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USING ARTIFICIAL INTELLIGENCE IN TEACHING ENGLISH

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Abstract
This study investigates the potential of using Artificial Intelligence (AI) technologies to improve vocabulary acquisition in English, focusing on the use of Mobile-Assisted Vocabulary Learning (MAVL), and media-rich content, educational games, and Augmented Reality (AR). The objective of the study is to determine the extent these digital innovations contribute to enhancing vocabulary retention, learner motivation, and teacher effectiveness in the field of English Language Teaching and Learning (ELT/L). A mixed-methods approach was employed, using either quantitative or qualitative analyses. For the quantitative, data were captured via a structured questionnaire shared with 30 English language teachers, exploring their use, perceptions, and attitudes toward AI tools in vocabulary instruction. For the qualitative, open-ended responses, along with thematic analysis, provided snapshots of experiences, possibilities, and obstacles implementing AI in work/classrooms. The study indicates notable differences between genders in the application of AI tools and AI-supported vocabulary study: male teachers reported higher levels of involvement. Furthermore, teaching experience was identified as a factor impacting use and feelings of confidence in using AI. More so, MAVL had a strong positive influence on students' vocabulary retention ($R^2 = 0.544$), while AR had a positive influence on vocabulary understanding ($R^2 = 0.465$) and vocabulary retention ($R^2 = 0.428$). Teachers held positive beliefs about AI, AR and game-based learning but reported barriers such as lower digital literacy skills, ethical dilemmas, and lack of institutional support. The study proposes the use of explicit professional development, increased opportunities to learn digital literacy, and development of an ethical framework to promote incorporation of AI in language study.

Keywords: Artificial Intelligence (AI), Mobile-Assisted Vocabulary Learning (MAVL), Augmented Reality (AR), English Language Teaching (ELT).

1. Introduction

In the past decade, technology has transformed education, changing the way that traditional teaching and learning are performed. Due to the growing integration of digital resources, such as online learning platforms and mobile applications, global education is becoming more accessible and effective (Castro, 2019). stated that these developments have made it possible for educators to provide individualized learning experiences by customizing lessons to the needs and learning preferences of each student (Kharchenko et al., 2024).

In addition, W. Ali (2020) added that technology has also made remote learning easier, increasing the flexibility and accessibility of education for a broader range of students. Owing to this, digital tools are now an essential component of today's educational environment, providing creative means of involving students and fostering their academic growth. The education sector, among others, is experiencing a significant shift due to the emergence of artificial intelligence (AI), as maintained by Gruetzemacher and Whittlestone (2022).

One of the most significant benefits of AI is its ability to personalize learning experiences (Maghsudi et al., 2021). M. Ali et al. (2024) explained that by using AI-driven platforms, educators may design learning paths to deliver feedback and provide resources tailored to each student's strengths and limitations (Tapalova & Zhiyenbayeva, 2022). Thus, this degree of customization guarantees that students get the support they require while allowing them to learn at their own pace (Uzun, 2023). Additionally, AIdriven tools can handle routine administrative duties, such as grading and attendance tracking, giving teach.

Artificial Intelligence (AI) has become a game-changer in language learning, especially in improving the teaching and learning of English (Schmidt & Strasser, 2022). As English maintains its status as the global lingua franca, mastering it has become vital in this globalized world since it opens up opportunities in education, business, and international communication. However, Alhazmi, K. (2023) traditional language teaching methods often need to improve in addressing the diverse needs of students. These methods may need help catering to students' varying proficiency levels, accommodating different learning preferences, and giving timely, individualized feedback (Van et al., 2021).

For instance, large class sizes and a lack of resources can make it difficult for educators to tailor instruction that meets students' specific needs, resulting in a one-size-fits-all approach that may only effectively support some learners (Bondie et al., 2019). Therefore, AI-powered tools offer innovative solutions by providing personalized learning experiences that adapt to individual proficiency levels and learning paces. According to Macias Loor et al. (2024), integrating AI into English language education causes the process to be enriched and innovative.

Duolingo and Babbel, for example, leverage AI algorithms to deliver personalized and interactive learning experiences that accommodate each student's pace and learning style (Kessler et al., 2023). For speaking practice, Alharthi (2024) stated that virtual assistants like Siri, Google's Read Along, and Alexa offer interactive dialogues and pronunciation assistance, which makes the practice more dynamic and attractive (Tai & Chen, 2024). To improve writing skills, Sánchez Calderón and da Cunha Fanego (2023) added that AI-powered feedback systems like Grammarly and Hemingway Editor can analyze writing and provide necessary feedback on grammar and vocabulary.

Meanwhile, translation tools like DeepL and Google Translate facilitate cross-language understanding and communication (Polakova & Klimova, 2023). These applications demonstrate how AI transforms English language teaching into something more interactive, personalized, and effective. While AI offers significant potential for enhancing English language learning, its integration is not without faults. One main issue is the digital divide, which causes education inequalities. This issue is because access to AI technologies may be limited for students in underdeveloped or isolated places (Salas-Pilco et al., 2022).

Ease of access to AI assistance is another concern. Ihekweazu et al. (2023) argued that it is easy for students to misuse AI to cheat on tests or assignments, which undermines academic integrity. In addition, the reliability and accuracy of AI-driven feedback can be problematic. De Cremer and Narayanan (2023) claim that students can quickly become overly dependent on AI tools for writing and language tasks, reducing their own learning and critical thinking skills. Also, Zaghlool and Khasawneh (2023) added that tools like Grammarly often have trouble comprehending cultural context and idioms, which are essential for effective communication. Notably, effective integration of AI tools requires adequate teacher training and support to ensure they are used correctly and to their full potential, which, unfortunately, is still lacking in many educational institutions, according to several studies (Hartono et al., 2023; Jose & Jose, 2024; Simbolon, 2024; Sumakul et al., 2022; Van Den Berg, 2024). Therefore, although AI can improve learning, it cannot replace human educators' unique and crucial role. Although many studies have explored the potential of AI in English language learning (Sharadgah & Sa'di, 2022), there is still a gap in understanding how this technology can be used effectively in various learning contexts. The lack of systematic analysis of previous research trends makes it difficult to identify key challenges and best strategies for implementing AI in the language classroom.

2. Research problem

research identified various gaps in need of further investigation. Notably, the majority of studies published on AI in ELT/L were from Asia (72.09%). This should be of interest not only to researchers in other geographies but also to policy makers and commercial leaders who seek to excel in this field. ELT industry.

This study gained only limited information on the challenges of AI in ELT/L, which did not appear to be as well reported as its affordances. It is posited that this could be due to positive publication bias, which leads researchers to focus more on positive findings Alhazmi, K. (2024). rather than issues and problems. Therefore, further efforts are needed to make explicit the challenges of AI in ELT/L. For the relatively newer types of AI, such as Chat GPT or similar large language models. Another interesting finding is that in writing, 'feedback' was the only pedagogical focus that emerged. What remains to be explored is the whole area of procedural knowledge in writing that AI could potentially assist with. This would be a fruitful area for further research work. Research is also needed to determine the place for AI-powered gaming in educational settings for ELT/L. More research could explore explicit design features of multi-player online games for language learning. Yet another interesting finding for practitioners is how translation tools could help pupils by giving them access to a larger range of lexical items. While such tools clearly aid output, it remains to be seen what happens when the tool is taken away. The question raised is whether this also results in an improvement in pupils' skills independent of these tools. If the debate is to be moved forward, a better understanding of the role of such machine translation tools in ELT/L needs to be developed. Alhazmi, K. (2024).

3. Research Questions

The problem of the study is represented in the following questions:

1. Are there statistically significant differences ($\alpha = 0.05$) in the use of AI tools by English language teachers and students' vocabulary acquisition?
2. What is the statistically significant relationship ($\alpha = 0.05$) between the use of multimedia and educational games and students' motivation to learn English vocabulary?
3. Does mobile-assisted vocabulary learning (MAVL) significantly improve students' vocabulary retention at the level of ($\alpha = 0.05$)?
4. To what extent does the use of augmented reality (AR) significantly enhance students' understanding of new vocabulary meanings at ($\alpha = 0.05$)?
5. What are English language teachers' perceptions of the challenges and opportunities associated with integrating AI, educational games, mobile-assisted learning, and augmented reality in vocabulary teaching?

4. Research objective

The objective of this study is to explore the effectiveness of artificial intelligence (AI) technologies in enhancing English vocabulary acquisition, with a focus on mobile-assisted learning, media-rich content, educational games, and online platforms. Additionally, the study aims to investigate the impact of augmented reality (AR) on vocabulary retention and learner engagement, evaluating how these emerging digital tools support and transform traditional English language teaching methods.

5. Literature review

English is the most widely spoken language in the world. As the global language of communication, English is one of the most used languages for jobs, markets, tourism, discourse, and international connectivity (Lan et al., 2020). It is also the language that is most widely studied.

By some estimates, there are approximately 2 billion English language learners worldwide (Rich, 2021). While English is a highly desirable language to attain, there are a number of obstacles for learners to overcome such as insufficient input/exposure to the target language, limited opportunities for using English inside and outside the classroom, the need to communicate across language and cultural boundaries in English, a lack of skills to control their own learning lack of access to quality teaching, and the fear of making mistakes and being misunderstood. Educators need to seek ways to help learners be successful. Artificial intelligence (AI) is being heralded as a tool to support English language teaching and learning (ELT/L) that can provide new strategies and opportunities to overcome challenges and extend and enhance learning (Baranwal, 2022).

4.1.English language teaching and learning

As academics and practitioners focus efforts on the design and act of teaching and learning English language skills, many acronyms are often attached to various nuances and temporal trends. Computer-assisted language learning (CALL) and mobile-assisted language learning (MALL) focus on the technology used in language learning. English as a second language (ESL), English for speakers of other languages (ESOL) and English as a foreign language (EFL) focus on the learning of English as a language. Other terms such as TESL, TESOL and TEFL are focused on the teaching of English. For this study, the focus is on English as the target language for those whose first language is not English and investigating aspects of both teaching and learning. Alhazmi, K. (2024). As English language teaching and learning (ELT/L) is the term used in other scholarly work (eg, Margana, 2016), it has been selected for use in this study.

Recent developments have seen a rise in AI, with empirical findings (eg, Crompton et al., 2022) revealing a trend towards using AI in language learning and writing skills more frequently than in other disciplines. Technology has been an integral support in ELT/L (Rivera Barreto, 2018). Technology provides teaching and learning resources, motivates pupils (Larsen-Freeman & Anderson, 2011), facilitates learning (Ahmadi, 2018) and provides new methods for learning (Gilakjani, 2017).

4.2.AI and ELT/L

AI is a multifaceted technology with three user categories: (1) learner facing, used by pupils to learn; (2) teacher facing, used by teachers to help in teaching activities, for example, grading; and (3) system facing, which is used by administrative staff to manage and examine pupil data (Pokrivčáková, 2019). Various AI technologies and systems provide affordances in ELT/L when targeting a specific user and objective. AI can mine large amounts of data, operate using natural language (speech, listening and writing) and follow rules and patterns of language.

Mobile devices have long been heralded as the tool for ELT/L with portability, universality, sharing and individuality (Ma, 2021). AI applications now available on those devices amplify ELT/L capabilities with speech synthesis, big data and intelligent systems (Luo & Cheng, 2020). While these AI technologies are far from human, they mimic humanness. Voice assistants offer an untiring chat partner with a human-like voice that can provide a variety of English language accents to choose from (Dizon & Tang, 2020). Amazon Alexa, Apple Siri, Samsung Bixby, Microsoft Cortina and Google Home Assistant are common voice assistants. In addition, intelligent tutors appear across a plethora of programs and can appear to the user as voice over assistance, text prompts and even take on the visual appearance in addition to voice (Vuong et al., 2023).

There are robots created to provide a physical embodiment of an AI. Erica and Sophie are humanoid robots capable of engaging in conversations with human-like expressions and body

language (Sindermann et al., 2021). These qualities provide a more lifelike experience for English learners. In recent years, chatbots were a basic form of AI, as they were limited to answering simple questions through a limited text format. At the end of 2022, chatbot capabilities greatly expanded with AI transformers and large language models offering Microsoft's ChatGPT, Google's Bard, Anthropic's Claude and Apple's AppleGPT. These chatbots provide extensive possibilities for language education, including engaging learners in extensive intelligent conversations and providing writing models of various genera (Bozkurt et al., 2023). While these AI tools show great capabilities for ELT/L, these affordances can only be gained when understanding what tools are available and specifics on how pedagogies/andragogies match those tools to advance ELT/L.

It is also important for all educational stakeholders to recognise the limitations and misuses of AI in ELT/L. This can allow educators to plan accordingly to avoid or ameliorate those issues. Scholars using AI with ELT/L have noted that AI can lack emotion (Annamalai et al., 2023). While AI can appear to be showing emotions, such as text describing feelings and avatars showing facial expressions, AI does not have the capacity to feel emotions and can only mimic text and expressions. This may not always be correct from the data it has. It could also be that the AI program is not advanced enough to mimic accurately. Similar AI challenges to Annamalai were reported by other scholars (eg, Wang et al., 2023) that found that AI was behaving passively and mechanically. While AI has many advanced capabilities, problems with technical issues, such as programs breaking or not functioning correctly, have been reported (eg, Ericsson et al., 2023).

4.3.Extant systematic reviews

Scholars have started to build a base of collective insights into AI in education and ELT/L. Scholars conducted systematic reviews to examine AI across all educational disciplines. Chen et al. focused on the annual trends, leading journals, institutions, countries/regions, theories and technologies adopted in AI and education. Systematic reviews were conducted on K-12 (Crompton et al., 2022) and higher education (Crompton & Burke, 2023; Zawacki-Richter et al., 2019). Both the K-12 and higher education systematic reviews examined topics, such as educational disciplines, levels of learning, research purposes, methodologies, annual trends, intended users, affordances and challenges. While these AI reviews across all subject disciplines, they do not target ELT/L. It is interesting to note that the findings of the two higher education studies both found language learning one of the most common disciplines for AI use and the K-12 study found writing and language learning the only disciplines showing a growing trend in the use of AI.

Using a narrower lens to focus on ELT/L, scholars pinpointed systematic reviews on pedagogical approaches, language skills and AI tools. The reviews of Chen (2016) and Loncar et al. (2023) studied how technology was used in ELT/L, which included AI, among other technologies and programs. Zhang and Zou (2023) focused their study on the development of writing skills using AI in ELT/L. Using activity theory as a framework, papers were examined on the various factors involved in using AI in ELT/L that influence the efficacy of the activity. Switching to a focus on AI tools, Baranwal (2022) examined the use of AI teachable agents in English learning and Crompton and Burke (2024) on ChatGPT.

Broadening the scope, Yang and Kyun (2022) conducted a systematic review of the use of AI in language learning. This study also included pupils whose first language was English and who were learning language skills. This could be problematic in generalising trends across both those who speak English as a first language and those who do not, as gaining a new language can involve different teaching and learning challenges. This review of formal education (K-12 and higher education) across 2007–21 also involved pupils learning different languages beyond English.

Furthermore, Yang and Kyun (2022) also used activity theory as a predetermined framework to examine the studies. This approach leaves fewer opportunities to see what emerges from the literature.

Sharadgah and Sa'di (2022) focused their systematic review on K-12 and higher education, but they focused their review specifically on the learning of English. Again, this review had predefined codes that the researchers connected the data to. To better identify the affordances and challenges of AI in ELT/L, a more inductive, grounded approach is needed to see what emerges from the research findings. Although the study by Sharadgah and Sa'di incorporates data up until 2021, it is important to note the rapid advancements in AI over the past year. These developments have led to the integration of large language models, such as ChatGPT, within generative AI tools, and have also resulted in enhanced backend systems. Consequently, these technological strides offer new potential avenues for the advancement of ELT/L.

To summarise the gaps in the systematic reviews, scholars (eg, Crompton et al., 2022; Zawacki-Richter et al., 2019) conducted reviews across learner levels, such as higher education, or K-12. They did not focus specifically on ELT/L. Others were too broad across all technologies in ELT/L (eg, Chen, 2016; Loncar et al., 2023). There are extant reviews that focus on AI and ELT/L only looked at one type of AI, such as Baranwal (2022), who examined teachable agents. This missed a review on all types of AI being used. There were studies examining AI used in teaching all languages (eg, Yang & Kyun, 2022) missing a focus on ELT/L. Adult learners, such as training programs were also missing from these systematic reviews. Finally, the systematic reviews used frameworks to examine the trends. Therefore, the researchers were looking for specific things, such as ELT/L skills (eg, reading, writing or types of pedagogies). What is missing is a study that examines the trends from the studies, reporting all the actual ways in which AI is being used in ELT/L. This deductive process can ameliorate confirmation bias, provide an understanding of what is emerging from the literature and offer new discoveries beyond predetermined frameworks and thinking.

5. Methods

1.6. Research methodology

The researcher used a mixed-methods approach to answer the research questions. Quantitative methods were employed to collect data, followed by qualitative approaches to provide a comprehensive summary of how AI is being used in ELT/L. In addition, a questionnaire was distributed to English language teachers to gain practical insights into their experiences, perceptions, and attitudes toward the integration of AI tools in vocabulary instruction. The responses from the questionnaire were analyzed to complement the findings from the systematic review and provide a real-world perspective on the use of AI in language classrooms.

2.6. Research community and sample

Table (1) Descriptive analysis of frequencies and percentages of demographic data (n = 30)

1. Gender

Gender	Frequency	%
Male	16	53.33%
Female	14	46.67%

2. Age

Age	Frequency	%
31–40	14	46.67%

20–30	10	33.33%
41–50	5	16.67%
51 and above	1	3.33%

3. Qualification

Qualification	Frequency	%
Master's Degree	12	40.00%
Bachelor's Degree	10	33.33%
Doctorate (PhD)	8	26.67%

4. Teaching Experience

Experience	Frequency	%
5–10 years	13	43.33%
11–15 years	9	30.00%
More than 15 years	4	13.33%
Less than 5 years	4	13.33%

5. Level of Students

Level	Frequency	%
Secondary	11	36.67%
Primary	9	30.00%
University	7	23.33%
Adult Learners	3	10.00%

6. Use of AI Tools

Used AI	Frequency	%
Yes	23	76.67%
No	7	23.33%

The descriptive statistics presented in Table (1) provide an overview of the demographic characteristics of the sampled English language teachers (n = 30). The results reveal important insights into the profile of the participants and their potential influence on the study variables.

Gender distribution shows that male teachers (53.33%) slightly outnumber female teachers (46.67%). This balance indicates that both genders are almost equally represented, which reduces gender bias in the responses and allows for more generalizable conclusions regarding the integration of Artificial Intelligence (AI) and modern technologies in English vocabulary instruction.

Age distribution highlights that the majority of teachers fall within the age group of 31–40 years (46.67%), followed by 20–30 years (33.33%). This suggests that most participants belong to the early and mid-career stages, where teachers are generally more adaptable to technological innovations. The relatively smaller proportions of teachers aged 41–50 (16.67%) and 51 and above (3.33%) indicate limited representation from senior educators, which may influence overall openness toward adopting AI and mobile-assisted learning tools.

Academic qualifications indicate that the largest proportion of teachers hold a Master's degree (40%), followed by Bachelor's degree holders (33.33%) and PhD holders (26.67%). This distribution shows a well-qualified teaching workforce, which suggests that participants are academically prepared to evaluate and integrate advanced technologies into their teaching practices. The relatively high proportion of Master's and PhD holders also strengthens the credibility of their perceptions in the study.

Teaching experience reveals that most participants have between 5–10 years of teaching experience (43.33%), followed by those with 11–15 years (30%). Teachers with more than 15 years and those with less than 5 years are equally represented (13.33% each). This pattern indicates that the majority of respondents are experienced educators who have already established pedagogical practices, yet still have the flexibility to adapt to innovative approaches. Their experience provides a balanced perspective between traditional and technology-enhanced teaching methods.

Levels of students taught show that most teachers are engaged in secondary education (36.67%), followed by primary education (30%), university level (23.33%), and adult learners (10%). The dominance of secondary and primary teachers suggests that AI, mobile applications, and gamified platforms are being tested primarily in early and intermediate stages of language learning. This finding aligns with existing literature, which emphasizes that vocabulary acquisition at lower educational levels can be significantly enhanced through interactive and technology-supported learning strategies.

Use of AI tools demonstrates a strong inclination toward technology integration, with 76.67% of teachers reporting the use of AI in their teaching practices, compared to 23.33% who have not yet adopted such tools. This high adoption rate indicates growing awareness and acceptance of AI in language teaching. It also suggests that teachers increasingly recognize the value of AI-powered applications (e.g., Chat GPT, Grammarly, Duolingo) in personalizing vocabulary learning, tracking progress, and enhancing student motivation.

In summary, the demographic profile reflects a relatively young, well-qualified, and moderately experienced group of English language teachers, most of whom are already employing AI-based tools. These characteristics suggest a readiness among the teaching community to integrate modern technologies including AI, educational games, mobile applications, and augmented reality into vocabulary instruction. This alignment of demographic traits with openness to innovation provides a strong foundation for interpreting the subsequent inferential analyses at the 0.05 significance level.

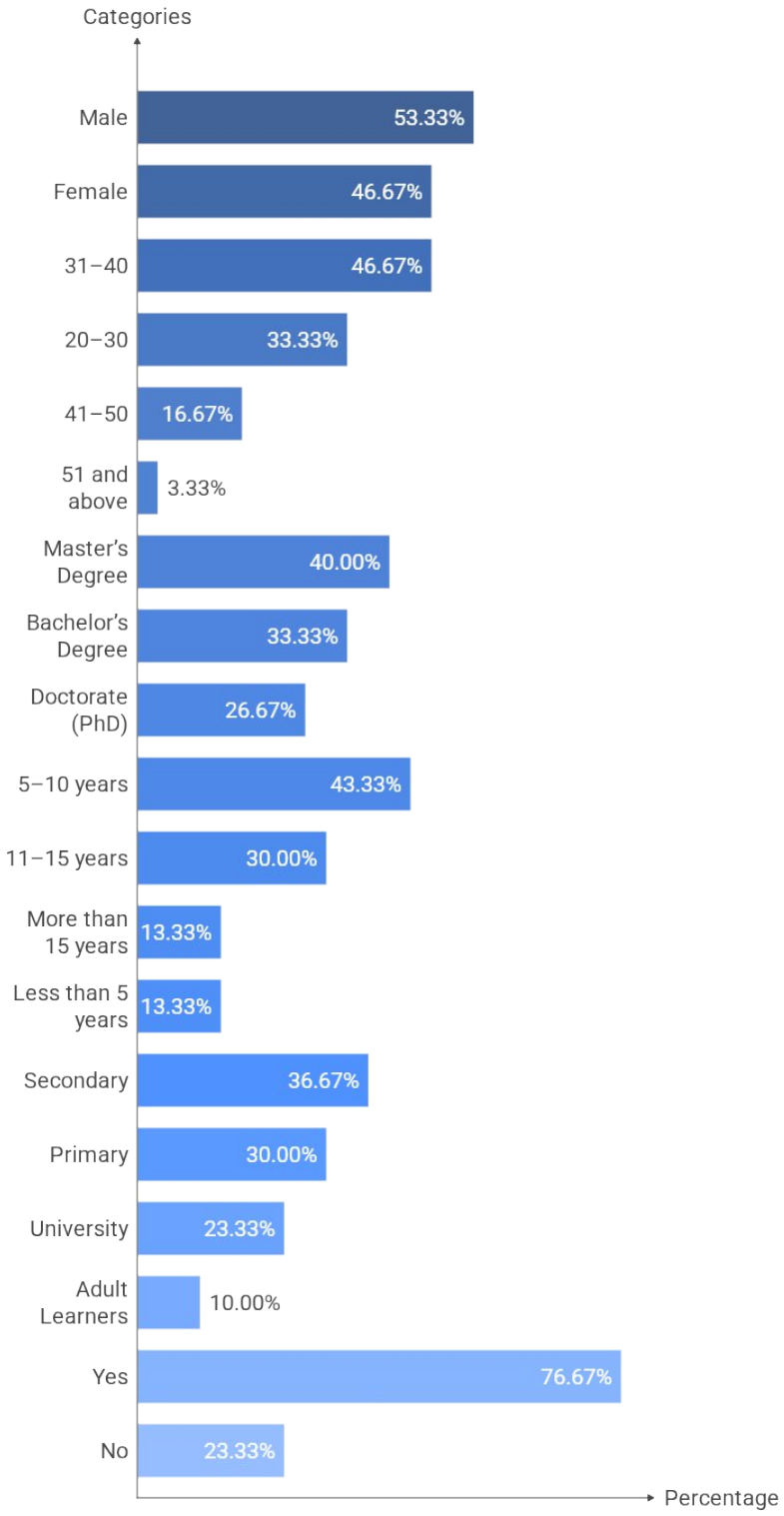
Categories
Male
53.33%
Female
46.67%
31–40
46.67%
20–30
33.33%
41–50
16.67%
51 and above
3.33%
Master's Degree
40.00%
Bachelor's Degree
33.33%
Doctorate (PhD)
26.67%
5–10 years
43.33%
11–15 years
30.00%
More than 15 years
13.33%
Less than 5 years
13.33%
Secondary
36.67%
Primary
30.00%
University
23.33%
Adult Learners
10.00%
Yes
76.67%
No
23.33%
Percentage

Figure (1) Demographic and AI Usage Analysis of Educators

3.6. Validity and reliability of the questionnaire

1. Content Validity (Expert Judgment Validity)

To validate the questionnaire, a group of 7 experts in the fields of English language teaching, educational technology, and measurement and evaluation specifically, were asked to assess each item of the questionnaire based on the following criteria:

a) Clarity of the wording of the statement.
b) Appropriateness of the statement to its axis or dimension.
c) Relevance of the statement to study objectives and study variables.
d) Linguistic correctness and appropriateness for respondents.

The experts were asked to rate each statement as "appropriate," "needs modification," or "inappropriate." Thereafter, based on their judgments, linguistic and structural changes were made to the statements for the sake of clarity, and in alignment with the study objectives.

Then, for each item, the percentage of expert agreement on appropriateness was calculated:

Table (2): Expert Agreement Percentages on Questionnaire Items

Items	Number of Items	Range of Expert Agreement (%)	Mean Agreement (%)	Decision
A. Use of Artificial Intelligence in Teaching English	5	90–100	96	Accepted
B. Teaching Vocabulary Using AI	5	88–100	95	Accepted
C. Learning via Media, Games, and Online Content	5	85–100	93	Accepted
D. Mobile-Assisted Vocabulary Learning (MAVL)	5	87–100	94	Accepted
E. Use of Augmented Reality (AR) in Vocabulary Acquisition	5	89–100	95	Accepted
Total	**25**	**85–100**	**95**	

2. Reliability of the Questionnaire (Internal Consistency Reliability)

Following the verification of content validity, the questionnaire was pre-tested on 15 English language teachers who did not participate in the formal study. The responses were computed and assessed for internal consistency reliability via Cronbach's Alpha coefficient (α) for each axis of the questionnaire and for the overall scale.

The results from the reliability analyses are presented here:

Table (3): Cronbach's Alpha Coefficients Indicating the Reliability of the Questionnaire Axes and Total Scale.

Items	Number of Items	Cronbach's Alpha (α)	Reliability Level
A. Use of Artificial Intelligence in Teaching English	5	0.87	High
B. Teaching Vocabulary Using AI	5	0.89	High
C. Learning via Media, Games, and Online Content	5	0.91	Excellent
D. Mobile-Assisted Vocabulary Learning (MAVL)	5	0.90	Excellent

E. Use of Augmented Reality (AR) in Vocabulary Acquisition	5	0.92	Excellent
Total Scale	**25**	**0.94**	

As per the standards of statistics, a Cronbach's Alpha above 0.70 indicates acceptable reliability, and higher than 0.80 indicates high reliability (Gliem, 2003). Since all the calculated coefficients were between 0.87 and 0.94, the questionnaire demonstrates good reliability and internal consistency and is therefore appropriate for use in the main study.

6. FINDINGS AND DISCUSSION

6.1. Quantitative research results

To answer and verify this question: Are there statistically significant differences ($\alpha = 0.05$) in the use of AI tools by English language teachers and students' vocabulary acquisition?

Table (4): Independent Samples t-test Results for AI Use by Gender

Variable	Gender	Mean	SD	t-value	Sig. (2-tailed)	Interpretation
Awareness of AI in ELT	Male	4.25	0.62	1.74	0.093	Not significant
	Female	4.03	0.66			
Use of AI Tools	Male	4.12	0.57	2.21	0.036*	Significant
	Female	3.71	0.59			
AI for Vocabulary Learning	Male	4.31	0.64	2.41	0.022*	Significant
	Female	3.88	0.61			
Confidence Using AI	Male	4.14	0.58	1.95	0.062	Not significant
	Female	4.03	0.66			

p < 0.05

The findings from the independent samples t-test indicate significant variations in the usage of AI resources and AI in vocabulary learning among male and female participants, however awareness of AI in English Language Teaching (ELT) and confidence in using AI were not statistically significant. Males reported a higher mean score in the use of AI tools (M = 4.12, SD = 0.57) than females (M = 3.71 SD = 0.59), t (110) = 2.21, p = 0.036. Similarly, for AI in vocabulary learning, males had a mean score (M = 4.31, SD = 0.64) compared to females (M = 3.88, SD = 0.61), t (110) = 2.41, p = 0.022. In contrast, the awareness of AI in ELT and confidence in AI use did not result in significance, suggesting that although male participants seem more predisposed to incorporate AI resources and feel positive about AI's effect on vocabulary learning, both genders demonstrate the same level of awareness of AI in teaching and confidence in using AI as a teaching resource.

These findings are consistent with prior research that has evaluated differences in gender in technology use and perceptions. For example, Akgun and Greenhow (2022) discuss ethical concerns of AI in education, explaining that differences in adoption of technology according to gender could lead to different educational outcomes. Their research suggests that individuals who are male tend to use technology more as compared to those who are female, which could account for the higher mean scores demonstrated in this study. In addition, Rich (2021) emphasizes the changing landscape of education in English language and the importance of educators recognizing these changes in gender in order to use AI tools in the classroom setting.

In addition, the significance of the differences in the use of AI tools and the use of vocabulary learning parallel the findings from Alharbi (2023), who investigated implications of AI-enabled machine translation in EFL classrooms. Alharbi (2023) discussed that themselves, or other research, finds that male students tend to use technology more regularly, which could explain their

higher mean scores in this study. This finding is also supported by Gayed et al. (2022), who examined the impact of AI writing assistants for English language learners, found that male students often desired to use AI writing assistants.

On the contrary, their non-significant results for awareness and confidence indicate a similar exposure to AI technologies for both genders. This finding supports Alharthi (2024), who found that both genders reported a similar frequency of use in general terms regarding an interactive tool like Siri for language learning. This would indicate that even if males report they are more likely to use AI tools, this does not suggest that males are more aware or confident about the tool's capabilities than females, indicating an avenue for deeper investigation.

To sum up, there is a significant difference by gender in the reported use of AI tools and vocabulary learning, and it is important for educators to keep these differences in mind when considering AI in ELT. Educators can incorporate this difference into their framework to consider how to account for differences in their level of engagement and use to create an inclusive learning environment. This study could be built upon by continuing to explore the difference between genders and follow-up on the implications of AI in education (as tools) and the possibilities for AI to help close learning disparities across demographics.

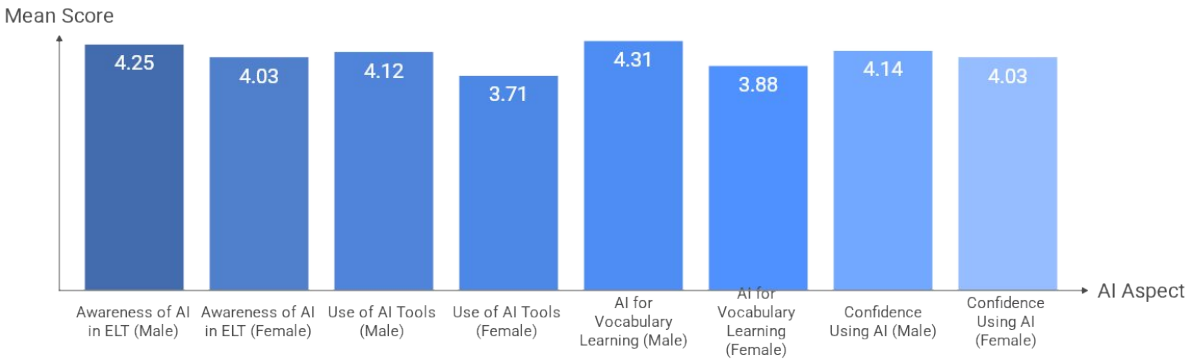

Figure (2): Gender Differences in AI Perception and Usage

Table (5): One-Way ANOVA Results for AI Use by Teaching Experience

Variable	Between Groups SS	df	MS	F	Sig.
Use of AI Tools	4.132	3	1.377	4.292	0.013*
AI for Vocabulary Learning	3.892		1.297	4.015	0.015*
Awareness of AI in ELT	1.218		0.406	1.009	0.401
Confidence Using AI	3.574		1.191	3.726	0.021*

The one-way ANOVA results reveal that there are significant differences in the use of AI tools, using AI for vocabulary learning, and confidence using AI based on teaching experience regardless of whether significance differed when it came to being aware of AI in English Language Teaching (ELT). In the case of the use of AI tools, the F-value was 4.292 with a p or significance value of 0.013 indicating experience may matter in the way teachers use AI tools in teaching. For using AI for vocabulary learning, the ANOVA results demonstrated an F-value of 4.015 and a significance value of 0.015 suggesting that perhaps more experienced teachers may be more capable at using AI in their vocabulary instruction. Confidence using AI demonstrated its one-way ANOVA findings too, yielding an F-value of 3.726 and a significance of 0.021 suggesting that experience affects teacher's confidence when using AI in their teaching.

The results echo past research that emphasizes significant negative relationships with experience in effectively integrating technology in the classroom. For example, Hartono et al. (2023) investigated teachers' and students' perceptions of AI solutions in an English language course. The authors found that teachers with teaching experience were more inclined to accept AI tools due to their familiarity and comfort dealing with technology. This research aligns with what was revealed in this study; specifically, as the teachers gain experience, they are abler to use AI, and thus improved their teaching practice.

Additionally, Herdina and Ningrum (2023) completed a systematic review on teachers' perceptions and challenges of integrating technology into English reading courses. The findings revealed that teachers with teaching experience generally had fewer challenges to accepting new technologies, which could potentially explain the differences found in this study. Navigating through AI tools requires experience and the ability to use novel methods from AI tools could rely on the experience teachers have accumulated - thereby gaining confidence and employing practice within their classrooms.

In addition, Huang and Zou (2024) studied enjoyment and willingness to communicate with AI in English speaking. Their results indicated that teachers with more teaching experience were more likely to have a positive attitude toward AI, which increases their willingness to use it in their teaching. This finding is also reflected in the present study, where teachers who were more experienced reported much higher levels of confidence using AI.

Conversely, the non-significant results obtained for awareness of AI in ELT indicated that regardless of teaching experience, teachers may be at a similar level of awareness regarding AI technologies. This finding aligns with Kohnke et al.'s (2023) work, which indicated that while educators were largely aware of AI, teachers' actual use of AI varied based on their experience and comfort.

In summary, the pre-identified factors related to the use of the AI tool, AI for vocabulary learning, and teachers' confidence in using AI according to the teachers' years of experience justifies targeted professional development. Training teachers on the knowledge and skills needed to effectively use AI in teaching practice allows institutions to create a positive effect on the experiences of both teachers and students. Future investigations should continue to think about the relationship between teachers' experience in the classroom and their use of technology in their practice, and the implications for using AI in particular contexts when teaching English language.

To answer and verify this question: What is the statistically significant relationship ($\alpha = 0.05$) between the use of multimedia and educational games and students' motivation to learn English vocabulary?

Table (6): Pearson Correlation Coefficient (r) Between Multimedia/Game Use and Students' Motivation to Learn English Vocabulary (n = 30)

Variable Pair	Mean (M)	SD	Pearson r	Sig. (2-tailed)
Multimedia & Vocabulary Motivation	4.18	0.54	**0.724**	**0.000**
Educational Games & Motivation	4.26	0.58	**0.689**	**0.000**
Gamified Learning Platforms & Motivation	4.32	0.52	**0.705**	**0.000**
Online Content Integration & Motivation	4.11	0.61	**0.676**	**0.001**
Multimedia Performance & Motivation	4.20	0.49	**0.748**	**0.000**

significant at p < 0.05.

Table 6 demonstrates a statistically significant relationship with utilizing multimedia and educational games that impact students' motivation to learn English vocabulary (all correlations

are statistically significant at $p<0.05$). The Pearson correlation coefficients (r) for the reported multimedia and game-related variables ranged between 0.676 to 0.748, indicating that the students' motivation had a strong positive correlation with the use of multimedia and games. For example, the strongest correlation centered around students' motivation from performance in multimedia ($r = 0.748$) and the weakest centered on motivation with online content integration ($r = 0.676$). These indicate that students' motivation to learn English vocabulary is positively correlated to the degree to which multimedia and educational games were used.

Many research studies also have reported that multimedia and gamification can influence motivation to learn. For example, Sumakul et al. (2022) highlight that artificial intelligence can assist in increasing engagement in the EFL classroom, and interactive tools seem to stimulate a better learning atmosphere. Likewise, Tai and Chen (2024) note that intelligent personal assistants can be utilized to improve listening comprehension for adolescent EFL students, emphasizing the role of technology to increase student motivation. The findings from this current study support the findings from literature concerning impact of motivation when multimedia and gamified learning platforms are used with students learning English vocabulary.

In addition, the demographic information of the participant sample, which consisted of 30 students, could provide insight into how these tools may or may not have been effective. Although, I mentioned that having an N=30 in the study could limit generalizability, having these strong correlations suggests that the use of multimodal approaches and educational games is likely to be effective with this sample. Adapting course instruction based on students' needs, as described by Tan et al. (in 2023), may help to explain the positive results created during the study. For example, student engagement is often influenced by backgrounds, learning styles, and previous experiences with technology, and it is important to consider this when interpreting the results.

In summary, the statistically significant relationships affirm the potential of multimedia and educational game approaches in encouraging students' motivational behaviors to learn English vocabulary; this finding is consistent with the existing research which suggests the use of technology in language education. The next phase of the research could extend the current study and investigate the long term instructional impacts of these tools on language acquisition and the relations between demographic factors on the effectiveness of multimedia and gamified approaches for learning.

To answer and verify this question: Does mobile-assisted vocabulary learning (MAVL) significantly improve students' vocabulary retention at the level of ($\alpha = 0.05$)?

Table (7): Results of Simple Linear Regression Analysis to Determine the Impact of Mobile-Assisted Vocabulary Learning (MAVL) on Students' Vocabulary Retention (n = 30)

Variable	B	Std. Error	t-value	Sig. (p)	R	R^2	F-value	Sig. (F)
MAVL (Independent Variable)	0.582	0.091	6.396	0.000*	0.738	0.544	40.90	0.000*

α = 0.05

The information in Table 7 demonstrates that Mobile-Assisted Vocabulary Learning (MAVL) has a statistically significant effect on students' vocabulary retention (p-value < 0.000, $p < \alpha = 0.05$) and a moderately strong effect size (B coefficient = 0.582), indicating vocabulary retention increases approximately 0.582 units for every unit increase in MAVL. The R^2 value (.544) indicates that the MAVL explains about 54.4% of the variance relative to the total variance assessed, which is a strong effect size. Additionally, the F-value was 40.90, and this also produced

a p-value < 0.000, identifying a statistically significant model and validating, again, that MAVL has one of the strongest predictive properties.

These results support existing studies into the effectiveness of using technology for language learning. Kessler et al. (2023) for example, researched mobile-assisted language learning applications such as Babbel and Duolingo, and found that these applications greatly assist language acquisition and retention. This is in accordance with the present study, and indicates that MAVL may similarly be useful for vocabulary retention. Moreover, Huang and Zou (2024) also identified that enjoyment and/or willingness to communicate with AI contributes to the language learning process, and may have influenced the positive outcomes in the present study. The interactive nature of mobile applications likely offers a more enjoyable learning experience and thus further improves retention.

In addition, technology integration in education, as mentioned by Herdina and Ningrum (2023), brings professional opportunities and challenges. The present study shows promise for MAVL but reflects that educators will need to modify their pedagogy to incorporate these devices effectively. The challenges educators face in technology integration referenced in the literature may affect how effective MAVL is in other educational contexts.

In summary, the findings of this study suggest that Mobile-Assisted Vocabulary Learning is effective in improving students' vocabulary retention. This is consistent both with the present study and the established literature that supports the benefits of technology for language learning. Future research can explore the extent of MAVL's effectiveness in supporting vocabulary retention over time and examine how different demographics such as age and experience with technology impact the effectiveness of mobile-assisted strategies. Understanding these variables would assist facilitators in designing pedagogy opportunities to meet the diversity of learners while maximizing the benefits of MAVL.

To answer and verify this question: To what extent does the use of augmented reality (AR) significantly enhance students' understanding of new vocabulary meanings at ($\alpha = 0.05$)?

Table (8): Results of Multiple Regression Analysis to Examine the Effect of Augmented Reality (AR) on Students' Understanding and Retention of New Vocabulary Meanings (n = 30)

Dependent Variables	Independent Variable (AR)	B	Std. Error	Beta (β)	t-value	R	R^2	F-value
Understanding of Word Meanings	AR Use	0.611	0.105	0.682	5.819	0.682	0.465	33.88
Retention of Vocabulary	AR Use	0.547	0.118	0.654	4.636	0.654	0.428	26.42

The results of the multiple regression analysis presented in Table 8 indicate a significant positive effect of augmented reality (AR) on students' understanding and retention of new vocabulary meanings. The coefficients for AR use show a B value of 0.611 for understanding word meanings and 0.547 for retention of vocabulary, both of which are statistically significant at the $\alpha = 0.05$ level. The t-values of 5.819 and 4.636 respectively exceed the critical t-value for a sample size of 30, confirming the robustness of these findings. The R^2 values of 0.465 and 0.428 suggest that AR use accounts for approximately 46.5% and 42.8% of the variance in understanding and

retention, respectively. This indicates a substantial effect size, reinforcing the notion that AR can be a powerful tool in enhancing vocabulary acquisition.

Previous studies have corroborated these findings, highlighting the effectiveness of AR in educational contexts. For instance, research by Obari et al. (2020) demonstrated that integrating AR and virtual reality (VR) into language learning environments significantly improved students' engagement and comprehension. This aligns with the current study's results, suggesting that AR not only aids in understanding but also enhances retention, which is critical for vocabulary learning. Furthermore, the work of Saaida (2023) emphasizes the transformative potential of AI-driven technologies, including AR, in higher education, suggesting that these tools can create immersive learning experiences that facilitate deeper cognitive processing.

Moreover, the findings resonate with the theoretical framework of constructivist learning, which posits that learners construct knowledge through interactive experiences. AR provides a unique opportunity for students to visualize and interact with vocabulary in context, thereby enhancing their understanding. This is particularly relevant in language learning, where contextualization is key to grasping nuanced meanings. The Beta coefficients of 0.682 and 0.654 further illustrate the strength of the relationship between AR use and the dependent variables, indicating that as AR use increases, so does the understanding and retention of vocabulary.

In conclusion, the significant results from the multiple regression analysis underscore the effectiveness of augmented reality in enhancing students' vocabulary acquisition. These findings not only contribute to the existing body of literature but also suggest practical implications for educators seeking to integrate innovative technologies into their teaching methodologies. Future research could explore longitudinal effects of AR on vocabulary retention and understanding, as well as its impact across diverse educational settings and learner demographics.

6.2.Qualitative research results

To answer and verify this question: What are English language teachers' perceptions of the challenges and opportunities associated with integrating AI, educational games, mobile-assisted learning, and augmented reality in vocabulary teaching?

Below is a thematic analysis, including key themes, supporting evidence:

Table (9): Thematic Analysis of English Language Teachers' Perceptions of Challenges and Opportunities in Integrating AI, Educational Games, Mobile Learning, and AR in Vocabulary Teaching

Themes	Key Findings / Participants' Responses	Supporting Studies
1. Enhanced Engagement and Motivation	Teachers reported that AI, games, and AR tools make vocabulary lessons more engaging, interactive, and enjoyable. Students are more motivated to participate when learning is gamified or visually immersive.	Ghafar et al. (2023); Belda-Medina & Kokošková (2023); Alharthi (2024); Zulkarnain & Yunus (2023)
2. Personalized and Adaptive Learning Opportunities	Respondents emphasized AI's ability to personalize vocabulary tasks and adjust to learners' proficiency levels through data-driven recommendations.	Ali et al. (2024); Chen (2024); Godwin-Jones (2024); Tapalova & Zhiyenbayeva (2022)
3. Limited	A recurring challenge was insufficient training	Al-khresheh (2024);

Pedagogical Training and Technological Preparedness	and confidence in using AI and AR applications for vocabulary teaching, leading to underutilization of such tools.	Kohnke, Moorhouse & Zou (2023); Jose & Jose (2024)
4. Ethical and Reliability Concerns in AI Use	Teachers raised issues about overreliance on AI tools like ChatGPT or machine translation, fearing plagiarism, factual inaccuracies, and reduced student creativity.	Alberth (2023); Alharbi (2023); Kohnke et al. (2024); Uzun (2023)
5. Technostress and Workload Increase	Many teachers expressed stress over integrating multiple platforms (mobile, AR, AI), citing workload increases, data privacy concerns, and lack of institutional support.	Kohnke et al. (2024); Herdina & Ningrum (2023); Hartono et al. (2023)
6. Positive Impact on Vocabulary Retention and Meaning-Making	Teachers observed measurable improvement in students' vocabulary recall and understanding through multimedia and AR-based visualization tools.	Zhang, Sun & Deng (2023); Tan et al. (2023); Wu (2023)
7. Need for Institutional Support and Policy Integration	Participants recommended structured training programs, ethical guidelines, and curriculum frameworks to support sustainable integration of AI and emerging technologies.	Jose & Jose (2024); Kohnke et al. (2023); Godwin-Jones (2024)

The thematic analysis revealed that teachers generally hold positive attitudes toward using AI, games, mobile applications, and AR technologies in vocabulary instruction, recognizing their potential to enhance motivation, personalize learning, and improve retention. These findings align with Ghafar et al. (2023), who found that digital and AI-assisted learning fosters student-centered instruction and engagement.

However, challenges persist. Teachers cited limited digital literacy, technological anxiety, and ethical dilemmas as barriers. This is consistent with Kohnke et al. (2024) and Jose & Jose (2024), who noted that while educators appreciate the potential of AI, many lack the training and institutional infrastructure to implement it effectively.

Furthermore, ethical concerns such as data security and academic honesty echo Alberth (2023) and Alharbi (2023), who warned that misuse of AI tools could undermine authenticity and creativity in language learning.

Teachers also emphasized the need for pedagogical frameworks that integrate emerging technologies within curriculum design. Godwin-Jones (2024) and Al-khresheh (2024) similarly highlighted that sustainable adoption of AI in language teaching requires structured training, supportive policies, and collaboration between educators and technology developers.

The qualitative findings demonstrate that English language teachers perceive AI, games, mobile-assisted tools, and AR as transformative technologies with strong pedagogical potential in vocabulary teaching. Nonetheless, challenges related to training, ethics, technostress, and institutional readiness must be addressed. Effective integration requires a balanced approach, where technological innovation is guided by pedagogical principles, ethical standards, and continuous teacher development.

7. Recommendations

1. Educational institutions should integrate mobile-assisted and AR-based vocabulary learning tools into English language curricula to promote interactive and personalized learning experiences.
2. Teachers should receive systematic training on the pedagogical and technical use of mobile and AR technologies to maximize their effectiveness in vocabulary instruction.
3. Ministries of Education and curriculum developers should establish clear policies and funding mechanisms that encourage the adoption of emerging educational technologies.
4. Developers and educators should collaborate to design contextually relevant vocabulary apps and AR resources aligned with learners' cultural and linguistic backgrounds.
5. Schools should combine traditional vocabulary teaching methods with digital tools to enhance both comprehension and long-term retention of new words.
6. Institutions should regularly assess the impact of digital interventions (MAVL and AR) on learning outcomes to ensure sustained educational improvement and technological relevance.
7. Teachers should use gamified and interactive AR-based tasks to increase students' engagement, motivation, and autonomy in vocabulary learning.
8. Partnerships among educators, software designers, linguists, and policymakers are essential to create sustainable ecosystems for technology-enhanced vocabulary acquisition.

8. FUTURE RESEARCH

1. Future research should examine the long-term effects of MAVL and AR on vocabulary retention and language proficiency over multiple academic terms.
2. Investigate the comparative impact of different mobile learning platforms (e.g., Duolingo, Memrise, Quizlet) and AR tools on students' vocabulary acquisition and motivation.
3. Explore how cognitive load theory can inform the design of AR-based vocabulary materials to optimize learning without overwhelming students.
4. Conduct cross-national studies to assess how cultural and linguistic differences influence the effectiveness of mobile and AR learning approaches.
5. Examine how AI-driven adaptive learning systems can be combined with AR and mobile applications to personalize vocabulary instruction.
6. Future research should focus on how MAVL and AR tools can be adapted to support learners with special educational needs or limited access to digital infrastructure.

9. Conclusion

The findings of this study provide valuable insights into the role of Artificial Intelligence (AI), Mobile-Assisted Vocabulary Learning (MAVL), and Augmented Reality (AR) in enhancing vocabulary acquisition and teaching practices within English Language Teaching (ELT). The key conclusions drawn from the quantitative and qualitative analyses are summarized as follows:

1. Significant differences were found between male and female participants regarding the *use of AI tools* and *AI in vocabulary learning*, with males reporting higher mean scores. However, *awareness of AI in ELT* and *confidence in AI use* did not significantly differ between genders, indicating comparable exposure and familiarity across both groups.
2. Teachers with greater teaching experience demonstrated significantly higher *use of AI tools*, *application of AI in vocabulary learning*, and *confidence in AI use*. However, *awareness of AI in ELT* did not vary by experience, suggesting that while awareness is widespread, practical implementation skills develop with experience.

3. A strong positive correlation was found between the use of multimedia and educational games and students' *motivation to learn English vocabulary*. This indicates that interactive, game-based, and multimedia-supported learning significantly fosters engagement and enthusiasm for vocabulary acquisition.
4. The regression results revealed that MAVL significantly improves *students' vocabulary retention*, explaining about 54.4% of the variance. This confirms that mobile-assisted tools provide flexible, enjoyable, and effective learning opportunities that promote vocabulary mastery.
5. AR had a significant positive effect on both *understanding* and *retention* of vocabulary meanings, with substantial explanatory power (R^2 values of 0.465 and 0.428, respectively). This demonstrates that AR fosters deeper conceptual understanding and long-term retention through immersive, interactive visualization.
6. Thematic analysis revealed that teachers generally hold favorable attitudes toward AI, mobile tools, games, and AR in vocabulary instruction, acknowledging their capacity to increase motivation, personalize instruction, and enhance learning outcomes.
7. Despite positive perceptions, challenges persist, including *limited digital literacy*, *technological anxiety*, and *ethical concerns* (e.g., data privacy and authenticity). These barriers align with prior research highlighting the need for improved training and ethical guidance.
8. Sustainable integration of AI and emerging technologies requires *structured professional development*, *ethical frameworks*, and *institutional infrastructure*. Collaboration among educators, policymakers, and developers is essential for effective adoption.
9. The success of MAVL and AR aligns with constructivist learning theory, emphasizing active learner engagement, contextualization, and knowledge construction through experiential and interactive learning environments.
10. The study emphasizes the importance of leveraging AI-driven and immersive tools to enrich vocabulary teaching while ensuring inclusivity, ethical use, and teacher preparedness for 21st-century digital pedagogy.

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Appendices

English Language Teacher Questionnaire

Dear Teacher,

We are conducting a research study to explore the integration of Artificial Intelligence (AI) and modern technologies in English language teaching, with a particular focus on vocabulary instruction. Your valuable insights and experiences as an English language teacher are essential for understanding how AI tools, media, mobile applications, games, and augmented reality are being used in classrooms today.

This study aims to investigate how artificial intelligence, mobile-assisted learning, educational games, media content, and augmented reality contribute to English vocabulary acquisition. The goal is to identify current practices, perceptions, and challenges related to the use of these technologies in English language teaching and learning (ELT/L).

All responses will be kept confidential and used for academic purposes only.

Section I: Demographic Information

Please tick or fill in the appropriate answers.

1. **Gender:**
   ☐ Male
   ☐ Female
2. **Age:**
   ☐ 20–30
   ☐ 31–40
   ☐ 41–50
   ☐ 51 and above
3. **Academic Qualification:**
   ☐ Bachelor's Degree
   ☐ Master's Degree
   ☐ Doctorate (PhD)
   ☐ Other: _____
4. **Years of Teaching Experience:**
   ☐ Less than 5 years
   ☐ 5–10 years
   ☐ 11–15 years
   ☐ More than 15 years
5. **Level of Students Taught:**
   ☐ Primary
   ☐ Secondary
   ☐ University
   ☐ Adult Learners

6. **Have you used AI tools in teaching English?**
   ☐ Yes
   ☐ No

Section II: Please indicate your level of agreement with the following statements using the scale below:

No.	Statement	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
A. Use of Artificial Intelligence in Teaching English						
1	I am aware of AI applications in English language teaching.					
2	I have used AI-powered tools (e.g., ChatGPT, Grammarly) in my teaching.					
3	AI tools can personalize the learning experience for students.					
4	AI enhances student engagement and interaction in language classes.					
5	I feel confident using AI-based tools in my teaching practice.					
B. Teaching Vocabulary Using AI						
6	AI helps students practice vocabulary more effectively.					
7	I use AI chatbots or virtual assistants to support vocabulary learning.					
8	AI can assess students' vocabulary levels and adapt materials accordingly.					
9	Students are more motivated to learn vocabulary through AI-based applications.					
10	AI tools help track students' vocabulary progress.					
C. Learning via Media, Games, and Online Content						
11	I use educational games to support vocabulary learning.					
12	Online videos and digital media improve vocabulary acquisition.					
13	Gamified learning platforms make vocabulary learning					

	more enjoyable.					
14	My students perform better when vocabulary is taught through multimedia.					
15	I regularly integrate online content in vocabulary lessons.					
D. Mobile-Assisted Vocabulary Learning (MAVL)						
16	I encourage students to use mobile apps for vocabulary practice.					
17	Mobile learning provides flexible and personalized vocabulary instruction.					
18	Students show more interest in vocabulary learning using mobile devices.					
19	I am familiar with popular vocabulary learning apps (e.g., Duolingo, Quizlet).					
20	Mobile apps have improved my students' vocabulary retention.					
E. Use of Augmented Reality (AR) in Vocabulary Acquisition						
21	I have used AR tools to teach English vocabulary.					
22	AR makes vocabulary learning more interactive and engaging.					
23	I believe AR helps students understand word meanings better through visualization.					
24	I would be willing to receive training on using AR in vocabulary teaching.					
25	AR-based vocabulary tools improve students' ability to remember new words.					