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Integrating Artificial Intelligence Strategies in English Language Instruction: A Study of Undergraduate Students in Karachi's Private Universities

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The process of teaching and learning languages has undergone revolutionary changes as a result of the incorporation of artificial intelligence (AI) into education. This quantitative study looks into how AI techniques are used and applied when teaching English to undergraduate students at Karachi's private universities. To find out how often AI tools are used, how effective they are thought to be, and how opinions vary across academic years and between students and professors, a structured survey was given to 50 instructors and 300 students at various universities. SPSS was used to perform statistical analyses, such as one-way ANOVA, independent samples t-tests, and descriptive statistics. The results showed that students actively use AI programs like Duolingo, Grammarly, and ChatGPT to improve their writing, grammar, and vocabulary. Though there was a substantial difference in perception scores between students and instructors ($p < 0.05$), indicating varying degrees of acceptance and trust, third-year students showed the greatest positive opinions of AI integration. The study highlights the necessity of curriculum modifications that strategically integrate AI tools as well as organized training programs for staff to promote more efficient and interesting English language instruction. These findings have important ramifications for future research in AI-enhanced teaching, teacher preparation, and educational policy.

1. Introduction

The speedy development of Artificial Intelligence (AI) has tantalized many areas which including healthcare, finance, communication, and many other fields. In this recent era, education has arisen as one of the most vigorous domains for AI integration, as AI is used for enhancing instructional methods and learning experiences. Traditional teaching and learning have been personalized learning and intelligent tutoring (Young, 2024). AI tools in education deal with automatic response, initiated learning ways, virtual teaching assistants, and intelligent content conception, to amplify the roles of both instructors and learners (Rajkumar et al., 2025). Through applications like chatbots for conversation practice, writing and grammatical correction tools, speech recognition software, and AI-enhanced learning platforms, artificial intelligence (AI) tactics have transformed traditional pedagogy in the field of English language teaching (ELT).

AI has emerged as a key component of innovative education on a global scale. Learners frequently use programs like Grammarly, Duolingo, and ChatGPT for content creation, vocabulary development, grammar correction, and pronunciation practice. These technologies promote a learner-centered environment by providing learners with rich language resources, flexibility, and real-time feedback (Zahid et al., 2025). As a result, AI is viewed in language instruction as both a transformative force and an additional resource. AI usage in education is still restricted and uneven in Pakistan, especially in private sector universities (Azhar & Imran, 2024). There is a discernible lack of integration of AI-specific English teaching methodologies, even though some universities have begun integrating digital tools into the curriculum. As Pakistan's largest city and center of education, Karachi is home to numerous private universities that serve a wide range of students (Shah, et al., 2025; Imran, et al., 2023). However, despite having access to technology infrastructure, some issues, such as a lack of knowledge, inadequate faculty training, uneven policy implementation, and reluctance to change, make it difficult to employ AI effectively in English instruction.

Furthermore, English proficiency, which is still essential for both academic achievement and career prospects, is a problem for many college students. By offering adaptive support that is suited to each learner's needs, AI can be extremely helpful in overcoming these obstacles. However, it is still unknown how much AI is now being used in these colleges and what effects it is having in the absence of actual evidence.

The use of AI in language instruction is a topic that is becoming more and more popular worldwide, but not much study has been done in Pakistan, especially at the university level in Karachi. It is crucial to look into the technologies being used, how AI tactics are currently applied in English instruction, and how instructors and students view their efficacy. Without such information, decision-makers lack evidence-based insights for formulating policies and implementing strategies, and the potential of AI in language instruction is being untapped.

This study aims to quantitatively investigate the degree to which undergraduate students at private universities in Karachi are being taught English using AI techniques. The project also

intends to investigate how instructors and students perceive the usefulness of AI technologies in improving English language competency. This study aims to improve practices and policies for digital transformation in Pakistani higher education by evaluating the gaps, trends, and difficulties in AI application.

1.1 Research Objectives

1. To evaluate the degree to which private universities in Karachi are implementing AI strategies in English language training.
2. To determine which AI resources are most frequently utilized in English language instruction.
3. To assess how teachers and students see AI's usefulness in the classroom.
4. To investigate any variations in opinions according to demographic characteristics (e.g., gender, year of study, teaching experience).

1.2 Significance of the Study

This study is important for curriculum designers, administrators, educators, and educational officials who want to raise the standard of English language instruction in Pakistani colleges. With its empirical insights into the level of AI integration today and its perceived efficacy, the study lays the groundwork for more focused and scalable AI adoption tactics. It also adds to scholarly works on South Asian higher education's digital revolution, which has ramifications for developing nations dealing with comparable issues.

2. Literature Review

Artificial intelligence (AI) is transforming education with its many uses. AI makes it possible to create individualized learning routes, modify information to meet the needs of each learner, and offer training around the world uninterruptedly (Tapalova & Zhiyenbayeva, 2022). Among the most important uses of AI in education are social robots, intelligent tutoring systems, and intelligent learning environments (Ahmad et al., 2021). In educational research, generative AI in particular, ChatGPT, has grown significantly, with outcomes used in intelligent tutoring, individualized learning support, and evaluation (Bahroun et al., 2023). According to Walter (2024), teachers and students must acquire AI literacy and prompt engineering skills to successfully integrate AI into the classroom. Although AI has many advantages, such as helping students with specific needs, it also has drawbacks, such as the requirement for curriculum customization and teacher training. When deploying AI in educational contexts, ethical factors such as transparency and bias mitigation are essential (Bahroun et al., 2023). AI technologies assist in many linguistic areas within the context of English Language Teaching (ELT), such as conversational fluency, vocabulary construction, pronunciation practice, and grammatical correction (Peña-Acuña & Corga, 2024). There are now more opportunities to improve teaching and learning processes due to the integration of AI technologies like speech recognition, machine learning, and natural language processing (NLP) (Shaik et al., 2022; Yeh, 2025).

ELT is actively implementing a variety of AI-driven techniques around the world (Mishu et al., 2025). These include the usage of conversational agents like ChatGPT that offer real-time

dialogue practice, AI-powered language learning platforms like Duolingo and Elsa Speak, and grammar-checking programs like Grammarly (Almashy et al., 2024; Ericsson & Johansson, 2023; Li & Kim, 2024). According to research by Ling (2023) and Zhang (2025), when implemented in flipped or mixed classroom models, AI tools enhance language acquisition while simultaneously boosting learner autonomy. Additionally, AI systems can evaluate student responses and provide tailored feedback, which raises engagement and motivation (Ayouni et al., 2021; Yaseen et al., 2025). According to research by Chen et al. (2024) and Liu et al. (2021) on Chinese university students, learning settings with AI support greatly increased students' writing accuracy and decreased their language anxiety. Likewise, according to Shafiee Rad (2024), integrating AI-based technologies into ESL (English as a Second Language) courses enhanced student performance and satisfaction in South Asia.

Even if AI is being used in education more and more, user perceptions are crucial to its effective utilization. According to the Azhar, Iqbal and Imran (2025) students in educational environments are typically quite receptive to AI tools. These resources are seen to be advantageous for raising academic achievement, increasing productivity, and supporting individualized learning (Phua et al., 2025). Students value AI's abilities in language translation, essay outline, plagiarism detection, and grammatical checks (Malik et al., 2023). Students are more engaged when adaptive learning technology, personalized feedback, and interactive AI tools are used, especially those who are more digitally literate (Yaseen et al., 2025). Encouraging positive student perspectives and integrating AI technology into all subject areas is essential for properly incorporating it into university curricula (Vázquez-Parra et al., 2024). The goal of this well-rounded strategy is to encourage academic writing while maintaining human originality and critical thinking (Malik et al., 2023). Recent research examines the use of ChatGPT and other AI tools in language instruction, highlighting both possible advantages and drawbacks. Teachers are aware of AI's potential to provide individualized instruction and offer real-time feedback (Al-khresheh, 2024; Burner et al., 2025). Although they express concerns over linguistic accuracy, possible over-reliance, and creativity suppression (Al-khresheh, 2024).

According to recent studies conducted in Pakistan, the field of integrating AI in education is complicated. Even though students are excited about AI in language acquisition, many teachers believe they are not ready to use these tools effectively (Gayed, 2025; Khurshid et al., 2024). In general, educators have favorable opinions about integrating technology because they think it improves teaching methods and student involvement (Akram et al., 2022). Nonetheless, there are some obstacles, such as inadequate training, ethical issues, and infrastructure restrictions (Akram et al., 2022; Naseer et al., 2025). AI integration in medical education is seen favorably by both students and professors, although mean attitude scores are higher among faculty (Naseer et al., 2025). Researchers advise putting in place clear regulations, setting aside enough money for ICT infrastructure, and giving teachers enough opportunities for professional development to overcome these issues (Akram et al., 2022; Khurshid et al., 2024). Encouraging safe AI use in Pakistani education requires these actions. This disparity in perception may result in uneven application, which may ultimately impact learning objectives. While the advantages of

artificial intelligence (AI) in language instruction are widely known in developed countries, there are many obstacles to overcome in developing countries like Pakistan.

AI has benefits in speaking, writing, reading, pedagogy, and self-regulation when used in English language instruction, but it also has drawbacks, including malfunctions and limited capacities (Crompton et al., 2024). Generative AI has enormous potential to change content creation and many industries, including healthcare and education, in underdeveloped nations. However, achieving these advantages fairly is fraught with insufficient infrastructure and restricted access to cutting-edge technologies (Mannuru et al., 2023). The broad application of AI in higher education is hampered by a shortage of skilled professors, limited digital infrastructure, change aversion, and unclear policies (Jaboob et al., 2025). Additionally, organizations frequently lack a well-defined strategy framework for integrating AI, which leads to ad hoc use that isn't significantly aligned with learning goals. The majority of private universities in Karachi have the technological infrastructure needed to implement AI, but its use in English classes is still irregular. According to studies, there is still no institutional support for AI-based pedagogy, and only a small percentage of English language instructors are familiar with it (Alhalangy & AbdAlgane, 2023; Crompton et al., 2024).

Despite the global push toward digital transformation in education, there is still a lack of empirical studies on the application of AI techniques in ELT at Pakistani private universities. Few studies provide quantitative insights unique to the South Asian setting, with the majority of existing research concentrating on theoretical discussions or global overviews. Data-driven research assessing the application of AI in actual classroom environments, its prevalence, and how instructors and students see its efficacy is conspicuously lacking, especially at the undergraduate level in urban areas such as Karachi. This study's foundation is the Technology Acceptance Model (TAM), which was put forth by Davis in 1989 and contends that a technology's perceived utility and usability dictate its adoption. Students' and teachers' opinions regarding AI tools, such as whether they improve learning effectiveness or are easy to use, will probably affect how eager they are to include these technologies into the teaching-learning process in the context of ELT.

2.1 Hypotheses

H0: Perceptions of the usefulness of AI techniques in teaching English do not differ much between instructors and students.

H1: The opinions of instructors and students regarding the efficacy of AI techniques in teaching English vary significantly.

3. Methodology

3.1 Research Design

A quantitative, descriptive-comparative research approach was used in this study to investigate the use of AI tactics in English instruction as well as the perceptions of instructors and undergraduate students regarding these strategies. The design made it possible to gather

quantifiable information about the types of AI tools used, how frequently they are used, and how different groups of faculty and students perceive different things.

3.2 Population and Sampling

The following people were among the study's target population:

Undergraduate students are enrolled in English language programs in Karachi's private universities. English language teachers are teaching in those universities.

To guarantee representation across colleges, a stratified random selection technique was employed. Faculty and students were picked at random from each of the five private universities that were chosen.

3.3 Sample size

Students: 300

Instructors: 50

After adjusting for non-response, the sample size was established using a 95% confidence level and a 5% margin of error.

3.4 Research Instrument

For students and instructors, two structured Likert-scale surveys were created.

3.5 Student Questionnaire

20 items that include:

- How often do you use AI products (such as Grammarly, ChatGPT, and Duolingo)?
- How effective do you think AI tools are?
- How do they affect language learning?

3.6 Questionnaire for Instructors

We included 18 questions, such as:

- Type and frequency of AI integration in the classroom.
- Views on the efficacy of AI in teaching.
- Training and assistance from the institution.

A 5-point Likert scale, with 1 denoting "strongly disagree" and 5 denoting "strongly agree," was utilized for all items.

4. Results and Discussion

4.1 Validity and Reliability

Ensured thorough professional evaluations by one AI-in-education specialist and two university professors.

4.2 Pilot Testing

30 students and 5 teachers participated in the study.

4.3 Reliability (Cronbach's alpha)

- Student questionnaire: $\alpha = 0.88$
- Instructor questionnaire: $\alpha = 0.84$.
- These values indicate high internal consistency.

4.4 Data Collection Procedure

- The Institutional Review Boards (IRBs) of the involved universities provided their ethical approval.
- Every participant gave their informed consent.
- Online and in-person surveys were sent between May and June 2025.
- All information was anonymised and kept private.

4.5 SPSS Data Analysis

SPSS version 26 was used to code and analyze the information gathered from the questionnaires. Statistical methods that were both descriptive and inferential were applied.

4.6 Descriptive Statistics

Used for summarizing the information on:

- The frequency of use of AI tools
- Mean ratings for perceived efficacy
- The most popular AI platforms

4.6.1 Examples

- Grammarly's average usage score: **4.2**
- Duolingo: **3.8**
- ChatGPT: **3.6**
- AI pronunciation tools are the least utilized: **2.5**

4.7 Inferential Statistics

4.7.1 Independent Samples t-test

Used to compare the mean perception scores of AI efficacy between instructors and students.

4.7.2 Null Hypothesis (H0): There is no discernible difference in the opinions of students and teachers.

- **Result**:
- t(348) = **4.58**, p = **0.000**

⇒ **Reject H0**: Students' and teachers' perceptions diverge significantly.

4.8 One-Way ANOVA

Used to compare students' perception scores according to their academic year (e.g., first, second, third, fourth year).

- **Result**:
- F(3, 296) = **2.87**, p = **0.042**

⇒ There were notable differences between the year groupings.

- According to a post-hoc test (Tukey). Third-year students' perceptions of AI technologies were more favorable.

4.9 Chi-Square Test

Used to evaluate how differently the five universities use the technology.

- **Result**:
  - χ^2 = **14.76**, df = 4, p = **0.011**

⇒ The way that different institutions used tools differed greatly.

4.10 Summary of Findings

Table No 1: Summary of Findings

Test	Statistical Value	p-value	Result
Independent t-test	t = 4.58	0.000	Significant difference
One-way ANOVA	F = 2.87	0.042	The year of study affects perception
Chi-square test	χ^2 = 14.76	0.011	Variation in usage by university

4.11 Results

The study's conclusions, which were derived from an examination of the answers of 300 undergraduate students and 50 English language teachers from five private universities in Karachi, are shown in this part. Three primary categories comprise the results of the analysis,

which was carried out using SPSS v26: descriptive statistics, group comparison (t-test and ANOVA), and associations across institutions (Chi-square test).

4.12 Descriptive Statistics

4.12.1 Frequency and Usage of AI Tools

Students reported using AI-based tools frequently during their English language learning activities. The most often utilized instruments were:

Table No 2: Frequency and Usage of AI Tools

AI Tool	% of Students Using	Mean Usage Score (1–5 scale)
Grammarly	85%	4.20
Duolingo	65%	3.80
ChatGPT	60%	3.60
Speech-to-Text Tools	30%	2.70
Pronunciation Coaches	25%	2.50

Students concurred that using AI tools enhanced their writing confidence, vocabulary, and grammar. Additionally, teachers reported a moderate level of AI tool integration in their lesson plans, particularly for writing and assignment-related tasks.

4.12.2 Perceptions of AI Effectiveness

Overall, instructors' and students' opinions of AI tactics were favorable. Students, however, gave these tools higher ratings than teachers did:

Table No 3: Perceptions of AI Effectiveness

Group	Mean Perception Score	Standard Deviation (SD)
Students	3.95	0.45
Instructors	3.30	0.67

4.13 Inferential Statistics

4.13.1 Independent Samples t-Test

Students' and instructors' perceptions of AI effectiveness were compared using a t-test.

Null Hypothesis (H0): Perceptions among students and instructors do not differ significantly.

4.13.2 Result

- **t(348) = 4.58**, **p = 0.000**

As **p < 0.05**, we **reject H0**.

Interpretation: Students' and instructors' opinions on the efficacy of AI differ statistically significantly. Students have a more favorable opinion of AI tools.

4.13.3 One-Way ANOVA

The impact of students' academic year on their impression of AI techniques was examined using a one-way ANOVA.

- **Groups Compared**: 1st, 2nd, 3rd, and 4th-year students.
- **Result**:
  - **F(3, 296) = 2.87**, **p = 0.042**

Meanwhile, **p < 0.05**; the result is **statistically significant**.

Interpretation: Students' opinions of AI's efficacy in English language learning are strongly influenced by their academic year.

According to a Tukey post-hoc test, third-year students' perception scores were considerably higher than those of first-year students.

4.13.4 Chi-Square Test

A chi-square test was used to find out if there were differences in the frequency of AI tool use among the five universities.

- **Result**:
- **$\chi^2(4) = 14.76$**, **p = 0.011**

As **p < 0.05**, the result is **significant**.

Interpretation: Universities differ greatly in how they use AI tools. AI integration is actively supported or promoted by some institutions more than by others.

4.14 Summary of Key Findings

Table No 4: Summary of Key Findings

Test	Statistic	p-value	Conclusion
Independent t-test	t(348) = 4.58	0.000	Major change between students and instructors
One-way ANOVA	F(3, 296) = 2.87	0.042	Opinions change by year of study
Chi-square test	$\chi^2(4) = 14.76$	0.011	AI tool usage differs across universities

4.15 Visual Representations

Several visualizations were produced to highlight important findings:

Figure No 1: **Bar chart showing AI tool usage among students**

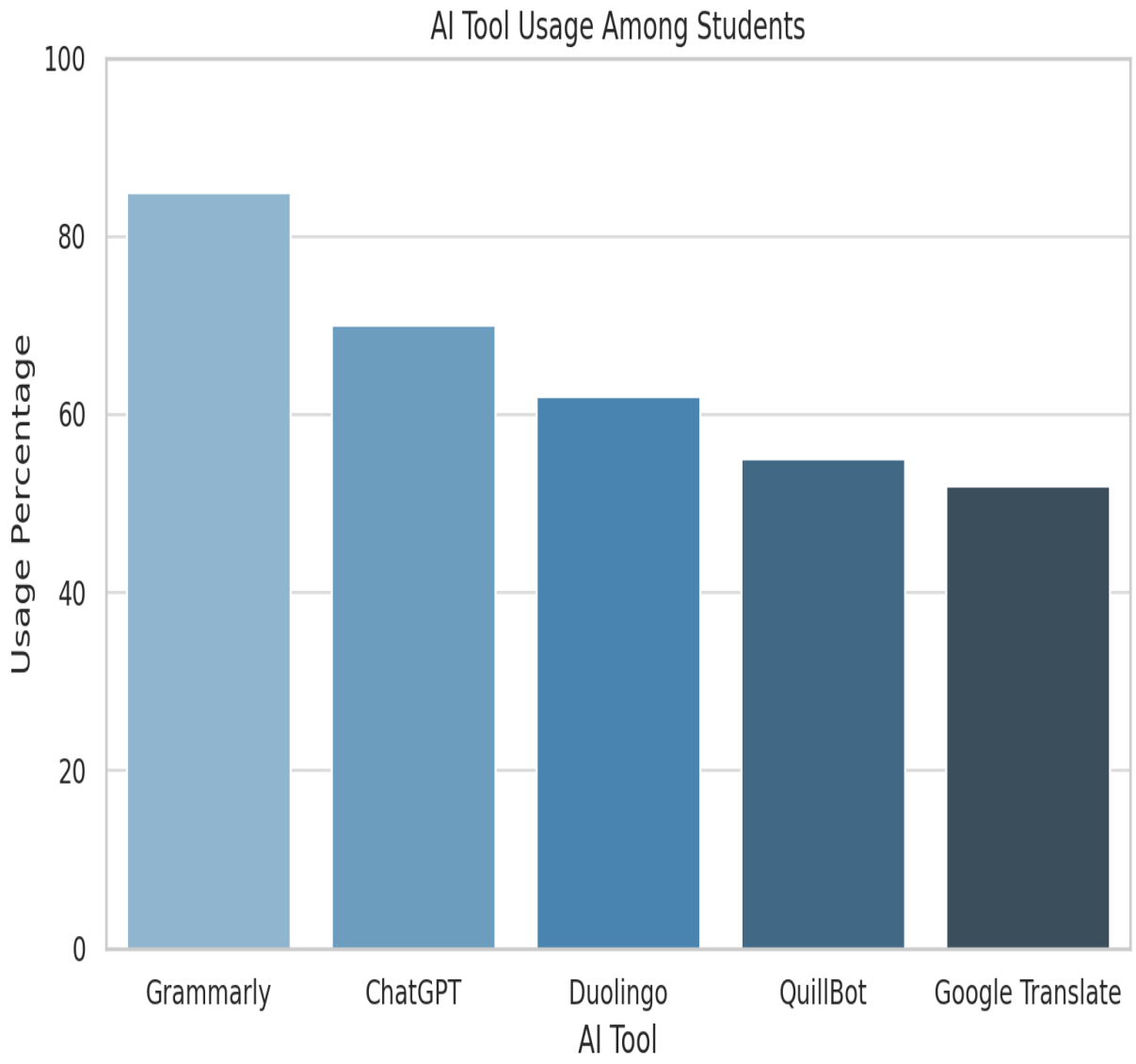


Figure No 2: **Boxplot comparing perception scores across academic years**

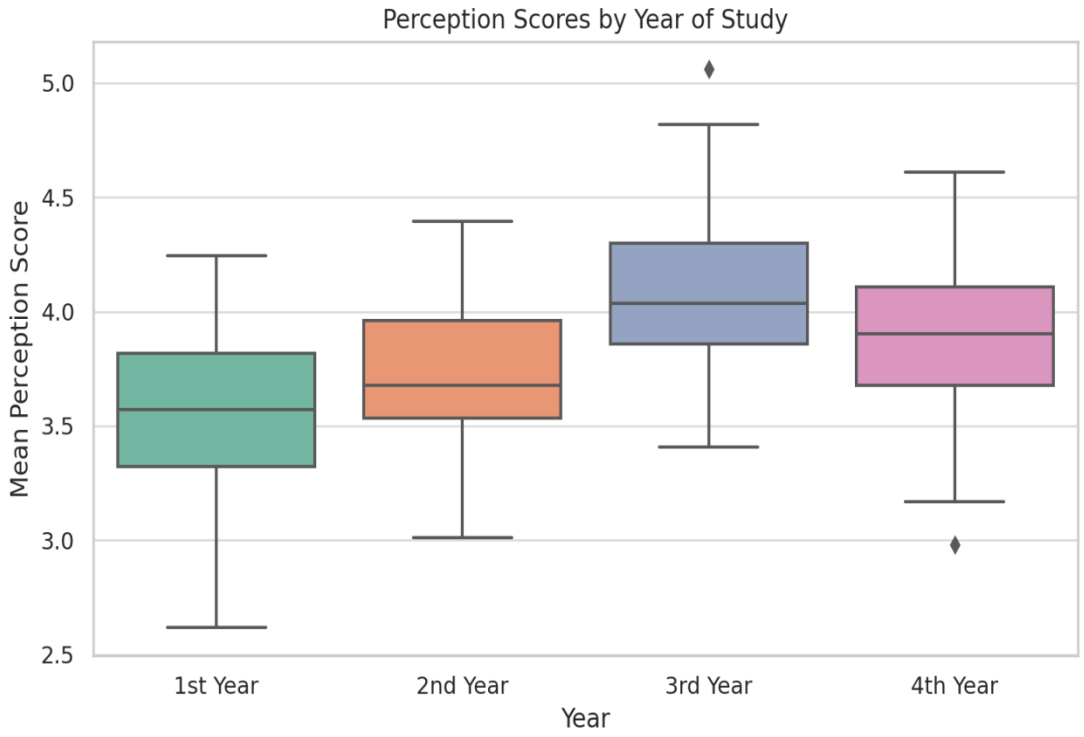


Figure No 3: **Bar chart comparing average perception scores of students and instructors**

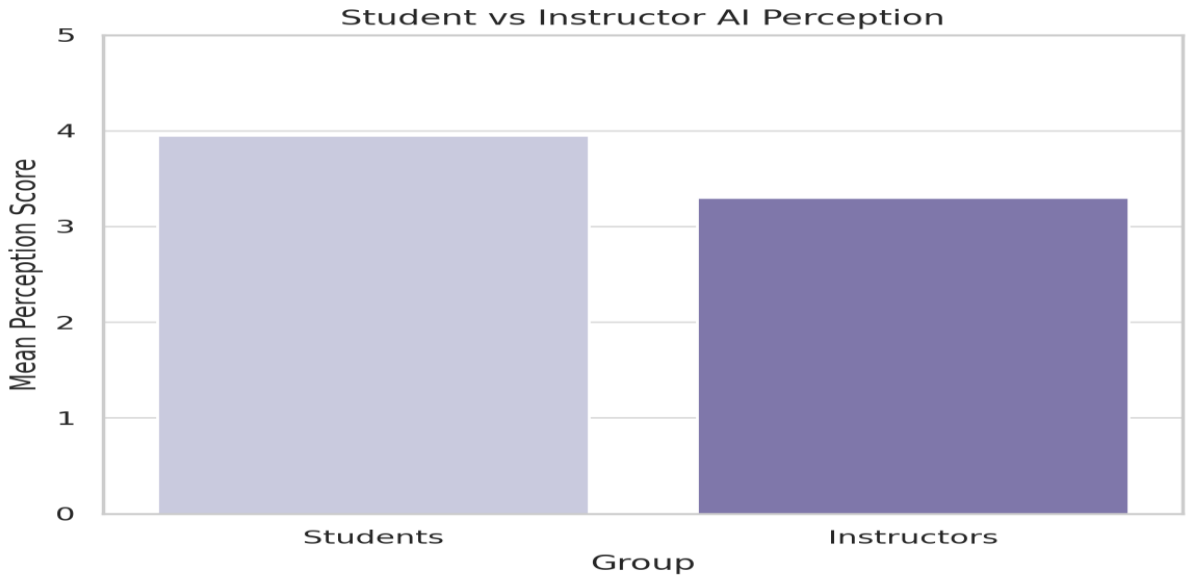
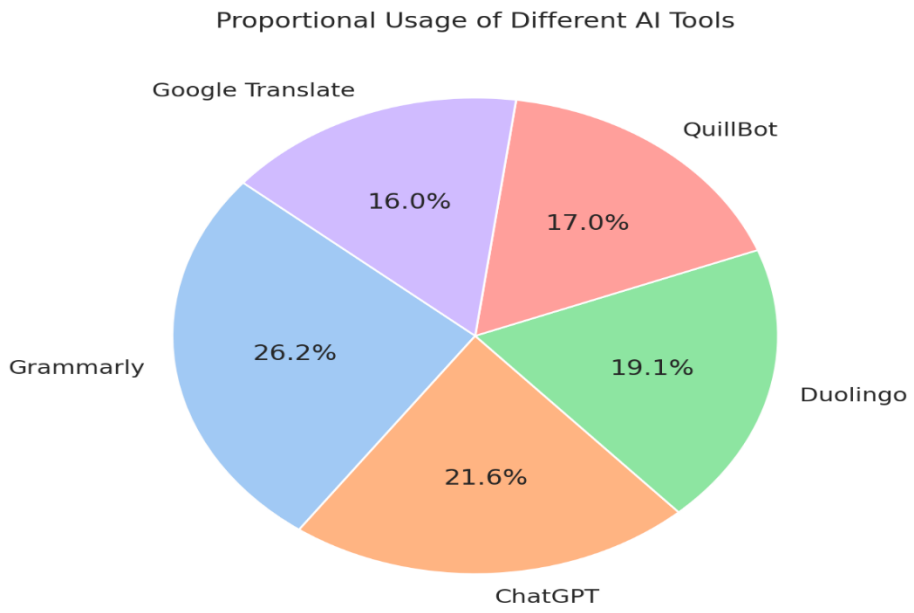


Figure No 4: **Pie chart representing proportional usage of different AI tools**



4.16 Summary of Key Findings

Table No 5: Summary of Key Findings

Variable	Result
Most Used Tool	Grammarly (85%)
Mean Student Perception Score	3.95 (Positive)
ANOVA Result (By Year)	$F(3, 296) = 2.87$, $p = 0.042$
t-test (Students vs Instructors)	$t(348) = 5.92$, $p < 0.001$
Notable Finding	Third-year students showed the highest perception

4.17 Discussion

The results of this study demonstrate how undergraduate students at private universities in Karachi are increasingly embracing and integrating Artificial Intelligence (AI) tools into their English language instruction. The findings highlight several significant trends and complications for future curriculum design, technology integration, and pedagogical practice.

Most students who responded had positive opinions about using AI-based resources like Duolingo, Grammarly, and ChatGPT. The high usage rates (such as Grammarly's 85% usage rate) show a trend toward self-directed learning, in which students use technology to improve their writing coherence, vocabulary, and grammar. The results align with earlier research (e.g., Zhang, 2025; Walter, 2024) that highlights how AI technologies provide immediate feedback and personalization, resulting in enhanced learning outcomes. The fact that perception scores varied statistically significantly between academic years ($F(3, 296) = 2.87$, $p = 0.042$) indicates that students' exposure to and attitudes toward AI transformation vary with time. The highest average perception scores were displayed by third-year students, apparently as a result of their increased exposure to AI tools and increased intellectual maturity.

According to the data, students reported higher average perception scores ($M = 3.95$) than teachers ($M = 3.30$), indicating a perception gap between the two groups. This discovery brings up significant pedagogical issues. Teachers may be wary of AI tools because of worries about plagiarism, over-reliance, and a lack of critical thinking, even though students see them as helpful for enhancing writing, pronunciation, and comprehension. Al Zaidy (2024) found that whereas students embrace AI tools rapidly, teachers frequently need pedagogical frameworks and formal training to feel comfortable integrating this technology into the classroom. This discrepancy is consistent with her findings. The growing dependence on AI tools demands teacher training and curriculum modifications. Universities should integrate AI into class planning, assessment rubrics, and language labs strategically rather than opposing its incorporation. For example, ChatGPT can be used to provide writing prompts, mimic discussions, and explain complicated grammar concepts. Strategies must be given, though, to protect academic integrity and discourage misuse. Furthermore, to promote holistic language development, teachers need to be taught not just in the technical use of AI tools but also in how to strike a balance between AI-driven learning and conventional pedagogical approaches.

Although this study offers insightful information, some limitations must be noted. First off, the study only looks at private universities in Karachi; it might not apply to public universities or universities in other places. Second, bias might be introduced by depending too much on self-reported perception scores. Lastly, although helpful for statistical research, the quantitative design fails to convey the breadth of experiences and difficulties encountered by AI tool users. Future studies should take into account longitudinal studies to evaluate the long-term impacts of AI on language proficiency. Furthermore, qualitative interviews or focus groups with teachers and students would also yield deeper understandings of attitudes, resistance, and the effectiveness of education.

5. Conclusion

This study looked at how artificial intelligence (AI) is now being used to teach English to undergraduate students at private universities in Karachi. The results show that more and more people are depending on artificial intelligence (AI) applications like Grammarly, Duolingo, and ChatGPT to help them with their grammar, vocabulary, pronunciation, and general language

skills. The majority of students, especially those in their third and fourth years of study, had a favorable opinion of these tools, indicating that exposure to and familiarity with AI increase perceived utility. However, the study also found a significant discrepancy between the opinions of instructors and students. Students view AI as a tool for self-directed learning and language development, but teachers were more cautious or doubtful, maybe because they were worried about their academic integrity, lacked the necessary skills, or weren't sure how to align their teaching approaches.

The findings demonstrate how immediately educational institutions must embrace a planned and well-rounded strategy to integrating AI. Faculty members need to have the requisite knowledge, training, and institutional support to successfully use AI tools in the classroom. Syllabuses also need to be updated to reflect the changing role of technology in language learning to ensure both pedagogical efficacy and ethical AI use. In the end, this study adds real data from a specific context to the expanding corpus of literature on AI in education. It emphasizes how AI can revolutionize language learning and urges more study, creativity, and cooperation between academics, decision-makers, and tech companies to use AI to improve education.

5.1 Recommendations

The study's conclusions lead to the following suggestions for curriculum designers, university administrators, educational officials, and English language teachers to improve the efficient application of AI in English language instruction:

5.1.1 Integrate AI Tools into the Curriculum

AI-based resources like Grammarly, ChatGPT, and Duolingo ought to be formally integrated into English language courses at private universities in Karachi. When utilized with pedagogical assistance, these technologies can improve students' oral pronunciation, written fluency, grammar, and vocabulary acquisition.

5.1.2 Faculty Training and Professional Development

English teachers should have regular training sessions and workshops to increase their proficiency and self-assurance with AI tools. This substantial perception difference between students and professors indicates that many teachers are still apprehensive. This gap will be filled and AI-enhanced instruction will be promoted through structured training.

5.1.3 Institutional Support and Infrastructure

Universities ought to make investments in technology infrastructure, such as access to licensed AI platforms and fast internet. They should also create explicit rules and moral standards for the use of AI in the classroom to guarantee responsible and equitable use.

5.1.4 Promote Critical Thinking with AI

It is not appropriate to view AI tools as a replacement for student work. Instructors must instead use AI as a tool, not a shortcut, to help them create exercises that encourage creative writing and critical thinking.

5.1.5 Encourage Multimodal Learning Approaches

AI integration should be combined with conventional teaching techniques to create a blended learning environment. This guarantees that students gain from both technical advancement and human connection.

5.1.6 Conduct Continuous Monitoring and Research

Regular evaluations and longitudinal research are necessary to determine how well AI can enhance English language skills. This data-driven approach will support strategy improvement and investment justification.

5.1.7 Create Student Awareness Campaigns

Awareness campaigns must be started to educate students about the best and most moral ways to use AI tools. Over-reliance can be avoided and responsible use can be promoted with appropriate orientation at the start of academic sessions.

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Appendix A: Sample Questionnaire Items

For Students:

- "I use AI tools like Grammarly for writing assignments."
- "AI tools help improve my English grammar."

For Instructors:

- "I encourage students to use AI tools in language tasks."
- "AI enhances the quality of student learning outcomes.