effective adoption. Overall, while the readiness to adopt AI is present, substantial support and training are necessary to translate this readiness into practice.

Table 6: EFL teachers' awareness of AI ethical considerations and integration in teaching English

R.No	Items	SD		A		D		SA	
		F	P	F	P	F	P	F	P
1	I am aware of the potential ethical issues and concerns related to the use of AI in education.					19	95	1	5
2	I understand the importance of data privacy and bias when using AI tools in my English language teaching			3	15	9	70	3	15
3	I am knowledgeable about the potential impact of AI on the teacher-student relationship in the English language classroom	1	5	3	15	10	50	3	15
4	I am confident in my ability to address ethical concerns when integrating AI into my English language teaching practices			1	5	18	90	1	5
5	I believe that clear guidelines and policies are necessary to ensure the ethical use of AI in English language education					20	100		

Table 6 provides insights into EFL teachers' awareness of AI ethical considerations and their integration in English language teaching. The results indicate significant gaps in awareness and understanding of ethical issues related to AI in education.

A substantial 95% of respondents reported being unaware of the potential ethical issues and concerns associated with using AI in educational contexts. This suggests a critical need for increased awareness and education on ethical considerations in AI.

In terms of understanding data privacy and bias, 70% of teachers indicated disagreement with the statement that they understand the importance of these factors when using AI tools in their teaching. Only 15% agreed, highlighting a considerable gap in knowledge about these crucial ethical issues.

Regarding the potential impact of AI on the teacher-student relationship, 50% of teachers reported being unaware of the implications, while 15% expressed some understanding. This indicates that many teachers may not recognize how AI can influence their interactions with students. Confidence in addressing ethical concerns is also low, with 90% of teachers disagreeing that they feel confident in their ability to handle these issues when integrating AI into their teaching practices. This lack of confidence further emphasizes the need for training and resources to equip teachers with the necessary skills to manage ethical dilemmas.

Finally, all teachers (100%) agreed on the necessity of clear guidelines and policies to ensure the ethical use of AI in English language education. This unanimous belief underscores the importance of establishing frameworks that can guide teachers in integrating AI responsibly.

Overall, the result reveals a significant lack of awareness and understanding of AI ethical considerations among EFL teachers, indicating an urgent need for professional development focused on ethical guidelines and practices in the use of AI in education.

3.2 Interview Analysis

The interviews conducted with five EFL teachers revealed a strong connection between their perceptions of AI technology's usefulness and their actual usage in the classroom. All participants expressed a positive attitude toward integrating AI technologies into their English language teaching. However, only two teachers felt confident and capable of using these technologies effectively, while the remaining three reported low levels of technological competence and experience. Despite this confidence gap, all teachers maintained an optimistic outlook on AI adoption, believing it could enhance language learning outcomes.

The study examined teachers' attitudes through cognitive, affective, and behavioral components. Cognitively, the teachers held a favorable view of AI technologies in English instruction. Affectively, they expressed a mix of excitement and apprehension regarding the impact of AI on their

teaching and students' learning experiences. Behaviorally, they indicated a willingness to integrate AI technologies into their lessons. However, the unfamiliarity of these innovative teaching methods within the Ethiopian context posed challenges, as reflected in survey findings that showed EFL teachers rarely used tools like ChatGPT due to limited familiarity.

Additionally, the findings highlighted that teachers were largely unaware of specific AI tools, such as Alpha Code, YouChat, and DALL-E, although some were somewhat familiar with ChatGPT and GrammarlyGo. Despite their limited exposure, EFL teachers expressed a strong interest in learning more about how AI can be utilized in English language teaching. They were eager to explore integration but felt unprepared due to a lack of access to essential resources, such as training and support. Overall, while EFL teachers exhibit a positive attitude and interest in AI technologies, their confidence and familiarity are limited, indicating a need for professional development to empower effective integration into their teaching practices

4. Conclusions

AI technology plays a significant role in the teaching and learning of English, offering capabilities such as adaptation, learning, correction, and the synthesis of vast amounts of text. This study, focused on the awareness and integration of AI technology among EFL teachers at Ambo University, involved 20 English teachers who completed questionnaires and 5 who participated in interviews. The findings revealed a notable lack of awareness among teachers regarding most general open artificial intelligences (GenOpenAI). This limited understanding directly impacts their ability to incorporate AI effectively into their English teaching practices.

The results illustrated that the overall awareness and understanding of AI technologies among EFL teachers were low, as evidenced in the data presented in Table 3. With almost all teachers lacking familiarity with available AI tools, their potential for integrating these technologies into their instruction remains underutilized. However, the study also highlighted a willingness among teachers to adopt AI technologies in their English language teaching. This openness suggests that, with appropriate training and resources, teachers could enhance their teaching methodologies and ultimately improve student learning outcomes.

The contribution of this study lies in its identification of critical gaps in awareness and integration of AI technologies among EFL teachers, as well as their readiness to adopt these innovations. By emphasizing the need for targeted professional development and support, the findings aim to inform educational stakeholders about the importance of equipping teachers with the necessary tools and knowledge to leverage AI in their teaching practices. This could ultimately lead to more effective and engaging English language instruction, benefiting both teachers and learners alike.

5. Recommendations

Based on the findings regarding teachers' awareness and integration of AI technology in English language teaching, several recommendations can be made to foster a more effective use of these technologies at Ambo University. First and foremost, the university should implement regular workshops aimed at enhancing teachers' awareness of AI technologies and their applications in language instruction. These workshops could provide hands-on training, allowing teachers to explore various AI tools, understand their functionalities, and learn how to integrate them into their teaching practices effectively.

In addition to workshops, the university could establish a mentorship program where tech-savvy educators guide their peers in using AI technologies. This peer-to-peer support system would enable teachers to share best practices, troubleshoot challenges, and build confidence in implementing AI tools in their classrooms. Furthermore, creating a resource hub such as an online platform where teachers can access educational materials, tutorials, and updates on the latest AI technologies would be beneficial.

Lastly, it is crucial for the administration to allocate resources for ongoing professional development, including access to training sessions and

seminars focused on AI in education. By fostering a culture of continuous learning and adaptation, Ambo University can not only improve teachers' technological competencies but also ensure that they are well-equipped to enhance student engagement and learning outcomes through innovative teaching methods. By taking these steps, the university can lead the way in integrating AI technologies into English language teaching, ultimately enriching the educational experience for both teachers and students.

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