2024 Third International Conference on Electrical, Electronics, Information and Communication Technologies (ICEEICT) | 979-8-3503-6908-3/24/$31.00 ©2024 IEEE | DOI: 10.1109/ICEEICT61591.2024.10718399

Harnessing AI: Enhancing English Language Teaching through Innovative Tools

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***Abstract*—The use of Artificial Intelligence (AI) into education, namely English language instruction, offers significant possibilities for transformation. This research investigates a range of AI-powered tools and approaches that greatly improve learning results. This study conducts a thorough examination of the replies obtained from an online questionnaire poll to identify the primary domains in which AI applications demonstrate the highest level of effectiveness. These domains include customized learning environments, automated grading systems, and adaptive content delivery. An in-depth analysis is conducted to completely assess the efficacy of AI in enhancing language proficiency in areas such as grammar, vocabulary, pronunciation, and listening comprehension. In addition, the research examines the function of natural language processing (NLP) and machine learning in developing flexible learning modules that adjust to the unique learning speeds of individuals. The article also covers challenges related to data protection, ethical issues, and accessibility, offering a thorough examination of the practical consequences and constraints of AI in language instruction. This project intends to enhance the use of AI technologies in educational environments by highlighting their advantages and examining their limits. The goal is to improve language learning experiences by making them more interesting, effective, and inclusive.**

***Keywords*—Artificial intelligence, Personalized learning, Natural Language Processing, Adaptive Learning Systems, Educational Technology.**

I. INTRODUCTION

Artificial Intelligence (AI) has brought about a significant transformation in several areas, particularly in education. Within the field of English language instruction, artificial intelligence (AI) brings about a fundamental change in the way things are done, moving away from conventional methods towards more advanced, tailored, and efficient techniques. This article investigates the incorporation of artificial intelligence (AI) technologies in English language instruction, analyzing their influence on improving educational achievements, instructor responsibilities, and student involvement. Throughout history, the teaching of the English language has progressed through several periods of teaching methods, ranging from grammar-translation to communicative language education, each using its own distinct methodology and equipment. Nevertheless, the incorporation of technology, namely artificial intelligence (AI), represents a substantial advancement. The capacity of AI to analyze vast quantities of data and provide valuable insights has revolutionized customized learning, establishing it as a fundamental element of modern educational approaches.

AI's role in education extends beyond mere automation. It offers sophisticated analyses and adaptive learning features that can tailor educational experiences to individual needs. For instance, AI-driven platforms can assess a student's current language proficiency in real-time and adapt the curriculum accordingly. This not only optimizes the learning process but also enhances the learner's engagement by presenting them with challenges that are neither too easy nor too difficult. Several AI tools and technologies are currently reshaping English language teaching. Natural Language Processing (NLP) technologies, such as grammar checkers and essay-grading software, provide instant feedback to learners, significantly reducing the time teachers spend on assessments and enabling more focused instructional time. Speech recognition technology aids in teaching pronunciation and listening skills by allowing learners to interact verbally with AI tutors and receive immediate corrections and feedback.

Adaptive learning systems stand out as one of the most significant AI contributions to language learning. These systems analyze the input from learners to modify the teaching approach dynamically. For example, if a learner struggles with certain grammatical structures, the system can provide additional practice and resources tailored to that specific area. This personalized approach helps in addressing the unique challenges faced by each learner, thereby improving overall language acquisition efficiency. The integration of AI into English language teaching offers numerous benefits. It allows for scalability where one instructor can effectively help many more students than in traditional settings. AI also provides a level of consistency and unbiased assessment that is challenging to achieve manually. Furthermore, the immediate feedback provided by AI tools can be instrumental in building learner confidence and motivation.

Despite the benefits, the use of AI in education comes with challenges. The reliance on technology raises questions about data privacy and the digital divide. There is a concern that AI could widen the gap between students with access to these technologies and those without. Additionally, ethical considerations about AI making autonomous decisions that affect students' educational trajectories are paramount. Ensuring that AI tools are used responsibly and inclusively requires ongoing oversight and regulation.

1.1 Research Objectives:

- To assess how AI-driven technologies improve language learning outcomes in terms of fluency, comprehension, vocabulary acquisition, and grammar proficiency.
- To determine the satisfaction levels of both educators and learners with AI tools, focusing on usability, accessibility, and perceived value in the learning process.
- To explore how educators integrate AI tools into their teaching methodologies and curriculum, and how these tools change the traditional roles of language teachers.
- To analyze how personalized learning driven by AI affects student engagement and motivation in learning English.
- To examine whether AI tools in language teaching are accessible to a diverse range of learners, including those from varying socio-economic backgrounds and with different learning needs.

II. Related Works

One crucial aspect of using technology into English Language Teaching (ELT) is its ability to alleviate teacher workload and improve the quality of education. [1] Look at how technology can automate mundane administrative tasks so teachers may spend more time engaging with students and improving education. Digital attendance systems combined with Learning Management Systems (LMS) like Google Classroom, Canvas, Blackboard, and Moodle are crucial technologies that allow this shift. In addition to greatly assisting with grade management, these systems significantly simplify the process of taking attendance. With their help, teachers are able to more efficiently distribute, assess, organize, and provide comments on a wide range of assessments and assignments. School authorities and parents are able to more easily share information about students' attendance and test scores because to this streamlined data management system.

Researchers in the fields of English language teaching (ELT) and teaching English to speakers of other languages (TESOL) have focused on the role that technology plays in fostering learner autonomy [2]. Technology, according to Nunan and Richards (2015), gives students agency by letting them decide how and what they study. Learner autonomy is seen as crucial to effective language learning, making this empowerment all the more important. With the help of modern technological tools, students are able to engage in self-directed learning and independently investigate a wide range of linguistic resources. For students to develop the capacity to study a language on their own, these tactics are vital. Research by Nunan and Richards strongly suggests that students who are able to learn on their own outside of class time acquire much more information and skills than their classroom-bound counterparts. This shows how technology has the potential to greatly affect language learning.

Technology plays a vital role in EIL instruction by providing students with unparalleled access to authentic language materials and cultural components in ELT. the third To help students better understand English in its broader cultural contexts, it is important to emphasize the role that technology plays in providing access to different cultural contexts and linguistic variances. Learning how to connect with people from different cultural backgrounds while maintaining appropriate social and cultural norms is a key component of effective intercultural learning (EIL), and this exposure is consistent with that goal. Students may broaden their language abilities and get a better understanding of regional variations in English via technological explorations of other English dialects, such as English spoken in Singapore, Malaysia, and the Philippines. Students must engage with technology in order to comprehend the global diversity of English and its relevance to everyday communication [3].

The development of conversational AI and generative AI has been a huge step forward in the field of language learning. According to reference [4], these tools let teachers and students work together to create and engage with authentic language inputs tailored to each person's needs. Apps that convert text to speech, like Speechify and 11Labs, may make written content seem natural when spoken. Students may easily listen to native speakers' accurate intonations and pronunciations in this way. But speech-to-text (STT) systems are vital for transcribing spoken utterances into written transcripts. Some examples include Amazon Transcribe, Microsoft Azure, IBM Watson, and Voice Notebook. For anyone who have trouble understanding fast, complicated, or otherwise pronounced language, this tool is a godsend. Also, more advanced speech-to-text (STT) technologies like audiopen.ai can take raw spoken notes and turn them into polished written texts, which helps with comprehension and learning. Talking chatbots and voice-activated AI personal assistants like Alexa, Siri, and Google Assistant serve as engaging conversational partners, simulating real-life conversations and providing a controlled environment for practice. By making interactions more engaging and tailored to each learner's needs, these technological tools are revolutionizing language training and acquisition.

The advent of AI learning systems holds great promise for revolutionizing traditional classroom practices by freeing up teachers to focus on developing their students' diverse intelligences rather than on mundane, repetitive tasks. [5] Highlight how these resources lighten the burden of tasks like keeping track of attendance, conducting performance evaluations, and covering the curriculum. To ensure that information is distributed optimally according to each student's distinct learning styles and needs, digital sensors and AI technologies are used to choose individualized teaching materials. These systems automate administrative tasks like taking attendance and grading, in addition to monitoring and evaluating students' performance and understanding after each lesson. These features are integrated into a centralized database that is dependent on students' cumulative performance. Also, AI-driven educational systems have the potential to enhance learning outcomes while cutting down on instructional time,

freeing up teachers to focus on students' spiritual and ethical development. AIEd promotes personalized learning spaces by creating supportive assignments that are tailored to the student's cognitive abilities. This method promotes creative responses that could be impeded in more conventional classroom environments. AI-powered learning tools boost students' social and emotional intelligence, which in turn helps them gain self-assurance and thrive in today's rapidly evolving digital landscape.

An important step forward in educational methods is the use of artificial intelligence (AI) strategies into ELT. The article [6] introduces a new way to do an online workshop that uses artificial intelligence (AI) tools like ChatGPT and Bard to investigate their potential applications in ELT. In addition to a historical overview of ELT methodology that shows how teaching techniques have evolved, this course provides learners with practical, hands-on experience with AI applications. The primary objective of the workshop is to highlight real-world uses of AI to enhance educational practices. Starting with some general instructions for attendees, the article goes on to detail the workshop's activities, which showcase the use of AI in a variety of classroom contexts. Barad goes on to talk about the possible benefits of AI, elaborating on how they might enhance language training by creating personalized learning experiences and promoting more effective teaching approaches. The growing importance of technology in classrooms is shown via experiential workshops that explore the use of artificial intelligence in ELT.

There is a pressing need to incorporate innovative strategies into English Language Teaching (ELT) to meet the increasing global demand for proficient English speakers. A wide variety of innovative strategies are revolutionizing ELT, and [7] examines them all in detail. By doing a thorough assessment of the current literature using databases including ERIC, Education Source, Scopus, and Google Scholar, the study emphasizes the relevance of these methods. The primary goal of this research is to shed light on the relevant theoretical frameworks, instructional approaches, benefits, drawbacks, and empirical evidence for each strategy. Innovative pedagogical approaches significantly affect student engagement, motivation, and language acquisition outcomes, according to Molugu's research. In order to foster an environment that encourages substantial communication, analytical thinking, and problem-solving ability, these techniques often include the use of technology, real resources, practical activities, and engaging exercises. Both student motivation and general language skills are shown to grow by these inventive tactics, according to the study. Educators in the field of English Language Teaching (ELT), according to Molugu, should prioritize the needs of their students, use a variety of innovative methods, and encourage their students to think critically and independently. The study also emphasizes the need of teachers engaging in reflective practice and ongoing professional development in order to help students benefit from these innovative tactics. Educators may meet the needs of today's language learners by adopting this strategy, which allows for the creation of more engaging and productive classroom environments. The paper concludes by calling for more studies to assess the ELT tactics' long-term impacts and fill in the gaps in our present understanding.

III. RESEARCH METHODOLOGY

In order to collect extensive data for the research on the incorporation of AI technologies in English language instruction, participants are chosen using a stratified random selection technique. This approach guarantees a varied and inclusive representation throughout all educational tiers and geographical areas, catering to both English instructors and students. The survey, formulated to gather both quantitative and qualitative data about the use and perception of artificial intelligence technologies, will be disseminated across many internet channels. These platforms include educational forums, professional teaching networks, and social media groups specifically devoted to language acquisition. After being gathered, the data is examined using SPSS (Statistical Package for the Social Sciences). Descriptive statistics provide a concise summary of demographic information and overall use trends of AI technologies. In order to get a better understanding of the efficacy and contentment associated with AI technologies, inferential statistics, such as chi-square tests for categorical data and t-tests for comparing two groups, are used. By using this dual strategy in data management, it will be possible to get a comprehensive comprehension of the present patterns and attitudes towards artificial intelligence in English language teaching. This will aid in formulating significant findings and suggestions for future methodologies.

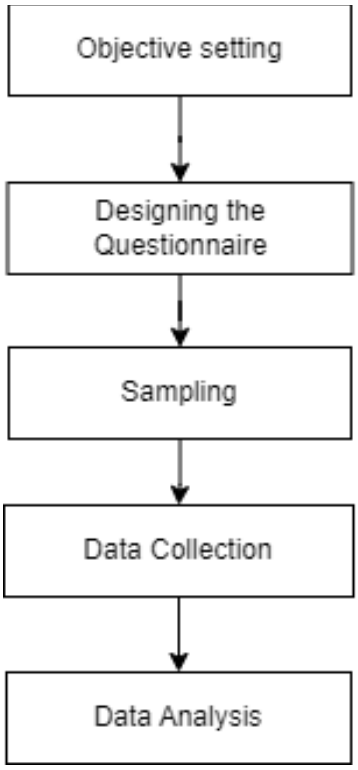

Fig. 1. research methodology flowchart

A. Findings

TABLE I. FREQUENCY OF ROLES

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	English Teacher	56	50.5	50.5	50.5
	English Learner	55	49.5	49.5	100.0
	Total	111	100.0	100.0	

The frequency table shows that there are 56 English Teachers, accounting for 50.5% of the sample, and 55 English Learners, making up 49.5% of the sample. In all, there are 111 participants. The almost equal distribution guarantees a fair and even representation of both roles, enabling a thorough examination of different viewpoints on the use of AI technologies in the field of English language education. The cumulative percentage indicates that the sample consists entirely of English Teachers and Learners, allowing for comparison analysis between these two groups.

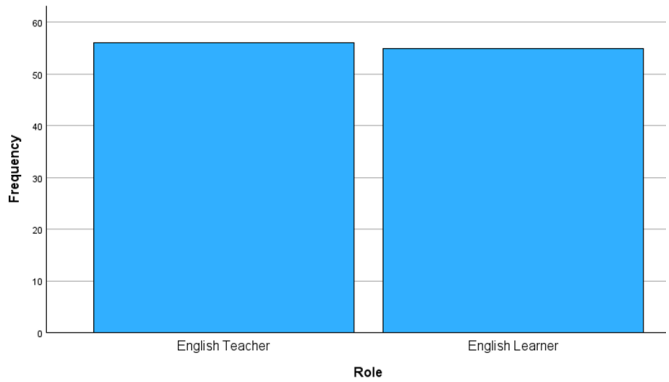

Fig. 2. Frequency of roles

TABLE II. ROLE VS USED AI TOOLS

		Used AI Tools		Total
		yes	no	
Role	English Teacher	56	0	56
	English Learner	0	55	55
Total		56	55	111

Table 2 shows the relationship between role (English Teacher or English Learner) and the usage of AI tools. All 56 English Teachers (100%) reported using AI tools, while none of the English Learners (0%) reported using them. Conversely, none of the English Teachers reported not using AI tools, whereas all 55 English Learners (100%) reported not using them. This stark contrast highlights a significant difference in AI tool usage between the two groups, indicating that AI tools are predominantly used by teachers rather than learners in this sample.

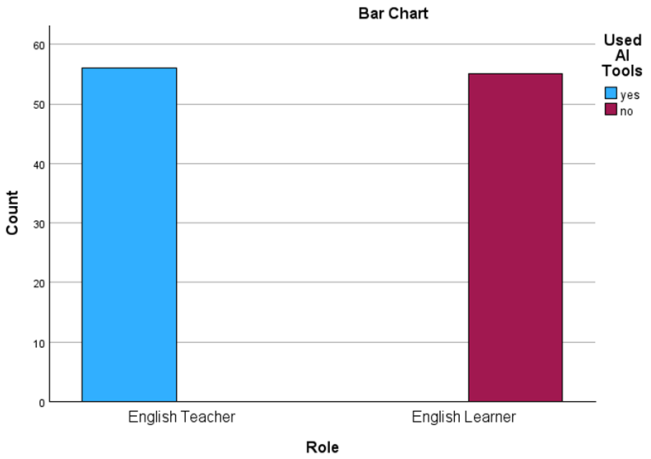

Fig. 3. Role vs used AI tools

TABLE III. AGE GROUP * PREFER USING AI TOOLS

		Prefer Using AI Tools		Total
		yes	no	
Age Group	under 18	3	16	19
	18-24	16	3	19
	25-34	4	15	19
	35-44	15	3	18
	45-54	5	13	18
	55 and above	18	0	18
Total		61	50	111

This table shows the distribution of preferences for using AI tools across different age groups. Among participants aged under 18, only 3 out of 19 prefer using AI tools, whereas 16 do not. In contrast, in the 18-24 age group, 16 out of 19 participants prefer using AI tools, showing a strong preference. The 25-34 age group shows a lower preference with only 4 out of 19 preferring AI tools. The 35-44 age group again shows a strong preference with 15 out of 18 participants favoring AI tools. The 45-54 age group shows a lower preference similar to the under-18 group, with only 5 out of 18 participants preferring AI tools. Notably, all participants aged 55 and above prefer using AI tools.

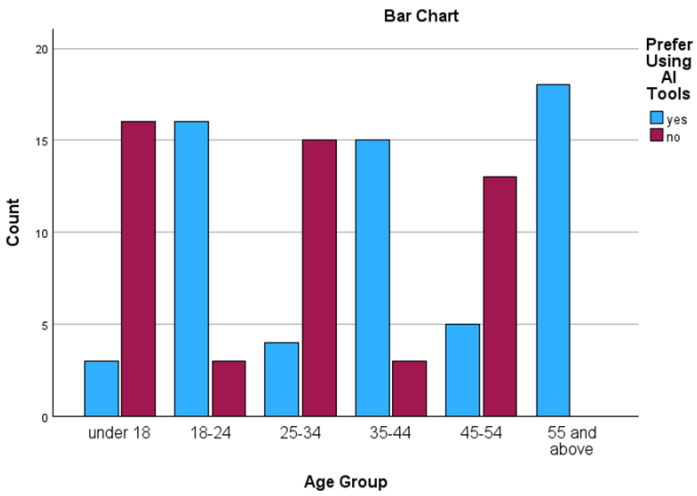

Fig. 4. Age Group * Prefer Using AI tools

TABLE IV. CHI-SQUARE TEST RESULTS FOR AGE GROUP AND PERCEIVED EFFECTIVENESS

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	35.978[a]	15	.002
Likelihood Ratio	41.638	15	<.001
N of Valid Cases	111		
a. 12 cells (50.0%) have expected count less than 5. The minimum expected count is 2.92.			

A p-value of 0.002 and a chi-square value of 35.978 demonstrate a robust correlation between age group and perceived effectiveness of AI technology, according to the Pearson Chi-Square test. Age is a significant predictor of perceived effectiveness. A p-value below 0.001 and a probability ratio of 41.638 lend credence to this finding.

TABLE V. CHI-SQUARE TEST RESULTS FOR AGE GROUP AND PREFERENCE FOR USING AI TOOLS

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	53.145[a]	5	<.001
Likelihood Ratio	62.591	5	<.001
Linear-by-Linear Association	10.386	1	.001
N of Valid Cases	111		
a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 8.11.			

A chi-square value of 53.145 and a p-value less than 0.001 indicate a very significant correlation between age group and willingness for adopting AI technology, according to the Pearson Chi-Square test. One may see a direct relationship between age and the propensity to utilize AI goods. The probability ratio, which shows a significant value of 62.591 with a p-value < 0.001, adds to the evidence for this finding. A statistically significant result (p-value = 0.001) is also obtained from the linear-by-linear association test, which shows a distinct pattern across the various age categories. The reliability of the test results is ensured, crucially, since all data cells have anticipated counts greater than 5.

TABLE VI. ANOVA RESULTS FOR PERCEIVED EFFECTIVENESS ACROSS AGE GROUPS

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	14.852	5	2.970	2.737	.023
Within Groups	113.959	105	1.085		
Total	128.811	110			

Perceived effectiveness of AI technology varies significantly across different age groups, according to the ANOVA study. There are a total of 14,852 squares throughout all groups, and there are 5 degrees of freedom in this. The resulting mean square is 2.970. A mean square of 1.085 is the result of 105 degrees of freedom and a total of 113.959 squares within groups. There is a p-value of 0.023 and an F-value of 2.737. The null hypothesis may be rejected with certainty since the p-value is less than 0.05. The results show that different age groups have very different perceptions of their own effectiveness.

B. Artificial Intelligence in ELT (English Language Teaching) Activities:

Incorporating AI tools like ChatGPT and Bard into English Language Teaching (ELT) can significantly enhance the learning experience through various hands-on workshop activities. One engaging activity is "Training the Machine," where participants interactively train ChatGPT and Bard to provide specific language responses or explanations. This helps educators understand the capabilities of AI tools and how to tailor them to their specific ELT needs [6]. Another valuable activity is "Creating Lesson Plans," where participants collaborate with AI models to generate sample lesson plans for different language levels and topics, exploring how AI can make lesson planning more efficient and structured.

"Self-Learning Exercises" involve attendees using ChatGPT and Bard to prompt language exercises, vocabulary challenges, or grammar quizzes, encouraging independent language practice and skill improvement. The "Assessment of Writing" activity allows participants to submit written assignments or essays and use AI to assess and provide feedback, showcasing how AI can assist educators in grading and offering constructive feedback on writing assignments. Additionally,

"Pronunciation Practice" enables participants to engage in dialogues, repeat sentences, and receive guidance on correct pronunciation, aiding in refining oral communication skills.

"Interactive Quiz and Self-Study Tests" involve creating interactive language quizzes and self-study tests using AI tools. These quizzes provide instant feedback and track progress, making assessment and self-assessment more efficient and engaging. These hands-on workshop activities demonstrate the potential of AI tools like ChatGPT and Bard in ELT, empowering educators and learners to leverage these tools for personalized, interactive, and effective language learning experiences. They offer a glimpse into the versatility of AI models in enhancing various aspects of English language teaching.

C. How AI Tools Benefit Teachers in English Language Teaching (ELT)

In the ever-evolving landscape of English Language Teaching (ELT), the integration of AI tools like ChatGPT and Bard offers profound advantages for educators. These AI models play a pivotal role in streamlining and enhancing the teaching process, significantly benefiting teachers in various aspects of their profession. AI tools can be invaluable in preparing lesson plans by providing educators with ready-made plans or helping them generate customized plans tailored to their specific teaching goals. ChatGPT and Bard can quickly gather relevant resources, offer suggestions for engaging activities, and create structured outlines, saving educators precious time while ensuring that lesson plans are pedagogically sound and align with language learning objectives.

Creating language worksheets is a time-consuming task for teachers, and AI tools can assist by generating exercises, questions, and language practice activities for inclusion in worksheets. This not only expedites the worksheet creation process but also ensures that exercises are diverse, engaging, and closely aligned with the topic at hand. AI tools empower teachers to seamlessly blend traditional teaching methods with digital activities by using AI-generated content to complement classroom instruction. This hybrid approach, which includes interactive digital materials, multimedia resources, and real-time language assistance, makes learning more engaging and adaptable to different learning styles.

AI tools also have the capacity to customize language content based on individual student needs. Teachers can use these tools to provide differentiated instruction, adapting content for learners at various proficiency levels or focusing on specific language skills that require improvement. This tailored approach ensures that each student receives the appropriate level of challenge and support. Furthermore, AI tools encourage teachers to explore innovative teaching strategies. Educators can experiment with creative, AI-enhanced activities such as gamified language learning exercises, virtual reality language immersion, and dynamic language quizzes, which not only make learning more exciting but also enhance student motivation and participation.

IV. RESULT AND DISCUSSION

The research examined the efficacy and influence of The findings of this study reveal significant insights into the use and perception of AI tools in English language teaching among different demographic groups. The sample consists of 56 English Teachers (50.5%) and 55 English Learners (49.5%), ensuring a balanced representation (Table 1). This distribution allows for a comprehensive analysis of perspectives from both educators and learners.

Usage of AI Tools: The data indicates a stark difference in AI tool usage between the two groups. All English Teachers (100%) reported using AI tools, while none of the English Learners (0%) did (Table 2). This suggests that AI tools are predominantly integrated into teaching practices rather than being directly accessed by learners, highlighting a potential gap in AI tool availability or training for students.

When examining the preference for using AI tools across age groups, significant variations are observed (Table 3). Younger participants (under 18) show a low preference, with only 3 out of 19 favoring AI tools. Conversely, the 18-24 and 35-44 age groups show strong preferences, with 16 and 15 participants respectively indicating a preference for AI tools. Notably, all participants aged 55 and above prefer using AI tools. This suggests that younger learners may be less familiar or comfortable with AI technology compared to older participants who may see more value in its application.

The Pearson Chi-Square tests reveal significant associations between age groups and both perceived effectiveness ($p = 0.002$) and preference for using AI tools ($p < 0.001$) (Tables 4 and 5). These results indicate that age significantly influences both how effective participants perceive AI tools to be and their preference for using them.

The ANOVA analysis further supports these findings by showing significant differences in perceived effectiveness across age groups ($p = 0.023$) (Table 6). Older age groups, particularly those 55 and above, perceive AI tools as more effective compared to younger participants.

The results suggest several key implications for the integration of AI tools in English language teaching. Firstly, the exclusive use of AI tools by teachers points to a need for increased accessibility and training for learners. Educational institutions should consider implementing training programs to familiarize students with AI technologies. Additionally, the varying perceptions and preferences across age groups highlight the importance of tailoring AI tool implementation to meet the needs and comfort levels of different demographic groups. Older participants' higher preference and perceived effectiveness suggest that targeted interventions could leverage their positive perceptions to enhance AI tool adoption among younger learners.

V. CONCLUSION

This research has emphasized the substantial influence of AI technologies on the field of English language instruction, uncovering notable disparities in their use and reception across different demographic cohorts. The research indicates that AI tools are mostly used by English instructors, since all teachers in the sample reported using them, but none of the learners had utilized these tools. This discrepancy indicates a need for enhanced incorporation of artificial intelligence technologies into student learning procedures. Age greatly influences the desire for and perceived efficacy of AI products. Elderly individuals, namely those who are 55 years old and older, have a significant inclination towards AI products and see them as extremely efficacious. In contrast, younger learners, particularly those who are under 18, have lower levels of preference and effectiveness ratings. The results indicate that age-related variables have an impact on the uptake and perceived value of AI products, notwithstanding their recognized benefits. In order to maximize the advantages of AI technologies in English language instruction, it is crucial to tackle these demographic differences. Offering focused instruction and materials to educators and students may effectively close the gap in the use of AI tools. Moreover, adapting the features of AI tools to accommodate the diverse requirements and preferences of various age groups might improve their overall efficiency and reception. To summarize, while AI technologies show significant potential for enhancing English language instruction, it is crucial to implement strategic measures to guarantee their extensive and efficient use across all age demographics.

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