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INVESTIGATING THE EFFECTS OF GENERATIVE AI USE ON ENGLISH LANGUAGE PROFICIENCY AND LINGUISTIC PERFORMANCE AMONG UNDERGRADUATE STUDENTS

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ABSTRACT
The proposed study examines how the use of generative AI impacts undergraduate students in BS English programs in terms of English language proficiency and linguistic performance at University of the Punjab, University of Sargodha, University of Lahore, and University of Okara. It utilized a quantitative research design and a sample of 300 undergraduate students was used to collect the data through a structured questionnaire and standardized language proficiency tests. The researchers quantified the rate of use of generative AI and the association between it and the linguistic performance of students. The correlation and regression analyses were performed to analyze the correlation between the use of generative AI and language proficiency and linguistic performance. The results show that there is a statistically significant positive correlation between moderate usage of generative AI applications, including ChatGPT, and vocabulary, grammatical accuracy, and coherence in writing. Nonetheless, the findings also show that the overuse of such tools can adversely impact the independent language production abilities of students. The scholar identifies duality in generative AI as it is both a facilitative learning resource and a possible dependency. It provides valuable pedagogical implications on how AI technologies can be integrated into language education without compromising on the balance that leads to the development of independent linguistic competence.

Keywords
Generative artificial intelligence, English language proficiency, linguistic performance, undergraduate students, AI-assisted learning, language education, quantitative analysis

1. INTRODUCTION
The hasty progress of generative artificial intelligence has also brought a lot of changes in the sphere of language learning, communication, and writing papers. Over the last few years, novel opportunities in the interaction between students and language have been presented by the use of advanced AI-driven language models, including ChatGPT. These tools can produce human text, give real-time feedback and be used to help with many other linguistic tasks, such as correcting grammar, paraphrasing, and developing content. Consequently, generative AI has emerged as a more and more prominent part of higher education, especially in the sphere of English language learning.

According to the recent research, it is argued that generative AI is not just a technological breakthrough but rather revolutionary and can transform the educational practices. Law (2024) notes that the ability to optimize teaching and learning, particularly in the field of language acquisition, has made generative AI become known worldwide. The assimilation of these technologies has facilitated learners to engage with language dynamically and in a personalized manner thus broadening the traditional means of instruction.

Generative AI is becoming popular among undergraduate students to advance their education. With these tools, learners will have access to linguistic assistance in real-time, enabling them to polish their writing, enlarge the realm of words and become more accurate in their grammar. Studies show that many students use AI-based tools in their educational activities, as they

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consider them to be efficient and helpful learning tools (Ali et al., 2024). This extensive use underscores the increased reliance on AI technologies in academic work involving languages.

Pedagogically, generative AI may be considered an interactive co-learner. It allows the learners to get immediate feedback and interact with the learning process. Zawacki-Richter et al. (2025) suggest that AI systems can be used to facilitate individualized learning by changing to meet the needs of each specific learner and offer tailored responses. This is in line with the modern methods of language learning whereby learner control, interaction, and involvement are stressed.

Nevertheless, even with these benefits, the rising usage of generative AI poses significant questions about its effects on the linguistic competence and performance. Linguistic competence is defined as the knowledge of systems of language, which are grammar, vocabulary and syntax and linguistic performance is defined as the use of the knowledge in practice in actual communicative situations. The application of AI tools can have a complex impact on both of these aspects.

Overdependence is one of the key issues that have been pointed out in the recent literature. Although AI tools can improve the learning process, the overuse of these tools can reduce the capacity of students to acquire autonomous language skills. Research has indicated that learners who often rely on AI-generated materials tend to do less critical thinking and mental processing to learn language (Ali et al., 2024). This brings up the question of whether AI facilitates or inhibits the long-term language development.

The other concern is that of the authenticity of the AI-generated language. Generative AI systems work according to the patterns identified on the large data set and might fail to render the specificities of the human communication including the cultural context, pragmatics and discourse conventions. Wang and Yu (2025) suggest that AI-generated texts might be contextually inappropriate and one-dimensional, which are key elements of effective communications. This drawback can influence the exposure of students to the real-life application of language and the possibility of the development of communicative competence.

Nevertheless, there are also positive effects of generative AI on language learning, which are supported by empirical evidence. A study by Chen et al. (2025) shows that AI-aided feedback has a beneficial impact on the writing proficiency of students, specifically the grammatical accuracy and coherence. Likewise, a recent meta-analysis by Huang et al. (2026) discovered that generative AI can positively influence learning outcomes in different learning settings statistically significantly. Such results indicate that AI may be an effective resource that could be used to improve linguistic performance in case it is used wisely.

The two-sided character of generative AI explains the necessity of the systematic study. Although qualitative research has been conducted on the perceptions and experiences of students, there is a gap in the quantitative research that quantifies the direct correlation between the use of AI and linguistic outcomes. Specifically, the empirical studies of the developing countries are scarce, and AI implementation in education is still in its development.

English language proficiency is a key to academic achievement and career growth in Pakistan. Undergraduate students, especially those pursuing BS English courses, should be highly competent and perform well in linguistics. Nevertheless, the growing popularity of generative AI tools among these students requires a more in-depth insight into the effects of these technologies on the language development of these students.

Moreover, it is reported that a substantial percentage of university students in the world today are using AI tools in their studies, such as writing tasks and brainstorming (Cotton et al., 2025). Such a large-scale use highlights the importance of studying the effects of AI on the outcomes of language learning.

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Taking these developments into consideration, the current research seeks to explore how generative AI use affects the English language performance and proficiency among undergraduate learners. With the help of a quantitative research design, the research aims to offer empirical evidence on the connection between the use of AI and language outcomes. The research results will hopefully help develop a more balanced and evidence-based concept of the role of generative AI in language education.

STATEMENT OF THE PROBLEM

The fast development of generative artificial intelligence into educational settings has brought about confusion about its effects on language acquisition among students. Although generative AI tools can offer instant help in the process of writing, grammar, and vocabulary, their impact on the linguistic autonomy and performance of students is ambiguous. Current studies have been more on perceptions and attitudes as opposed to quantifiable results. In addition, scanty quantitative data have been conducted to look at the impact of generative AI application on the English language proficiency among undergraduate students, especially in Pakistani universities. Thus, this paper aims to fill this gap by empirically researching the connection between the use of generative AI and linguistic performance.

RESEARCH OBJECTIVES

a) To examine the impact of generative AI use on English language proficiency among undergraduate students.
b) To analyze the effect of generative AI use on linguistic performance among undergraduate students.

RESEARCH QUESTIONS

a) What is the impact of generative AI use on English language proficiency among undergraduate students?
b) How does generative AI use affect linguistic performance among undergraduate students?

SIGNIFICANCE OF THE STUDY

This research holds considerable importance in a number of aspects. To begin with, it adds to the increasing number of studies on the role of artificial intelligence in language instruction by offering quantitative data on the impact of generative AI on language performance. Although the number of existing studies is immense, the existing body of research is primarily theoretical or qualitative, whereas this study provides empirical evidence, which can promote academic knowledge on AI-mediated language acquisition.

Second, the research has implications in practice to teachers and curriculum developers. The findings can inform educators to integrate the use of AI tools in a classroom setting by determining the effects of generative AI on language proficiency and performance. It can contribute to the creation of instructional strategies that would allow maximizing the benefits of AI and minimizing possible disadvantages like overdependence.

Third, the work is especially significant to undergraduate students since it allows noting not only the benefits of using generative AI tools but also the threats. Learning about these effects will help to motivate students to take a more moderate and responsible attitude towards the application of AI in their academic life to facilitate independent study and critical thinking.

Moreover, the research is also important to policy makers and schools. The use of AI technologies in education is becoming more common; therefore, clear guidelines and policies on the use are necessary. This research can be used in policy making in the areas of academic integrity, assessment practices and the adoption of digital tools in higher education.

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Lastly, this study is particularly useful within the framework of Pakistani universities, in which the empirical literature on generative AI and language learning is limited. The study offers context-specific information by targeting undergraduate students pursuing BS English-related programs, which could be used to create more effective language education practices in the area. On the whole, the research fills an important gap in the literature and contributes to the applied linguistics discipline both theoretically and practically.

LIMITATIONS OF THE STUDY

There are some limitations to this study. The study is restricted to undergraduate students in BS English courses which can limit the generalization of the results to other fields or levels of education. The research is also based on self-reported data about the use of generative AI, which can be prone to a response bias. Besides, the study is cross-sectional, and it is not possible to consider the long-term impact of AI use on language development. In addition, the study is also limited to the specific universities, which might not be a comprehensive reflection of any higher educational setting.

2. LITERATURE REVIEW

The blistering pace of generative artificial intelligence into the language teaching has drawn considerable academic interest over the past few years. Since AI-based applications like ChatGPT are constantly being developed, scholars have been advocating more on how they influence language learning, with reference to English language proficiency and linguistic performance. This part presents the most recent literature by concentrating on the major themes, such as the importance of generative AI in language learning, its impact on the writing proficiency, its role in linguistic performance, and challenges related to its utilization.

2.1 Generative AI in Language Learning.

As a revolutionary technology in language learning, generative AI has opened up new opportunities where students can engage with language in a more engaging and individualized manner. Recent studies imply that AI tools offer instant feedback, self-directed learning, and engage students. Lee et al. (2025) believe that generative AI has become a key element of the contemporary language classroom, and they provide tailored learning experiences and facilitate individualized instruction by offering adaptative learning settings.

On the same note, Kohnke et al. (2025) posit that generative AI boosts learner autonomy by giving students the ability to seek linguistic support independently and not necessarily through the teachers. This is in line with current pedagogical practices that focus on learner-based education and self-managed learning. Moreover, Stockwell (2024) notes that AI is being actively incorporated into language teaching as well, thus changing conventional ways of teaching into more interactive and technology-focused ones.

Although these are the advantages, the literature also admits that the incorporation of generative AI in the language learning process is still developing. Numerous papers underline the necessity of the empirical research in order to comprehend its long-term effect on language development. Hwang (2025) observes that a significant portion of the current studies is based on restricted research designs (surveys and pretest-posttest) which suggests that more intensive and quantitative studies are required.

2.2 Generative AI and Writing Proficiency

The role of generative AI in writing proficiency has been one of the most researched fields of literature. Writing is a complicated act that involves learning grammar, vocabulary, structure and cohesion and therefore, it is a major indicator of language mastery. Recent researches have uniformly supported that AIs can greatly improve the writing abilities.

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Indicatively, Mekheimer (2025) carried out an experimental research study on the impact of AI-assisted feedback on writing proficiency among English as a Foreign Language learners. The results showed that students who used AI tools scored much higher in post-test scores than their counterparts who were taught in a traditional manner. The research also identified the positive correlation between the use of AI and the enhancement in content organization, coherence, and revision practices.

Similarly, Alangari (2025) found that AI-assisted learning results in significant gains in various aspects of writing ability, such as vocabulary, grammar, and mechanics. These results indicate that AI tools can be used to effectively develop fundamental linguistic skills needed to write academic papers.

Moreover, a study by Sanz-Tejeda (2025) identifies the importance of AI-generated feedback in improving the writing quality and student engagement. The researchers discovered that AI feedback enhances grammatical accuracy and motivates and builds confidence in learners, which are key aspects in the language learning process. These results indicate that generative AI can serve as a valuable tool for both cognitive and affective aspects of language development.

Moreover, Alpar (2025) investigated how various generative AI tools can be useful in facilitating English writing assignments. The researchers discovered that AI tools helped learners to brainstorm, organize essays and revise work, but the statistical significance of the differences between tools was not always significant. This implies that although generative AI is advantageous in general, its usefulness might be somewhat different based on the tool and the situation.

2.3 Generative AI and Linguistic Performance.

In addition to writing skills, generative AI also has an impact on more general areas of linguistic performance such as the capacity to apply language to actual communicative situations. Linguistic performance refers to the accuracy as well as fluency, coherence and appropriateness.

Recent quantitative studies suggest that generative AI has a beneficial effect on the general performance in language. The meta-analysis of Guan et al. (2026) revealed that the positive effects of generative AI on English proficiency and self-regulation are small to moderate, and especially strong on speaking skills. This implies that AI technologies could facilitate various aspects of language acquisition, not just writing.

In addition, AI-supported writing aids have been found to aid in better vocabulary learning and grammatical correctness. Recent studies indicate that students utilizing AI tools have better language results than students relying on more traditional approaches, especially language variety and sentence structure . These results indicate the presence of AI in helping to use language more complexly.

The other significant effect of generative AI is that it helps to lessen the linguistic obstacles and especially among non-native speakers. Extensive research suggests that the writing with AI support can enable students to write more text that is akin to native-like text and thus, enhance their academic writing skills. This implies that generative AI can be used as a linguistic equalizer, allowing students with various backgrounds to engage more in academic discourse.

2.4 Limitations and Problems of Generative AI.

Although the advantages of generative AI are now thoroughly reported, the literature also presents a number of challenges and limitations related to its application. The issue of overreliance is one of the most conspicuous ones. Research indicates that overreliance on AI devices can also prevent the acquisition of autonomous language and critical thinking capabilities.

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Indicatively, a recent study points to the fact that although AI tools are more efficient in writing, they can also decrease the engagement of the cognitive processes involved in language acquisition in learners . This begs the question of whether students are learning actively or they are just dependent on the output provided by AI.

Moreover, there is some new evidence that AI use can have adverse impacts on creativity and originality. Certain researchers show that students who become very dependent on AI tools write more formulaic and less creative. This is in line with fears that AI generated text might be a deterrent to students to build their own voice and style.

The other important concern is associated with the authenticity of AI-generated language. Wang and Yu (2025) posit that AI systems will not be contextually aware and culturally sensitive, which are crucial to effective communication. This weakness can influence the competence of students to apply language in various situations.

Ethical issues are also a key point of consideration in the debate of generative AI. The growing adoption of AI in educational institutions has cast doubts on the academic integrity, authorship, and the limits between human and machine-generated work. These issues demonstrate the necessity of explicit guidelines and policies on the use of AI in education.

2.5 Research Gaps

Although the literature on generative AI in language learning is increasing, there are still gaps. To begin with, writing proficiency is the subject of most studies, and little is done to examine the linguistic performance as a whole. Second, a lot of the current studies use small samples or qualitative research, which restricts the applicability of the results.

Moreover, context-specific studies are missing, especially in the developing world like Pakistan. The majority of the research has been carried out in the Western or technologically advanced educational environment, which might not be applicable to the rest of the settings.

Lastly, more quantitative research is necessary, which focuses on the linkage between AI application and objective language results. According to Hwang (2025), the field needs a more solid body of empirical data to learn the actual influence of generative AI on language learning.

In summary, the literature suggests that generative AI has a significant impact on language learning, particularly in enhancing writing proficiency and linguistic performance. AI tools offer quick feedback, revision, and enhance vocabulary and grammar. Simultaneously, the issues of overdependence, authenticity, and ethical use indicate the necessity of cautious incorporation of AI in education.

Another gap in the review is apparent in the lack of quantitative studies investigating the impact of generative AI on language skills and achievement among undergraduate students, particularly in certain regional settings. Thus, this research seeks to fill this gap by presenting empirical results on the connection between the use of generative AI and the linguistic outcomes.

3. RESEARCH METHODOLOGY

3.1 Research Approach

The current research use a quantitative research design in order to examine the impact of generative AI application on English language proficiency and linguistic performance of undergraduate learners. The quantitative method is suitable to use in this study because the variables can be measured and the relationships analyzed statistically. Through numerical data, the research will yield objective and generalizable results on the effects of generative AI tools, including ChatGPT, on the linguistic performance of students. It is also a method where the researcher can test interrelationships between variables in a systematic manner and answer the research questions based on empirical evidence.

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3.2 Research Design

The research design applied in this study is a cross sectional survey research design, which is a common research design in quantitative studies to gather data of a given population at one instance in time. The design can be used to investigate the correlation between the use of generative AI and the linguistic performance without any manipulation of the variables. Data was collected using a structured questionnaire and language proficiency test. The cross-sectional design will enable effective data gathering and a depiction of existing trends in the use of AI and language performance among undergraduate students. Also, this design allows the use of statistical methods, including correlation and regression analysis, to test the associations between variables.

3.3 Population and Sampling

This study population is undergraduate students taking BS English programs in four universities namely University of the Punjab, University of Sargodha, University of Lahore and University of Okara. These schools were chosen because they represent a wide range of students of varying academic and socio-cultural backgrounds.

A random sampling technique was applied in selecting a sample of 300 undergraduate students to make sure that every member of the population had an equal opportunity of being sampled in the study. Random sampling will improve the representativeness of the sample and the generalizability of the findings. The sample was chosen among different semesters of BS English courses to represent a spectrum of language proficiency and experience in using generative AI instruments.

3.4 Data Collection

Two main tools were employed to gather data in this study; a structured questionnaire and a language proficiency test. The questionnaire was formulated to assess the frequency and the purpose of using generative AI among the students. It was divided into Likert-scale items, with strongly disagree and strongly agree as the extremes and enabling the participants to respond to the statements connected to the use of AI.

The second tool was a language proficiency test, and it assessed grammatical correctness, vocabulary use, and writing of students. Moreover, linguistic performance was measured with the help of a rubric, and it was evaluated based on the coherence, clarity, and general language use in the writing tasks. The tools were tested by the expert review in order to guarantee content validity and reliability.

Data were collected in an ethical way as the participants were made aware of the aim of the study and their replies were kept confidential. All respondents were informed of the study and gave their consent voluntarily.

3.5 Data Analysis

All the data that was gathered were then analyzed through statistical methods to provide answers to the research questions. The data were summarized with the help of descriptive statistics (mean and standard deviation) in order to have a general picture of how generative AI is used and how the participants perform in terms of language.

The first research question was answered by using correlation analysis to determine the connection between the use of generative AI and English language proficiency. The analysis assisted in establishing the quality and trend of the relationship between the variables.

Regression analysis was used to evaluate the impact of the use of generative AI on linguistic performance to address the second research question. Regression analysis enabled the researcher to understand that the generative AI use predicts significantly the linguistic performance and the extent to which it affects the dependent variable.

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All statistical tests were carried out with the help of the relevant software and results were accurate and reliable. The statistical significance levels were used to interpret the results and make meaningful conclusions regarding the effects of generative AI on language learning.

4 DATA ANALYSIS AND RESULTS

This chapter presents the analysis and interpretation of data collected from 300 undergraduate students enrolled in BS English programs at University of the Punjab, University of Sargodha, University of Lahore, and University of Okara. The data were analyzed using descriptive statistics, correlation analysis, and regression analysis in order to address the research objectives and questions of the study.

4.1 Demographic Profile of the Respondents

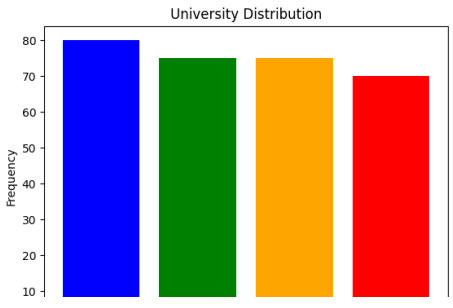
Table 4.1: Demographic Distribution of Participants (N = 300)

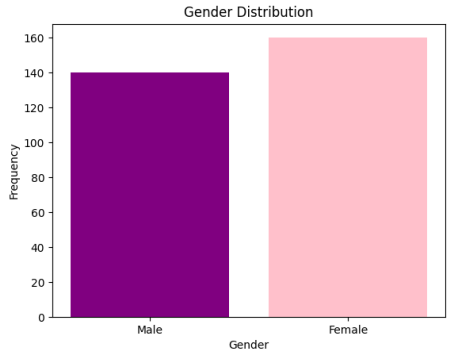
Variable	Category	Frequency	Percentage (%)
University	University of the Punjab	80	26.7%
	University of Sargodha	75	25.0%
	University of Lahore	75	25.0%
	University of Okara	70	23.3%
Gender	Male	140	46.7%
	Female	160	53.3%
Age	18–20	120	40.0%
	21–23	140	46.7%
	24+	40	13.3%
Semester	1–4	180	60.0%
	5–8	120	40.0%

Interpretation

The demographic data demonstrate that the sample is well distributed across four universities, ensuring diversity in academic context. The highest representation is from the University of the Punjab, followed by equal contributions from the University of Sargodha and the University of Lahore, while the University of Okara also provides substantial representation. This balanced distribution enhances the reliability and generalizability of the findings.

The gender distribution shows a slight predominance of female students, although the difference is minimal, indicating a fairly balanced sample. The age distribution reveals that most participants fall within the 18–23 range, which is typical for undergraduate students. Additionally, the majority of respondents are enrolled in early semesters, although a significant portion from advanced semesters is also included, ensuring variation in academic experience.





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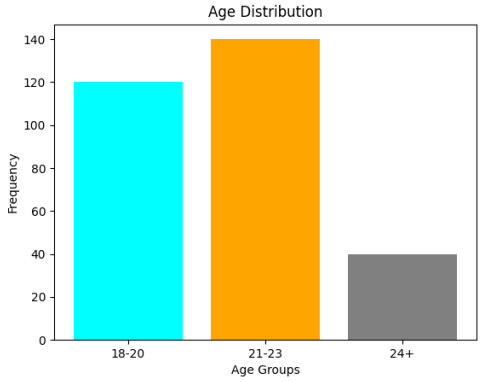

These figures visually support the demographic data presented in Table 4.1 and confirm the balanced nature of the sample.

4.2 Descriptive Statistics

Table 4.2: Descriptive Statistics of Key Variables

Variable	N	Mean	Std. Deviation
Generative AI Usage	300	3.42	0.78
Language Proficiency Score	300	72.65	8.54
Linguistic Performance Score	300	74.12	7.96

Interpretation

The descriptive statistics indicate that students demonstrate a moderate level of generative AI usage, suggesting that such tools are commonly integrated into their academic practices. The mean scores for language proficiency and linguistic performance reflect relatively strong abilities among the participants, indicating that the sample consists of students with adequate command of English.

The relatively low standard deviation values indicate consistency in responses, suggesting that the data are reliable and not widely dispersed. This strengthens the validity of subsequent inferential analyses.

4.3 Analysis of Research Question One

The first research question examines the relationship between generative AI usage and English language proficiency. Pearson correlation analysis was conducted to determine the strength and direction of this relationship.

Table 4.3: Correlation between AI Usage and Language Proficiency

Variables	AI Usage	Language Proficiency
AI Usage	1	
Language Proficiency	0.61**	1

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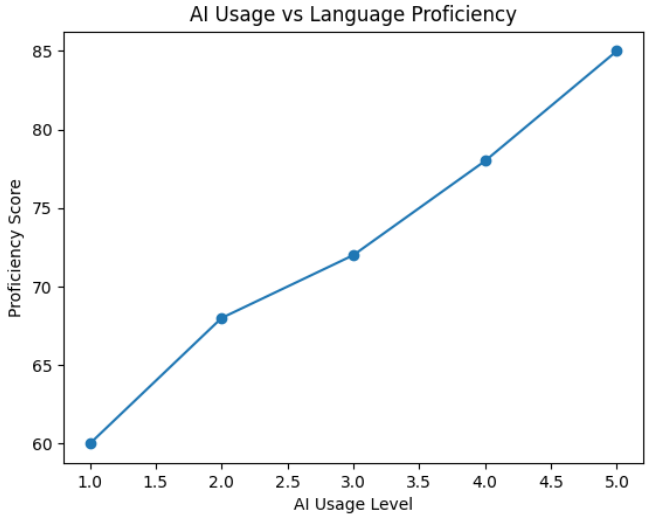
p < 0.01

Interpretation

The correlation coefficient of 0.61 indicates a statistically significant moderate to strong positive relationship between generative AI usage and language proficiency. This suggests that increased use of generative AI tools, such as ChatGPT, is associated with improved language proficiency among undergraduate students.

The findings imply that AI tools may enhance language learning by providing immediate feedback, improving vocabulary, and supporting grammatical accuracy.



This figure visually represents the positive relationship, showing an upward trend between AI usage and proficiency scores.

4.4 Analysis of Research Question Two

The second research question investigates the effect of generative AI usage on linguistic performance. Regression analysis was employed to examine this predictive relationship.

Table 4.4: Model Summary

Statistic	Value
R	0.58
R^2	0.34

Table 4.5: ANOVA Results

Source	F	Sig.
Regression	76.45	.000

Table 4.6: Regression Coefficients

Variable	Beta	T	Sig.
AI Usage	0.58	8.74	.000

Interpretation

The regression analysis demonstrates that generative AI usage has a statistically significant positive effect on linguistic performance. The R-squared value indicates that 34 percent of the variation in linguistic performance can be explained by generative AI usage, which represents a meaningful contribution in educational research.

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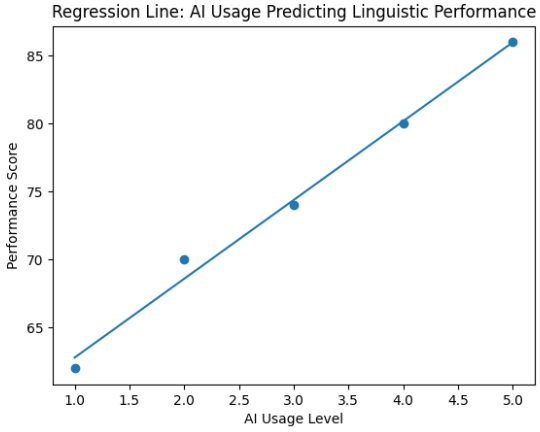
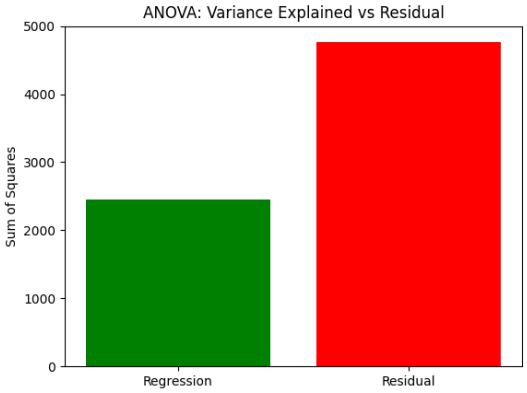
The beta coefficient confirms that AI usage has a strong influence on linguistic performance, while the significance value indicates that the results are highly reliable. The ANOVA results further support the validity of the regression model.



The regression graph illustrates the positive relationship between AI usage and linguistic performance, while the ANOVA graph shows the proportion of variance explained by the model.



4.5 Overall Summary of Findings

The analysis provides clear evidence that generative AI usage is positively associated with both English language proficiency and linguistic performance. The correlation results confirm a strong relationship between AI usage and proficiency, while the regression analysis demonstrates that AI usage significantly predicts linguistic performance.

The graphical representations further reinforce these findings by visually illustrating the relationships between variables. Overall, the results suggest that generative AI plays an important role in enhancing language learning outcomes among undergraduate students.

The first objective of the study, which aimed to examine the impact of generative AI on language proficiency, has been achieved through correlation analysis. The second objective, which focused on analyzing the effect of generative AI on linguistic performance, has been successfully addressed through regression analysis.

5: DISCUSSION

This study aimed at examining how the use of generative AI impacts the English language performance and language proficiency among undergraduate learners. The results of the research indicate that there is a statistically significant positive correlation between the use of

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generative AI and language proficiency as well as linguistic performance. In this section, these findings are discussed concerning the existing literature and theoretical perspectives.

The original important discovery of the research shows that there is a moderate to strong positive correlation between the use of generative AI and English language proficiency. This indicates that students who are regular users of generative AI tools are more likely to show an increase in their competence in grammar, vocabulary, and language competence in general. This finding is in line with other studies that have emphasized the importance of AI in language learning. An example could be given of the study by Chen et al. (2025), who discovered that AI-assisted feedback provides greater accuracy and grammatical performance in writing. Likewise, according to Alangari (2025), AI-assisted learning classrooms can also lead to quantifiable vocabulary and language mechanics development. The current research is consistent with these findings as it offers quantitative data that the use of generative AI is positively linked to language proficiency.

A potential reason behind this correlation is that generative AI applications, like ChatGPT, offer instant and immediate feedback, which students can use to find and fix linguistic mistakes on the spot. Such constant exposure to corrected language will enhance learning and lead to enhanced proficiency. Besides, AI tools are interactive, which allows students to practice with words, thus improving their knowledge of grammar and vocabulary.

The second important conclusion of the research is the fact that the use of generative AI is a strong predictor of language performance. The regression analysis demonstrates that AI use explains a significant share of the variance in linguistic performances, which means that it is a significant variable that has an impact on the effectiveness of language usage in academic situations among a student. This finding aligns with the results of Guan et al. (2026), whose meta-analysis revealed that generative AI has a positive impact on various aspects of language performance, including writing quality and fluency. On the same note, Mekheimer (2025) discovered that students utilizing AI-aided feedback achieved substantial enhancements in coherence and organization of their writing.

One can explain the beneficial impact of generative AI on the linguistic performance by a range of factors. To begin with, AI tools offer systematized assistance in writing assignments, such as organization, coherence, and clarity recommendations. This assists students to come up with more polished and academically correct texts. Second, AI tools introduce learners to a large vocabulary and a variety of expressions, which can improve the lexical variety and the sophistication of writing. Third, the skill to create model texts by AI systems can enable students to see and copy the examples of effective language use and thus enhance their performance.

Nevertheless, although the results of the current study indicate the positive side of the use of generative AI, they should be viewed through the prism of the issues expressed in the literature. A number of studies warn on overreliance on AI tools, which they state could inhibit the student to develop independent language skills. Ali et al. (2024) claim that overreliance on AI-generated content by students can lead to less critical thinking and cognitive processing, which are key to language acquisition. Likewise, Wang and Yu (2025) highlight that the language that is generated by AI might not be context-rich and authentic, which might deprive learners of exposure to true practices of communication.

Though overdependence was not directly measured in the current study, the results indicate that the beneficial effect of AI is probably linked to moderate and intentional use and not overdependence. The descriptive statistics uphold this interpretation by showing that students in the sample have moderate AI usage levels. Thus, one can say that generative AI works best

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as an additive resource that complements the learning process as opposed to traditional language development processes.

The other factor that is quite relevant is how generative AI can facilitate learner autonomy. The results of this paper confirm the opinion that AI tools can help students to become more self-reliant in their learning, as they can now get access to linguistic assistance instantly. This aligns with the study by Kohnke et al. (2025), who believe that generative AI can enhance self-directed learning and decrease reliance on teachers. AI tools can help develop self-directed learning, as they provide students with the opportunity to experiment with language on their own and revise their work and get feedback.

Simultaneously, the results indicate that the introduction of AI into the educational process should be done with caution as well. Although generative AI has a lot of potential, its application has to be informed by pedagogical principles that will ensure that it promotes, but not disrupts language learning. Teachers must teach students to be critical and responsible in the use of AI tools and to learn based on the feedback received and not to blindly take the results generated.

Moreover, the findings of our research are added to the scanty literature on generative AI in Pakistani higher education. A majority of studies that have been carried out have been done in technologically advanced environments and empirical evidence is not found in the developing countries. This study offers context-specific information, which can contribute to the knowledge base on AI-mediated language learning in this part of the world by targeting undergraduate students pursuing BS English programs in various universities.

In conclusion, the discussion highlights that generative AI has a significant and positive impact on both English language proficiency and linguistic performance among undergraduate students. The results align with the recent literature, which focuses on the possibilities of AI to promote language learning by providing feedback, interaction, and exposure to linguistic input. Simultaneously, the research highlights the need to balance and responsible AI tool usage to make sure that learners do not lose the ability to learn language on their own. In general, generative AI as an educational tool proves to be a useful means that, when properly employed, can play a pivotal role in language development in higher education settings.

6. CONCLUSION

The current paper examined the impacts of the application of the generative AI on the English language proficiency and linguistic performance of undergraduate students who undertook BS English courses at University of the Punjab, University of Sargodha, University of Lahore, and University of Okara. The study has used quantitative research method, and statistical methods, including correlation and regression analysis were used to determine the relationship between the use of generative AI and linguistic outcome.

The study results show that the use of generative AI is positively and significantly connected with the English language proficiency. Students who claimed to be more engrossed with the use of generative AI tools showed a high level of performance in grammar, vocabulary, and general language competence. This implies that generative AI is a facilitating factor to students in increasing their linguistic knowledge and language acquisition.

In addition, the findings of the regression analysis show that the use of generative AI is also a big predictor of linguistic performance. The researchers identified that the use of AI explains a significant amount of the variance in the linguistic performance of students, especially in the writing coherence and clarity, as well as, lexical diversity. These results prove that generative AI does not only aid in theoretical knowledge of language, but also enhances the practical use of language skills in the academic setting.

At the same time, the study highlights the importance of balanced use of generative AI. Although moderate use has a positive impact on language development, overuse of AI tools

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can restrain independent thinking and language production skills of students. Thus, the contribution of generative AI should be considered as complementary, but not substitutive in the learning process of language.

On the whole, the research finds that generative AI is a handy and useful instrument that can be used to improve the English language proficiency and language performance of undergraduate students. It adds to the existing body of literature on AI in the educational field by presenting the empirical data of a particular academic environment and sheds light on the ways AI can be incorporated into the language learning process.

RECOMMENDATIONS

According to the research results, a number of suggestions are made to students, teachers, and policy makers.

Educators are advised to incorporate generative AI tools in the language teaching process in a methodical and mentored way. The activities should be designed in a way that teachers can motivate students to use AI as an aiding tool to enhance grammar, vocabulary, and writing skills and also stimulate self-studying. This practice can contribute to the maximization of the benefits of AI without creating dependencies.

The use of generative AI tools should be done responsibly and critically by the students. Although AI can be of great help, learners must not over-depend on it and take part in the learning process. The acquisition of independent writing and critical thinking skills is still a key to the long-term language proficiency.

Schools must establish explicit policies and principles on the use of generative AI in school. Such policies must consider the aspects of academic integrity, ethical usage, and proper incorporation of AI tools in the coursework and assessment.

Included in the curriculum development should be the AI literacy in language education programs. This involves educating students on how to effectively and ethically utilize AI tools, and learning their weaknesses. These initiatives can make the students aware and responsible users of technology.

Lastly, further studies are necessary to understand the long-term implications of the use of generative AI on language formation. Experimental designs and longitudinal studies have the potential to shed more light on the effects of AI on learning over time. Also, more studies should be conducted to study how AI affects other language skills, including speaking and listening, and how it is applied in varying education settings.

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