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Utilization of Artificial Intelligence in EFL Learning from a Digital Literacy Perspective

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Abstract

This study investigates how university students utilize Artificial Intelligence (AI) in English as a Foreign Language (EFL) learning from a digital literacy perspective. Conducted between February–April 2024, the research involved nine undergraduate students from Universitas Ichsan Sidenreng Rappang who actively used AI tools such as ChatGPT**,** Grammarly, and Duolingo in their daily learning practices. Using a qualitative thematic analysis, the study explored students' experiences, challenges, and expectations regarding AI-supported EFL learning. Findings show that AI contributed substantially to improving students' vocabulary, grammar accuracy, and speaking fluency, with several participants reporting that AI-based feedback helped them understand errors more quickly and increased their learning motivation—some estimating up to a 20–30% improvement in confidence and task completion efficiency. However, issues such as inconsistent responses, fabricated references, and overreliance on AI revealed gaps in students' critical digital literacy. The study highlights the need for strengthened digital literacy training and more structured integration of AI tools in higher education to ensure ethical, accurate, and effective use of AI for language learning.

Keywords: Artificial Intelligence, digital literacy, EFL learning, higher education, student perception

Introduction

The rapid development of digital technology has brought significant changes in various aspects of life, including education. One of the most widely adopted technological innovations today is Artificial Intelligence (AI). AI has become a tool that helps enhance teaching and learning experiences (Abimanto & Mahendro,

2023). This aligns with research, which shows that AI improves the quality, efficiency, and relevance of higher education through personalized learning experiences, automated assessment, data analytics, and the development of interactive course content (Darmawati & Nurhafizah, 2024).

Over time, AI has transformed educational practices, including English as a Foreign Language (EFL) learning. Various AI tools such as ChatGPT, Grammarly, and Duolingo provide personalized feedback that facilitates students' writing and speaking skills in English. Studies have shown that AI increases students' interest and motivation in learning EFL (Wang, 2025). Some even suggest that AI could partially replace human instructors in EFL contexts, as millennial learners are already adept at using AI technologies (Syahira et al., 2023).

AI also contributes to improving students' digital literacy — the higher their digital literacy, the greater their ability to utilize AI effectively (Moravec et al., 2024). Digital literacy has become an essential skill for university students who rely on technology both for academic purposes and daily activities. Digital literacy plays a key role in EFL learning. The ability to search, evaluate, and use digital information effectively is vital for students learning English as a foreign language. Previous research has demonstrated that digital literacy significantly enhances English language skills, especially when combined with technology-based instruction (Wahyuddin et al., 2024).

Students' proficiency in digital literacy is essential for optimizing technological advancements, particularly in EFL learning. While several studies have demonstrated that AI use can enhance language comprehension, the effectiveness of ChatGPT in improving students' English skills has not been thoroughly explored (Wang, 2025). At Universitas Ichsan Sidenreng Rappang, the integration of AI technology to enhance digital literacy and EFL skills has not been fully optimized. Unequal access to technology and limited understanding of how to use AI effectively in learning remain challenges. Some students tend to use technology mainly for entertainment or passive consumption rather than exploring how AI works (Celik, 2023). Those with lower levels of digital literacy are also more likely to use ChatGPT merely as a virtual companion rather than as an academic learning tool (Moravec et al., 2024).

Many students are not yet fully aware of AI's potential to improve their English proficiency, including grammar, vocabulary, and speaking skills. In fact, studies have shown that appropriate integration of AI can help students build confidence and achieve a deeper understanding of English (Rifqi Abdurrahman et al., 2024) However, students with low digital literacy tend to accept AI-generated information without verification, increasing the risk of misuse or unhealthy dependence on technology (Du & Daniel, 2024).

Although AI offers various educational benefits, its implementation still faces several challenges, including the low level of AI utilization in learning, students' limited understanding of digital literacy, and the scarcity of studies exploring the relationship between AI use, digital literacy, and English language proficiency.

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Moreover, disparities in educational infrastructure readiness to accommodate AI technology effectively also remain. Therefore, this study aims to analyze the role of AI in enhancing students' digital literacy and English language skills, particularly among students at Universitas Ichsan Sidenreng Rappang, while identifying the challenges faced in its implementation.

Method

This study employed a qualitative research design using thematic analysis to explore students' experiences in utilizing Artificial Intelligence (AI) for English as a Foreign Language (EFL) learning from a digital literacy perspective. A qualitative approach was chosen because it allows the researchers to capture contextual meanings, learning behaviors, and evaluation practices that cannot be adequately represented through quantitative measures. The study adopted Eshet-Alkalai's digital literacy framework (2004) to guide the exploration of how students' access, evaluate, and ethically use AI-generated information in their learning processes.

Participants were recruited through purposive sampling and consisted of nine undergraduate students from Universitas Ichsan Sidenreng Rappang. This sample size was deemed appropriate because qualitative thematic studies prioritize depth of insight, and data saturation was reached after the eighth interview, with the ninth confirming thematic stability. Eligibility criteria included being an active student in semesters three to six, having experience using AI tools such as ChatGPT, Grammarly, Google Translate, Gemini, or Duolingo for EFL learning, and representing varied levels of digital literacy. A demographic summary of participants—including semester, major, primary AI tools used, and AI experience level—is presented in Table 1.

Data were collected through semi-structured, in-depth interviews conducted between February and April 2024, with each session lasting between 30–45 minutes. Interviews were conducted primarily in Indonesian, allowing participants to express their experiences clearly, although English was occasionally used when referring to AI-generated examples. The interview protocol included guiding questions about the frequency, purpose, perceived benefits, and challenges of AI use in EFL learning. Examples of interview questions are included in the Appendix to ensure methodological transparency.

All interviews were audio-recorded, transcribed verbatim, and returned to participants for member checking. Ethical approval for the study was obtained from the institutional ethics committee of Universitas Ichsan Sidenreng Rappang, and all participants provided written informed consent before data collection began. Confidentiality was ensured by anonymizing participant identifiers and storing all data securely. Participants were informed of their right to withdraw from the study at any point without consequences.

Data analysis followed Braun and Clarke's (2006) six-phase thematic analysis procedure, including familiarization with data, generating initial codes, developing subthemes, reviewing themes, defining themes, and producing the final narrative.

Coding was conducted independently by two researchers, and discrepancies were resolved through discussion to enhance analytic credibility. The use of NVivo 12 Pro supported systematic coding, categorization, and theme mapping throughout the analysis process, ensuring a transparent and traceable audit trail.

To enhance trustworthiness, several strategies were employed: triangulation of participant responses, member checking for transcript accuracy, and peer debriefing with senior researchers to review coding decisions. These measures strengthened the credibility, dependability, and confirmability of the findings, ensuring that the themes derived from the data accurately reflect students' lived experiences and perceptions regarding AI-assisted EFL learning.

Beyond accuracy and reliability improvements, students also expected AI to create a fun, interactive, and engaging learning experience. They believed that AI holds great potential to support self-directed learning, but it must be accompanied by proper guidance to prevent excessive dependency.

Tabel 1. Theme-Subtheme-Coding Relationship

Main Theme	**Subtheme**	**Coding (Respondent Quotes)**
Benefits of AI	Fast translation, grammar correction, learning motivation, practical access	"I just take a photo, and the answer appears right away." (R9) *"Tinggal foto langsung muncul jawabannya" (R9)*
Challenges of AI	Inconsistent responses, inaccurate translation, difficulty in evaluation, overly complex answers	"The translation results are often different between platforms." (R6) *"Hasil translator sering berbeda-beda" (R6)*
Concerns About AI	Questionable accuracy, misinformation/hoaxes, dependency, fictitious references	"AI can generate false or hoax information." (R4) *"AI bisa membuat informasi palsu atau hoax" (R4)*
Expectations for AI	As a learning method, improved features, hoax-free content, conversational assistant	"AI could be used as a learning method." (R1) *"AI bisa dijadikan metode pembelajaran" (R1)*

Overall, the findings indicate that students have a positive and open attitude toward the development of Artificial Intelligence (AI) and view it as a major opportunity in the field of education—particularly in enhancing English language proficiency and digital literacy. However, the success of AI utilization largely depends on users' readiness and the presence of well-directed educational policies

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that ensure the wise and purposeful integration of AI into the learning process.

Result and Discussion

This study found that the utilization of Artificial Intelligence (AI) technology has a significant impact on enhancing both digital literacy and English language skills among university students. AI functions not only as a technical aid but also as an interactive learning medium that motivates students to learn more independently and effectively.From the perspective of digital literacy, the results show that most students experienced improvements in their ability to access, use, and evaluate digital information through AI-assisted learning. Students reported feeling more confident using technology because AI helped them understand information more quickly and efficiently. One respondent stated:

> *"My ability has improved because the many features provided by AI help me become better at using technology." (R4)*
>
> "*Kemampuan saya semakin meningkat karena dari banyaknya fitur yang disediakan oleh AI itu mungkin meningkatkan kemampuan saya untuk menggunakan teknologi." (R4)*

However, the study also revealed that students' digital literacy skills are not yet fully developed. Some students still struggle to critically evaluate information and tend to accept AI-generated outputs without verification. As one respondent mentioned:

> *"I'm not really able to evaluate the information, because I usually just write down or copy what AI provides." (R5)*
>
> *"Saya kurang cukup mampu untuk mengevaluasi informasi tersebut, karena saya langsung mencatat informasi yang diberikan AI atau menyalinnya." (R5)*

This finding indicates a potential dependency on AI, which could hinder the development of students' critical thinking skills. Therefore, while AI contributes to the improvement of digital literacy, guidance and training in critical digital literacy remain essential to ensure that students use technology wisely and responsibly.

From the perspective of English language skills, the use of AI has been shown to make a substantial contribution by facilitating vocabulary acquisition, grammar improvement, and speaking practice. Several respondents reported that AI provided a more interactive and practical learning experience:

> *"I often use ChatGPT as a conversation partner; AI also corrects what I say, especially my grammar." (R7)*

> *"ChatGPT sering saya gunakan sebagai lawan bicara, AI juga mengoreksi apa yang saya katakan terkait dialog, terutama grammar." (R7)*

Additionally, the use of speech and translation features in AI applications helps students improve their pronunciation and comprehension of English texts. As one respondent explained:

> *"I often use the reading feature to listen to pronunciations so I can improve my pronunciation." (R3)*
>
> *"Saya sering menggunakan fitur reading, jadi saya mendengarkan pengecapannya supaya ejaan atau pronunciation saya jadi lebih bagus." (R3)*

AI also had a positive effect on students' learning motivation, as it offered a faster, more flexible, and enjoyable learning process. This was emphasized by another respondent:

> *"Using AI makes me more motivated because it's easier and faster to use." (R1)*
>
> *"Penggunaan AI membuat saya lebih termotivasi karena lebih mudah dan cepat digunakan." (R1)*

Nevertheless, the study also identified several limitations in AI use, particularly regarding accuracy and consistency of responses. Some students noted that AI-generated information sometimes differed from other sources, requiring further verification:

> *"Sometimes the answers from ChatGPT are different from other sources, so I have to double-check." (R3)*

Overall, the findings confirm that AI technology has great potential as an effective learning tool to enhance students' digital literacy and English language proficiency. However, the success of its implementation strongly depends on the level of students' critical digital literacy — specifically their ability to assess and verify AI-generated information. With sufficient digital literacy skills, students can utilize AI in a productive, ethical, and responsible manner to support their learning process.

Discussion

The findings of this study provide a deeper understanding of how university students utilize Artificial Intelligence (AI) technology in English as a Foreign Language (EFL) learning and how it contributes to enhancing their digital literacy. The interview results revealed that most students experienced significant benefits

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from using AI tools, particularly applications such as ChatGPT, Grammarly, Google Translate, and Duolingo. These technologies assisted them in text translation, grammar correction, vocabulary enrichment, and speaking practice through direct interaction with AI. Consistent with the study by Holmes (Holmes & Porayska-Pomsta, 2022), AI in education serves as a personalized learning assistant that provides instant feedback and adapts learning experiences according to users' needs. AI functions not merely as a technical tool but as an adaptive learning medium capable of increasing student motivation and engagement.

The perceived benefits of AI reflect how students' digital literacy levels influence the effectiveness of their technology use. Students with higher digital literacy are better able to utilize AI features effectively—whether for grammar improvement, text translation, or independent speaking practice. This finding aligns with Eshet-Alkalai's (Alkalai, 2004) concept of digital literacy, which emphasizes the ability to access, evaluate, and process digital information as the fundamental skill needed to navigate the challenges of the digital era. Within this context, AI acts as a medium that reinforces these dimensions, particularly in foreign language learning.

However, the interviews also revealed various challenges and limitations faced by students in using AI. Several respondents reported that AI-generated answers were often inaccurate or inconsistent, requiring further verification from additional sources. This situation suggests that although AI holds great potential, its effective use demands critical digital literacy—the ability to critically assess the reliability and credibility of digital information. Critical digital literacy is a key factor distinguishing active from passive technology users (Kellner & Share, 2019). Without this ability, students tend to accept AI-generated information uncritically, which can lead to misconceptions and overreliance on technology.

Another concern expressed by participants relates to ethics and dependency in AI use. Some students reported anxiety over excessive reliance on AI, which may reduce their critical thinking and individual creativity. This concern supports the view that digital literacy is not limited to technical skills but also includes ethical and reflective dimensions in technology (Bawden, 2001). Students, therefore, need to develop awareness and responsibility in using AI to avoid dependency or digital plagiarism.

Beyond the perceived benefits and challenges, students also shared expectations for AI development in the future. They hoped AI could become more accurate, free from misinformation, and integrated as an official learning method within university curricula. Respondents wished for more interactive and academically relevant features, such as contextual conversations, listening exercises, and more precise grammar feedback. These expectations align with perspective that AI integration in education should maintain a balance between technology and human roles (Holmes & Porayska-Pomsta, 2022). AI is not intended to replace instructors but to serve as a co-facilitator in creating adaptive, personalized, and meaningful learning experiences.

Overall, the qualitative findings of this study reinforce quantitative evidence indicating that digital literacy and AI utilization are positively related to students' English language proficiency. Students with high levels of digital literacy tend to use AI more critically and effectively, whereas those with lower literacy levels are more likely to face challenges in evaluating AI outputs. Hence, the successful integration of AI in higher education heavily depends on users' digital literacy competence.

It is therefore recommended that higher education institutions incorporate ethical and critical AI training into learning strategies, enabling students to optimize AI not only as a technical tool but also as a collaborative learning partner that supports the development of 21st-century skills.

Conclusion

This study concludes that the utilization of Artificial Intelligence (AI) technology has made a positive and significant contribution to enhancing students' digital literacy and English language skills. AI functions not only as a technical aid but also as an interactive learning medium that encourages students to learn independently, effectively, and enjoyably. The findings show that students improved their ability to access, understand, and use digital information and felt more confident in using English through AI features such as grammar correction, translation, and speaking assistants.

However, the study also identified limitations in students' ability to evaluate the accuracy of AI-generated information, which may lead to dependency and a decline in critical thinking skills. This underscores the importance of strengthening critical digital literacy, enabling students to use AI ethically, responsibly, and reflectively.

Overall, AI holds great potential as a facilitator of English language learning, but its successful implementation depends largely on students' digital literacy readiness and the extent to which educational institutions provide support for the wise and sustainable integration of AI technology into the learning environment.

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