

Original Article



Exploring Cambodian EFL university students' AI literacy and experiences: A qualitative analysis

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Abstract

This study aimed to examine English as a Foreign Language (EFL) university students' artificial intelligence (AI) literacy and confidence, the AI tools they utilized, their reasons for using them, the challenges they encountered, and their suggestions for integrating AI to support their learning. The study employed a qualitative approach and used purposive sampling for sample selection. Data were collected through an online open-ended questionnaire completed within a one-week period. A total of 137 English-major students from a large public university in Cambodia participated. The study found that students utilized various AI tools to support their EFL learning, and they learned about AI tools mainly through social media. The most commonly used tools included ChatGPT, Google Translate, Grammarly, and Quillbot. The students reported mixed levels of AI literacy and confidence and used AI for both educational and non-educational purposes. However, they reported that they encountered various challenges related to data accuracy, privacy and security concerns, and limited technological skills. They suggested developing AI policies and providing ongoing training to develop their AI literacy. The study offers various implications for university students, instructors, and educational institutions to help students develop AI literacy, nurture AI self-efficacy, and foster critical evaluation of AI-generated content rather than accepting it passively. The study concludes with recommendations for future research.

Keywords: Artificial intelligence (AI), AI literacy, AI confidence, AI training, Cambodian university students

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Introduction

With support of the Australian and British governments, since the early 1990s, Cambodian secondary school students as well as many tertiary students have been provided with opportunities to study English as a Foreign Language (EFL). Given the popularity of English, many public and private universities have established a bachelor's degree in teaching English as a Foreign Language (TEFL) and a master's degree in Teaching English to Speakers of Other Languages (TESOL) to continually train EFL teachers for both general school and tertiary settings (Tao, 2014). Moreover, given most of the teaching and learning resources across all disciplines in Cambodian higher education were written in English, many universities that offered bachelor's, master's, and doctorate degrees in fields other than TEFL/TESOL also required their students to take English language courses in addition to their major courses. Thus, acquiring a sufficient level of English language proficiency has been critical for Cambodian people, as it enables them to fully participate and actively engage in society, higher education studies, employment, and the broader region, particularly within Southeast Asia (Tao, 2014, 2025).

With the emerging and significant rising presence, interests, and accessibility of various language-assisted artificial intelligence (AI) technologies in education in recent years, the Royal Government of Cambodia has put increasing emphasis on educational technologies and AI in education by formulating policy documents, such as EduTech Roadmap (Ministry of Industry, Science, Technology & Innovation [MISTI], 2022) and AI Landscape in Cambodia (MISTI, 2023), to support the national vision of becoming an upper middle-income country by 2030 and a high-income country by 2050. The EduTech Roadmap aims to provide a detailed outline for technology adoption and to support strategic and long-term growth of the education sector. The policy on the AI landscape aims to comprehend the most recent stage of technological development and the future of technology as well as to expand knowledge and information about AI for the betterment of Cambodia. In line with this trend, the Ministry of Education, Youth and Sport (MoEYS) strongly promotes digital education and encourages the utilization of AI technologies in education across all educational levels, as stated in its recent Education Strategic Plan 2024–2028 (MoEYS, 2024). As such, there is an urgent need to explore how Cambodian university students, especially those in EFL-related

programs, perceived and engaged with AI technologies for their English language education.

Although there is growing research exploring students' experiences and perceptions toward the utilization of various AI tools in both general and language education worldwide ([Albadarin et al., 2024](#); [Chen, 2023](#); [Hu, 2023](#); [Sok et al., 2025](#)), there is still little research, especially in EFL contexts, undertaken in Cambodia. [Sol et al. \(2024\)](#) recently called for more research examining Cambodian EFL university students' experiences and perceptions toward the use of AI tools. In responding to [Sol et al.'s \(2024\)](#) call, the current study aims to examine EFL university students' utilization of AI tools, their AI literacy and confidence, their reasons for employing AI tools, their challenges when interacting with AI tools, and their recommendations for integrating AI tools in their learning in Cambodia. This study seeks to add to the existing body of research on this topic by answering the following research questions:

1. What types of AI tools do Cambodian university students use to support their EFL learning?
2. How do Cambodian university students perceive their levels of AI literacy and confidence?
3. What are the main reasons that Cambodian university students utilize AI tools?
4. What are the main challenges and difficulties that Cambodian university students encounter in utilizing AI tools for their EFL learning?
5. What are the suggestions that Cambodian university students have for integrating AI tools to support their EFL learning?

This study provides valuable insights into developing students' AI literacy and offers implications for policy and practice to enhance the integration of AI applications into instruction and learning. The development and adoption of AI in Cambodia is still in its infancy, but it has the potential to transform many aspects of society. AI could be utilized in Cambodian education to improve the quality of teaching and learning as well as the accessibility of education. Cambodia has seen the need and urgency to invest, adapt, and prepare for this AI global force in alignment with the Industry 4.0 trend as the economy increasingly becomes knowledge-based and digital-based ([MISTI, 2023](#)).

Literature review

Defining AI literacy

Given its prominent role, the concept of literacy has been continually evolving over decades. As such, there does not appear to be any explicit single definition with regard to the notion of literacy ([Collins, 1995](#); [Olson, 2009](#); [Street, 2009](#); [Wagner, 2009](#)). Consequently, a few definitions associated with the concept of literacy have been proposed by various researchers. For example, [Olson \(2009\)](#) has offered three distinct definitions of literacy. First, literacy has been commonly defined as an individual's ability to read and write text, which is known as a basic personal competence. Second, literacy has been referred to as an individual's capability to handle and/or engage with a variety of texts in order to unpack meanings, authority, and identity embedded in the texts, namely linguistic or academic literacy. Third, literacy has been associated with an individual's capacity to carry out various activities based on explicit rules, norms, and formal procedures of the society that have been written down in documents and/or manuals, known as societal literacy.

The notion of literacy has quickly spread to other fields. With regard to the education context, the concept of AI literacy has been introduced into general education and is eventually being actioned as a component of language education. [Laupichler et al. \(2022\)](#) described AI literacy as having the ability to comprehend, employ, monitor, and critically reflect on AI tools without being able to develop AI models themselves. [Ng et al. \(2021\)](#) also classified four categories of AI literacy skill sets comprising knowing and understanding AI, using and applying AI, evaluating and designing with AI tools, and AI ethics (i.e., fairness, accountability, transparency, ethics, and safety). [Chiu \(2025\)](#) further defined student AI literacy as knowing how to utilize AI tools effectively, recognizing the ethical implications of AI tools, and being able to critically evaluate the information provided by AI tools. Students are not only competent users of AI applications, but they must also be responsible and knowledgeable citizens in a society where AI plays an increasingly vital role ([Folmeg et al., 2024](#)). AI literacy has, therefore, been conceptualized as a broad set of skills that is not confined to technical disciplines. Thus, it is crucial for students to become AI-literate. It has been argued that there is a need to develop students' AI literacy in order to address their inaccurate perceptions about the perfection of AI tools ([Chiu, 2025](#)). Once students are AI literate, they are capable of exercising their self-regulated learning and critical thinking and

evaluate AI-generated texts critically, as well as detecting potential pitfalls of misuse when interacting with AI (Folmeg et al., 2024).

Studies into students' experiences and perceptions about AI in education

The utilization of AI in education had become an emerging topic that could attract considerable attention from numerous scholars and researchers around the world to conduct their studies into students' experiences and perceptions about AI (Albadarin et al., 2024; Folmeg et al., 2024; Kelly et al., 2023). For example, Kelly et al. (2023) surveyed 1,135 Australian university students' views on using AI tools. The findings indicated that students had relatively low knowledge, experience, and confidence with using AI applications. It was further revealed that students lacked formal training in using AI tools and were more likely to learn about AI tools through social media, and there was a small proportion of students (15%) who indicated that they had never used AI tools, but they still felt confident in their use.

Folmeg et al. (2024) also conducted a qualitative exploratory study employing semi-structured interviews with 69 Hungarian university students. The study found that students perceived themselves to be proficient in using Chat Generative Pre-trained Transformer (ChatGPT) for various tasks, and their use of prompting emerged as a skill in need of systematic and context-specific development. It was also found that although students were capable of higher-level operations, such as adding commands or modifying generated texts, they often failed to employ well-defined requests, leading to generalized or inaccurate outputs. Most students reported that ChatGPT was beneficial for helping them create and reformat texts, whereas some students indicated that they experienced various challenges comprising generality in responses, outdated information, and issues during exams. Folmeg et al. (2024) further found that students reported its effectiveness in some academic tasks, such as writing their essays and CVs, language learning, and transcription. The study concluded that it was important to integrate AI literacy across various disciplines to enhance students' proficiency in using AI applications effectively. The researchers called for a more systematic introduction and discussion around AI literacy in educational settings.

Albadarin et al. (2024) undertook a systematic review of 14 empirical studies across varying levels of education on the utilization of ChatGPT. It was found that this AI tool was leveraged in some ways, comprising an online innovative

assistant (i.e., explaining sophisticated concepts or topics with immediate and high-quality feedback), a language and writing supporter (i.e., brainstorming ideas, summarizing, and checking grammatical errors), and a key resource for students' autonomous learning (i.e., offering them self-paced learning with exposure to a wide range of helpful sources of information). It was also found that ChatGPT was utilized to assist student learning by facilitating and fostering individualized learning, as well as enabling them to better comprehend how to do homework and assignments and providing systematic study guides, resulting in developing students' overall knowledge and skills and fostering their study success. It was, however, found that students' collaborative learning capacities and innovative abilities may be negatively affected by excessive utilization of this sophisticated AI tool (Albadarin et al., 2024).

Studies into students' experiences and perceptions about AI in language education

The use of AI in language education had become an emerging topic that could attract considerable attention from numerous researchers around the world (Chen, 2023; Hu, 2023; Huang et al., 2023). There were many studies conducted to examine students' experiences and perceptions about AI. A number of ways in which AI technologies have been employed or leveraged in language education have been identified (Ghafouri, 2024; Huang et al., 2023; Pokrivcakova, 2019). For example, Huang et al. (2023) conducted a review by analyzing 516 relevant papers published from 2000 to 2019 focusing on how AI was integrated into language education. They found that AI was mainly used to support language students in six key areas, such as vocabulary, grammar, speaking, listening, reading, and writing. The researchers also found that natural language processing, automated speech recognition, and learner profiling were commonly applied to develop automated writing evaluation, personalized learning, and intelligent tutoring systems. Pokrivcakova (2019) also undertook a review regarding AI tool utilization in education and found that integrating AI into education brought new quality to both teaching and learning. The AI applications assisted in creating a sophisticated educational environment where learning may be more personalized, teaching more flexible, and management more inclusive. The study identified different forms of how AI tools were utilized in a language education context. These included creating personalized learning resources, engaging with automated translation applications, making utilization of AI-driven writing assistants, interacting

with AI chatbots, employing AI-powered language learning tools and platforms, utilizing intelligent tutoring systems, and using intelligent virtual reality.

Research has further shown a range of benefits offered by AI technologies. For instance, [Ifelebuegu et al. \(2023\)](#) explored the role of AI-powered chatbots and other educational AI tools in language learning. The findings revealed a number of benefits provided by these technologies, such as serving as interactive conversational partners, providing fast feedback, offering grammatical explanations, and supporting vocabulary expansion and translation. Despite their benefits, the effectiveness and acceptance of AI technologies were found to vary in various settings. For example, [Ghafouri \(2024\)](#) conducted an experiment study with 30 Iranian EFL students utilizing ChatGPT and found that ChatGPT could enhance teacher-student rapport and L2 grit. [Alotaibi \(2023\)](#) undertook a survey to examine the experiences and perceptions of 120 EFL Saudi university students in utilizing AI-powered Grammarly's grammar-checking capabilities. The students in the study indicated that Grammarly was useful in identifying grammatical errors, offering explanations, and instilling their confidence to enhance their written work quality. However, they expressed concerns regarding potential overreliance on AI and instances where meaning could be inadvertently changed.

Other studies have examined the perceptions of EFL students in various settings regarding the utilization of AI tools, such as Google Translate, Google Assistant, and automatic speech recognition (ASR) technology ([Liu et al., 2022](#); [Tsai, 2022](#); [Yoon, 2019](#)). Overall, it has been reported that students held positive attitudes toward the utilization of these technologies, and they were satisfied with their improved language performance. [Tsai \(2022\)](#), for instance, examined the effectiveness of using Google Translate as a translingual Computer-Assisted Language Learning (CALL) tool in EFL writing for both more highly proficient Chinese English major university students and less proficient non-English majors. The study found that Google Translate texts revealed significantly better writing performance in delivering more enriched content, utilizing more advanced vocabulary, and making fewer spelling and grammatical errors than the students' own self-written texts. It was further revealed that students employing Google Translate as a revision tool

demonstrated better L2 performance in written language and content than in their self-writing.

[Liu et al. \(2022\)](#) undertook an experimental study to examine students' perceptions toward ASR technology after it was applied to traditional classrooms. The study chose 249 English majors from a university in Northeastern China as the sample and divided them into a control group (124 students) and an experimental group (125 students). The students of these two groups utilized ASR technology in the process of speaking practice; however, the experimental group additionally received teachers' guidance. The findings revealed that both students and teachers had positive and satisfactory attitudes toward the potential of ASR in speaking training and perceived that the ASR technology could meet most of their needs, particularly in terms of the scoring system that assists them in comprehending the real speaking level. [Chen et al. \(2023\)](#) also undertook an experimental study with 29 EFL college students in China and revealed that the students indicated that Google Assistant was an enjoyable and inspiring tool for their learning English, particularly for improving their listening and speaking skills. In contrast, the students with higher language proficiency levels achieved better comprehensibility, whereas those with lower language proficiency levels appeared to encounter more challenges due to mispronunciation. [Yoon \(2019\)](#) also conducted a study with 310 university students enrolled in English courses in Korea. The study found that students showed their interests in using AI tools and acknowledged their usefulness and convenience; however, they harbored reservations and strongly preferred human interaction and instruction within their English learning environments. Overall, EFL students generally perceive AI tools with optimism for their language learning. AI tools can assist their active knowledge construction, collaboration, and formative feedback. Moreover, they perceive the benefits of AI use in terms of providing them personalized and adaptive learning, as well as real-time feedback mechanisms that enhance their learning autonomy, metacognitive awareness, and goal-directed learning ([Chiu, 2025](#); [Kassorla et al., 2024](#)).

Studies into students' experiences and perceptions about AI in Cambodian education

Even though the utilization of AI-powered tools in education has received significant attention worldwide, particularly in the Global North, such a phenomenon has obtained little attention in developing contexts like Cambodia

(Sol et al., 2024). Pum and Sok (2024) observed that empirical research into AI utilization in the Cambodian context was still limited. MISTI (2023) also emphasized the importance of utilizing AI in enhancing Cambodian education by recommending the inclusion of AI-related courses and programs in the school curriculum from elementary schools onward. MISTI further discussed the need to train teachers to facilitate AI-related courses and set up an educational policy that supports student lifelong learning. Nevertheless, the increasing utilization of AI in Cambodian education, particularly higher education, has posed major concerns about its ethical utilization. Sok and Heng (2024) highlighted the issue of potential academic misconduct resulting from AI misuse. They called for policymakers and academic leaders to create new academic integrity policies and/or revise existing ones to navigate the unethical utilization of AI in Cambodian higher education.

There were several studies conducted about AI-related issues in the Cambodian setting. For instance, Hoeurng et al. (2024) surveyed 370 undergraduate students across various majors and year levels to examine their use, perceptions, and significance of AI in their academic endeavors at three different universities in Battambang, Cambodia. The study found students' high engagement with AI tools, particularly for language translation and writing enhancement, despite the majority of them lacking formal training in AI utilization. The study concluded that there were various critical challenges comprising the lack of formal AI training for students, concerns about data privacy, and ethical implications. Loeung and Ros (2024) also conducted a survey with 222 university students in one private university in Cambodia to examine their attitudes toward AI tools and their perceptions of AI's role in education. The study found that students' perceptions of AI's role in education had the most effects on their learning achievements. The researchers concluded that it is important to instill positive attitudes in students in order to obtain the benefits of employing AI tools in their learning.

Sol et al. (2024) conducted a survey with 328 Cambodian EFL university students to explore their experiences, perceptions, and attitudes toward the use of AI in English language education. The findings revealed that the majority of the students experienced using AI tools comprising Grammarly, QuillBot, Google Translate, and ChatGPT for their English language learning. It had been further shown that about 70% of them had never received any training on how

to utilize AI for their learning, leaving almost half of them (44.51%) feeling only moderately ready to utilize AI for their learning. The respondents reported various challenges of utilizing AI tools, including their concerns about data privacy and security when interacting with AI. The study recommended choosing AI tools that could easily be customized to meet the different needs of both teachers and students. [Sok et al. \(2025\)](#) conducted an online survey with 315 high school students to examine their attitudes toward using AI-powered tools in Cambodian education. Findings revealed that students had generally favorable attitudes toward using AI-powered tools in education, particularly pertaining to the use of AI to aid in completing their schoolwork. Nevertheless, the study reported various concerns about data privacy and security issues, the risk of becoming over-dependent on AI, and limited originality about students' work. The study concluded the significance of developing students' AI literacy through training and awareness-raising programs and the importance of formulating comprehensive AI policies to promote the ethical and effective utilization of AI-powered tools in high school settings.

Despite these advantages offered by AI tools, research has increasingly reported a number of concerns regarding students' utilization of AI tools for their EFL learning. These concerns were mainly related to data accuracy, privacy and security, and ethics when students interacted with AI ([Hoeurng et al., 2024](#); [Sol et al., 2024](#)), as well as concerns regarding students' overreliance on AI applications ([Sok et al., 2025](#)) for their EFL learning. Thus, it is crucial to develop students' AI literacy in order to enable them to engage effectively and ethically with AI technologies. When students become AI literate, they are capable of comprehending AI fundamentals, critically evaluating AI tools, and maintaining vigilance against misuse and bias when interacting with AI. However, there appears to be a lack of research examining the AI literacy of Cambodian EFL university students when interacting with AI applications. Existing research undertaken in Cambodia has predominantly emphasized issues related to students' experiences, perceptions, and attitudes toward AI ([Hoeurng et al., 2024](#); [Loeung & Ros, 2024](#); [Sol et al., 2024](#)). As such, there is a pressing need to undertake a study examining Cambodian EFL university students' AI literacy to address the research gap in this area. Such a study would provide meaningful insights into EFL students' AI literacy and would offer implications for policy and practice to foster students' AI literacy and

support their EFL learning, as AI continues to develop and influence their everyday life.

Methodology

This study employed a qualitative approach and used a purposive sampling (Swain, 2018) to obtain a better understanding of the complexity of the research inquiry by examining EFL university students' utilization of AI tools, their perceived AI literacy and confidence, their reasons for using AI tools, their challenges in employing AI tools, and their suggestions for integrating AI tools for their EFL learning. A qualitative approach was chosen to provide an in-depth understanding of the research topic. The goal of the study was to allow the participants to respond in an open way so that it was possible to obtain additional perspectives with regard to their perceptions and experiences about AI-related issues.

The participants in this study were currently enrolled in their English major course at one large public university. There were 137 EFL students who had been invited to answer five open-ended questions conducted through Google Forms. These participants were selected because they had experiences using AI tools for their EFL learning. Prior to contacting the participants for the study, the researcher requested institutional permission from the Head of the English Department of a public university. Consent was obtained through the online Google Forms, as the participants were required to answer whether they approved taking part in completing the open-ended questions prior to proceeding to answering the questions. There were 46 (34%) male and 91 (66%) female EFL students who participated in this study. About 91% of them were aged between 18 and 22 years old, and approximately 9% were aged between 23 and 30 years old. About 27% of them were Year 1, 5% were Year 2, 52% were Year 3, and 16% were Year 4 students. Table 1 shows these EFL students' demographic information.

Table 1. The participants' demographic information

Demographic information	Subcategory Frequency Percentage		
Gender	Male	46	34
	Female	91	66
Age	18-22	124	91
	23-30	13	9

Year level	Year 1	37	27
	Year 2	7	5
	Year 3	71	52
	Year 4	22	16
Level of AI literacy and confidence	High	13	9
	Moderate	71	52
	Low	53	39

The study employed open-ended questions to collect data for answering the research questions. The value of open-ended questions employed in surveys had been associated with the benefits that they could provide in gathering vital information that closed-ended questions could not capture ([Neuert et al., 2021](#)). The utilization of open-ended questions in research had been further considered as more beneficial in terms of understanding reasons for reluctance or refusal, encouraging more truthful responses, providing an opportunity for detailed feedback, and offering quality responses ([Singer & Couper, 2017](#)). There were five open-ended questions being utilized in the current study to collect the data for this research. These questions included the types of AI tools utilized, students' perceptions of their levels of AI literacy and confidence, the main reasons for using AI tools, the challenges and difficulties for utilizing AI tools, and their suggestions for integrating AI tools to support their EFL learning.

All participants were coded using P1 to P137 to identify them. The participants' responses were analyzed using thematic analysis. The thematic analysis was utilized to identify key themes ([Swain, 2018](#)). Initial codes were firstly developed, and these codes were then substantially revised through a close reading of the participants' responses for codes grounded in the data as well as codes that emerged from the data. These codes were eventually consolidated into central themes and categories and then interpreted in detail, reflecting on the current study's research questions. Subsequently, frequently occurring themes in these responses were identified and then ranked in relation to their frequency, an approach that could assist in highlighting and comprehending the participants' perspectives, experiences, challenges, and suggestions regarding the use of AI tools for English language learning.

Findings

AI tool utilization

The participants reported that they utilized a variety of AI tools to support their learning, and they mainly learned about AI tools through social media. Most of them indicated that they employed ChatGPT, Google Translate, Grammarly, and Quillbot for their English learning. Three participants described:

The only AI tools that I use for EFL learning include ChatGPT, Google Translate, Grammarly, and QuillBot, and I learn about these AI tools through social media. (P1)

I use AI applications such as Grammarly, QuillBot, and ChatGPT for my EFL learning, and I discovered these AI applications through social media. (P2)

I have used Google Translate, Grammarly, ChatGPT, and QuillBot for my EFL learning, and I found them through social media. (P3)

Moreover, slightly more than half of the participants reported that they used AI tools such as DeepSeek and Duolingo for their English learning. Two participants stated:

Utilizing DeepSeek and Duolingo are helpful for my EFL learning. (P4)

I use Duolingo and DeepSeek to support my EFL learning. (P5)

Less than half of the participants also stated that they utilized some AI tools such as Copilot, Poe, Perplexity, ProWritingAid, Mondly, Praktika, BAI Chat, Curipod, Baamboozle, Speech-to-Text, HelloTalk, and Canva for their English learning. Two participants highlighted:

The applications that I employ for my EFL learning are Copilot, Poe, Perplexity, ProWriting Aid, Mondly, and Praktika. (P6)

AI tools that I use are BAI Chat, Curipod, Baamboozle, Speech-to-Text, HelloTalk, and Canva, and they are quite helpful for my EFL learning. (P7)

A small proportion of the participants further expressed that they employed AI tools, including Google Bard, Microsoft Bing Chat, ChatPDF, English Language Speech Assistant (ELSA Speak), and Reverso Translation, for their English learning. Two participants commented:

I have used several AI tools such as Google Bard, Microsoft Bing Chat, and ChatPDF for my EFL learning. (P8)

I find ELSA Speak and Reverso Translation helpful for my EFL learning. (P9)

Perceived AI literacy and confidence

The participants perceived their AI literacy and confidence in three distinct levels (see Table 1). A small proportion (9%) of the participants perceived a high level of their AI literacy and confidence. Three participants described:

I would rate my knowledge of using AI applications for EFL learning at a 9 out of 10. I have sufficient knowledge and skills in using various AI tools to enhance my language acquisition, such as personalized learning platforms and interactive chatbots. These applications provide 24 hours out of 7 days of access to resources and foster my engagement through gamification. Additionally, they facilitate speaking and writing practices with instant feedback. However, I recognize that AI technology is continually evolving, leaving room for ongoing learning and adaptation. (P13)

I would rate my knowledge at around 8 out of 10 because I know what AI is and how to use it properly. AI is just a tool to assist users, so I have to think before using the information given. Moreover, not all AI answers are accurate. I can use various AI tools to enhance my EFL learning, like language apps for practice and chatbots for conversation. However, I know there's always more to learn about optimizing these tools for my needs. (P3)

I would rate my confidence in using AI applications for EFL learning at about 8 out of 10. My familiarity with various tools and their user-friendly features boost my confidence, as they provide instant feedback that enhances my learning experience. While I feel capable, I also recognize the need to continuously explore new AI features and tools as

they emerge, which keeps me motivated to improve my knowledge and skills further. (P9)

There were about half of the participants (52%) who expressed that they had a moderate level of AI literacy and confidence. Three participants expressed:

I rate myself a 6 out of 10. While I use basic AI tools like Duolingo and Grammarly, I haven't explored advanced features or specialized EFL-focused AI applications. My understanding is functional but lacks depth in leveraging AI for nuanced language skills like critical thinking or cultural context. (P11)

I would rate my knowledge and skills of using AI tools for EFL learning at about 7 out of 10. I understand how to use some tools and their features, but I still have a lot to learn about getting the most out of them. I want to explore more options and improve my skills further. (P12)

I would rate my confidence a 5 out of 10. I feel comfortable using AI tools for basic tasks like checking grammar, translating texts, or generating ideas. However, I'm still learning how to use them effectively for improving my speaking skills and academic writing skills. With more practice, I believe my confidence will grow. (P10)

There were less than half of the participants (39%) who perceived that they had a low level of AI literacy and confidence. Three participants noted:

I rate my knowledge and skills of using AI applications a 2 out of 10 because I don't have basic knowledge in using AI, and I just input prompts normally. (P14)

I would rate my knowledge and skills a 4 out of 10 because I only know the basic AI tools. I typically only use the ones that help me correct my grammar or find out more information about certain topics rather than anything else. (P16)

I would rate my confidence a 3 out of 10 because I only started using the AI tools, and compared to other students, they are already a step ahead of me. (P15)

Reasons for using AI tools

The majority of the participants reported that they utilized AI tools for their educational needs. They used AI applications for brainstorming ideas; finding articles to read; and supporting their EFL learning, including grammar, vocabulary, speaking, listening, and writing. They also used AI to help them with their academic tasks like citing sources and plagiarism, doing their assessment tasks, understanding lessons, personalizing and self-learning, and reducing workload and stress/academic pressure. Four participants described:

I employ AI tools for brainstorming the ideas of some specific topics, supporting my academic tasks like citing sources or checking plagiarism, and for finding out some articles to read and the articles to include as in-text citations to support my written assignments. I mainly use AI tools for educational needs and for lessening my stress and academic pressure. AI applications help me practice vocabulary, grammar, speaking, listening, reading, and writing skills more effectively and efficiently. (P5)

Sometimes what I receive from the books and teachers is limited and not to mention that it can be hard to understand, as neither source provides some examples and contexts on certain issues. AI tools assist me in terms of providing me with different examples in the context of the lessons, and they broaden my views and give better, clearer pictures. (P3)

I use AI applications for EFL learning primarily due to their personalized learning experiences, which adapt to my individual needs and progress. They provide instant feedback, allowing for immediate corrections that enhance my skills. The convenience of 24-hours accessibility out of 7 days enables me to learn at my own pace, while interactive features and gamification keep me engaged. Additionally, these tools offer a variety of resources and affordable options, making them an effective choice for language acquisition. (P2)

I think AI tools can reduce a lot of workloads. Before, when I wanted to find something, I had to read a lot on Google to get the information that I needed. And when I didn't understand something, it was hard to ask someone. But with AI tools, I can just type what I want to know, and they will provide all the answers. (P16)

Some participants also commented that they employed AI tools for their non-educational needs. These non-educational needs comprised their personal needs and interests, convenience, safe space, urgency, and cost effectiveness. Four participants stated:

The reason why I use AI tools is because of my personal needs. I use them to give me ideas when doing something. My personal interest in technology also motivates me to explore how AI can enhance my language skills. (P17)

AI can also be a place to let out my thoughts when I feel like sharing with other classmates is useless, as they don't put their effort into replying as fast as AI does. AI is also a safe space where I can ask random and personal questions about my life without being judged but also give advice as well. (P19)

I only use these AI tools in a situation of urgency when the academic tasks are so close to the deadline; otherwise, I won't use them. (P20)

Using AI tools is cost-effective compared to hiring tutors to teach me the English language at home. AI tools are convenient because they make my learning easier and faster, especially with their feedback. These benefits make AI a valuable tool for my learning journey. (P13)

Challenges and difficulties in using AI tools

The participants reported that they experienced various challenges and difficulties in utilizing AI applications for their EFL learning. These challenges and difficulties included issues regarding data accuracy, privacy, and security; technological issues and limited skills; AI dependency; lack of human interaction; lack of academic skills/knowledge; difficulties in writing prompts; limited use; lack of critical thinking skills; as well as cheating and plagiarism in their written assignments. Four participants described:

One challenge that I face when using AI applications for EFL learning is my concerns about the accuracy and reliability of information provided. Some information is incorrect or outdated, which requires me to have the ability to analyze the answers provided by AI tools and compare them to other reliable sources to avoid confusion and prevent them from affecting my learning. Additionally, I lack the technological skills needed to maximize the features of certain tools, which can hinder my learning. (P2)

When using AI applications, I face several challenges. One challenge is that the answers I get from AI tools are pretty much the same from one website to another website. Sometimes, I use AI tools for more detailed ideas or for different ideas, but it turns out the answers from ChatGPT and Ask AI, for example, are the same things—no different answers/ideas. Another challenge is that I really worry about the fact that I don't trust myself anymore. I always think that my answers or what I write are wrong, even when they're not. So, I always check with AI tools, and I feel like I totally depend on them all the time. Other challenges are related to technical difficulties such as app glitches or connectivity issues, which can disrupt my learning process. (P9)

I always worry about how these AI applications make me stop using my prior knowledge and critical thinking skills when I ask them to do some academic tasks. I can lose the ability to think critically and actually do the tasks without using AI applications and get the same results as using them. I also have a concern that I will face consequences in taking exams if I use AI applications all the time, and I can fail to obtain the necessary skills from my university degree. (P20)

My main concern about using AI applications is related to cheating and plagiarism in my written assignments. Moreover, there is the usage of the AI tools and the possibility of them using my information to access my privacy data, such as my bank account or some personal data. Because there are no guarantees of strong privacy at all with most of these AI tools. Furthermore, while AI tools help me with my EFL learning, they cannot fully replace real conversations between native speakers/instructors and me. (P11)

Suggestions for integrating AI tools into EFL learning

The participants provided various suggestions in relation to integrating AI applications in their EFL learning. These suggestions were related to awareness raising, learning support, strategies to address AI overreliance, policies to support the use of AI tools, reliable AI applications, risk mitigation and responsibility, ethics, and AI training. Four participants highlighted their suggestions as follows:

Even though it can be time-consuming, you should not allow AI tools to have full access to your photos or big data; you should always put them

in restrict mode. Be aware of data privacy and connect with online communities to share tips and experiences. These simple strategies can help you get the most out of AI tools while tackling any challenges. I also highly encourage that universities provide necessary trainings to their students on the use of AI applications, such as awareness, challenges, and ethical usage for academic purposes, but at the same time facilitate their usage to a minimum to not hinder their learning and development as EFL learners. (P17)

Try getting some ideas from AI tools to assist your EFL learning only. Only use them to help you with the ideas that you're stuck with, or ideas that you can't think of. Do not follow or copy and paste everything from them. Always remember that no AI tool is better than your own brain. Moreover, you should use AI tools when you really need them, and you have to choose reliable AI apps for your EFL learning. You also should use AI applications with your own responsibility and at your own risks. (P3)

I suggest considering AI tools as your teacher rather than a smart classmate who you can copy from anytime. Based on my experience, I mainly used AI tools for mock tests/quizzes, the majority of the time in an MCQ format. By doing so, I can learn from my mistakes and improve the areas of the tests/quizzes that I am not familiar with. (P2)

My recommendation is not to rely on AI applications too much because they can make you addicted to them. You can stop studying hard, thinking that you don't need to because AI applications can help you. Also, you can lose the ability to think for yourself or struggle to come up with ideas without relying on AI applications. Moreover, I think creating certain types of rules for students on how to use AI tools responsibly so that no one falls into the ground of overly relying on them. Furthermore, I suggest using AI tools wisely by selecting interesting ideas, but don't copy everything or cheat. (P7)

Discussion

Overall, the Cambodian EFL students reported that they employed a variety of AI tools to support their EFL learning, and they learned about AI tools mainly through social media. The majority of them stated that they utilized ChatGPT, Google Translate, Grammarly, and Quillbot in their daily lives. Slightly more than half of them also commented that they employed DeepSeek and Duolingo

to support their English learning. Less than half of them further reported that they used Copilot, Poe, Perplexity, ProWritingAid, Mondly, Praktika, BAI Chat, Curipod, Baamboozle, Speech-to-Text, HelloTalk, and Canva to assist their English learning. However, only a small number of them reported that they utilized Google Bard, Microsoft Bing Chat, ChatPDF, ELSA Speak, and Reverso Translation to support their English learning. These findings were in alignment with [Sol et al.'s \(2024\)](#) study showing that most Cambodian EFL university students experienced using AI tools, such as ChatGPT, Google Translate, Grammarly, and QuillBot for their English language learning and with [Kelly et al.'s \(2023\)](#) study that Australian university students learned about AI tools through social media.

The students in this study perceived their AI literacy in three different levels. About half of them indicated that they had a moderate level of AI literacy and confidence, whereas a small proportion of them perceived their AI literacy and confidence to be at a high level. Less than half of them expressed that they had a low level of AI literacy and confidence. These findings indicated a mixed level of AI literacy and confidence possessed by these EFL students. They were contrary to [Kelly et al.'s \(2023\)](#) study showing that the Australian university students had low knowledge, experience, and confidence with using AI applications. The different findings between the current study and [Kelly et al.'s \(2023\)](#) study may have been due to the fact that [Kelly et al.'s \(2023\)](#) study was conducted when AI tools such as ChatGPT were recently introduced in late 2022 and early 2023, with the majority of the students having only heard about these AI tools but not having gotten an opportunity to engage with these AI tools yet. Thus, it was understandable why most Australian university students were not familiar with AI tools at the time and indicated a low level of AI literacy and confidence.

With respect to the utilization of AI tools, Cambodian EFL students reported that they mainly employed AI tools for their educational and non-educational needs. For educational needs, they used AI tools for brainstorming ideas, finding articles to read, and supporting their English learning, such as grammar, vocabulary, speaking, listening, and writing. They also used AI to help them with their academic tasks like citing sources and plagiarism, doing their assessment tasks, understanding lessons, personalizing and self-learning, and reducing workload and stress or academic pressure. Concerning non-

educational needs, they mainly employed AI tools for their personal needs and interests, convenience, safe space, urgency, and cost effectiveness. These results were aligned with previous research ([Ghafouri, 2024](#); [Hoeurng et al., 2024](#); [Huang et al., 2023](#); [Ifelebuegu et al., 2023](#); [Pokrivcakova, 2019](#); [Sol et al., 2024](#)) showing that AI applications were employed to assist student learning, such as creating personalized learning resources and adaptive tutoring.

In relation to the challenges in using AI, Cambodian EFL students highlighted that they encountered a number of difficulties when using AI applications for their EFL learning. These challenges included issues with respect to data accuracy, privacy and security, technological issues and skills, dependency, lack of human interaction, lack of academic skills/knowledge, difficulties in writing prompts, limited use, lack of critical thinking skills, and cheating and plagiarism. These results supported [Sol et al.'s \(2024\)](#) and [Hoeurng et al.'s \(2024\)](#) findings showing that Cambodian students experienced various challenges related to data accuracy, privacy and security, and ethics when interacting with AI. These results also supported [Ghafouri's \(2024\)](#) findings that Iranian EFL students expressed their concerns regarding the overreliance on AI applications.

With regard to the suggestions for integrating AI tools, Cambodian EFL students participating in this study recommended various aspects for considerations. These recommendations included awareness raising, learning support, the need to tackle AI overreliance, policies for supporting the use of AI tools, reliable AI apps, risks and responsibilities associated with AI use, ethics, and AI literacy training. These results were consistent with previous research ([Hoeurng et al., 2024](#); [Kelly et al., 2023](#); [Sol et al., 2024](#)), which showed that Cambodian university students lacked formal training in utilizing AI applications for supporting their learning. Therefore, there is a pressing need to provide students with AI training to assist them in developing their AI knowledge and skills for utilizing and interacting with AI tools productively and ethically for personal and study-related purposes.

Conclusion

This study has shown that Cambodian EFL university students utilized a number of AI tools to support their EFL learning, and they learned about AI tools mainly through social media. The AI tools commonly used by these students included ChatGPT, Google Translate, Grammarly, and Quillbot.

Moreover, the study found that the students perceived their AI literacy and confidence at a mixed level. AI tools were used for both educational and non-educational needs. However, the students encountered various challenges and difficulties when using AI. These challenges included issues with respect to data accuracy, privacy and security, technological issues and skills, AI dependency, lack of human interaction, lack of academic skills/knowledge, difficulties in writing prompts, limited use, lack of critical thinking skills, and potential issues with cheating and plagiarism. They recommended some suggestions, including awareness of AI limitations and bias, employing AI for supporting learning rather than AI overreliance, policy for using AI tools, purchasing reliable AI apps, taking own risks and responsibility when using AI, and providing training to develop their AI literacy.

The findings of this study have implications for university students to develop their AI literacy. It is important for students to possess adequate AI knowledge and skills due to the fact that they have to immerse themselves in educational contexts and work settings that increasingly rely on AI technologies (Chiu, 2025; Kassorla et al., 2024). Thus, there is a pressing need to help students develop AI knowledge and skills to utilize and interact with AI technologies productively, effectively, and ethically for various purposes. One way to help students to develop their AI literacy is to embed AI literacy within university courses. In such courses, instructors should explicitly discuss with their students how to effectively and ethically use AI.

It is also crucial for the instructors to create particular guidelines and discuss in detail with their students how and why those guidelines should be utilized and what they mean in the assessment tasks, such as projects/assignments in their particular courses. Engaging students in discussions about AI implementation can offer valuable insights into their needs and concerns as well as assist them in using AI tools to enhance their learning experiences (Kassorla et al., 2024). To ensure equity in AI use, instructors should provide their students with permission to employ AI applications in their courses and offer them necessary guidance and resources about how to utilize AI effectively. In doing so, instructors should embed AI within their pedagogical instruction and assessments like project-based tasks that promote students' personal reflection, problem-solving, and metacognitive skills. Instructors should also integrate project/assignment tasks that allow students to employ AI technologies to

generate and evaluate potential topics as well as offer some good examples of how to ask AI applications to help them complete their assessment tasks appropriately and ethically (Kassorla et al., 2024). Another way to facilitate students' AI literacy development is to integrate AI literacy into existing university curricula. Having effective AI integration into the curricula can ensure the responsible and ethical utilization of AI applications for teaching, assessment, and learning, resulting in the acquisition of in-depth knowledge, skills, and understandings of AI technologies (Chiu, 2025; Kassorla et al., 2024).

Furthermore, students should be provided with formal AI training regularly as opposed to just a few times off in order to ensure that they keep developing their AI literacy and are capable of adapting advancements in AI technologies. Research has shown that training is often ad hoc, inconsistent in delivery, and not monitored for effectiveness which cannot provide the participants the fundamental knowledge and skills (Tao et al., 2018). Thus, ongoing training can support institutional vision and commitments to achieve academic excellence in teaching and learning. AI literacy training should comprise essential knowledge and skills of AI concepts, responsible integration of AI applications in learning, and critical evaluation of AI limitations and biases. Such training should further focus on transparent and appropriate utilization of AI technologies to enhance, rather than not replace academic learning while developing students' fundamental knowledge and skills for thriving in an increasingly AI-integrated world (Kassorla et al., 2024). As Kassorla et al. (2024) suggest, there is a need to have an alignment between the AI knowledge and skills specified in the educational AI course curriculum and the roles and responsibilities of students and instructors to foster AI literacy development in order to mitigate risks and maximize the potential offered by AI technologies through an increasing AI-integrated learning and teaching landscape worldwide. It is also vital for universities to establish policies for responsible and ethical AI utilization in addition to developing formal AI training programs, integrating AI literacy into existing curricula, and regularly evaluating these AI literacy initiatives (Sok & Heng, 2024). Additionally, universities should invest in digital infrastructure and technical support for AI-enhanced instruction, assessment, and learning. Universities should consider purchasing licenses for several AI tools like ChatGPT and Grammarly to motivate and engage students' AI use for learning. Universities should also ensure users' data privacy, transparency, and fairness. Through the successful

implementation of these AI policies and AI literacy initiatives, universities can lead in AI integration in education, preparing their students and instructors to thrive in an AI-driven world ([Kassorla et al., 2024](#)).

The present study had limitations due to the use of a purposive sampling technique and the selection of the students from a single university; therefore, its results cannot be generalized and should be interpreted with caution. Future studies should consider employing random sampling, include a more representative sample, and examine other students' AI literacy given the fact that these new AI technologies have just emerged and they are still in their infancy, requiring further development. Studies utilizing a mixed-methods approach can be worth considering to obtain more in-depth and comprehensive insights by developing and/or adapting a standardized AI literacy test to measure students' AI literacy in higher education contexts. Furthermore, future research should examine the AI literacy and self-efficacy of instructors in integrating AI technologies in their instruction, as well as their institutions' resources and infrastructure to support AI integration in teaching and learning. Such studies will shed further insights into AI literacy and will offer implications for policy and practice for advancing AI technologies in education in Cambodia.

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