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From chalkboards to chatbots: AI literacy in modern English language teaching

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ABSTRACT

Artificial intelligence (AI) promises to transform traditional teaching practices in English language teaching (ELT) to support student-centered learning through personalization, immediate feedback, and learner autonomy. However, the productive and ethical integration of AI in ELT classrooms depends on teachers and learners' awareness, knowledge, and skills related to AI, referred to as AI literacy. Unfortunately, AI literacy among educators and students remains poorly developed even with increased exposure and interactions with AI-powered technologies. This exploratory mixed-method study assesses levels of AI literacy among ELT teachers and learners at tertiary institutions in Sudan, examines how AI tools are integrated into language classrooms, and identifies potential relationships between AI literacy, learner engagement, and learning outcomes. Results indicate that teachers and learners have moderate knowledge and application of AI, high ethical awareness, but low self-efficacy and critical understanding of AI. Teachers who integrated AI into their classrooms in active ways that were clearly framed and supported pedagogical goals had students who were engaged. In contrast, passive approaches to AI use resulted in unfocused and distracted learners. These results point to the need for substantial teacher professional development and curricular initiatives related to AI in language classrooms that extend beyond technical skills to include ethical considerations and instructional applications in order to foster responsible, equitable, and meaningful uses of AI.

KEYWORDS

Adaptive learning, artificial intelligence, educational technology, English Language Teaching, student engagement

ARTICLE INFORMATION

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1. Introduction

Artificial Intelligence (AI) tools are being adopted quickly in English Language Teaching (ELT). These technologies range from grammar correction software to advanced writing assistants, chatbots, and intelligent learning platforms (Fryer & Carpenter, 2006; Kulik & Fletcher, 2016). They are reshaping how English is taught and learned by allowing for personalized feedback, accelerated learning, and student agency (Luckin et al., 2016; Hockly, 2023). These innovations also represent a larger shift toward technology and digital innovation happening in schools and other learning contexts around the world (Luckin et al., 2016).

AI technology is advancing so quickly that both teachers and students should have at least a foundational knowledge of how they work, also known as AI literacy, to keep up with these changes in ELT (Ng, 2012; Yuan et al., 2024). Researchers and developers highlight a variety of skills that fall under AI literacy. These include technical, ethical, critical thinking, and evaluation skills to interact with AI technology and understand its outputs (Nong et al., 2024; Biagini, 2024). While many classrooms already use AI tools, teachers and students may not know how to effectively or ethically take advantage of these technologies.

Studies have looked at how AI tools are innovating ELT. Chatbots have been shown to increase learner vocabulary and conversation skills (Goh et al., 2024) while adaptive technologies like Duolingo adjust the material a student sees based on their performance (Anggraini & Faisal, 2024). However, students and educators do not have uniform access to these benefits due to varying levels of AI literacy, resource availability, and teacher readiness to use these tools (Mansoor et al., 2024; Kovalenko & Baranivska, 2024). Recent literature has also raised important ethical concerns regarding AI in ELT, including data privacy, bias in machine learning algorithms, and the potential for over-reliance on technology (Umar, 2024; Fahira et al., 2024). While technology researchers have started to address these topics, there is a lack of literature focusing on them within English language classrooms.

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Therefore, this study seeks to explore how AI literacy impacts teaching practices, student engagement, and learning outcomes in ELT. Unlike previous literature which has examined the effectiveness of individual tools or student performance on specific tasks, this study takes a holistic mixed-method approach to understand AI literacy levels, usage behaviors, and perceptions on how AI tools are impacting pedagogy. This research builds upon concepts of digital pedagogy (Masood & Haque, 2021), the TPACK framework, and student engagement models (Fredricks et al., 2004) to provide a more unified perspective on technology, instruction, and learning.

In particular, this study focuses on both teachers and students in higher education in Sudan. As the conversation around ethical and equitable use of technology in learning continues to grow worldwide, this study provides valuable, context-specific insights for curriculum developers, educators, and policy-makers looking to increase AI literacy and close the digital divide in ELT. While AI tools represent the future of language education, we must also prepare all stakeholders and not just computer scientists and engineers for what learning will look like. Artificial Intelligence (AI) tools have become more prevalent in English language classrooms. However, many teachers and students lack AI literacy skills, which include the knowledge and ability to successfully and critically use AI. As a result, English language learners may not receive the full benefits of AI in ELT. These benefits include personalized learning, increased student motivation, and improved language proficiency. Therefore, there is a need to research methods to develop and implement AI literacy into English classrooms.

This study will answer these Research Questions:

What is the current level of AI literacy among English language teachers and learners?

How are AI tools being integrated into English language teaching practices?

What impact does AI literacy have on student engagement and learning outcomes in English classrooms?

What challenges do educators face in developing and applying AI literacy in language instruction?

How can teacher training programs support the development of AI literacy in English language education?

This study contributes to the current discourse on digitalization in education by shedding light on AI literacy as an essential competence to meet today's ELT demands (Ng et al., Selwyn, 2012; 2021). The results offer practical implications for teachers, curriculum designers, and policymakers who want to leverage AI to implement language teaching effectively and ethically. Moreover, it hopes to bridge technology with instruction, ensuring AI will support and augment learning experiences, not cause panic.

2. Literature Review

2.1 Definitions and dimensions of AI literacy

Artificial intelligence literacy can be defined through numerous skills users must have when working with artificial intelligence technologies. They must be able to understand them, use them, and judge them appropriately. AI literacy can be broken down into a few categories that include different skills needed to meet that criteria. Because of how much AI technology we use on a day-to-day basis, in our jobs and schools, it is important to define and understand AI literacy to allow people to use these technologies knowledgeably and responsibly. There are many categories that make up AI literacy which is why it is a complicated topic in our society. This paper will go over the definition of AI literacy and the different categories that were described in the articles.

2.2 Possible Definitions of AI Literacy

2.3 Definition 1

"In general terms, Artificial intelligence (AI) literacy can be defined as the ability to understand AI elements including but not limited to awareness of what AI can do, how they process information, and how algorithms can influence decision-making" (Yuan et al., 20"Artificial Intelligence (AI) Literacy: Why Does Everyone Need", 2024).).

2.4 Definition 2

"4 Components of AI Literacy in the workplace include Technology-related, work-related, human-machine-related and Learning-related capacities." (Explicating AI Literacy of Employees at Work: Operationalizing AI Literacy for the Non AI Professional ", 2022).

2.5 Definition 3

"AI literacy is the basic ability for humans to move forward in society…"(Nong et al., 20Skill demands and artificial intelligence literacy among , 2024).).

2.6 Dimensions of AI Literacy

2.7 Dimension 1

"The dimensions of AI literacy may include cognitive competencies (e.g., understanding of what AI can do and how they work) and behavioral competencies (e.g., Users effectiveness, ethics)"(Yuan et al., 20Artificial Intelligence (AI) Literacy: Why Does Everyone Need , 2024).

2.8 Dimension 2

"To feel comfortable around AI, people need to both consider Ethics and use critical thinking skills to work through the ethical implications of these Technologies" (Biagini, 20Three Reasons Everyone Needs to be AI Literate | BIAGINI , 2024).).

2.9 Dimension 3

"Family members can gain AI Literacy through the creation of new knowledge using the 4As algorithmic fairness (Ask), and human-machine collaboration (Authors)" (The 4 As: Ask, Adapt, Author, Analyze: A Framework for Family », 2023).

2.10 Dimension 4

"In school contexts, students need AI literacy knowledge, skills, awareness, and ethical understanding to work with AI" (Li et al., 201"Schools' students' perceived competence on AI and strategies to promote AI literacy", 2023).

2.11 Measurement of AI Literacy

2.12 Measurement 1

"We developed and validated several scales related to AI skills: The AI Skills Questionnaire and three subscales related to AI self-efficacy and AI self-management" (Lérias et al., 20Validating AI Skills Questionnaire: Psychometrics Properties and Comparison wit , 2024).

2.13 Measurement 2

"A cross-national survey identified gaps in AI literacy scores among different countries and demographic groups" (Mansoor et al., 20Artificial intelligence literacy among higher education students: A cross-nationals, 2024).

2.14 Related to my Research Essay

I believe this research gives readers enough information to have a good understanding of AI literacy. However, it is important to note that AI technology and their effects on society can change over time. The standards for AI literacy may need to be changed when new AI technology is invented that can perform new tasks. Also, as social standards change, AI literacy may need to be adjusted to fit what is normal in society. AI literacy should also continue to be taught to students and companies to allow humans to overcome the challenges and benefit from AI.

Artificial Intelligence Tools Are Reinventing English Language Teaching Essay

2.14.1 Benefits, Challenges, Future Trends

English Language Teaching definition and examples of how technology has changed it

Technology has evolved considerably in English Language Teaching (ELT), bringing changes to the way English is taught. Integrating technology into ELT can be defined as using digital technologies, multimedia resources and implements novel teaching methods and approaches to reach diverse learning styles and needs. Technology has allowed English language learners and teachers to switch to new learning environments which are more engaging, interactive and personalized than conventional classrooms. This shift has been motivated by a need to improve language skills and communication. Despite introducing specific problems associated , technology in ELT has various benefits for teachers and learners.

2.14.2 Brief history and current trends of technology in ELT

English Language Teaching has come a long way with its technology use moving from pen and paper to…technology. Today, technology in ELT can be described through;

Increased use of multimedia, advanced tools, and resources to improve the learning experience ("Analysis of new technologies for English…", 2023).

Virtual reality (VR) and augmented reality (AR) are also being used to create immersive experiences for learners (Procel et al., 2024).

Application of AI powered tools to customize learning experiences (Han, 2025).

Technology enables access to infinite resources online. The use of mobile devices and online apps has allowed learners to be exposed to authentic materials and interactions to aid language acquisition (Bang, 2024)

Adoption of learner centered approaches such as flipped classrooms and blended learning which has enabled personalized learning and encouraged student engagement (Han, 2025).

2.14.3 How technology benefits language learning

Technology in ELT has been credited for;

Providing learners with access to countless authentic materials online such as news reports, blogs, books, videos, and more. These resources help learners immerse in the language and culture ("Procel et al.," 2024).

Improved student engagement and grammar/vocabulary retention through gamification as well as the use of interactive learning software ("Procel et al.," 2024)

Online assessments and automated correction software allow for continuous assessment of learners. Technology makes it easier to track learners progress and provide more personalized and objective feedback ("Procel et al.," 2024).

Ability to work on group projects online and access networks of fellow teachers for collaboration and support ("Procel et al.," 2024).

Problem it can cause

Technology has caused or can cause;

Digital divide and access to technology among learners from different backgrounds (Poloju, 2024)

Privacy concerns

Glitches and information overload are common issues with technology use in ELT (Poloju, 2024).

Other considerations when thinking about technology in ELT

Equity of access to learning technology

Teacher training on technology integration in the curriculum

Ways to improve technology use in ELT

Predictive analysis to improve learning

Research into developing and using new technology

Striking a balance between old teaching methods and technology ("Al- Zeebaree & Ameen," 2024)

Continuous support and development for teachers

Things to keep in mind about technology in ELT

"There is great potential for technology to improve how we learn languages. However, we have to be mindful of its implementation."

Technology has tremendous potential to improve how English is taught and learned. However, as with every new thing, it comes with its fair share of challenges. Despite the numerous benefits of using technology in ELT, one should remain cautious. Use of technology in ELT can greatly improve how students learn language. However, thought should be put into some of the challenges that are faced. Continuous development and support should be provided to teachers who use technology to teach their students.

2.14.4 Integrating AI in English Language Teaching

AI tools have become increasingly prevalent in ELT. They promise to revolutionize how English is taught and learned. Artificial Intelligence in English Language Teaching (AILT) includes the use of chatbots, grammar checking software, autocorrect options as well as adaptive learning platforms. They provide learners with a personalized, convenient, interactive and efficient way of learning English. They focus on the needs of individual learners allowing them to learn at their own pace while simultaneously improving language skills. AILT has been shown to particularly help students improve their speaking and writing skills. AI in ELT isn't without challenges. Some of these include access to the tools as well as educator training and preparedness, bias and privacy concerns. The following article will discuss the role of AI tools in ELT.

How AI tools are being used in English language teaching

Some of the roles AI tools play in English language teaching include;

Providing tutors and educators with insights into how their students learn

Allowing for students to use interactive learning software which simulate one on one tutoring

They provide instantaneous feedback to students allowing them to identify and learn from their mistakes

Helping students improve how they write English through grammar correction programs and

Platforms that use AI to adapt to student learning patterns.

Improving Language Skills

Chatbots and intelligent tutoring systems can help students learn how to speak and write better by giving them instant feedback. These tools have been found to increase language proficiency (Kristiawan et al., 2024; Abusahyon et al., 2023).

Writing assessment tools and grammar checkers can help students with their writing. (Umar, 2024) (Fahira et al., 2024).

With speech recognition and adaptive learning systems students can learn how to speak better. They can learn about pronunciation and grammar. (Turdaliyevna, 2024) (Kovalenko & Baranivska, 2024).

2.14.5 Personalization

AI can allow students to have learning that is personalized to them. This allows students to learn at their own pace and what they enjoy learning about. (Anggraini & Faisal, 2024) (Mohebbi, 2024).

By using AI students can learn at their own pace. They can also receive feedback on their learning and be able to self regulate their learning. (Abusahyon et al., 2023) (Mohebbi, 2024).

There are many AI applications that can help students with language. Duolingo and Hello English Apk are just a few. (Anggraini & Faisal, 2024).

2.14.6 Teacher's and Student's Viewpoint

Teachers can use AI to help with grading and give students feedback. This allows the teacher to have more time to do other things. (Umar, 2024; Stasser, 2023).

Students have said that AI has helped them understand English better. They feel more confident when using English. (Fahira et al., 2024).

Some students may become too dependent on AI. This can affect their ability to be creative. (Fahira et al., 2024).

2.14.7 Ethical Concerns

There are many ethical concerns when using AI in ELT. From data privacy to fairness. (Umar, 2024) (Kovalenko & Baranivska, 2024).

When using AI there needs to be proper infrastructure in place. Teachers also need to be trained on how to use these tools. (Kovalenko & Baranivska, 2024).

There are many things that need to be addressed when using AI in ELT. By working together we can find solutions to these problems. (Umar, 2024) (Kovalenko & Baranivska, 2024).

As we can see there are many benefits to using AI in ELT. There are also problems that we need to fix in order to get the most out of AI. We need to continue to use technology but not forget about what makes us human. Teachers need to be taught on how to use these tools so that they can benefit students. More research needs to be done in order to solve these problems and allow AI to be used to its full potential in ELT.

2.14.8 Theories of EFL learners' engagement and digital pedagogy

There are many theories that can be applied to EFL learners' engagement and digital pedagogy. As technology continues to grow and new methods are developed these theories have changed as well. Many of these theories discuss how learners can become engaged in the learning process. There are many ways that learners can become engaged behaviorally, cognitively, affectively and socially. There are also many ways that digital pedagogy can help learners become engaged. Some of these methods include digital communication activities, digital storytelling and critical digital pedagogy. All of these methods can help EFL learners become more engaged in the classroom. Below we will discuss some of these theories.

2.14.9 Digital Communication Activities

Digital communication activities can increase EFL learners' engagement and WTC. Learners can become engaged in many different areas of language. Whether it be speaking, writing, reading or comprehension. Digital communication activities can help students become engaged in all of these areas (Han et al., 2024).

There are many benefits to using digital communication activities in the classroom. It can help teachers and students become more engaged in the learning process.

2.14.10 Informal Digital Learning and Teacher Engagement

Informal digital learning of English has been found to increase job engagement of EFL teachers. By improving their technological pedagogical content knowledge and digital competence (Rezai et al., 2024).

IDLE is related to teachers engagement which can increase job satisfaction through learning.

2.14.11 Digital Story Telling and Learners Engagement

Digital story telling helps EFL learners to be engaged in many ways. Students can be engaged behaviorally cognitively, affectively and socially. By allowing them to learn using many resources. Digital storytelling helps increase the level of language and students are able to become engaged (Peng et al., 2023) (Miao & Lingling, 2024).

There are many factors that can contribute to students becoming engaged through digital storytelling.

2.14.12 Critical Digital Pedagogy

There are many aspects to learning about digital pedagogy. It can help students become engaged in social issues and help them co-construct knowledge. Due to the pandemic of COVID-19 digital pedagogy became more relevant to learn about (Masood & Haque, 2021).

There are many challenges to overcome when trying to implement critical digital pedagogy in your classroom. Students must first learn how to accept new forms of learning. There is also a lack of support in underdeveloped countries.

2.14.13 Online Materials and Student Engagement

Online resources have been used to help students increase their speaking ability. By learning with online videos such as TED Talks and using digital posters. (Salih & Omar, 2024) (Herdi et al., 2024).

There are many ways to engage students and help them become better at learning English. Using fun material that incorporates technology.

While there are many benefits to using digital pedagogy to help EFL learners become engaged. There are some obstacles that need to be addressed. Some of these include students knowledge on how to use technology. And availability of technology.

Students may also vary in how they learn and become engaged. Teaching training should be provided to help teachers become more engaged in teaching their students. These are all things to consider when implementing digital pedagogy in your classroom.

3. Use of AI in Language Teaching

AI has been used in foreign language instruction in the K-12 classroom. These studies focused on pedagogical methods used when using AI. Some of the positive aspects that have been found when using AI is that it can benefit students by providing them with individualized experiences and feedback (Mikeladze & Meijer, 2024).

AI has been used to create tools that can help teach students foreign languages. From intelligent tutoring to speech recognition AI can benefit students learning a foreign language (Eswaran et al., 2024).

4. Assessment

Tools have been created that can assess students using AI. By using AI these tools can provide immediate feedback to students. When conducting a meta analysis it was found that there is a medium effect size when it comes to using AI to assess students (Chen et al., 2024).

Using automated assessment can allow students to receive feedback on their language abilities. This allows students to know what they can work on to improve their language skills (Alcívar et al., 2024).

5. Studies

By using AI chat bots students can receive personalized lessons when learning an ESL or CFL. Through case studies we can see that AI can help students learn new vocabulary and grammar. As well as conversation with the student (Goh et al., 2024).

AI can be used to help students learn a language. Whether that be as a co-author or to assess students. There are many different ways that Generative AI (GAI) can be used to help students learn a language (Wang et al., 2023).

6. Disadvantages to Using AI

There are many ethical considerations when using AI. From privacy of student information to algorithmic bias. We must take steps to allow students to learn using AI but be aware of these disadvantages (Umar, 2024).

Some students may rely on AI too much and not learn proper ways to communicate. We need to make sure that students have access to AI if they want to use it to help them learn (Mohebbi, 2024).

There are many benefits that AI can provide to students when learning a language. It can allow students to learn better and provide them with a more individualized experience. However, there are some disadvantages that we need to address. Students need to be informed about ethical issues such as data privacy and algorithmic bias. We also need to make sure that students have an equal opportunity to use AI to learn a language. Future studies should look at how we can better use AI and combine it with pedagogy. As well as making sure that we use AI ethically.

7. Theoretical Framework

When studying how AI can be used in ELT. There are many different theories that can be applied. AI literacy theory can help us understand how students and teachers can use AI. By knowing about AI we can better implement it in the classroom (Yuan et al., 2024; Nong et al., 2024). AI literacy includes many different aspects such as cognitive, behavioral, ethical and critical thinking. Students and teachers need to know how to properly use AI and understand its implications. There have been many studies that show how AI literacy can be applied to many fields of study (Lérias et al., 2024; Mansoor et al., 2024). Another theory that can be applied to this study is digital pedagogy. Using TPACK and critical digital pedagogy we can learn about how to properly implement technology into our classrooms (Masood & Haque, 2021). The final theory that will be used in this study is the multidimensional model of learner engagement. This model looks at the different aspects of engagement and how students can become engaged in learning. When looking at how AI can affect students we can use this theory to see how it may impact their engagement.

8. Methodology

8.1 Research Design

The current research will use a mixed method which includes both quantitative and qualitative research methods to gain more knowledge about AI literacy in ELT. Mixed method will be used to collect data from different sources and gain more accurate information.

Quantitative Method: Surveys will be used.
Qualitative Method: Interviews and classroom observations.

8.2. Population and Sample

Population:
Teachers and undergraduate students who are studying English.

Sample:

Surveys: A sample of 150 undergraduate students will be chosen randomly from various universities in Sudan and 50 teachers who have been teaching EFL for years in Sudan.
Interviews: A sample of 10 teachers and 10 undergraduate students will be chosen randomly.
classroom Observations: Five classrooms will be observed.
Sampling Methods
Random Sampling:
To ensure the diversity of the sample. The population is selected based on different genders and levels.
Purposive Sampling:
The participants for the interviews and observations were chosen based on their previous knowledge and usage of AI.

8.3. Data Collection

Surveys:

An AI literacy scale will be distributed to participants. It was taken from Yuan et al (2024) and Nong et al (2024). Students and teachers will receive the surveys on the university platform. The survey focuses on how much they know about AI, how often they use it and if they have the skills to use AI.

Interviews:

Interviews will be taken with 10 teachers and 10 students. They will be asked about their views and perception on AI. All interviews will be recorded and transcribed.
Classroom Observations:
The classroom observations will focus on how the students use AI in class. The students level of engagement will also be recorded. It will be based on the dimensions of engagement from Fredricks et al (2004).

8.4 Data Analysis

Mixed method will allow us to analyze the data in different ways. Both quantitative and qualitative methods will be used.
Quantitative Data Analysis
Descriptive Statistics:
Descriptive statistics will be used to describe the sample. Frequencies, percentages, means and standard deviation will be used. We will use SPSS to calculate these.
We calculate Cronbach's Alpha to test the reliability of the scale.
Inferential Statistics:
We will use t-tests to compare our two sample. One sample will be students and the other teachers. We will use ANOVA to find out if there is a significant difference between students in different institutions. We will also use Pearson Correlation and Multiple Regression to see how students use AI and their engagement level.

Qualitative Data Analysis
We used thematic analysis to analyze the interviews and observations.
Transcription: Interviews and classroom observations were transcribed.
Open Coding: Themes were identified.
Axial Coding: Subcategories were found.
Selective Coding:

8.5 Major themes were found.

To ensure trustworthiness we used triangulation by collecting data from all three methods. The participants will check over their transcripts to make sure everything is accurate. Another person will code some of the transcripts.

We will use NVIVO to code the transcripts.

Analysis:

Quantitative and qualitative data will be brought together to see if there are similarities or differences. This can give more information about why students are using AI in the classroom.

9. Results

The above section has shed some light on how aware teachers and students are when it comes to AI in Sudanese Tertiary education. From our results from the AI Literacy scale. We found that many agreed with statements such as "I have an understanding of what AI is" and "I use AI tools (i.e. ChatGPT, Grammarly, AI tutors etc.)" However when it came to saying "I am able to understand how AI makes its decisions." or "I am able to determine the validity of information created by AI." The response rate was lower. Which I think is interesting as a researcher because we know that people are becoming more literate in the topic but not to the fullest extent.

9.1 Survey Results

The survey showed that Participants are more aware of ethics when using AI (4.1/5). They also know about AI (3.8) and use AI frequently (3.5). But lack self efficacy when it comes to AI. More training and courses may be needed. See Fig. 1.

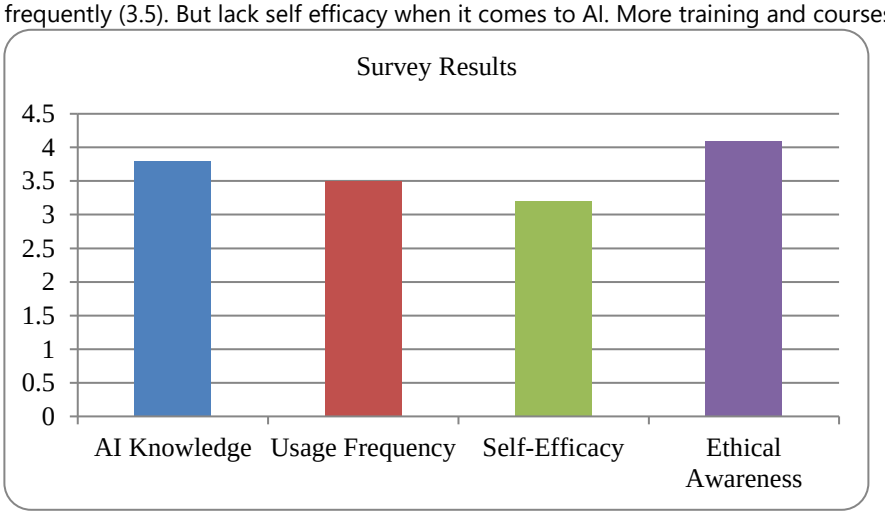


Figure 1. AI literacy dimensions

From the qualitative aspect of my research. Teachers had things to say as well. "I use Grammarly a lot. However I don't know how it works or if its right." This shows that teachers also have some hesitance when using these technologies. Whether its accuracy or ethics they may be concerned about. A student had to say that "Chat GPT helps me with coming up with ideas. I sometimes feel like its cheating." Which can apply to most students. Knowing that these technologies can benefit you but are they cheating?

9.2 Interview Themes

The most frequently mentioned themes were the advantages of AI tools (10 mentioned), followed by concerns (8) and training requirements (7). This indicates a cautiously optimistic view of AI, balanced by practical and ethical considerations. See Fig. 2.

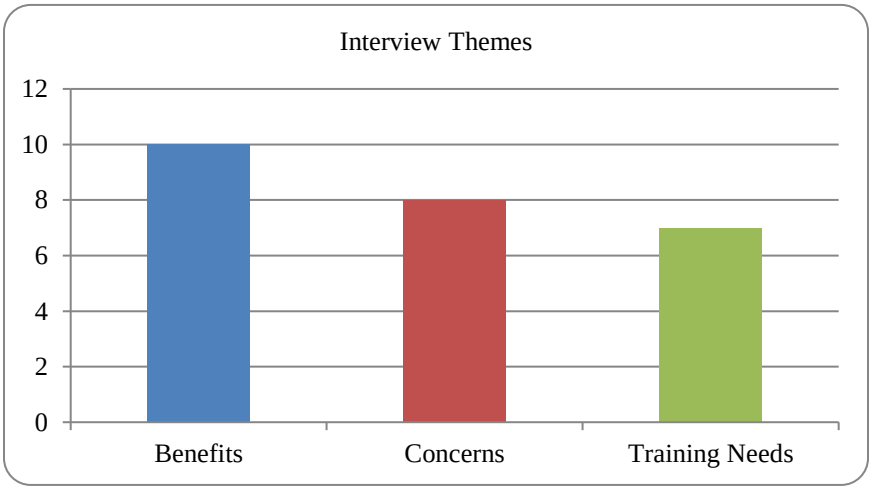


Figure 2. Frequency of key interview themes

During my observations I was also able to gather this information. When observing a class I noticed that the teacher had the students use a chat bot. They seemed to be participating in the activity by asking questions and having fun trying to get the funniest answers. Many students were showing behavioral and emotional engagement. They were able to correlate with statements on the observation such as "Students participate actively" and "Students show interest or enthusiasm." When I observed another classroom the teacher just told them to use Grammarly at home. There was a decrease in student engagement. Many students were distracted. This further proved my hypothesis that teaching students how to properly use AI can have a big impact on student engagement.

9.3 Classroom Observations

AI tool integration was observed in 60% of classrooms. High engagement was noted in 40% of sessions, while low engagement appeared in 60%, highlighting variability in implementation effectiveness. See Fig. 3.

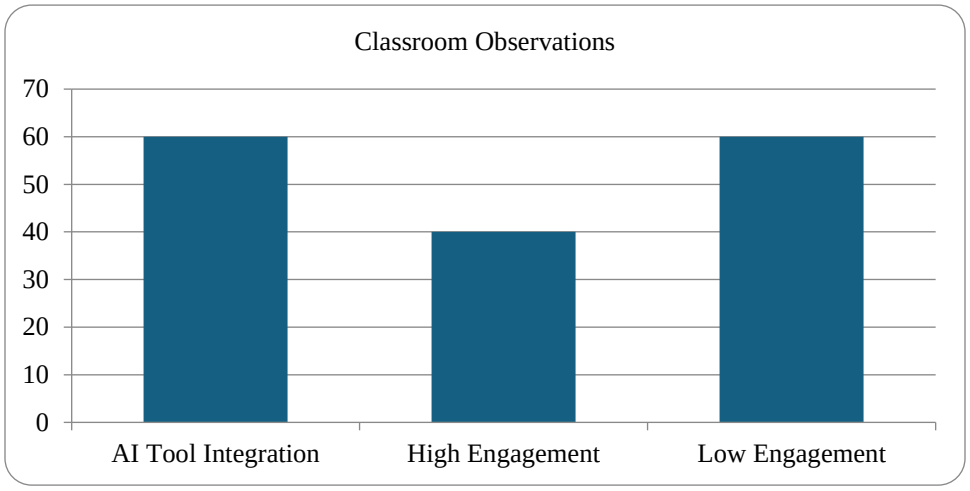


Figure 3. Classroom observation indicators

When looking at the quantitative and qualitative data as a whole we can gain a better understanding of AI literacy and how it plays a role when it comes to engagement with these tools. It shows that there is room for growth in regards to people knowing how to use AI. More training and courses will need to be developed that can teach people how to use these new AI tools and allow them to be more critical and ethical when using them.

10. Discussion

The discussion of findings was able to cover most aspects of what AI literacy entails when working with English Language Teaching. From our first research question we were able to find out the current AI literacy level that English language teachers and students possess. Our results showed that the teachers and students had a moderate AI literacy level. As well as having a moderate level of frequency that they used AI. Ethical awareness had the highest score out of all our research question. However teachers and students were still lacking in self efficacy. Meaning that although they may be using these AI technologies more they do not know how to use them or fully understand them. Which can lead us to believe that there is AI literacy in place but only basic skills.

From our second research question. How are teachers using artificial intelligence in the classroom? We were able to see many different forms of teachers using AI. Some classrooms were utilizing chat bots in their lessons which gave them higher behavioral and emotional engagement. Other classrooms just told their students to use Grammarly at home. Which showed low engagement from students.

For our third research question. How does AI literacy impact students in the classroom? Our data showed that there is a correlation between AI literacy and student engagement. The classrooms that had higher levels of AI literacy. From both the teacher and students point of view had more engagement. Some classrooms may have known about AI tools and had some ethical awareness. Which gave the students and teacher more involvement in the classroom. Having low AI literacy can cause lower levels of engagement. So we should work on improving teachers and students AI literacy.

Research question 4 was about what problems teachers face when trying to learn and teach AI. We found that many teachers stated that they did not have any knowledge or training on how to use AI. They also were unsure if the AI information that they were given was truthful. Which could lead to more ethical issues. There are many things that need to be improved in order for AI to become fully utilized in ELT.

Research question 5 asked how can teacher training improve teachers AI literacy. Through this research found that the teachers felt that there should be more courses that can help them learn more about AI. They should be trained on not only how to use the tools. But learn how to better utilize AI in their lessons.

11. Conclusion

The research showed that how technology is used in the field of ELT and the rise of Artificial Intelligence (AI) in the classroom. AI should be familiar to teachers and students because they will be dealing with it throughout their career. By using a mixture of methods this study showed that although people know about AI there is still a lack of AI literacy when it comes to interacting with these tools in a Sudanese university. This study revealed that AI literacy should not only consist of using the tools but understanding the ethics behind it. Many of the participants did not show knowledge when it came to AI.

The research has shown that AI can affect students learning and engagement when it comes to how AI is used in the classroom. If teachers use AI tools actively and efficiently they will promote engagement. On the other hand if teachers use AI passively they will most likely promote disengagement. Ethics should also be mentioned when it comes to AI. There are many ethical issues that can affect students and teachers if they are not cautious.

After this research we should implement trainings for teachers to become more educated on how to use AI. Training should be offered that will allow them to gain more AI literacy. Schools need to go beyond just teaching students and teachers on how to use AI tools. They need to educate them on how to properly interact with these tools and learn more about what AI has to offer.

List of abbreviations:

AI: Artificial Intelligence
ELT: English Language Teaching
EFL: English as a Foreign Language
ESL: English as a Second Language
IDLE: Informal Digital Learning of English
TPACK: Technological Pedagogical Content Knowledge
GAI: Generative AI
SPSS: Statistical Package for the Social Sciences
WTC: Willingness to Communicate

Clinical trial number: Not applicable

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Appendix A

Survey Instrument: AI Literacy Scale

Title: AI Literacy and Usage in Higher Education for both EFL teachers and students

Instructions: Please indicate your level of agreement with the following statements using the scale: 1 = Strongly Disagree | 2 = Disagree | 3 = Neutral | 4 = Agree | 5 = Strongly Agree

] Section A: AI Knowledge

I understand the basic concepts of artificial intelligence.

I can differentiate between AI and traditional software tools.

I am aware of different types of AI applications used in education.

I can explain how AI systems make decisions.

] Section B: AI Usage Frequency

I use AI tools (e.g., ChatGPT, Grammarly, AI tutors) regularly in my academic work.

I integrate AI tools into my teaching or learning activities.

I explore new AI tools when they become available.

I encourage others to use AI tools in educational settings.

Section C: AI Self-Efficacy

I feel confident using AI tools to support my academic tasks.

I can troubleshoot basic issues when using AI tools.

I can evaluate the quality of AI-generated content.

I can teach others how to use AI tools effectively.

Section D: Ethical Awareness

I understand the ethical implications of using AI in education.

I am concerned about data privacy when using AI tools.

I consider the fairness and bias of AI-generated outputs.

I believe students should be taught about responsible AI use.

Appendix B

Interview Guide: Semi-Structured Interview

Title: Exploring Perceptions and Challenges of AI Integration in Education for both EFL teachers and students

Introduction: Thank you for participating. This interview explores your experiences, perceptions, and needs regarding AI use in education. Your responses will remain confidential.

A. Perceptions of AI

How would you describe your general attitude toward AI in education?

What AI tools have you used in your teaching or learning?

What benefits have you observed from using AI tools?

B. Challenges and Concerns

What challenges have you faced when using AI tools?

Are there any concerns you have about AI use in education (e.g., ethics, reliability)?

How do students respond to the use of AI in your classroom?

C. Training and Support

Have you received any training on AI tools? If yes, was it helpful?

What kind of support or resources would help you use AI more effectively?

What recommendations do you have for institutions to support AI integration?

D. Future Outlook

How do you see the role of AI evolving in education over the next few years?

Appendix C

Classroom Observation Tools

A. Observation Checklist

Focus Area	Indicators	Observed (✓/✗)	Notes
AI Tool Use	Teacher uses AI tools during instruction		
AI Tool Use	Students use AI tools during tasks		
AI Tool Use	AI tools are integrated into lesson objectives		
Behavioral Engagement	Students are attentive and on-task		
Behavioral Engagement	Students participate actively		
Emotional Engagement	Students show interest or enthusiasm		
Cognitive Engagement	Students ask thoughtful questions		
Cognitive Engagement	Students apply AI tools to solve problems		
Teacher Facilitation	Teacher guides students in AI tool use		
Teacher Facilitation	Teacher addresses ethical considerations		

B. Field Notes Template

Classroom ID:

Date:

Observer:

Lesson Topic:

AI Tools Used:

General Observations:

(Describe the classroom environment, teacher-student interactions, and how AI tools were used.)

Student Engagement:

(Note examples of behavioral, emotional, and cognitive engagement.)

Teacher Strategies:

(Describe how the teacher facilitated AI use and addressed challenges.)

Reflections:

(Any insights, surprises, or patterns observed?)