Arab World English Journal
INTERNATIONAL PEER REVIEWED JOURNAL ISSN: 2229-9327

Arab World English Journal (AWEJ) Special Issue on CALL Vol. 17, No.12. July 2026 Pp.305-327
DOI: https://dx.doi.org/10.24093/awej/call12.18

Integrating Artificial Intelligence into EFL Vocabulary Instruction: An Analysis of Teacher Perspectives and Ethical Concerns in Saudi Arabia

Ahmed Alhassani
English Language Department,
King Abdullah Air Defense College, Saudi Arabia
Email: alhassani2002@gmail.com

Received: 03/31/2026 Accepted: 06/10/2026 Published:07/15/2026

Abstract

This study investigated Saudi English language teachers' use of artificial intelligence tools in vocabulary instruction, focusing on their perceived pedagogical benefits, challenges, and ethical implications. Its main aim was to examine teachers' adoption patterns, attitudes, classroom practices, and ethical awareness in public schools in Saudi Arabia. The study is significant because vocabulary knowledge is central to language proficiency, while responsible artificial intelligence integration is becoming increasingly important in English as Foreign Language classrooms. A mixed-methods research design was used with 70 English language teachers teaching in public schools in Saudi Arabia. Quantitative data were collected through a questionnaire adapted from Alharbi and Khalil (2023), and qualitative data were gathered through researcher-developed open-ended questions. The findings showed that 77.1% of teachers used artificial intelligence tools, especially for lesson preparation rather than live classroom instruction. The results also identified a statistically significant gender difference only in live classroom instruction, with female teachers deploying it during class sessions significantly more frequently than male teachers. In addition, teachers reported that these tools saved preparation time, enriched classroom interaction, supported personalization, and provided varied resources. However, they also identified concerns about over-reliance, inaccurate content, reduced critical thinking, data privacy, and limited formal ethical training. The study recommends structured professional development, clear institutional guidelines, and stronger ethical preparation to support effective, accurate, and responsible use of artificial intelligence in vocabulary teaching.

Keywords: artificial intelligence tools, English as a Foreign Language Saudi students, English language teaching, second language vocabulary, vocabulary instruction

Cite as: Alhassani, A. (2026). Integrating Artificial Intelligence into EFL Vocabulary Instruction: An Analysis of Teacher Perspectives and Ethical Concerns in Saudi Arabia. *Arab World English Journal (AWEJ) Special Issue on CALL 17.* (12)305-327. https://dx.doi.org/10.24093/awej/call12.18

Introduction

Artificial Intelligence (AI) has become an important part of contemporary language education because it can support adaptive learning, automated feedback, content generation, and classroom interaction. In English Language Teaching, this development is especially relevant to vocabulary instruction, since vocabulary knowledge is a foundation for reading, writing, listening, speaking, and overall communicative competence. Holmes et al. (2019), Huang et al. (2021), and Sumakul et al. (2022) indicate that artificial intelligence tools can create more flexible and personalized learning environments. However, Aljabr and Al-Ahdal (2024) caution that these tools also raise pedagogical and ethical concerns related to accuracy, over-reliance, academic integrity, and responsible classroom use.

In Saudi Arabia, the integration of AI into English as a Foreign Language instruction has become increasingly important, as teachers are expected to address learners' linguistic needs while adapting to rapid technological change. Previous research, including Alharbi and Khalil (2023), and Jomaa et al. (2024, 2025), has shown growing interest in the use of AI for English vocabulary learning in Saudi and regional contexts. Nevertheless, there remains a need for clearer evidence on how public school English language teachers in Saudi Arabia actually use these tools, how they evaluate their usefulness, and how they address ethical issues when applying them in vocabulary instruction.

The main aim of this study is to investigate Saudi English language teachers' perspectives on the use of AI tools for vocabulary instruction in public schools. The study is significant because it contributes to applied linguistics and EFL research by connecting teachers' classroom practices with broader questions about technological adoption, pedagogical effectiveness, and ethical awareness. It also offers practical insights for policymakers, teacher educators, and school leaders who seek to support responsible and effective AI integration in language classrooms.

More specifically, the study has four research objectives. First, it seeks to identify the AI tools most commonly used by Saudi English language teachers in vocabulary instruction. Second, it examines teachers' perspectives on the pedagogical value of these tools. Third, it explores the challenges teachers encounter when integrating AI into their teaching practices. Fourth, it investigates the extent to which teachers address academic integrity and data privacy when using AI tools with students.

Based on these objectives, the study addresses the following research questions:

1. What are the most commonly used AI tools among Saudi English language teachers for teaching vocabulary?

2. What are English language teachers' perspectives regarding the integration of AI tools in vocabulary teaching?

3. What challenges do English language teachers encounter when implementing AI tools in their teaching practice?

4. To what extent do English language teachers address the challenges of academic integrity and data privacy related to the use of AI tools in their classrooms?

Literature Review

The Role of AI in Language Vocabulary Instruction

Vocabulary knowledge is a fundamental component of second and foreign language proficiency, as it underpins comprehension, communication, and academic achievement. In EFL contexts, vocabulary instruction is therefore not limited to memorizing word meanings; rather, it involves developing learners' ability to recognize, understand, pronounce, and use lexical items accurately in meaningful contexts. Nation (1990, 2001) emphasizes the movement from receptive vocabulary knowledge to productive use, while Kiliç (2019) and Alsahafi (2023) show that vocabulary depth and breadth are closely connected to learners' wider language achievement.

AI tools have expanded the possibilities for vocabulary instruction by offering adaptive practice, automated feedback, conversational interaction, translation support, and individualized learning pathways. Earlier research by Holmes et al. (2019), Kessler (2018), Hao et al. (2021), Kim and Kim (2022), and Saddhono et al. (2024) established that technology-mediated language learning can support learner engagement and vocabulary development. More recent evidence has strengthened this claim. Li et al. (2025), in a systematic review of 37 studies on chatbot-supported language learning, found that AI chatbots can support several language-learning outcomes when their use is embedded in appropriate rules, tools, teacher roles, and learning communities. Their review also recommends stronger instructional design models for teacher–AI collaboration, which is directly relevant to vocabulary instruction because lexical development depends on repeated, contextualized, and guided practice.

Recent empirical work from Saudi Arabia also shows that AI tools can support language learning beyond general classroom engagement. In a classroom-based study involving 71 Saudi undergraduate learners, Abdelhalim and Alsehibany (2025) integrated ChatGPT and SpeechAce into English as a Foreign Language pronunciation instruction. The findings revealed significant improvements in segmental pronunciation accuracy and increases in several aspects of second language motivation, particularly when learners received real-time feedback and personalized practice. Although the focus was pronunciation, the study is relevant to vocabulary teaching because pronunciation, word stress, lexical recognition, and productive word use are interconnected dimensions of vocabulary mastery.

AI -powered translation and generative tools are especially relevant in Saudi EFL contexts because learners frequently use them to understand lexical meaning, translate sentences, and check Usage (Daud et al., 2025). Mubarak (2026), in a study of 120 Saudi university students and eight instructors, reported that AI translation applications such as Google Translate and ChatGPT supported vocabulary retention, comprehension, and pronunciation accuracy. However, the same study warned that these tools may also encourage dependency, weaken communicative competence, and increase over-reliance on machine-generated output. This finding is important because it confirms that vocabulary learning through AI requires pedagogical guidance rather than unrestricted tool use.

Teacher Perspectives on AI Integration: Benefits and Challenges

Teachers' perceptions are a decisive factor in whether AI tools are used meaningfully in language classrooms. Educational technology does not improve instruction automatically; its value depends on teachers' knowledge, confidence, pedagogical judgment, and ability to evaluate tool outputs. Almegren et al. (2025), in a qualitative study, found that AI is reshaping English language teaching by positioning instructors as evolving facilitators, blended-role practitioners, flexible material designers, and creative prompters. This recent evidence suggests that teacher roles are not disappearing; instead, they are being reconfigured around the ability to select, adapt, monitor, and ethically guide AI -supported learning.

Recent teacher-attitude research also shows that positive perceptions coexist with caution. Cennetkusu (2026), in a mixed-methods study of English as a Foreign Language teachers in Türkiye, found generally positive attitudes toward AI across demographic and institutional groups. Nevertheless, the qualitative findings revealed concerns about over-reliance, ethical responsibility, teacher agency, and students' critical engagement. This pattern is consistent with Saudi and regional studies, including Al-Othman (2024), which report optimism about AI alongside concerns about accuracy, privacy, cultural appropriateness, and insufficient institutional support.

Recent studies provide additional regional evidence. In their study of Saudi female EFL learners' perceptions of AI-assisted writing tools, Alyami et al. (2025) found that learners valued prompt responses, grammatical support, and vocabulary-development assistance. At the same time, the authors emphasized the need for curriculum development and teacher training to optimize the pedagogical benefits of AI. Alhamam (2025) also investigated Saudi college students' interactions with ChatGPT and found that students used the tool mainly for writing assistance, brainstorming, and translation. However, the study identified limited AI literacy, weak institutional support, concerns about over-reliance, and insufficient critical reflection on AI-generated feedback. Together, these studies indicate that student use of AI is increasing, but teacher guidance and institutional policy remain necessary for responsible learning.

The Saudi Arabian and Regional Context

In Saudi Arabia, AI integration in English language teaching aligns with broader educational modernization and digital transformation. Studies such as Alharbi and Khalil (2023), Jomaa et al. (2024), and Jomaa et al. (2025) show that Saudi and regional learners and teachers generally recognize the value of AI tools for vocabulary learning, lesson preparation, interaction, and individualized support. These findings are also consistent with regional evidence from Oman, Jordan, and other Arab contexts, where teachers often view AI as useful for engagement and learner autonomy while also expressing concerns about training, infrastructure, cultural relevance, and academic integrity.

Despite this growing interest, the literature shows an important distinction between learner-centered and teacher-centered research. Many recent studies have examined learners' perceptions, writing development, translation practices, pronunciation gains, or general language acquisition.

Fewer studies have focused specifically on in-service public school English language teachers' use of AI for vocabulary instruction. This distinction matters because teachers are responsible for transforming AI from a general technological resource into a pedagogically appropriate classroom tool.

The reviewed literature indicates that AI has clear potential to support EFL vocabulary learning through personalization, feedback, translation, pronunciation support, and interactive practice. It also shows that teachers and learners in Saudi Arabia and comparable contexts are increasingly willing to use these tools. However, four gaps remain. First, recent Saudi studies have focused primarily on university students and on areas such as writing, translation, pronunciation, and general English language learning, rather than on public school teachers' practices in vocabulary instruction. Second, although several studies discuss the benefits of AI, fewer examine how teachers balance these benefits with risks such as inaccurate content, over-reliance, data privacy, and academic integrity. Third, the distinction between using AI for lesson preparation and for live classroom instruction remains underexplored. Fourth, there is limited mixed-methods evidence on how Saudi public school English language teachers perceive, adopt, and ethically manage AI tools specifically for vocabulary instruction. The present study addresses these gaps by examining teachers' adoption patterns, perspectives, challenges, and ethical awareness in the Saudi public school context.

Method

Research Design

A mixed-methods research design was employed in this study. The quantitative component examined English language teachers' attitudes toward the use of AI tools in vocabulary instruction. In contrast, the qualitative component explored their perspectives on AI integration and the challenges they encountered in this process.

Participants

The survey was distributed through Google Forms to English language teachers working in Saudi public schools. A total of 70 teachers completed the questionnaire. The participants varied in age, teaching experience, and academic qualifications, including teachers with bachelor's, master's, and doctoral degrees. Table 1 presents the demographic characteristics of the respondents.

Table 1. *Demographic overview of the respondents*

Variables		Frequency	Percentage
Gender	Male	36	51.4%
	Female	34	48.6%
Age	25 – 35	38	54.3%
	36 – 45	25	35.7%
	+ 46	7	10 %
Qualifications	BA	35	50%

ISSN: 2229-9327

	Master	29	41.4%
	PhD	6	8.6%
Teaching experience	Less than 5 years	28	40%
	5 – 10	18	25.7%
	10+	24	34.3%

Research Instruments

The questionnaire consisted of 18 items: 4 dichotomous yes/no questions, 4 open-ended questions, and 10 Likert-scale items. The items were organized into sections corresponding to the research questions. The first section collected demographic information on gender, age, academic qualification, and teaching experience. The second section examined teachers' general attitudes toward AI tools, their experience with these tools, and their current patterns of use, with particular attention to teacher-centered applications (Holmes & Tuomi, 2022). The third section included open-ended questions on perceived benefits, challenges, and reasons for recommending or not recommending AI tools. The fourth section examined teachers' awareness of ethical issues related to AI use in EFL classrooms. The final section used a five-point Likert scale ranging from 1 (Strongly Disagree) to 5 (Strongly Agree). The closed-ended items were adapted from Alharbi and Khalil (2023). In contrast, the open-ended questions were developed by the researcher and integrated into the online Google Form to enrich the data and explore issues not fully addressed by the closed-ended items. Ethical standards were observed throughout the study. Participants received clear information about the study objectives, their responses were anonymized and stored securely, and they were informed that the data would be used only for academic purposes.

Validation of the Instrument

Following data collection, SPSS version 29 was used to assess the reliability of the research instrument. The internal consistency of the eight-item scale was assessed using Cronbach's alpha, yielding a coefficient of $\alpha = 0.924$. This value indicates good internal consistency and confirms the instrument's reliability. Table 2 presents the reliability statistics for the main study.

Table 2. *Reliability statistics based on the main study*

Reliability Statistics (70)		
Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	Number of Items
0.924	0.926	8

Data Collection and Data Analysis

The data analysis procedures were determined by the nature of the data. Quantitative data from closed-ended questions were analyzed using SPSS version 29. Descriptive statistics, including means, standard deviations, frequencies, and highest and lowest means, were used to examine teachers' attitudes toward AI-supported vocabulary instruction in Saudi public schools. Independent-samples t-tests were conducted to examine the effect of gender on AI use and attitudes. Qualitative data from open-ended questions were analyzed thematically. The responses were manually coded, and related codes were grouped into major themes. Manual techniques, including hand analysis, visual mapping, and mind mapping, are appropriate when the dataset is manageable, and researchers have sufficient time to analyze and internalize emerging ideas

carefully (Creswell, 2012; Jomaa & Bidin, 2017). Theme frequencies were then calculated to support the interpretation of the qualitative findings.

Results

AI tools Usage and the Most Common ones Used by English Teachers

The results revealed a high level of AI adoption among the teachers. A clear majority, 54 out of 70 teachers (77.1%), reported using AI tools in their English classrooms, whereas 16 teachers (22.9%) reported that they did not use such tools. When asked how often they used AI to prepare teaching materials, "Sometimes" was the most common response. For classroom use during live sessions, the frequency was slightly lower, with "Sometimes" and "Often" being the most frequent responses (see Figure 1). These findings suggest that teachers are increasingly adopting AI, although its integration into active classroom practice is still developing.

Regarding the preparation of teaching materials, including lesson plans, worksheets, and vocabulary exercises, the responses indicated moderate-to-frequent use. The largest group, 30 teachers (42.9%), reported using AI tools "Sometimes" for material preparation. This was followed by 18 teachers (25.7%) who used them "Often" and 9 teachers (12.9%) who used them "Always." Less frequent use was reported by 4 teachers (5.7%) who selected "Rarely," 3 teachers (4.3%) who selected "Very Rarely," and 6 teachers (8.6%) who selected "Never." Overall, 81.4% of teachers used AI tools for material preparation at least sometimes, which shows the important role these tools play in the preparatory phase of teaching.

The third question focused on the frequency of AI use during live classroom sessions. The results showed a decline compared with the use of material preparation. The most common response was "Sometimes," selected by 25 teachers (35.7%), followed by "Often," selected by 19 teachers (27.1%). However, 11 teachers (15.7%) reported using material preparation "Rarely" during class, and 9 teachers (12.9%) reported that they "Never" used it during class. Only 3 teachers (4.3%) reported "Always" using material preparation during class, and another 3 (4.3%) selected "Very Rarely." This contrast shows that teachers are more confident using material preparation before class than during real-time instruction. This gap between preparation-phase and classroom-phase usage represents a critical area for professional development, as it suggests that teachers may need additional support, training, or resources to deploy AI tools in real-time instructional contexts confidently.

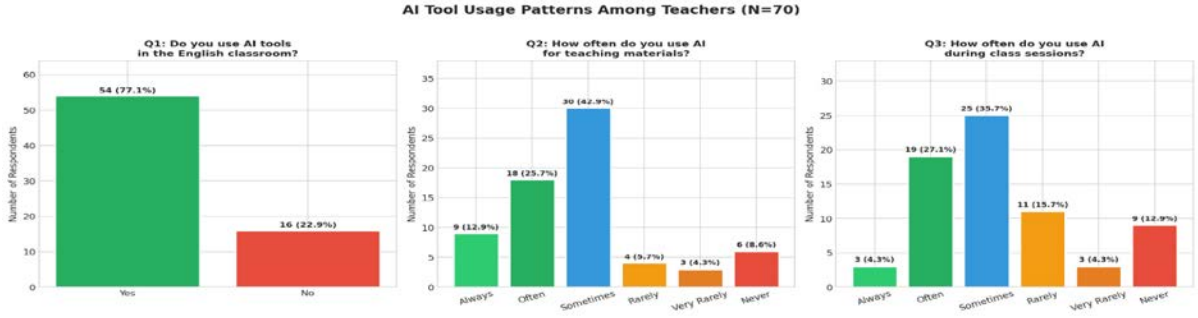


Figure 1. AI tool usage patterns among Saudi Teachers

ISSN: 2229-9327

The survey also identified the most popular AI tools teachers use for vocabulary instruction. ChatGPT was the most widely used tool, cited by 50 teachers (71.4%). The second most popular tool was Google Gemini, used by 33 teachers (47.1%). Taken together, 57 teachers (81.4%) reported using at least one generative AI tool, indicating that large language models have become the backbone of AI -assisted vocabulary instruction.

Beyond generative AI, the data revealed a parallel reliance on interactive and gamified platforms. Kahoot and Canva were each cited by 20 teachers (28.6%), while Quizlet was cited by 12 teachers (17.1%) and Duolingo by 11 teachers (15.7%). Collectively, 30 teachers (42.9%) reported using at least one gamified or interactive tool. Google Translate was used by 19 teachers (27.1%), underscoring the continued importance of translation-based tools in multilingual teaching contexts. In contrast, Grammarly (21.4%) reflected teachers' concern for accuracy and language correctness in vocabulary use. Less commonly cited tools included Copilot (7.1%), ElevenLabs (4.3%), QuillBot (2.9%), Poe (1.4%), and Memrise (1.4%). Five teachers (7.1%) explicitly stated that they did not use any AI tools, a response consistent with the 16 teachers who answered "No" to the question about using AI tools in their English classes.

Qualitative Part: Perspectives of English Teachers on Using AI to Teach Vocabulary.

Perceived Benefits of AI Tools

Teachers were asked to identify the greatest benefits of using AI tools for vocabulary instruction. Thematic analysis of the open-ended responses yielded six key themes, which are summarized in Table 3. On average, each teacher identified 1.9 benefits, indicating that most respondents recognized more than one advantage. This finding suggests a nuanced and multidimensional appreciation of AI's role in vocabulary instruction. The most frequently cited benefit, mentioned by a significant majority of teachers, was the time saved in lesson preparation and grading. This was followed by enhanced classroom interaction and the provision of diverse, up-to-date educational resources.

Table 3. *Perceived benefits of artificial intelligence tools*

Theme	Frequency (n)	Percentage (%)
Saves time in lesson preparation and grading	58	82.9%
Enhances classroom interaction	38	54.3%
Provides diverse and up-to-date educational resources	37	52.9%
Personalizes learning for each student	34	48.6%
Improves assessment and analysis of student performance	32	45.7%
Allows focus on creative and human aspects of teaching	24	34.3%

This strong recognition of time efficiency as the primary advantage reflects teachers' need for tools that reduce the administrative burden of lesson planning, material creation, and assessment. These tasks often consume a considerable portion of teachers' working time. The second most cited benefit was enhanced classroom interaction. This finding is noteworthy because

it indicates that teachers perceive AI not merely as a behind-the-scenes planning tool but also as a classroom resource that can foster more dynamic and participatory learning environments.

The analysis further enriches this picture: 33 teachers mentioned both time-saving and enhanced interaction, 30 mentioned both time-saving and personalization, and 23 mentioned all three benefits simultaneously. This pattern indicates that many teachers view AI as a broad pedagogical resource that can support several dimensions of instructional quality, rather than as a tool limited to one specific function.

Perceived Disadvantages and Challenges of AI Tools

In a related question, teachers were asked to identify the greatest disadvantages or challenges of using AI. The analysis revealed eight distinct themes of concern, with teachers identifying an average of 3.36 disadvantages each. As shown in Table 4, the most pressing concern was over-reliance on AI could weaken teachers' pedagogical skills. This was followed by the risk of AI providing inaccurate or misleading information, and the conviction that AI can never fully replace the human element in teaching.

Table 4. *Perceived disadvantages and challenges of artificial intelligence tools*

Theme	Frequency (n)	Percentage (%)
Over-reliance weakens teacher skills	50	71.4%
Risk of inaccurate or misleading information	35	50.0%
Difficulty in adapting to AI (lack of technical expertise)	26	37.1%
Reduces critical and creative thinking	24	34.3%
Loss of human and emotional connection	22	31.4%
Privacy and security of student data	20	28.6%
High financial cost of some tools	15	21.4%
Absence of cultural and social context	15	21.4%

The most common drawback reported by respondents was that over-reliance on AI could reduce teachers' professional skills. This concern suggests that many teachers worry that AI may weaken core pedagogical abilities, such as explaining concepts spontaneously, adjusting instruction to students' immediate needs, and using professional expertise to guide learning. The second major concern was the risk of inaccurate or misleading information. Unlike the first concern, which centers on teachers' skills, this issue relates primarily to the reliability of AI-generated materials. It is particularly important in vocabulary instruction, where accuracy, contextual relevance, and appropriate word use are essential. Further analysis showed that 24 teachers mentioned both over-reliance and inaccuracy, suggesting that these concerns are closely connected: the more teachers depend on AI without critical evaluation, the greater the risk of using inaccurate content.

On average, each teacher identified 3.36 disadvantages. The distribution showed that 38.6% of teachers mentioned one or two drawbacks, 35.7% mentioned three or four, and 25.7% reported five or more. This pattern suggests that some teachers perceive AI as presenting a limited set of

challenges. In contrast, others hold a broader and more critical view of its pedagogical, technical, and ethical implications.

Motivations for Using AI Tools

Finally, teachers were asked to specify their reasons for using AI. They provided an average of three reasons each, and some mentioned as many as six, indicating reflective engagement with the question. The responses were categorized into student-centered and teacher-centered motivations. As shown in Table 5, the most frequently cited student-centered motivation was increasing student motivation. Among teacher-centered reasons, the most common was the usefulness of AI for developing teaching materials.

Table 5. *Motivation for using AI tools*

Theme	Category	Frequency (n)	Percentage (%)
Students become more motivated	Student-Centered	37	52.9%
Developing teaching materials	Teacher-Centered	34	48.6%
Lesson planning	Teacher-Centered	30	42.9%
Increased student engagement	Student-Centered	29	41.4%
Instant feedback for students	Student-Centered	28	40.0%
Students focus better	Student-Centered	19	27.1%
Develops student creativity	Student-Centered	16	22.9%
Personalized learning for each student	Student-Centered	15	21.4%

The most frequently mentioned student-centered reason was that students become more motivated. This finding indicates that introducing AI tools into vocabulary lessons may positively affect motivation, which is an important factor in successful language learning. The second student-centered reason was increased student engagement. This result reinforces the motivation finding because AI tools may not only generate initial interest but also support continued involvement in learning. A third perceived benefit was AI's ability to provide instant feedback to students. This response shows teachers' awareness of AI's ability to provide rapid, personalized feedback, which can accelerate the feedback cycle in vocabulary learning. In traditional classrooms, this cycle is often limited by class size and the time available for individual feedback.

Teacher-centered reasons included "developing teaching materials" and "lesson planning," which are the first and second most referenced teacher-centered reasons. Both references substantiate the findings related to the benefits of teachers using AI tools identified in question five. In particular, the references confirm that a major factor driving the implementation of AI tools is their practical value in reducing teachers' workload associated with developing materials and lesson planning.

Notably, 6 teachers (8.6%) indicated that they do not believe students benefit from AI tools. Although these views were relatively limited in number, they warrant consideration because they may reflect legitimate pedagogical concerns or negative experiences with AI in a classroom setting and could inform additional training and support options for teachers.

The Quantitative Part: English Teachers' Perspectives on Using AI Tools in Teaching Vocabulary

The fifth part of the questionnaire comprised eight Likert-scale statements designed to measure teachers' perceptions, attitudes, and self-reported behaviors regarding the use of AI tools in English vocabulary instruction. Teachers rated each statement on a five-point scale ranging from 1 (Strongly Disagree) to 5 (Strongly Agree). The grand mean across all eight statements was 3.79 (SD range: 0.89–1.19), and the average agreement rate (Strongly Agree + Agree) was 66.6%, suggesting that the sample as a whole holds a moderately positive to positive orientation toward AI tools. Appendix A presents the full percentage distribution for each item, together with the corresponding descriptive statistics, including means and standard deviations.

Overall, the results indicate a predominantly positive disposition, with mean scores for six of the eight items falling above the neutral point of 3.00. The highest level of agreement was observed for Item 3, which asserted that AI offers benefits over traditional methods (e.g., faster pace, personalization), achieving the highest mean score (M = 4.14, SD = 0.98) and the highest cumulative agreement rate (82.9%). This was closely followed by Item 1, which indicated that AI is useful for teaching vocabulary (M = 4.10, SD = 0.89), with 80.0% of respondents expressing agreement. Together, these findings suggest a strong consensus among teachers that AI tools provide a distinct pedagogical advantage in this domain.

Conversely, the most significant reservations concerned content reliability and practical challenges. Item 6, concerning trust in AI-generated vocabulary content, received the lowest mean score (M = 3.27, SD = 1.19) and was the most contested statement in the dataset. It was the only item where agreement (42.9%) did not constitute a majority, and it received the highest rates of both disagreement (27.1%) and neutrality (30.0%). This indicates a substantial trust deficit regarding the accuracy and quality of AI-generated lexical content. Similarly, Item 4, which posited a lack of challenges in using AI, received the second-lowest mean score (M = 3.51, SD = 1.16) and a high proportion of neutral (30.0%) and disagreeing (15.7%) responses, confirming that a significant number of teachers encounter practical difficulties in implementation. These results highlight a key tension; although teachers recognize the utility and effectiveness of AI, their confidence appears to be weakened by concerns about content trustworthiness and practical usability.

The Effect of Gender on Using AI Tools

Appendix B presents the effect of gender on the use of AI tools to teach English vocabulary to EFL Saudi students. As presented in Appendix B, the majority of questionnaire items yielded high mean scores, except for Items 6, 4, and 7. This pattern is broadly consistent with the main findings reported in Table 5. Notwithstanding this general consistency, a marginal difference between male and female respondents was observed regarding Item 8, "I would recommend AI-based vocabulary teaching tools to fellow educators," whereby male teachers recorded a comparatively higher mean (M = 4.02) than their female counterparts, who yielded a moderate

mean (M = 3.76). This disparity may suggest that female teachers had relatively less prior exposure to, or experience with, AI-based tools. As a result, they may benefit from more targeted training and professional development than male teachers to build the confidence and technical competencies needed for effective classroom implementation. Nevertheless, the overall analysis indicates that gender was not a statistically significant factor in teachers' use of AI tools for English vocabulary instruction.

To examine the potential effect of gender on teachers' use of AI tools and their perceptions of these tools, independent-samples *t*-tests were conducted. The sample comprised 36 male teachers and 34 female teachers (N = 70). The analysis included two sets of variables: the first three questions in Part 2 of the questionnaire, which assessed actual AI use, and the eight Likert-scale items in Part 5, which measured teachers' attitudes and perceptions. Levene's test for equality of variances was performed before each *t*-test to verify the assumption of homogeneity of variance and determine the appropriate test statistic. Cohen's d was also calculated to estimate the practical magnitude of observed differences.

Regarding the first question, which pertained to whether teachers use AI tools in the English classroom (coded as Yes = 1, No = 0), the results of the independent-samples *t*-test revealed no statistically significant difference between male and female teachers, $t(68) = -0.434$, $p = .666$, Cohen's $d = -0.104$. Male teachers reported a mean of 0.750 (SD = 0.439), corresponding to a usage rate of 75.0%, while female teachers reported a slightly higher mean of 0.794 (SD = 0.410), corresponding to a usage rate of 79.4%. The negligible effect size (d = -0.104) corroborates that the observed difference between the two groups is of no practical significance.

With respect to the second question, which assessed the frequency of using AI tools for the preparation of teaching materials, the independent-samples *t*-test indicated no statistically significant difference between male and female teachers, $t(68) = -1.652$, $p = .103$, Cohen's d = -0.395. This finding suggests that gender does not significantly influence the extent to which teachers use AI tools for instructional planning and resource development.

As for the third question, which measured the frequency of using AI tools during actual class sessions, the independent-samples *t*-test revealed a statistically significant difference between male and female teachers, $t(68) = -2.190$, $p = .032$, Cohen's $d = -0.524$. Female teachers reported a significantly higher mean frequency of AI use during class (M = 3.088, SD = 1.288) compared to their male counterparts (M = 2.389, SD = 1.379). The calculated effect size (d = -0.524) indicates a medium effect, suggesting that the observed difference is not only statistically significant but also practically meaningful.

Regarding the Likert-scale item, the analysis revealed no statistically significant gender-based differences for any of the eight Likert-scale statements (all $p > .05$). Although male teachers exhibited slightly higher mean scores across all items (overall M = 3.878 vs. 3.699 for females), these minor variations did not reach the threshold for statistical significance. This finding indicates that although a statistically significant difference was observed in the frequency of in-class AI use,

male and female teachers in this sample did not differ significantly in their underlying attitudes and perceptions toward AI tools.

Ethical concerns of Using AI to Teach.

In addition, the questionnaire included questions examining the extent to which teachers address the ethical dimensions of AI use with their students, as shown in Figure 2.

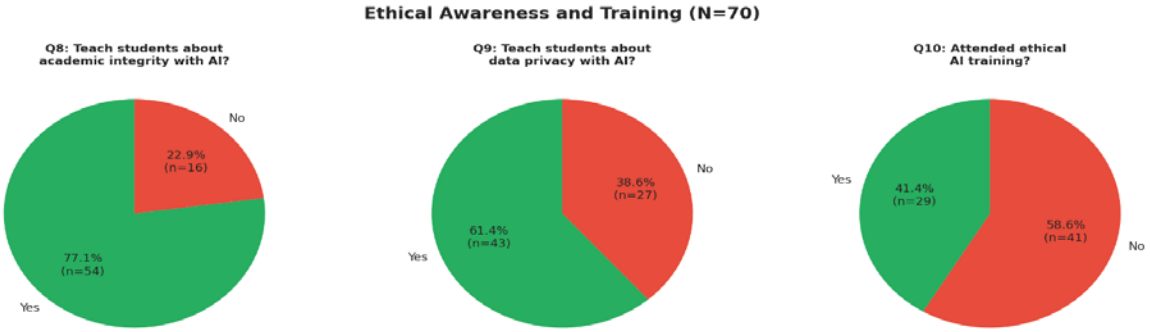


Figure 2. Ethical awareness among Saudi EFL teachers

To investigate teachers' engagement with the ethical dimensions of AI, the survey included three yes/no questions concerning academic integrity, data privacy, and formal training. The results, including cross-tabulations, are summarized in Figure 2 and Table 6.

Table 6. *Teachers' engagement with ethical dimensions of AI*

Q8 & Q9	Frequency (n)	Percentage (%)
Both	40	57.1%
Integrity Only	14	20.0%
Privacy Only	3	4.3%
Neither	13	18.6%
Q8, Q9 & Q10		
Yes	21	30.0%
No	12	17.1%

The results indicate a clear hierarchy of teacher engagement with ethical issues. A large majority of teachers reported addressing academic integrity (77.1%), while a smaller majority discussed data privacy (61.4%). However, 58.6% reported receiving no formal training on these ethical issues. Cross-tabulation showed that 57.1% addressed both integrity and privacy, whereas 18.6% addressed neither. When all three questions were considered together, only 30.0% of the sample could be considered fully prepared from an ethical standpoint, meaning that they had received training and actively addressed both concepts. In contrast, 17.1% reported no engagement with any of the three ethical dimensions. These findings indicate an urgent need for educational institutions to provide comprehensive ethical AI training that equips teachers with both practical knowledge and the ethical literacy needed to guide students responsibly.

Discussion

This study examined Saudi English language teachers' use of AI tools for vocabulary instruction, their perceptions of these tools, the challenges they encounter, and their engagement with ethical issues. The following discussion is organized around the four research questions to ensure that the interpretation of the findings remains closely aligned with the aims of the study. Across the four questions, the results show a pattern of cautious but active adoption. Teachers recognize the pedagogical value of AI, but they also remain aware of its technical, ethical, and pedagogical limitations.

Research Question 1: What are the most commonly used AI tools among Saudi English language teachers for teaching vocabulary?

The first research question asked which AI tools teachers most commonly use for vocabulary instruction. The findings show that generative AI tools are the dominant category. ChatGPT was the most frequently reported tool, used by 50 teachers (71.4%), followed by Google Gemini, used by 33 teachers (47.1%). In total, 81.4% of the participants reported using at least one generative AI tool. This finding suggests that large language models have become central to vocabulary-related lesson preparation, as they can quickly generate word lists, contextualized examples, short texts, explanations, and classroom activities (Daud et al., 2025).

The findings also show that teachers do not rely exclusively on generative platforms. They use interactive and gamified tools such as Kahoot, Canva, Quizlet, and Duolingo, as well as language-support tools such as Google Translate and Grammarly. This combination suggests that teachers treat AI as a flexible pedagogical toolkit rather than a single application. The use of at least one such tool by 30 teachers indicates pedagogical awareness that vocabulary acquisition benefits not only from content generation but also from active student engagement. For instance, platforms like Quizlet and Duolingo utilize gamification and adaptive testing to maximize lexical exposure and practice through interactive affordances (Saddhono et al., 2024). The finding is consistent with Alharbi and Khalil (2023), who reported positive attitudes toward AI-supported vocabulary learning, and with Jomaa et al. (2024, 2025), who found that teachers and learners in regional EFL contexts use AI for vocabulary support, translation, and classroom tasks. The present study extends these findings by showing that Saudi public school teachers use AI more frequently for lesson preparation than for live classroom delivery. This distinction is important because it suggests that adoption has begun, but real-time pedagogical integration remains less developed.

Finally, the use of less common tools, such as Copilot, ElevenLabs, QuillBot, Poe, and Memrise, suggests that some teachers are exploring specialized platforms to support tasks such as text-to-speech production, paraphrasing, and spaced-repetition learning. On average, each teacher reported using 2.8 tools (range = 1–7), indicating considerable variation in the breadth of technological engagement across the sample. This diversity reveals that teachers are not treating AI as a monolithic solution. Instead, they are curating personalized pedagogical toolkits that reflect their individual teaching philosophies, classroom needs, and levels of digital fluency.

Research Question 2: What are English language teachers' perspectives regarding the integration of AI tools in vocabulary teaching?

The findings indicate a high level of AI adoption and positive attitudes, with a clear majority of teachers (77.1%) reporting use of these tools in their English classrooms. This high adoption rate is consistent with the broader global trend of increasing technology integration in education (Alharbi & Khalil, 2023; Jomaa et al., 2025). The near four-to-one ratio of users to non-users suggests that the perceived utility of AI is sufficiently compelling to drive widespread uptake, even in the absence of formal institutional mandates or structured training programs. However, the minority of non-users (22.9%) should not be dismissed, as they may face barriers such as limited access to technology, insufficient digital literacy, or pedagogical skepticism. This aligns with existing research indicating that educator uncertainty and resistance often stem from the challenges of integrating technology into instructional practice (Jomaa, 2025).

A key finding emerges regarding the frequency and context of AI use. While a substantial majority of teachers (81.4%) use AI tools for preparing materials such as lesson plans, worksheets, and vocabulary exercises, there is a notable decline in the integration of these tools during live teaching sessions. This pattern suggests that teachers are more comfortable using AI as a preparatory resource than as a real-time instructional aid. This discrepancy may be attributable to several factors, including the logistical challenges of in-class technology integration, concerns about student distraction, or a pedagogical preference for human-led instruction. The data further reveals that even among active AI users, in-class application is inconsistent; for instance, nearly 17% of these users report using AI "Rarely" or "Never" during class time. This gap between preparation-phase and classroom usage highlights a critical need for professional development. It suggests that while teachers are enthusiastic about AI, their confidence and technical proficiency vary, and they require targeted support to effectively deploy these tools in live instructional contexts (Alshehri, 2025).

Quantitative results indicated a positive overall orientation, with a grand mean of 3.79 and an average agreement rate of 66.6%. Teachers particularly agreed that AI tools are effective and beneficial for vocabulary instruction. They also perceived these tools as offering advantages over traditional methods, particularly in terms of faster lesson preparation, personalization, and more varied instructional materials. Qualitative findings supported this pattern: the most frequently identified benefit was saving time in lesson preparation and grading (82.9%), followed by enhancing classroom interaction (54.3%), providing diverse and updated educational resources (52.9%), and personalizing learning (48.6%).

These findings are relevant to previous research in two ways. First, they confirm studies that describe AI as a tool for increasing efficiency, engagement, and individualized support in language learning. For example, Li et al. (2025) found that chatbot-supported language learning can contribute to various learning outcomes when implemented within a clear instructional framework and supported by teacher guidance. Similarly, Abdelhalim and Alsehibany (2025) found that AI-supported feedback and personalized practice improved aspects of pronunciation learning and

motivation among Saudi learners. Although their study focused on pronunciation, its emphasis on feedback and personalization is closely related to vocabulary learning, especially when learners need repeated exposure, accurate pronunciation, and contextualized use of words. Second, the present findings are consistent with recent studies conducted in the Saudi EFL context. For example, Alyami et al. (2025) found that Saudi learners valued AI tools for supporting grammar, writing, and vocabulary development. Similarly, Alhamam (2025) reported that Saudi college students used ChatGPT for writing, brainstorming, and translation purposes. The current study adds to the teacher perspective and demonstrates that teachers also value these tools, particularly when they reduce workload and support classroom interaction.

At the same time, teachers' positive perspectives were not uncritical. The lowest mean score concerned trust in AI-generated vocabulary, words, or phrases (M = 3.27). This finding suggests that teachers may recognize the usefulness of AI while remaining cautious about the reliability of its outputs. This pattern is consistent with Cennetkusu (2026), who found that EFL teachers generally held positive attitudes toward AI but expressed concerns about ethical responsibility, over-reliance, and teacher agency. Therefore, the present findings suggest that teachers' positive attitudes should be understood as professionally mediated acceptance rather than unconditional enthusiasm.

Research Question 3: What challenges do English language teachers encounter when implementing AI tools in their teaching practice?

The third research question focused on implementation challenges. The findings show that teachers identify multiple types of difficulty. The most frequently reported concern was that over-reliance on AI may weaken teachers' pedagogical skills (71.4%). The second major concern was inaccurate or misleading information (50.0%), followed by difficulty adapting to AI because of limited technical expertise (37.1%), reduced critical and creative thinking (34.3%), loss of human and emotional connection (31.4%), privacy and security concerns (28.6%), financial cost (21.4%), and lack of cultural or social context (21.4%). The fact that teachers identified an average of 3.36 disadvantages suggests a high level of critical awareness.

These challenges closely correspond to previous findings. Al-Othman (2024) reported that Saudi teachers were concerned about the ethical and pedagogical implications of AI in EFL classrooms. Aljabr and Al-Ahdal (2024) similarly emphasized the need for ethical safeguards and teacher preparation. Mubarak (2026) found that AI translation applications may support vocabulary retention and comprehension, but they may also increase dependency and weaken communicative competence if used without pedagogical discipline. Alhamam (2025) also reported that learners may use ChatGPT without sufficient critical reflection or revision of feedback. The present study confirms these concerns from the perspective of public school teachers. It shows that the main challenge is not simply whether teachers use AI, but whether they can evaluate, adapt, and control its use for vocabulary learning.

The findings also clarify why in-class use remains lower than preparation-stage use. Teachers appear more comfortable using AI outside the classroom, where they can review, edit, and adapt generated materials before presenting them to students. In contrast, live classroom use requires stronger technical confidence, classroom management, and immediate decision-making. This supports Alshehri's (2025) argument that professional development in Saudi English language teaching should move beyond general technology awareness and focus on practical classroom integration. Therefore, the challenge is not only access to tools, but also the development of pedagogical judgment, digital literacy, and institutional support.

Moreover, the fact that only 8.6% of respondents stated that they do not believe students benefit from AI tools further reinforces this interpretation. Taken together, the findings from these questions suggest that the teaching community has developed a mature, balanced, and critically informed relationship with AI tools, one in which adoption is neither uncritical nor reluctant but rather guided by a pragmatic assessment of how these tools can best serve the educational needs of students while remaining mindful of their inherent limitations and potential harms.

Research Question 4: To what extent do English language teachers address the challenges of academic integrity and data privacy related to the use of AI intelligence tools in their classrooms?

The fourth research question examined ethical awareness. The findings show that teachers address academic integrity more frequently than data privacy. A large majority of participants (77.1%) reported discussing academic integrity with students, while 61.4% reported discussing data privacy. However, 58.6% of teachers indicated that they had not received formal training in the ethical use of AI. Cross-tabulation further showed that 57.1% addressed both academic integrity and privacy, whereas 18.6% addressed neither. Only 30.0% of the sample could be considered fully prepared, as they had received training and actively addressed both academic integrity and data privacy.

These results show a clear gap between classroom responsibility and institutional preparation. Although many teachers appear to be guiding students on the ethical use of AI, particularly with regard to academic honesty, many are doing so without formal training. This finding aligns with Al-Othman (2024), who emphasized the need for careful ethical guidance in Saudi EFL classrooms, and with Aljabr and Al-Ahdal (2024), who argued that positive attitudes toward AI should be supported by structured ethical safeguards. The current study extends these findings by showing that academic integrity receives more classroom attention than data privacy. This difference may occur because academic integrity is more visible in classroom assessment, whereas data privacy requires more specialized knowledge about how AI systems collect, store, and process user data.

The ethical findings also relate to the broader discussion of teacher agency. Teachers cannot be expected to manage issues of academic integrity, privacy, bias, and responsible AI use through personal judgment alone. As Almegren et al. (2025) argued, instructors' roles are being

transformed in AI-powered English language teaching. The present study supports this view by showing that teachers are becoming evaluators, curators, and ethical mediators of AI-generated content. However, this expanded role requires institutional support, clear policies, and professional development. Without such support, ethical AI use may remain inconsistent across classrooms.

Additional Finding: Gender and AI Use

Although gender was not one of the four main research questions, it provided an additional quantitative insight. The findings showed no statistically significant gender differences in overall attitudes toward AI tools. However, female teachers reported significantly more frequent use of AI during live classroom sessions than male teachers. This result contrasts with earlier research on gender and technology attitudes, such as Cai et al. (2017), who found that males generally held more favorable attitudes toward technology use than females. Instead, it is more consistent with recent evidence suggesting that gender gaps in educational technology use are narrowing (OECD, 2015). In the context of this study, the result suggests that training and institutional support should target all teachers rather than assuming that one gender group is less prepared or less willing to use AI.

Overall Interpretation

Overall, the findings answer the research questions by showing that Saudi English language teachers are already using a wide range of AI tools for vocabulary instruction, especially generative tools, and that they view these tools as useful for saving time, improving interaction, personalizing instruction, and providing varied resources. However, the findings also indicate that teachers' adoption of AI remains cautious, as they continue to express concerns about over-reliance, inaccurate content, reduced critical thinking, privacy, and insufficient training. Compared with previous studies, the present study confirms the growing acceptance of AI in EFL education. However, it extends the literature by focusing specifically on Saudi public school teachers, vocabulary instruction, the distinction between lesson preparation and in-class use, and the uneven attention given to academic integrity and data privacy. The central implication is that AI should be integrated into vocabulary teaching through guided, ethical, and teacher-mediated practice rather than through unsupervised technological adoption.

Conclusion

This study examined Saudi public school English language teachers' use of AI tools in vocabulary instruction, focusing on adoption patterns, perceived benefits and challenges, and ethical awareness. The findings show that AI has become a visible component of vocabulary instruction, with most teachers reporting some level of use. However, teachers used AI more often for lesson preparation than for live classroom instruction, suggesting that classroom-level integration is still developing. Overall, teachers viewed AI positively, particularly for saving preparation time, supporting classroom interaction, providing varied resources, and enabling more personalized vocabulary learning. At the same time, they expressed concerns about over-reliance,

inaccurate content, reduced critical thinking, privacy, and limited technical expertise. The findings also revealed no statistically significant gender differences in teachers' overall attitudes toward AI, although female teachers reported more frequent in-class use than male teachers. In addition, the study identified an important ethical gap. More than half of the teachers had not received formal training on ethical AI use. These findings suggest that effective AI integration in vocabulary instruction requires structured professional development, clear institutional guidelines, and stronger support for teachers' ethical and pedagogical decision-making.

Based on these findings, educational policymakers should develop and implement mandatory training programs that prepare teachers to use AI responsibly and effectively. Such programs should address key ethical issues, including academic integrity, data privacy, algorithmic bias, cultural sensitivity, and the careful evaluation and adaptation of AI-generated content. Professional development should also move beyond basic technical training and focus on practical strategies for classroom-based integration. In addition, institutions should work to reduce the digital divide by ensuring equitable access to AI technologies and the infrastructure needed for their effective use.

Despite its contributions, this study is limited by its relatively small sample size (n = 70), which restricts the generalizability of the findings to the wider population of English language teachers in Saudi Arabia. Future research should therefore involve larger and more diverse samples, examine the effects of AI-based instruction on other linguistic abilities, and use longitudinal designs to explore how teachers' perceptions evolve over time. Further empirical studies are also needed to determine whether the positive outcomes perceived by teachers correspond to measurable improvements in students' vocabulary development and overall language achievement.

Funding: This research received no external funding.
Acknowledgments: Not applicable.
Conflicts of Interest: The author declares no conflict of interest.
Authenticity: This manuscript is an original work.
Artificial Intelligence Statement: In the course of preparing this work, the author utilized ChatGPT of OpenAI and Grammarly to check the grammatical corrections and to enhance readability and language quality. The author edited the content as needed and took full responsibility for the publication's content. No AI tools were used to generate original ideas, research findings, or analytical content.

About the Author

Dr. Ahmed Alhassani is an assistant professor at the English Language Department, King Abdullah Air Defense College. He earned his Ph.D. in Applied Linguistics and Second Language Acquisition from Dublin city University. His Master's was in Applied Linguistics and Teaching English to Speakers of Other Languages from the University of Liverpool, Uk. (2013). His

research interests include Corpus linguistics, second-language acquisition and EFL teaching and learning. ORCID ID: https://orcid.org/0009-0006-4769-8030

References

Abdelhalim, S. M., & Alsehibany, R. A. (2025). Integrating AI-powered tools in EFL pronunciation instruction: Effects on accuracy and L2 motivation. Computer-Assisted Language Learning. https://doi.org/10.1080/09588221.2025.2534015

Al-Othman, A. A. M. (2024). Using artificial intelligence in English as a foreign language classroom: Ethical concerns and future prospects. *Arab World English Journal Special Issue on CALL*, *10*, 85–104. https://doi.org/10.24093/awej/call10.7

Alhamam, A. A. (2025). Investigating the role of AI tool interactions in enhancing English language acquisition among Saudi college students. *Arab World English Journal*, *16*(3), 426–440. https://doi.org/10.24093/awej/vol16no3.26

Alharbi, K., & Khalil, L. (2023). Artificial intelligence (AI) in ESL vocabulary learning: An exploratory study on students' and teachers' perspectives. *Migration Letters*, *20*(S12), 1030–1045.

Aljabr, F. S., & Al-Ahdal, A. A. M. H. (2024). Ethical and pedagogical implications of AI in language education: An empirical study at Ha'il University. *Acta Psychologica*, *251*, Article 104605. https://doi.org/10.1016/j.actpsy.2024.104605

Almegren, A., Almegren, R. M., Hazaea, A. N., Mahdi, H. S., & Mohammed Ali, J. K. (2025). AI powered ELT: Instructors' transformative roles and opportunities. *PLOS ONE*, *20*(5), Article e0324910. https://doi.org/10.1371/journal.pone.0324910

Alsahafi, M. (2023). The relationship between depth of academic English vocabulary knowledge and academic success of second language university students. *SAGE Open*, *13*(1), 1–9. https://doi.org/10.1177/21582440231153342

Alshehri, M. (2025). Experiences and perceptions of Saudi EFL teachers on professional development in technology integration into teaching. *Saudi Journal of Language Studies*, *5*(1), 17–33. https://doi.org/10.1108/SJLS-09-2024-0058

Alyami, A., Alotaibi, S., & Khan, W. (2025). Saudi EFL learners' perceptions of using artificial intelligence and its impact on their writing skills. *Arab World English Journal*, *16*(1), 349–365. https://doi.org/10.24093/awej/vol16no1.22

Cai, Z., Fan, X., & Du, J. (2017). Gender and attitudes toward technology use: A meta-analysis. *Computers & Education*, *105*, 1–13. https://doi.org/10.1016/j.compedu.2016.11.003

Cennetkusu, N. G. (2026). EFL teachers' attitudes toward artificial intelligence in language teaching: A mixed-methods study in Türkiye. *Social Sciences & Humanities Open*, *13*, Article 102580. https://doi.org/10.1016/j.ssaho.2026.102580

Creswell, J. W. (2012). Educational research: Planning, conducting, and evaluating quantitative and qualitative research (4th ed.). Pearson.

Daud, A., Aulia, A. F., Muryanti, M., & Sari, D. P. (2025). Integrating artificial intelligence into English language teaching: A systematic review. *European Journal of Educational Research*, *14*(2), 677–691. https://doi.org/10.12973/eu-jer.14.2.677

Hao, T., Wang, Z., & Ardasheva, Y. (2021). Technology-assisted vocabulary learning for EFL learners: A meta-analysis. *Journal of Research on Educational Effectiveness*, *14*(3), 645–667. https://doi.org/10.1080/19345747.2021.1917028

Holmes, W., Bialik, M., & Fadel, C. (2019). *Artificial intelligence in education: Opportunities and threats*. IGI Global.

Holmes, W., & Tuomi, I. (2022). State of the art and practice in AI in education. *European Journal of Education*, *57*(4), 542–570. https://doi.org/10.1111/ejed.12533

Huang, X., Zou, D., Cheng, G., & Xie, H. (2021). *The impact of artificial intelligence on learner–instructor interaction in online learning*. IGI Global.

Jomaa, N., Attamimi, R., & Al Mahri, M. (2024). Utilising artificial intelligence (AI) in vocabulary learning by EFL Omani students: The effect of age, gender, and level of study. *Forum for Linguistic Studies*, *6*(5), 171–186. https://doi.org/10.30564/fls.v6i5.6968

Jomaa, N., Attamimi, R., & Al Mahri, M. (2025). The use of artificial intelligence (AI) in teaching English vocabulary in Oman: Perspectives, teaching practices, and challenges. *World Journal of English Language*, *15*(3), 1–13. https://doi.org/10.5430/wjel.v15n3p1

Jomaa, N. J., & Bidin, S. J. (2017). Perspectives of EFL doctoral students on challenges of citations in academic writing. *Malaysian Journal of Learning and Instruction*, *14*(2), 177–209. https://doi.org/10.32890/mjli2017.14.2.7

Jomaa, N. J. (Ed.). (2025). *Using AI tools in text analysis, simplification, classification, and synthesis*. IGI Global. https://doi.org/10.4018/979-8-3693-9511-0

Kessler, G. (2018). Technology and the future of language teaching. *Foreign Language Annals*, *51*(1), 205–218. https://doi.org/10.1111/flan.12318

Kiliç, M. (2019). Vocabulary knowledge as a predictor of performance in writing and speaking: A case of Turkish EFL learners. *PASAA*, *57*(1), 133–164.

Kim, N. J., & Kim, M. K. (2022). Teacher's perceptions of using an artificial intelligence-based educational tool for scientific writing. *Frontiers in Education*, *7*, Article 755914. https://doi.org/10.3389/feduc.2022.755914

Li, Y., Zhou, X., Yin, H., & Chiu, T. K. F. (2025). Design language learning with artificial intelligence (AI) chatbots based on activity theory from a systematic review. *Smart Learning Environments*, *12*, Article 24. https://doi.org/10.1186/s40561-025-00379-0

Mubarak, R. (2026). AI-powered translation apps and their impact on English language learning in Saudi Arabia. *Arab World English Journal*, *Special Issue on Artificial Intelligence*, 3, 346–360. https://doi.org/10.24093/awej/AI3.22

Nation, I. S. P. (1990). Teaching and learning vocabulary. Heinle & Heinle.

Nation, I. S. P. (2001). Learning vocabulary in another language. Cambridge University Press.

OECD. (2015). *Students, computers and learning: Making the connection*. OECD Publishing. https://doi.org/10.1787/9789264239555-en

Saddhono, K., Suhita, R., Istanti, W., & Rakhmawati, A. (2024, November 22). AI-powered language learning: Enhancing literacy in the digital age [Paper presentation]. *2024 4th International Conference on Advancement in Electronics & Communication Engineering (AECE)*, *Ghaziabad*, India. https://doi.org/10.1109/AECE62803.2024.10911149

Sumakul, D. T. Y. G., Hamied, F. A., & Sukyadi, D. (2022). Students' perceptions of the use of AI in a writing class. In 67th TEFLIN International Virtual Conference & the 9th ICOELT 2021 (TEFLIN ICOELT 2021). Atlantis Press. https://doi.org/10.2991/assehr.k.220201.009

Appendices

Appendix A.

Teachers' attitudes toward using artificial intelligence tools in teaching English vocabulary.

No	Items	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Mean	Std. D.
1	''Using AI for vocabulary teaching is effective and beneficial for my students.''	2.9%	0.0%	17.1%	44.3 %	35.7%	4.10	0.89
2	''I am completely comfortable with using AI-based tools or apps for vocabulary teaching.''	2.9%	10.0%	11.4%	47.1 %	28.6%	3.89	1.03
3	''I believe the advantages of using AI for vocabulary teaching over the traditional method are faster teaching pace, more personalized teaching methods, etc.''	4.3%	1.4%	11.4%	41.4 %	41.4%	4.14	0.98
4	''I have not encountered any challenges or difficulties when using AI for vocabulary.''	8.6%	7.1%	30.0%	32.9 %	21.4%	3.51	1.16
5	''Compared to traditional vocabulary teaching methods, I consider AI-based vocabulary teaching more effective.''	2.9%	7.1%	18.6%	38.6 %	32.9%	3.91	1.03
6	''I completely trust the vocabulary, words, or phrases recommended by	7.1%	20.0%	30.0%	24.3 %	18.6%	3.27	1.19

	AI tools for teaching.''							
7	''I often use AI tools or applications for vocabulary teaching.''	5.7%	2.9%	34.3%	40.0 %	17.1%	3.60	1.00
8	''I would recommend AI-based vocabulary teaching tools to fellow educators.''	4.3%	1.4%	25.7%	37.1 %	31.4%	3.90	1.01

Appendix B.

Gender-based differences in artificial intelligence use for English vocabulary instruction.

No	Gender	N	Mean	SD	t	f	p-value	Cohen's d	Sig.
1	Male	36	4.13	1.018	0.375	68	0.709	0.090	No
	Female	34	4.05	0.736					
2	Male	36	3.91	1.156	0.257	68	0.798	0.061	No
	Female	34	3.85	0.892					
3	Male	36	4.19	1.091	0.450	68	0.654	0.108	No
	Female	34	4.08	0.866					
4	Male	36	3.66	1.146	1.129	68	0.263	0.270	No
	Female	34	3.35	1.178					
5	Male	36	4.00	1.095	0.712	68	0.479	0.170	No
	Female	34	3.82	0.968					
6	Male	36	3.44	1.182	1.256	68	0.213	0.300	No
	Female	34	3.08	1.190					
7	Male	36	3.63	1.073	0.333	68	0.740	0.080	No
	Female	34	3.55	0.927					
8	Male	36	4.02	1.028	1.091	68	0.279	0.261	No
	Female	34	3.76	0.987					