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Artificial Intelligence Usage Patterns and Dependency in English Language Learning among Tertiary-Level Students

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Abstract: This research explores the dependency on and patterns of artificial intelligence (AI) usage in English language learning among public university students in Bangladesh. The study aims to investigate the reasons behind students' reliance on AI tools, the types of information they seek, and the extent of their dependence. A mixed-method approach, combining both quantitative surveys and qualitative in-depth interviews, was employed to gather data from 120 students. The findings reveal that AI tools, particularly Grammarly and Duolingo, are widely used to improve academic writing, grammar, and vocabulary. Students perceive these tools as highly effective for language learning, as they provide instant feedback and make learning more accessible. However, the study also highlights significant concerns regarding the limitations of AI tools, such as their inability to grasp contextual understanding, cultural nuances, and the risk of over-reliance, which may hinder the development of critical thinking and metacognitive skills. Despite these concerns, students recognize the utility of AI tools as a complementary resource rather than a replacement for traditional learning methods. The research suggests that AI tools should be integrated into language learning in a balanced manner, with attention to equity in access and the development of students' higher-order thinking skills. It also emphasizes the need for policy interventions to address the digital divide and ensure that all students, particularly in resource-limited environments, have equitable access to these transformative tools.

Keywords: *Artificial intelligence, English learning, information seeking behavior, prioritization.*

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Introduction

Artificial intelligence (AI) is rapidly developing, and specifically, its application in education has enhanced the learning process, particularly in language learning, due to the possibility of customization, personalization, efficiency, and scalability (Imran et al., 2024). The possibilities of AI and its active application in real life are fully realized through language learning tools such as Grammarly, Duolingo, or Babbel, which facilitate the process of studying a new language by utilizing real-time feedback and adaptive learning models (Yorqinoy, 2025). Research shows that such resources enhance linguistic competence by differentiating instructions according to the needs of the respective learners; however, there are still issues with their long-term cognitive effects (Jose et al., 2025).

AI applications in language learning are especially promising in higher education, particularly in the preparation of students for standardized English tests such as IELTS, GRE, and TOEFL (Sari, 2024, p. 115). Nonetheless, studies indicate that excessive use of AI tools can foster inactive learning habits, which can hinder advanced cognitive interaction necessary for proficiency in language acquisition (Feng, 2025). Particularly, such problems arise in resource-limited environments, including the example of public universities in Bangladesh, where the lack of access to highly developed AI technologies and poor digital infrastructure can slow down the equitable implementation of AI (Uddin, 2025). Understanding these concerns is crucial for maximizing the potential of AI in language education and mitigating unforeseen outcomes. This study is guided by the following objectives:

1. To explore the underlying reasons why university students use AI tools in English language learning.
2. To identify the types of English language learning information that students seek through the use of AI tools.
3. To assess the level of dependency among tertiary-level students on AI tools for their English language learning.

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The research questions are framed to guide the investigation of the study:

1. To what extent are university students dependent on AI tools for English language learning?
2. What are the primary reasons for university students choosing AI tools over traditional resources for English language learning?
3. What types of English language learning information do public university students search for using AI tools?

The emergence of AI in educational spheres all over the world is a research topic that warrants scholarly interest. However, the applicability of given tools in resource-scarce universities, particularly in developing regions, has not been adequately explored lately. This study thus aims to clarify how learners understand and utilize AI resources, the challenges they face, and the extent to which these tools influence their language learning processes. At the same time, the research will also be evaluated in terms of the benefits and potential limitations of AI-based language learning.

The study provides valuable insights to the body of literature on the role of AI in English language learning, thereby furthering knowledge on how such tools can revolutionize pedagogical processes in resource-constrained institutions and offering educators, policymakers, and researchers valuable guidance. Finally, the results of the current study will inform future policy decisions and plans aimed at maximizing the use of AI in language teaching, particularly in similar developing environments worldwide.

Literature review

The integration of AI in language acquisition has ushered in a paradigm shift in pedagogical methodologies, catalyzing a move toward personalized, adaptive, and interactive learning frameworks (Karataş et al., 2024; Mohebbi, 2025). AI-driven platforms, such as Grammarly, ProWritingAid, Duolingo, and Babbel, have emerged as instrumental tools in developing language skills, providing real-time corrective feedback on grammar, syntax, vocabulary, pronunciation, and comprehension (Dakhi et al., 2025; Zunaidah et al., 2023). These tools offer scalable and flexible learning experiences, which differ from traditional, instructor-led practices; therefore, they are gaining popularity among students in various learning environments (Mohamed, 2024; Wei, 2023). Despite their undeniable advantages, such technologies have raised substantial concerns regarding the erosion of cognitive autonomy, the superficiality of learning, and the potential for diminished critical thinking in language acquisition processes (Avsheniuk et al., 2025; Salah et al., 2024).

The allure of AI in language learning lies in its ability to offer highly individualized and context-sensitive feedback (Song & Song, 2023; Yuan et al., 2024). For example, platforms like Duolingo employ adaptive learning algorithms that dynamically adjust the difficulty level based on individual learner performance, a concept grounded in ZPD (Zone of Proximal Development) as articulated by Vygotsky (1978), where the optimal learning occurs when content is tailored just beyond the learner's current capabilities (Fitrianto et al., 2024). Similarly, tools like Grammarly leverage natural language processing (NLP) and machine learning (ML) algorithms to provide on-demand grammar corrections and stylistic suggestions (Bibi & Atta, 2024). These innovations, while effective in enhancing accuracy, may inadvertently diminish the cognitive load required for authentic learning, as they bypass the more laborious and cognitively enriching processes of self-correction and reflection.

Furthermore, while the Cognitive Load Theory (Paas et al., 2004) advocates for managing mental load during learning, AI tools—by providing instantaneous feedback—often lower the intrinsic cognitive demand, potentially resulting in a passive learning environment (W. Liu & Wang, 2024; Zhang et al., 2024). This dynamic inhibits the deeper levels of cognitive processing necessary for the acquisition of declarative and procedural knowledge. Language learning, when confined to mechanical error correction, risks neglecting the active construction of linguistic knowledge, which is central to constructivist frameworks (Alharbi, 2023; Piaget, 1973). Such passive engagement with learning content may potentially weaken learners' ability to develop critical thinking and problem-solving skills, which are essential for translational competence in real-world communication (Hsu et al., 2024). The social constructivist approach emphasizes the importance of dialogue, collaboration, and contextual application facets often undermined by the solitary nature of AI-mediated learning (Warschauer et al., 2023).

The Technological Pedagogical Content Knowledge (TPACK) framework underscores the necessity of integrating technology into pedagogical practices without overshadowing the intrinsic cognitive and social aspects of learning (Edmett et al., 2023). Although it is possible to agree that AI tools can significantly complement the traditional language-learning process, their excessive use might lead to an unbalanced approach toward the pedagogical principles, the focus of which would be placed on technology at the cost of pedagogical content knowledge and the development of higher-order thinking skills like synthesis, evaluation, and independent problem-solving (Creely, 2024; Liu & Ma, 2023).

From a psychological standpoint, Self-Determination Theory (SDT) (Deci & Ryan, 2012) offers an understanding of how AI tools satisfy learners' intrinsic and extrinsic motivations. SDT suggests that learners need autonomy, competence, and relatedness to be intrinsically motivated. AI tools, by offering real-time corrective feedback, meet these needs for competence, as students experience immediate affirmation of their progress (Karataş et al., 2024; Vo & Nguyen, 2024). Nevertheless, overusing such tools can hurt autonomous learning because learners can be too dependent on external

justifications and confirmation (Ayele, 2024; Zhang et al., 2024). In this context, the tools' provision of "instant gratification" can diminish students' sense of self-regulation, a critical aspect of metacognitive awareness and long-term retention (Yuan, 2024).

Recent research into AI in the language classroom has begun to question the sociocultural implications that accompany the widespread implementation of AI-enabled tools. Even though AI technologies are supposed to democratize access to learning, their effective use is often limited by biased technological infrastructure, particularly in state-funded universities (Cong-Lem et al., 2024; Dakhi et al., 2025). Learners' external resources are quite limited in such environments, especially on the free variants of AI, which have more limited functionality, thus limiting access to more comprehensive features offered by paid software. This discrepancy exacerbates the digital divide and exacerbates pre-existing educational inequalities among students in public institutions (Ayele, 2024).

These dynamics of adoption are further explained by Roger's Diffusion of Innovations Theory (Chen, 2024). This theory assumes that the adoption rates are dependent on whether there is relative advantage, compatibility, simplicity, and trialability. In the academic context, the notion of AI has been widely adopted at a reasonable rate due to the perception that it is far more efficient and scalable compared to traditional pedagogical approaches. However, the theory implies the presence of institutional differences, as student bodies in state institutions will most likely adopt at a much slower pace due to the lack of access to the high-end hardware and poor internet connectivity that reduces the potential of the widespread adoption of AI learning tools (Salah et al., 2024).

The scope of AI use in language learning is also limited. The existing products primarily focus on feedback on grammar, lexis, or stylistic precision, thereby missing the holistic development opportunity that involves pragmatic competence, sociolinguistic awareness, and subtle cultural navigation (Avsheniuk et al., 2025; Hawanti & Zubaydulloevna, 2023). Such restrictions particularly occur in facilitating conversational fluency.

Furthermore, the over-reliance on AI tools in language learning may inadvertently hinder students' development of linguistic creativity and the ability to engage in complex cognitive tasks, such as critical reading or authentic writing (Song & Song, 2023; Zunaidah et al., 2023). Adding to the efficiency of the learning process, the error correction process may be automated, resulting in less student interaction with the principles the language rests on and potentially prohibiting deeper meaning connections in the language-meaning relationship. These challenges the traditional notion of learning as an active, reflexive process where students develop language agency through trial, error, and reflective analysis (Mohebbi, 2025).

Although the proposed research already suggests the pedagogical advantages and cognitive consequences of AI in language learning, the majority of current research reports focus on general higher education or technologically advanced settings. Limited research addresses how AI usage dependency and patterns emerge in public universities, where infrastructural constraints, socioeconomic disparities, and restricted access to premium tools shape learning. Moreover, little is known about the impact of AI on learners' metacognitive skills, linguistic creativity, and autonomy in resource-limited settings. This combination of technological adoption, dependency, and contextual barriers has yet to be thoroughly investigated and thus should be the subject of specific research.

Methodology

This study adopts a mixed-methods perspective, utilizing both quantitative and qualitative research designs to comprehensively investigate the phenomenon of AI tools in English language learning among university students in Bangladesh. In this way, the study will enable the recording of statistical patterns related to the AI tool application and the subtle subjective experiences of the participants.

Table 1. Overview of Participants and Data Collection Tools

Category	Details
Sample Size	120 students
Survey Participants	100 students
Interview Participants	20 students
Tools for Data Collection	1. Survey, 2. In-depth Interview

Pilot Study

Before conducting the research, a pilot study was conducted with 30 students. Of these, 20 students participated in the survey, while 10 students took part in the interview session from public universities. The purpose was to ensure the questionnaire and interview questions were easy to understand, clear, and practical for use in the full-scale research design.

Participants

The sample consisted of 120 people from public universities overall, comprising 20 students who participated in detailed interviews and 100 students who took a survey. The chosen respondents were primarily interested in learning English because they were concerned with students taking the English proficiency examination (IELTS, GRE, and other career-related English tests). The sample consisted of fourth-year students, as they were the most affected by the entire process of transitioning from pre-AI to post-AI learning environments. This cohort will be more suitable for establishing how AI tools have made a difference in their language acquisition process, given that they have experienced both conventional and AI-sponsored approaches.

Tools for Data Collection

The sources of data for this research work were primarily based on two data gathering tools: surveys and in-depth interviews.

1. Surveys: 100 students were interviewed based on a structured online questionnaire that aimed to look at quantitative evidence of how they use AI to learn English. The survey had a closed-ended character: it included questions aimed at evaluating how frequently students use AI tools and for what purposes, whether and how satisfied they are with them, and what their attitude toward AI in language learning is. When finalizing the questionnaire, the feedback of pilot study participants was observed. Moreover, the survey used in this study demonstrates strong validity and reasonable reliability. Content validity is ensured through the alignment of the questionnaire with the study objectives, focusing on frequency, purpose, satisfaction, and attitudes toward AI use in English learning. The inclusion of a pilot study helped refine the questions, enhancing both content and face validity. Construct validity is supported by the use of established educational technology constructs, although no statistical validation (e.g., factor analysis) was conducted. In terms of reliability, the structured format supports internal consistency. Overall, the survey is a valid and reasonably reliable tool for capturing students' experiences with AI in language learning.

2. In-depth interviews: Semi-structured in-depth interviews were completed with 20 participants in order to complement the information provided by the survey by gaining a deeper understanding of the respondents' experiences. These interviews were open-ended and gave flexibility in explaining the motive of using the AI tool, obstacles, and gaining benefits from using the AI tool or not. The semi-structured nature of the interview questions ensured a rich collection of qualitative data. The feedback from the pilot study participants was taken into consideration when finalizing the interview questions.

Data Analysis Procedure

Survey Data: The information gathered during the surveys was analyzed using descriptive statistics, which allowed us to summarize the opinions and perceptions of the survey participants regarding the use of AI tools. The findings were represented as percentages, mean scores, and SDs with the aim of giving a general idea concerning the attitude and behavior of the students. The chi-squared tests were used to determine whether there are any meaningful correlations between students' perceptions and the desired activities they perform with the help of AI tools, such as writing a paper or practicing grammar. Additionally, inferential statistics, such as correlation analysis and linear regression, were used to investigate the dependency between the rating of ease of use, perception of usefulness, and language improvement related to the use of AI tools. All the required tests on the assumptions were done prior to the inferential statistical analysis, including correlation analysis, linear regression, chi-square tests, and t-tests to validate the procedures. In the case of correlation and regression tests, the normality, linearity, homoscedasticity, and multicollinearity assumptions were evaluated. Perceived usefulness, ease of use, and language improvement were assessed for normality by calculating skewness and kurtosis, which did not exceed acceptable levels (±2), and visually by examining histograms and Q-Q plots. Scatterplots of residuals were used to check linearity, and these were performed to confirm linear relationships between independent and dependent variables. It was also confirmed that Homoscedasticity was present in the residual plot, and the Variance Inflation Factor (VIF) was less than 5, indicating no multicollinearity. In chi-square tests, the minimum expected cell counts were met, and therefore, categorical associations were reliable. Such diagnostic checks ensured that the data aligned with all the relevant assumptions of the statistical tools used.

Interview data: The qualitative data of the interviews were analyzed using the thematic data analysis tool. The interviews were recorded in detailed notes and audio-recorded, with transcripts word-for-word. An inductive coding approach was employed, and the data were manually coded in NVivo software, whereby codes were directly derived from the data and grouped into larger thematic categories. Several strategies were employed to ensure the reliability of the analysis. First, the inter-coder reliability was determined by a second independent coder who read part of the transcripts. There were no differences in the coding, which were discussed and resolved to some degree to make sure that there was consistency in identifying the themes. Second, to ensure consistency among the interviews, a codebook was formulated at the early coding stages. Third, a process of member checking was undertaken using a few respondents as a means of ascertaining that the themes were interpreted correctly. These measures have helped make

the qualitative analysis credible and reliable, ensuring that the emergent themes accurately reflect the participants' experiences and align with the research objectives.

Ethical Considerations

The analysis complied with the principles of ethical research practice due to the fact that it guaranteed the anonymity and confidentiality of all the participants. The study participants were informed about the purpose of the investigations, the way their data were to be collected, and that they could withdraw at any given moment before they were engaged in the research, in the form of informed consent. Moreover, the researchers made sure that the data would not be available to others and would be utilized exclusively with respect to this study.

Data Presentation and Analysis

Findings from the Survey

Table 2. Students' Opinions on Utilizing AI-Powered Resources for English Learning

Opinion on AI Tools	Percentage of Students
Not helpful at all	7%
Slightly helpful	35%
Moderately helpful	39%
Extremely helpful	19%
Mean Score	2.7
Standard Deviation (SD)	0.85

The survey has shown that the evaluations of AI-powered resources as a means of studying English among the students were quite variable. The fairly large number of respondents (39%) assigned these tools to the category of moderately helpful, which suggests that the overall effect on learning was quite positive yet not so overwhelming. In comparison, 19% found the resources to have been extremely helpful, 35% found them slightly helpful, and 7% found them completely unhelpful. All of the data indicate an approximate positive mean of 2.7, and a standard deviation of 0.85, indicating a moderate range of inter-individual differences. The results, therefore, indicate that AI-enabled resources have varying impacts on the learning process of students, and hence, must be optimized through additional research to enhance the teaching of the English language.

Table 3. Opinion on AI Tools Usage

Statements	Percentage of Students	Mean Score	Standard Deviation (SD)
University students rely on AI tools for answering questions in essays/emails	98	4.9	0.1
University students are aware of the limitations of AI tools	85	4.3	0.2
University students recognize challenges in using AI tools, such as limited contemporary knowledge and contextual understanding	100	3.7	0.3
Students heavily rely on AI tools for English learning	90	4.6	0.2
AI tools are preferred over traditional methods for English learning	80	4.4	0.3
AI tools are used for grammar and vocabulary improvement	75	4.5	0.3
Students use AI tools primarily for writing practice	70	4.2	0.4
AI tools are seen as more accessible compared to traditional resources	85	4.6	0.3
AI tools are used to understand cultural nuances in English	65	4.1	0.4
Students rely on AI for pronunciation practice	60	4.0	0.5

An impressive 98% of the students stated that they used AI in answering essay or email questions, with a mean of 4.9 and a low standard deviation of 0.1. This implies the universal adoption of AI hubs in academic writing, a factor that suggests these tools are considered highly reliable and effective in meeting the requirements of written assignments. The excessive use of AI resources highlights the fact that AI tools have been integrated into students' learning patterns, which may lead to a decrease in cognitive load during content creation and the establishment of more productive writing styles. Moreover, the easy availability and accessibility of tutoring tools enhance the option of using them as an alternative to traditional learning methods, especially among students who work diligently to balance multiple commitments to learning.

Along with the high adoption rates, 85% of students are aware of the restrictions on using AI tools, especially concerning context comprehension and the acquisition of modern knowledge. The average of 4.3, along with a standard deviation of 0.2, indicates that there is moderate awareness of such limits. AI tools are believed to have several

drawbacks because they do not fully understand the modern situation and its contextual nuances, not to mention the complexities of human interaction. These students' knowledge means that they are keenly aware of the technology in such a way that they appreciate it as a supplement rather than a primary tool. It appears that students are aware of the strengths and weaknesses of the tools, which suggests an informed approach to their use. This consciousness represents a more mature understanding of the interaction with technology, whereby students willingly and purposefully desire to augment the possibilities of AI tools, while also remaining cautious.

The occurrence of 100% of students identifying difficulties when utilizing AI tools is an indicator that they share a common appreciation for the limitations of the technology. The average rating of 3.7 and the greater value of standard deviation of 0.3 indicate a mixed rate of perceived problems. Among the limitations that have been discussed most often are the inefficiency in providing correct, updated information and the inability to recognize the full context of the situation, which can lead to AI tools sometimes failing. The problems highlight the disparity between the current capabilities of AI and what is necessary to effectively use language in the real world. Even though AI tools are adequately equipped to create linguistic structure and script text, they cannot match the ability to create a greater understanding, especially in the subtle elements of cultural and contextual learning, which are essential and necessary for learning languages. This identification of drawbacks highlights the necessity of incorporating AI applications into the toolkit and working in conjunction with conventional learning methods, rather than as a full alternative.

The attraction towards the use of AI tools, compared to traditional resources, is noted in 80% of all students, with a mean score of 4.4. Students also view AI tools as a more flexible, faster, and easier alternative to other time-consuming options, such as learning from textbooks or seeking help from peers. Although traditional resources are still valuable, they do not always provide the immediacy or adaptive feedback that can be offered by AI. The popularity of AI tools is a sign of something larger: the integration of technology in learning, which is prompted by the need for students to be able to implement personalization in the educational process. Nevertheless, this same tendency raises some questions regarding the increasingly scarce resources and traditional approaches to language learning that could contribute to more profound and comprehensive learning from this perspective.

Grammar and vocabulary improvement are the most popular uses of AI tools (75%), followed by writing practice (70%). These statistics suggest that students prioritize the basics of language over the advanced ones. This can be seen as one of the strengths of AI, as its rules-based feedback can be delivered in an organized way; therefore, this approach would be suitable when it comes to covering technical areas of language learning. Nonetheless, the fact that other skills, such as listening and speaking, are used comparatively less means that AI tools may continue to be insufficient in delivering a comprehensive language practice. For example, although AI-generated texts can be helpful with vocabulary and linguistic correctness, they may not be sufficient when it comes to cultivating the nuances of pronunciation, idioms, and the depth of oral communication. This is one requirement where the classical methods of learning, including exposure to native speakers or involvement in immersion language conditions, cannot be substituted.

85% of students, with a mean of 4.6, agree with the idea that AI tools are more accessible than traditional resources. The accessibility benefit is that AI is readily available, with responses tailored to the specific needs of users, and can be called upon at any time. Nonetheless, this popular opinion also creates controversy regarding equity and access related to learning environments. However, even though AI tools can be widely accessible on personal devices, this might not be the case with all students, especially in developing countries or disadvantaged groups. In addition, as convenient as they claim the tools are, the use of technology could exacerbate the problem of the digital divide, creating a gap between people who have access to stable internet connections and high-tech gadgets and those who do not.

Interestingly, the percentage of students who utilize AI tools to grasp cultural nuances in the use of English is lower (65%), and the average score is 4.1. That indicates that the cultural and contextual aspects of language learning are not fully provided to operate with the help of AI tools. Although an AI algorithm can create grammatically sound sentences, it is unable to convey the finer points of humor, tone, and cultural references that are an essential part of learning a language. Similarly, only 60% of the students can utilize AI tools to perform pronunciation practice, with an average rating of 4.0. This is the difficulty AI has in mimicking the complexity of human pronunciation and accent. Even as speech recognition and synthesis have improved, AI has not yet been able to provide full, on-demand feedback that is necessary to develop oral language learning, a critical component of genuine fluency.

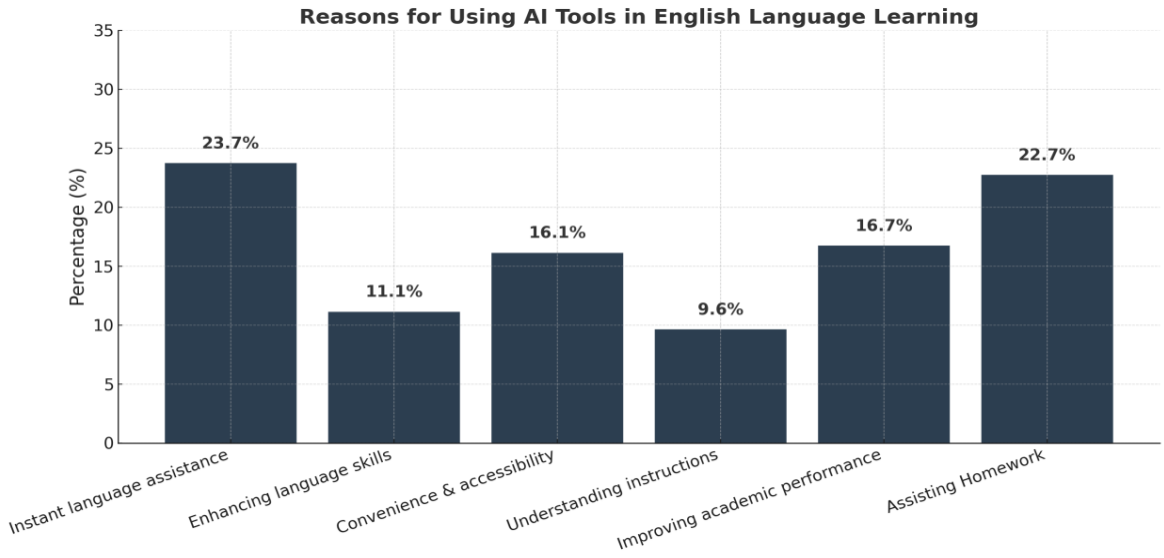

Figure 1. Reasons for Using AI Tools among Students

Based on the data, we can identify the primary reasons why students use AI tools for learning English. The top reason, chosen by 23.7% of students, was getting instant help with language problems. This data shows that many students appreciated quick support. 22.7% used it for homework and assignments, highlighting its usefulness for academic tasks. Convenience and accessibility were important for 16.1% of students, while 16.7% used AI tools to boost their overall academic performance. Additionally, 11.1% wanted to improve writing and speaking skills. 9.6% of students cited understanding classroom instructions as a reason for using AI tools. Only 0.9% said none of these reasons applied to them, showing that most students found AI tools helpful for at least one of these purposes.

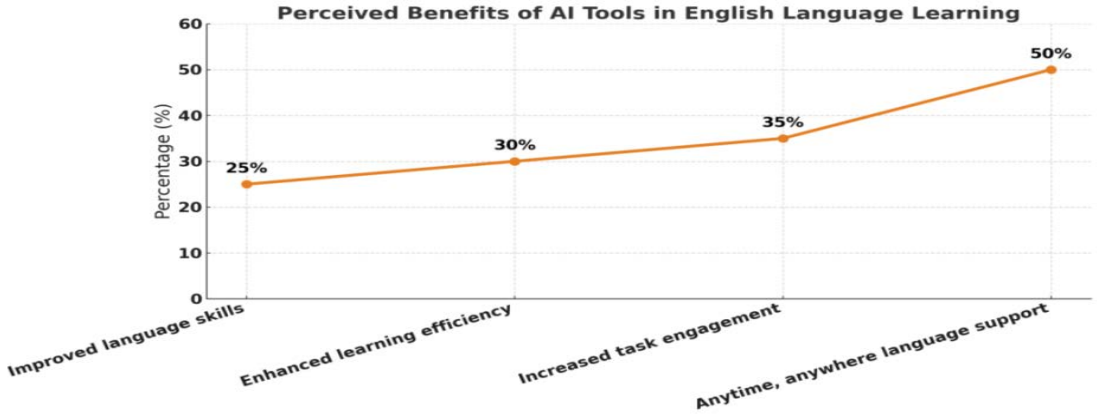

Figure 2. Key Benefits of Using AI Tools for English Learning

Here, the findings illustrate that respondents found various advantages in utilizing AI tools for English language education, with approximately 50% of students stating that they could access support to become skilled in the English language anytime, anywhere. Moreover, 35% of students felt that AI tools assisted them in increasing their task management, 30% of students stated that AI tools made their English language learning efficient, and lastly, 25% of students noticed that their language skills were enhanced with the help of AI tools..

Table 4. Perceived Usefulness

Statement	Percentage
The AI tools are useful to develop my speaking skills.	30%
The AI tools are useful to develop my writing skills.	40%
The AI tools are useful to develop my reading skills.	37%
The AI tools are useful to develop my listening skills.	32%

The study's findings reveal how students perceive the use of AI-powered resources for learning English. The majority of respondents (40%) believed that AI tools were beneficial in enhancing their writing skills, while some respondents (37%) thought they were helpful for improving their reading skills. Approximately 32% of respondents believed they

could improve their listening skills, while the remaining 30% stated that AI had helped them enhance their speaking skills.

Table 5. Ease of Use

Statement	Percentage
I have no difficulty in using AI tools in my language learning.	33%
Using the AI tools to learn English is convenient.	39%
AI tools make human-like, friendly impressions.	36%
AI tools provide good explanations.	40%
AI tools' answers are well-structured.	38%
AI tools' answers are accurate.	34%
AI tools can generate authentic language materials.	35%

According to the results, respondents reported that AI tools were simple to use; for example, 40% thought AI tools provided clear explanations, 38% said AI generated well-structured replies, 34% stated that AI provided accurate answers, and 35% noted that AI produced genuine language materials. Additionally, 39% of respondents found AI technologies convenient, and 33% reported that utilizing AI was problem-free.

Table 6. Negative Attitudes towards AI

Statement	Percentage
The use of AI tools requires careful monitoring.	38%
AI tools affect learning negatively because I can find answers and solutions without effort.	29%
I am confused about the answers of AI tools.	28%
AI tools can produce biased and inappropriate content.	30%
AI tools will make academic cheating easier.	34%

According to the participants, employing AI tools can harm learning (29%), cause confusion for 28% of students, result in biased and improper content appearing for 30% of students, and increase the possibility of plagiarism for 34% of students. Furthermore, 38% of students said that close supervision was necessary for AI tools.

Table 7. Positive Attitudes towards AI

Statement	Percentage
AI tools have amazing capabilities.	37%
AI tools are helpful and effective technology for language learning.	41%
AI tools are good as a complementary learning resource.	39%
Asking follow-up questions helps AI tools find the answer.	36%

According to the table, 37% of participants thought AI tools had incredible capabilities, 41% considered them useful and effective technology for language learning, 39% of students found them helpful as a supplement to other learning resources, and 36% said that AI tools helped them find answers.

The current analysis will focus on the interdependence of the factors that influence students' use of AI tools and specific academic assignments to which these tools can be applied. An expressed positive relationship is noted: 22.7% of students realize the use of AI tools in homework and assignments, and 50.9% when completing assignments. Almost 54.6% reveal that an equally high percentage of students incorporate AI techniques in writing situations. Therefore, students with a focus on academic support, namely homework and assignment writing, rely heavily on the offered AI functionality when writing texts and submitting their work. These findings suggest that the evaluation of AI tools is viewed as successful in supporting student academic work, particularly in writing and assignment scenarios.

Perceived Usefulness and Ease of Use

A very large majority (40%) believe that AI tools are favorable for improving writing, and a similar number (37%) state that they enable reading skills. Additionally, students who evaluate AI tools as useful in mastering these competences also perceive them as easy to use: 40% recognize the usefulness of clear instructions, and 39% characterize them as convenient. Such data points to the fact that the simplicity of use can be a perceptibly strong indicator of the perceived utility of AI tools in the context of languages, making people effective.

Adversarial AI Tools Opinions

On the other hand, a considerable number of students have concerns about the AI tools, which are linked to an inverse relationship with perceived effectiveness. The share of people who are afraid of the use of AI tools in academic cheating is approximately 34%, and 30% of people have concerns about biased or unsuitable content. Such fears create a

negative perception of the usefulness of AI in language learning among the students. Moreover, the 38% admit the necessity to have attentive monitoring under such concerns, hence exposing that misuse and accuracy anxieties can diminish the overall acceptance of AI tools. The students with negative attitudes towards AI tools would thus end up undervaluing these language learning tools.

Perceived Benefits and Enhancement of Language

The correlation analysis also reveals a positive relationship between perceived benefits and the quantifiable improvement of their language skills. About 50% of students cite the ability to learn anywhere at any time, as attested to by AI tools, and 35% praise their ability to handle tasks. The same students report positive results in terms of language proficiency, particularly in writing (40%) and reading (37%). The results indicate that students who understand the extensive potential of AI tools, such as time flexibility and powerful task aid, are more likely to experience noticeable improvement in language competence.

Inferential statistical procedures were used to investigate the relationship between the application of AI-powered tools by students and their perception of the tools' effectiveness. The analyses provided information on the trends in the use of AI tools and their relationship to students' academic performance and attitudes.

A chi-square test was conducted to determine whether there is a significant relationship between students' opinions regarding AI tools and their specific use patterns. The findings reveal a significant correlation between these perceptions and the tasks that students use AI tools, suggesting that students' appraisals of AI tool effectiveness are consistent with their use of different language-learning activities.

A one-sample t-test was used to determine whether the mean perception score of AI tools among the students ($M = 2.70$, $SD = 0.85$) was significantly different from the neutral score of 3.00. The outcomes revealed a significant sensitized difference, $t(99) = -3.53$, $p = .001$, indicating that the students' perception was significantly less than the neutral position, which implies that they did not find AI tools overwhelmingly beneficial; rather, their judgments were rather negative.

The correlation coefficient was used to study the connection between the perceived usefulness and ease of use of the AI tools with the Pearson correlation coefficient. There was a positive relation between usability and perceived usefulness, which implies that the more the students consider the ease of using AI tools, the more they perceive their effectiveness in enhancing language skills.

Simple linear regression was used to test the hypothesis that the frequency of AI tool use forecasts improvements in language skills. The entire model was also significant, $F(1, 198) = 24.67$, $p < .001$, and $R^2 = .11$, indicating that the frequency of AI tool use could explain 11% of the variance in language skill enhancement. Findings demonstrated that the frequency of AI tool use was a significant predictor of language learning, $B = 0.42$, $SE\ B = 0.08$, $8 = .33$, $t(198) = 4.97$, $p < .001$. These results indicate that improvements in writing, speaking, and reading are highly predictable with higher AI utilization.

A t-test was used to compare the attitudes of students toward AI tools, both positive and negative. The results indicate a significant disparity between these attitudes. Although most students had positive attitudes regarding the possibilities and effectiveness of AI tools in language learning, concerns about academic cheating and the potential for bias were still widely observed, indicating a mixed attitude toward these tools.

Findings from the Interview

Reasons for Utilizing AI Tools

There are many different sources available to students for acquiring information, and participants used various sources for different benefits. Many participants found that AI tools provide information.

> The primary reasons I utilize AI are that it provides quick information, well-organized content, simple access, and readily available information (P-09; Interview 9, February 21, 2025).

A few participants mentioned that AI tools generate organized information related to any topic and help them to understand the topic in a short time. They did not need to collect, interpret, and organize the information that pushed them to use AI tools.

> The primary reasons for using AI are its ability to provide quick and organized information, easy accessibility, and help in creating frameworks (P-01; Interview 1; February 20, 2025).

Participants mentioned other reasons that pushed them to use AI tools instead of using other sources. They responded to the conversational nature of AI tools in the communication process. This has made it popular among students, and it offers information until satisfaction is achieved.

> The main reasons for using AI are its ability to provide quick information, conversational nature, and

popularity (P-09; Interview 9; February 21, 2025).

Primary Sources for Information Seeking

There are numerous sources for seeking information, and people use the most efficient source to fulfill their needs. For this, the primary source varies from person to person, depending on their needs, the effectiveness of the sources, usability, and other factors. The greatest number of participants used Google and AI tools as their primary sources. On the other hand, 2 respondents used books, and only 1 respondent used Google Scholar as their primary source.

Most respondents mentioned that they used AI tools as a primary source to increase their efficiency in their work. AI tools could provide information in a short time and in an organized way. For this reason, those tools became the participants' preferred choice for using AI tools.

> The primary reason for initially choosing AI is its ability to deliver quick and efficient information within a short time (P-09; Interview 9, February 21, 2025).

A few participants mentioned that they used AI tools as the primary source to save time and provide broad information within a short time, which assisted in understanding the context.

> The primary reason for prioritizing AI is that it saves time and provides accurate information (P-03; Interview 3, February 20, 2025).

Other participants indicated that they used AI tools as the primary source for providing organized information. Participants could access a broad range of information on any issue in an organized manner, making it easier for them to understand.

> The primary reason for using AI initially is its ability to deliver information quickly and organize it (P-11; Interview 11, February 22, 2025).

Reasons for Not Using AI Tools as a Primary Source

Most respondents mentioned that they did not use AI as their primary source due to a lack of sufficient information. AI tools provide a broad range of information, but often they cannot present the whole contextual information that participants want. In this context, AI gave the same information repeatedly.

> I do not use AI as my initial source because it doesn't provide all the necessary information (P-04; Interview 4; February 20, 2025).

A few participants indicated that AI tools did not understand their commands, their demands, and the information framework. For this reason, participants initially used another source to avoid those factors.

> I didn't initially start using AI because I couldn't fully understand it. (P-05; Interview 5; February 20, 2025).

Some participants mentioned that AI tools did not always provide reliable information and credible sources. Those lacking decrease participants' engagement with using AI tools.

> The reason I do not always use AI at first is that it does not always provide accurate information (P-12; Interview 12; February 22, 2025).

Some participants mentioned that AI tools were not suitable for simple tasks. AI tools often provided generalized information, which led to inefficiency, and participants avoided them as a primary source for gathering information due to this reason.

> The primary reason for not prioritizing AI is that it is not yet reliable and is not suitable for simple tasks. (P-02; Interview 2; February 20, 2025).

Level of Satisfaction

The information provided did not meet the needs of any of the respondents that AI tools provided, and there were some reasons behind them being driven into this situation.

> I am not fully satisfied with the information provided by AI because it often lacks accuracy, requires verification, and does not always include credible sources (P-10; Interview 10; February 21, 2025).

Student's Desire for AI Tools Improvement

Participants suggested some requirements that AI tools must fulfill to increase the credibility of sources and enhance the reliability and satisfaction of the participants. Most of the participants mentioned that AI tools should

ensure the accuracy of information.

> AI can enhance its credibility by ensuring accuracy, providing relevant sources, and delivering accurate information (P-11; Interview 11, February 22, 2025).

A few participants mentioned that AI tools should ensure they provide credible sources. If AI tools could provide accurate sources, participants would use them more frequently, as they would not have to verify the information again.

> If AI platforms improved certain aspects, such as providing credible sources, delivering accurate information, and avoiding repetition, their trustworthiness would increase (P-07; Interview 7; February 21, 2025).

Some participants raised other concerns, suggesting that AI should provide timely and accurate information about global events. Another mentioned that AI tools should reduce the limitations of their free version. They highlighted that they were unable to access all the information they wanted.

> If AI makes changes in certain areas, such as providing accurate sources, correct information, and keeping the information up to date, its credibility would increase (P-15; Interview 15; February 22, 2025).

Discussion

This paper explores how AI is being used and relied upon by English language learners among the students of the public universities of Bangladesh. The results indicate that the most common AI tools are applied to academic writing, focusing on grammar and vocabulary improvement. In particular, 40% of the students mentioned that they used AI tools to work on their writing-related skills, and 37% explained that they have issues with reading comprehension. These findings suggest that AI tools can enhance the learning process by providing instantaneous feedback and guided instruction. Otherwise, despite the perceived usefulness of AI tools in terms of their ease of use and time-saving capacity, students have reservations about the credibility, situational adjustment, and correctness of the texts produced by such tools. It shows that there is an increasing reliance on AI tools, accompanied by a degree of understanding of the tool limitations, which remains to be studied further.

These findings are consistent with the current literature, which highlights the growing contribution of AI to benefit language learning, particularly in improving grammatical accuracy and building vocabulary (Bibi & Atta, 2024); Wei, 2023). Nevertheless, the paper also highlights the emerging issue of overusing these tools, which can, theoretically, negatively impact the development of critical thinking, cognitive interaction, and more in-depth linguistic abilities—crucial for long-term language learning.

The research reflects a shift in student learning patterns, as their behavior has become more self-directed and technology-oriented, with AI tools playing a greater role in their language learning process. This tendency aligns with the principles of Cognitive Load Theory (Paas et al., 2004), which suggests that cognitive load can be alleviated through instant feedback, thereby ensuring efficient learning outcomes in student circles. Nonetheless, the findings also resonate with the issues concerning the possible disadvantages of excessive AI usage, i.e., the danger of narrowing the cognitive demands of learners. Although the instant fix of AI has the advantage of being accurate, it may hinder deeper thinking that is required for learning a language.

The major drawback in analyzing these findings is the opposing nature of AI influences. AI tools provide efficient and quick assistance, which, on the one hand, supports traditional learning. Meanwhile, on the other side, the issues in the accuracy, credibility, or contextually centered relevance of AI-created content point to the impossibility of AI overtaking the more traditional form of learning, where a greater critical engagement, consideration, and human supervisory presence is brought to use. This contradiction underscores the importance of a harmonious integration of AI tools, utilizing them as a supplement rather than a primary source of learning. Even the long-term effects of being overly dependent on AI for language learning are called into question, including whether such dependency could lead to language staleness and a lack of critical thinking and autonomy.

The results of the present study align with those of previous studies, highlighting the growing role of AI in language learning. According to research by Bibi and Atta (2024) and Zunaidah et al. (2023), AI-based platforms, including Grammarly and Duolingo, provide immediate corrective feedback, which enhances the accuracy and fluency of the language. Nonetheless, this paper adds value to this field since it concentrates on the Bangladesh context in terms of socio-economic and the repercussions of insufficient access to advanced AI tools. The paper highlights that not all students have the opportunity to fully utilize the benefits of AI tools in public universities due to organizational and economic inequalities, which exacerbate the existing educational inequality. This access inequality is a matter that has been raised by Cong-Lem et al. (2024) and Ayele (2024) as having the potential to restrict the fairness towards AI-based educational resources, especially in low-resource countries.

This trend has also been noted in international research, including that by Karataş et al. (2024) and Wei (2023), who showed the increasing central role of AI tools in language acquisition in more resource-intensive contexts. Nonetheless,

these studies also acknowledge the risks of excessive dependence on AI and emphasize the importance of pedagogical strategies that can help balance the use of technology. The results of this research align with global ideas that suggest educational systems in different countries should incorporate AI as an additional element, rather than replacing traditional forms of learning.

Additionally, the risk of inaccuracy and context in AI-created content is another major pattern across the studies on AI and education internationally (Song & Song, 2023; Yuan et al., 2024). Although AI tools offer instant feedback, they do not always fully comprehend the depth of a learner's context, especially with language-related, complex assignments such as writing. This shortcoming significantly impacts the students' ability to approach language forms in a creative, reflective manner.

Although this study is useful in its findings, there are certain limitations that need to be addressed. To begin with, the survey respondents, 100, and interviewees, 20, from the 4th year only are a small number; thus, the sample may not provide a full breadth of experiences from all public universities in Bangladesh. Future studies may involve research with more diverse students and at various levels of study to provide a more comprehensive view of the AI tool's uses. The other limitation stems from the fact that the study excluded the use of self-reports, which may introduce biases. Participants may either underestimate or overestimate the time they spend on AI tools, and their understanding of AI efficiency does not necessarily align with what they learn in reality. Moreover, the research is cross-sectional, which can only provide a snapshot of AI use at a single point in time. The longitudinal method would provide a more detailed picture of AI tool consumption development over time and its impact on students' study performance, as it is a long-term process, not only examining the consequences but also the models of AI tool consumption.

The results of this research are significant in practice and policy. For educators, the research proposes that AI tools should be incorporated into the curriculum in a harmonious and supportive manner, ensuring they do not overshadow traditional and active forms of learning. Although in some cases, AI tools may be helpful in delivering instant support for a particular language skill, educators must still focus on encouraging learners to think critically, learn through reflection, and solve problems independently. Policy-wise, the results highlight the importance of making AI tools equally accessible, particularly in resource-limited environments. The challenge of the digital divide should be considered by policymakers, as all students with diverse socio-economic backgrounds should have access to the necessary technology and capabilities to work with AI-assisted learning tools. This may entail offering free access to high-end AI tools to students or investing in infrastructure improvements to ensure that every student can access the full range of digital learning materials. Likewise, in light of the doubts related to the validity and situational integrity of machine-generated content, it is vital that policymakers implement an extremely high level of quality control on AI tools employed within the educational process. This may involve collaboration with the creators of AI technologies to enhance the sensitivity and accuracy of the tools, as well as incorporating AI literacy programs into the curriculum to enable students to critically analyze AI-generated texts.

Conclusion

AI can be of good help in academic writing, editing, grammar, and vocabulary enhancement. However, when used excessively, it can diminish cognitive engagement and the importance of critical thinking, which are essential for long-term language improvement. The tools offer personalized learning, immediate feedback, and flexibility in time, which are attractive to learners. The respondents acknowledged the limitations of AI in capturing human context and understanding cultural nuances, yet they still voted in favor of its effectiveness and the convenience of such an application in terms of enhancing linguistic competency. Depending on the AI's impact, concerns were voiced regarding the arenas of metacognitive competence, language innovation, and self-regulation among learners. Although AI may be perceived as a valuable support for classroom learning, it should not replace the cognitive and social aspects of learning.

The practical implications of these findings suggest that AI should be integrated more cautiously into English instruction. Students need to learn how to use AI in a smart way, which includes checking the results of AI, verifying claims, and combining AI-generated content with reliable academic sources. Institutions are urged to adapt their pedagogical approaches and assessment frameworks to incorporate this hybrid model. This change can enhance the learning experience while maintaining the standards of educational institutions.

This study contributes to the existing literature on language acquisition by presenting evidence from an underrepresented context, Bangladeshi public universities, which highlights unique patterns of AI adoption shaped by the local academic culture. It builds on existing theories of information-seeking by demonstrating that AI is often the first place learners turn to for information, and then they conduct further research. It also proposes a blended learning model wherein AI technologies serve not as substitutes but as fundamental components of a comprehensive learning ecosystem. The results demonstrate that English education can progress in a manner that is both technology-driven and informed by effective teaching.

Further Scope for Research

On the basis of the findings of this study, future research studies can be conducted on the following issues:

- As we focused only on public universities of Bangladesh, we feel the need for future research studies on both public and private universities, where future researchers can get a more vivid picture of different universities
- Because of the time limitation, the study had not been completed with a large sample size. So, the future research study can be made more valid with a large sample size
- In future research, data can be collected from both urban and rural areas to get a lucid picture of the students' dependency on AI in English language learning
- To help educators and policymakers, future research should look at how AI tools can be successfully incorporated into English language curricula.
- The infrastructure and training needed to ensure equitable access to AI technologies in educational settings should be the focus of future research for policymakers.

Recommendations

Based on the results and analysis of this study, several suggestions are made to help public university students in Bangladesh use AI tools in English language learning in a responsible and successful way:

- Include AI literacy in English classes to encourage responsible and useful use.
- Train teachers how to use AI tools in a way that is fair and good for learning.
- Make sure that all learners, especially those in remote areas, have the same access to AI resources.
- Set rules to keep an eye on and stop misuse or overreliance.
- Use AI to help with reading, writing, speaking, and listening to encourage multimodal learning.
- Keep doing research to change your approach based on how students' needs and feedback change.

Limitations

Although the research presents some important insights into the use of AI tools in English development, certain limitations should be acknowledged. The sample sizes of both the survey participants (100) and interviewees (20) are small and do not accurately reflect the entire population of university students in Bangladesh. Moreover, the study only examined fourth-year students, a factor that may limit the external validity of the study's results to students in lower academic levels. Moreover, the cross-sectional approach to the study provides a snapshot of the students' lives at a specific moment. Further research may be conducted by undertaking a longitudinal study to examine the long-term effects of using AI tools in language acquisition.

Ethics Statements

It is to confirm that the researcher has conscientiously adhered to the ethics of research by maintaining the confidentiality of the respondents' identities. Only the researcher himself will deal with the data.

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Generative AI Statement

As the author(s) of this work, we used the AI tool ChatGPT for the purpose of improving language usage in our writing. After using this AI tool, we reviewed and verified the final version of our work. We, as the authors, take full responsibility for the content of our published work.

Authorship Contribution Statement

Al Amin: Framework design, data collection, analysis, data interpretation, writing. Mahjabeen: Editing/ reviewing the manuscript,

References

Alharbi, W. (2023). AI in the foreign language classroom: A pedagogical overview of automated writing assistance tools. *Education Research International, 2023*, Article 4253331. https://doi.org/10.1155/2023/4253331

Avsheniuk, N., Seminikhyna, N., Ruban, L., & Sviatiuk, Y. (2025). Exploring overreliance on AI tools in English for specific purposes courses: Challenges and implications for learning and academic integrity. *Arab World English Journal (AWEJ)*, (Special Issue on Artificial Intelligence), 3-20. https://doi.org/10.24093/awej/AI.1

Ayele, N. (2024). *The usage of new AI technologies by college students and its influence on learning and dependence*. [Honors project, Caldwell University]. JSTOR. https://www.jstor.org/stable/community.37312334

Bibi, Z., & Atta, A. (2024). The role of ChatGPT as AI English writing assistant: A study of student's perceptions, experiences, and satisfaction. *Annals of Human and Social Sciences, 5*(1), 433-443. https://doi.org/10.35484/ahss.2024(5-I)39

Chen, R. (2024). A study applying Rogers' innovation diffusion theory on the adoption process of new teaching methods in secondary education. *Research and Advances in Education, 3*(2), 6-10. https://doi.org/10.56397/RAE.2024.02.02

Cong-Lem, N., Tran, T. N., & Nguyen, T. T. (2024). Academic integrity in the age of generative AI: Perceptions and responses of Vietnamese EFL teachers. *Teaching English with Technology, 24*(1), 28-47. https://doi.org/10.56297/FSYB3031/MXNB7567

Creely, E. (2024). Exploring the role of generative AI in enhancing language learning: Opportunities and challenges. *International Journal of Changes in Education*, *1*(3), 158-167. https://doi.org/10.47852/bonviewIJCE42022495

Dakhi, E. S. K. S., Suseno, M., & Setiadi, S. (2025). Understanding EFL students' dependency on ChatGPT in English language learning: Evidence from Indonesian higher education. *NDRUMI: Jurnal Ilmu Pendidikan dan Humaniora, 8*(1), 1-13. https://doi.org/10.57094/ndrumi.v8i1.2872

Deci, E. L., & Ryan, R. M. (2012). Self-determination theory. In P. A. M. Van Lange, A. W. Kruglanski, & E. T. Higgins (Eds.), *Handbook of theories of social psychology* (pp. 416–436). Sage Publications. https://doi.org/10.4135/9781446249215.n21

Edmett, A., Ichaporia, N., Crompton, H., & Crichton, R. (2023). *Artificial intelligence and English language teaching: Preparing for the future* (2nd ed.). British Council. https://bit.ly/3JiYoBm

Feng, L. (2025). Investigating the effects of artificial intelligence-assisted language learning strategies on cognitive load and learning outcomes: a comparative study. *Journal of Educational Computing Research*, *62*(8), 1741-1774. https://doi.org/10.1177/07356331241268349

Fitrianto, I., Setyawan, C. E., & Saleh, M. (2024). Utilizing artificial intelligence for personalized Arabic language learning plans. *International Journal of Post Axial: Futuristic Teaching and Learning, 2*(1), 30-40. https://bit.ly/4oYOOTb

Hawanti, S., & Zubaydulloevna, K. M. (2023). AI chatbot-based learning: Alleviating students' anxiety in English writing classrooms. *Bulletin of Social Informatics Theory and Application, 7*(2), 182-192. https://doi.org/10.31763/businta.v7i2.659

Hsu, T.-C., Chang, C., & Jen, T.-H. (2024). Artificial intelligence image recognition using self-regulation learning strategies: Effects on vocabulary acquisition, learning anxiety, and learning behaviors of English language learners. *Interactive Learning Environments, 32*(6), 3060-3078. https://doi.org/10.1080/10494820.2023.2165508

Imran, M., Almusharraf, N., Ahmed, S., & Mansoor, M. I. (2024). Personalization of e-learning: Future trends, opportunities, and challenges. *International Journal of Interactive Mobile Technologies*, *18*(10), 4-18. https://doi.org/10.3991/ijim.v18i10.47053

Jose, B., Cherian, J., Verghis, A. M., Varghise, S. M., S, M., & Joseph, S. (2025). The cognitive paradox of AI in education: between enhancement and erosion. *Frontiers in Psychology*, *16*, Article 1550621. https://doi.org/10.3389/fpsyg.2025.1550621

Karataş, F., Abedi, F. Y., Ozek Gunyel, F., Karadeniz, D., & Kuzgun, Y. (2024). Incorporating AI in foreign language education: An investigation into ChatGPT's effect on foreign language learners. *Education and Information Technologies, 29*, 19343-19366. https://doi.org/10.1007/s10639-024-12574-6

Liu, G., & Ma, C. (2023). Measuring EFL learners' use of ChatGPT in informal digital learning of English based on the technology acceptance model. *Innovation in Language Learning and Teaching, 18*(2), 125-138. https://doi.org/10.1080/17501229.2023.2240316

Liu, W., & Wang, Y. (2024). The effects of using AI tools on critical thinking in English literature classes among EFL learners: An intervention study. *European Journal of Education, 59*(4), Article e12804. https://doi.org/10.1111/ejed.12804

Mohamed, A. M. (2024). Exploring the potential of an AI-based chatbot (ChatGPT) in enhancing English as a foreign language (EFL) teaching: Perceptions of EFL faculty members. *Education and Information Technologies, 29*, 3195-3217. https://doi.org/10.1007/s10639-023-11917-z

Mohebbi, A. (2025). Enabling learner independence and self-regulation in language education using AI tools: A systematic review. *Cogent Education, 12*(1), Article 2433814. https://doi.org/10.1080/2331186X.2024.2433814

Paas, F., Renkl, A., & Sweller, J. (2004). Cognitive load theory: Instructional implications of the interaction between information structures and cognitive architecture. *Instructional Science*, *32*, 1-8. https://doi.org/10.1023/B:TRUC.0000021806.17516.d0

Piaget, J. (1973). *The child and reality: Problems of genetic psychology.* (Trans. Arnold Rosin). Grossman. (Original work published 1972)

Salah, M., Abdelfattah, F., Alhalbusi, H., & Al Mukhaini, M. (2024). *Me and my AI bot: Exploring the "AIholic" phenomenon and university students' dependency on generative AI chatbots – Is this the new academic addiction?* Research Square. https://doi.org/10.21203/rs.3.rs-3508563/v2

Sari, A. N. (2024). Exploring the Potential of Using AI language models in democratising global language test preparation. *International Journal of TESOL & Education, 4*(4), 111-126. https://doi.org/10.54855/ijte.24447

Song, C., & Song, Y. (2023). Enhancing academic writing skills and motivation: Assessing the efficacy of ChatGPT in AI-assisted language learning for EFL students. *Frontiers in Psychology, 14*, Article 1260843. https://doi.org/10.3389/fpsyg.2023.1260843

Uddin, M. J. (2025). Artificial intelligence in Bangladeshi Higher Education: Future and Challenges. *Journal of Gender Education and Society, 4*(2), 1013-1019. https://doi.org/10.5281/zenodo.15691376

Vo, T. K. A., & Nguyen, H. (2024). Generative artificial intelligence and ChatGPT in language learning: EFL students' perceptions of technology acceptance. *Journal of University Teaching and Learning Practice, 21*(6). http://doi.org/10.53761/fr1rkj58

Vygotsky, L. S. (1978). *Mind in society: The development of higher psychological processes* (Vol. 86). Harvard University Press.

Warschauer, M., Tseng, W., Yim, S., Webster, T., Jacob, S., Du, Q., & Tate, T. (2023). The affordances and contradictions of AI-generated text for writers of English as a second or foreign language. *Journal of Second Language Writing, 62*, Article 101071. https://doi.org/10.1016/j.jslw.2023.101071

Wei, L. (2023). Artificial intelligence in language instruction: Impact on English learning achievement, L2 motivation, and self-regulated learning. *Frontiers in Psychology, 14*(1), Article 1261955. https://doi.org/10.3389/fpsyg.2023.1261955

Yorqinoy, K. (2025). The benefits of using AI and language apps in English as a foreign language (EFL) classes. *American Journal of Language, Literacy and Learning in STEM Education (2993-2769), 3*(5), 86-88. https://bit.ly/47GPwNJ

Yuan, Y. (2024). An empirical study of the efficacy of AI chatbots for English as a foreign language learning in primary education. *Interactive Learning Environments, 32*(10), 6774-6789. https://doi.org/10.1080/10494820.2023.2282112

Yuan, Y., Li, H., & Sawaengdist, A. (2024). The impact of ChatGPT on learners in English academic writing: Opportunities and challenges in education. *Language Learning in Higher Education, 14*(1), 41-56. https://doi.org/10.1515/cercles-2023-0006

Zhang, S., Zhao, X., Zhou, T., & Kim, J. H. (2024). Do you have AI dependency? The roles of academic self-efficacy, academic stress, and performance expectations on problematic AI usage behavior. *International Journal of Educational Technology in Higher Education, 21*, Article 3. https://doi.org/10.1186/s41239-024-00467-0

Zunaidah, A., Wiharja, C. K., & Febriantono, M. A. (2023). Dependency on AI-based writing tools in English learning: Implications for human-computer interaction. In *2023 International Conference on Information Management and Technology (ICIMTech)* (pp. 1-6). IEEE. https://doi.org/10.1109/ICIMTech59029.2023.10278054