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FROM CHALKBOARDS TO CHATBOTS: THE EFFICACY OF AI AND DIGITAL HUMANITIES IN ENHANCING ENGLISH LANGUAGE TEACHING IN PAKISTAN

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ABSTRACT
Artificial Intelligence plays a crucial role in Pakistan and all over the world. This article investigates the role of artificial intelligence and digital humanities in forming English Language Teaching. In previous times, the resources were limited but this study inspected the role of AI chatbots. In Pakistan, the purpose of conventional chalkboards subjugate. Digital humanities and AI tools modify towards modernity. Applying a mixed method approach, the study explores data gathered through classroom observations, interviews and questionnaires from individuals. The research method of this article is Survey study. The findings tell that digital humanities and advanced AI tools help to refine English Language and provides an insight towards useful sources as well as the innovation of AI chatbots is beneficial for individuals of all the ages.

Key Words:
AI chatbots, Digital Humanities, Pakistan, English Language, Chalkboard, Efficacy.

INTRODUCTION

English plays an important role in educational spheres. Chalkboards are converted into whiteboards and from whiteboards to AI tools, the whole study clarifies the role of artificial intelligence. This is not only the progress of social media or digital tools but with the passage of time, the mindset of individuals also changes how the individuals learn language and what strategies are effective in teaching (Selwyn, 2020). English Language Teaching depends upon Grammar Translation Method and Communicative Language Teaching. The modern technologies, AI tools and Digital humanities constitute that how language is taught and how it is learned. AI gadgets such as chatbots, ChatGPT, Claude, Gemini, AI answer Generator and Microsoft Copilot give opportunities for learning. At the same time, Digital Humanities extend access to texts, increasing reading and learning (Rehman,2023).

In Pakistan, English is a medium of communication and uses as second language and a sign of socio-economic potency, acting as the success in academic and professional domains. English Language Teaching practices in a country where learners play inactive role in classroom interactions. AI has constantly transformed what is possible in educational surroundings (Holmes et al., 2019). AI platforms can investigate a huge amount of data of students to personify learning paths.

Pakistani Students using AI tools to improve and enhance efficacy and with the help of these tools' individuals interact with one another in English in a more fluent way. Digital

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humanities involve language, literature as well as history. For instance, with the help of digital tools students not only improve vocabulary and reading but also improve deeper understanding of a language. Digital Humanities focuses on linguistic and cultural domains of learning. It can also be further categorized into two groups. The first one is Rural and second is urban schools. Students from less privileged areas are neglected from these digital tools and learnings chance.

Mishra and Koehler (2006) introduced The Technological pedagogical content knowledge (Tpack) model. It consists of three concepts.

1. Content Knowledge: It involves the understanding of grammar, phonetics and linguistics in English Language Teaching.
2. Pedagogical Knowledge: It involves classroom management and how to teach in an effective way.
3. Technological Knowledge: It means the understanding of digital tools that build and increase learning.

Research Questions

1. What are the insights and viewpoints of teachers regarding artificial intelligence and Digital Humanities in Teaching practices?
2. How do Chatbots and other digital tools help in the improvement of the skills of students?
3. What is the impact of AI on rural and urban students?

Research Objectives

1. To analyze the combination of Artificial Intelligence and Digital Humanities tools in learning English.
2. To interpret the influence of Chatbots on students English Language ability.
3. To evaluate the role of Digital Humanities methods in the development of student's language learning.

Significance of Study

The current study is important as it focuses on the requirements of the education system, modification of English Language Teaching with the help of Artificial Intelligence and Digital Humanities in Pakistan. Efficacy is crucial not only in pedagogical communication but also helpful for language teachers, students and educational paradigms. This is beneficial for students because it allows individuals to inspect the AI tools that how ChatGPT, Gemini and AI answer Generator can build English learning more effective, appealing and understandable. Students strive hard with communicative proficiency just because of traditional schools. Digital Humanities such as data analysis, AI Collaboration and real-world texts are also important in the development of students critical thinking and multimedia learning.

This study also plays an important part in the ease and development of teachers learning. The understanding of Content knowledge, pedagogical knowledge and technological knowledge the usage of TPACK model (Mishra& Koehler,2006) helps teachers. Teachers face many hurdles just because of less training of technologies in educational institutions. AI helps teachers that how these tools are used to improve teaching style and create a positive environment in class with these gadgets. Thus, this study plays a vital role as it pass over the gap between conventional education (Chalkboards) and modern development of technology (Chatbots), contributing a way towards digital tools in educational systems of Pakistan.

Statement of the Problem

In 21st Century, where technologies are developed but still in Pakistan there is a gap in educational institutions whose focus is just on old teaching methods and texts books. In many institutions, the classrooms are still based on 'chalkboards' where AI tools dominate. The

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biggest example is governments schools in Pakistan. This led towards lack of understanding and digital skills. Due to this, teachers frequently face technological pedagogical competence. Individuals also face lack of communication with no knowledge of AI that improves English Language Teaching System. The gap highlights the need of a study that inspects how AI and Digital Humanities can effectively build English Language Teaching.

LITERATURE REVIEW

Artificial Intelligence plays a pivotal role in enhancing English Language Teaching. This study examines theoretical and empirical background that associates student's stratagem and classroom implementations. The work symbolises an expedient from conventional instructional features just as Chalkboards and textbooks towards student focused environment. The Digital technological tools such as Gemini, Elicit and Chatbots are effective in English Language Learning and Teaching. Moreover, Digital Humanities instruments comprising digital corpora and multimodal that forced individuals most particularly students to enhance language use and linguistics Molds. The usage of these AI tools corresponds with pedagogical principles underlined by Cohen, Manion, and Morrison (2018), specifically the role of learner that help to support a purposeful language development.

Research Methods in Education by Louis Cohen is most used in the domain of classroom research. Cohen et al. emphasize that learning surroundings help in meaning making and collaboration (Cohen, Manion, & Morrison, 2018). Digital and online tools help learners in enhancing language learning and it also provide various opportunities that create linguistic knowledge with the help of conversation. AI tools imitate genuine communicative discussion, that coincide with Cohen's view that mutual learning conditions build up cognitive processing. The most important viewpoint in the book of Cohen is the role of Systematic data that is vital in the improvement of language teaching, classroom research and educational plannings.

Richards and Rodgers give a historical and analytical point of view of the method of language teaching that follows Grammar Translation Method. This structure helps to investigate English Language Teaching that how it transformed from Chalkboard instruction to Digital tools. In the Perspective of Richards and Rodgers (2014), every method is formed by its approach and process. Richards & Rodgers argue the transformation toward Content-Based Instruction (CBI) and Task-Based Language Teaching (TBLT), arguing that language learning becomes effective when enclosed in meaningful content and purposeful tasks.

Communicative Language Teaching (CLT) highlights that learning improves when students interact meaningfully with content, teachers, and peers that is the fundamental element of CLT. The article explicitly cites Harmer (2007), a key figure in modern ELT methodology, who stresses the importance of interaction. AI-based tools are effective because they offer "constant opportunities for simulated conversation, personalized interaction, and instantaneous communicative practice." The use of AI to replicate interactional patterns like classroom pair work and support learners who need additional speaking or writing practice emphasizes the primary CLT goal is developing the student's ability to communicate effectively and fluently in real-world contexts.

Digital Humanities tools merged relevant content into lessons, that bring towards real world communicative tasks and foster data-driven learning. Richards and Rodgers (2014) note that modern language teaching has moved into a post-method era, where teachers draw flexibly from multiple methods, learner needs drive instructional choices, no single method is universally applicable, technology is increasingly integrated as a pedagogical mediator. According to the framework AI systems allow adaptive, need-based instruction, teachers act as

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supporter rather than controllers, multiple teaching approaches are mixed automatically by technology.

Conventional chalkboard tells the role of teacher as the central knowledge source. This reflects Richards and Rodgers (2014) statement that advanced methods reconsider the role of teacher towards facilitation instead of transmission. Using Richards and Rodgers theoretical framework, AI and Digital Humanities are not separate from traditional ELT methods but are the development of technology. Due the progress of technology, Teacher talk are minimized. Everything is on single click. Richards and Rodgers methodological framework gives a strong foundation for the understanding of AI and Digital Humanities that how it modifies English Language Teaching. Digital Humanities enhances content and promotes learner choice. As opposed to displace established methods, Artificial Intelligence and Digital Humanities illustrate the evolution of pedagogical practices mentioned in Approaches and Methods in Language Teaching.

The combination of Artificial Intelligence and Digital Humanities into English Language Teaching can be understood when established within Harmer's (2007, 2015) foundational principles on language teaching, role of teacher in learning environments, and technology-based education. Harmer frequently focuses that effective language teaching merged from the cooperation of methodological awareness, learner engagement, and purposeful use of tools, whether traditional or advanced. Harmer (2007) declares that technology in English Language Teaching should function as "supportive rather than substitutive," strengthening the teacher's educational intentions despite replacing the teacher's role. In conventional classrooms, chalkboard is used but it replaces with projectors and audio tapes that is very beneficial in teaching and learning. Extending Harmer's argument, AI-powered tools such as chatbots, adaptive learning systems, and automated feedback engines similarly serve to enhance communication. They offer updated forms of "stimulus materials" that encourage learner engagement, mirroring Harmer's longstanding emphasis on rich input.

Interaction is the fundamental element of Harmer that is helpful in teaching paradigms. He highlights that learning improves when students interact meaningfully with content, teachers, and peers (Harmer, 2007). AI-based chatbots and digital humanities platforms align closely with this principle by offering constant opportunities for simulated conversation, personalized interaction, and instantaneous communicative practice. It argues that AI-based chatbots and digital humanities platforms directly support Harmer's (2007**)** model of effective learning through meaningful interaction. By providing non-stop opportunities for simulated, personalized conversation, these systems effectively act as a replacement for classroom pair work, giving students vital extra practice in speaking and writing.

The last decade has seen rapid integration of digital technologies into English Language Teaching. Two related strands have become prominent: The first one is Artificial Intelligence (AI) tools and second one is practices drawn from the Digital Humanities (DH) (e.g., digital corpora, digitized literary texts, text-mining, multimodal archives) adapted for classroom pedagogy. Scholars frame these developments in terms of affordances for personalization, automation of feedback, expanded access to authentic input, and reconfiguration of teacher roles from knowledge-transmitters to designers and facilitators.

Recent systematic reviews and meta-analyses group AI applications in ELT into several functional categories such as automated feedback for writing (e.g., Grammarly, AES systems), pronunciation trainers (e.g., ELSA), speaking practice and chatbots. Meta-analytic and systematic evidence specifically on chatbots, tutors suggest moderate positive effects on L2 learning outcomes, especially for speaking practice and vocabulary retention, while also enhancing learners' confidence and time-on-task. However, the literature highlights

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heterogeneity in design (rule-based vs LLM), scaffolding, and evaluation measures; the more successful implementations tightly integrate pedagogical design with the chatbot, use clear learning objectives, and combine both practice with teacher-mediated reflection. Digital Humanities contributions to ELT emphasize corpus-based learning, digital editions of texts, multimodal projects, and student-led digital scholarship (e.g., digital storytelling, annotation projects). DH methods enable students to interact with authentic, large-scale language data and cultural artifacts, supporting tasks like corpus linguistics-informed grammar instruction, concordance-driven vocabulary study, and project-based learning that develops both linguistic and digital literacies. Empirical reports and case studies show gains in student engagement, critical reading skills, and the ability to perform data-informed textual analysis, but evidence on direct gains in language proficiency is more mixed and context-dependent.

AI systems analyze learner data (errors, response times, patterns) to adapt content sequencing and feedback. This reduces teacher workload for routine correction and enables more targeted remediation. Yet effective personalization requires valid diagnostic models and transparency about the AI's criteria. DH resources allow integration of audio, images, corpora, metadata, and annotations into language tasks, supporting richer authenticity and critical engagement. When combined with AI (e.g., AI-assisted corpus-querying or LLM-generated tasks from corpora), these approaches can scale inquiry-based learning.

Many automated scoring systems perform well on surface-level features (grammar, lexical accuracy) but struggle with higher-order writing quality and pragmatic competence. Teachers must interpret AI feedback and provide humanizing judgment. Bias, data privacy, and ethical concerns: AI models trained on commercial datasets can reproduce biases, and LLMs may hallucinate or produce unsafe content; privacy and consent around learner-generated data require policy attention. Several studies identify teacher digital literacy and attitudes as critical mediators of successful implementation technology risks being underused or misapplied.

Efficiency, here, is multi-dimensional: time saved on assessment and materials preparation; increased learner contact hours via asynchronous bot practice; scalability of individualized practice; and faster iterative curriculum design via AI-generated materials. When AI's adaptive loops are combined with DH-rich resources (corpora, multimodal texts), instruction can become both efficient and pedagogically richer if systems are pedagogically aligned, ethically governed, and supported by teacher training. The strongest empirical results occur in blended designs where AI supplements teacher-led instruction rather than replaces it. Long-term longitudinal studies of proficiency gains from AI and DH-integrated curricula, comparative trials that isolate pedagogical design variables, context-sensitive research in low-resource educational settings, and robust studies on affective outcomes (motivation, anxiety) and equity impacts. Researchers also call for interdisciplinary collaboration (computational linguistics, DH scholars, and language pedagogy) to co-design tools that are both technically robust and pedagogically sound.

AI and Digital Humanities both contribute substantially to the efficiency and quality of ELT, but their effectiveness depends on pedagogical alignment, teacher capacity, and attention to ethics and equity. When thoughtfully integrated, AI can automate routine tasks and personalize practice while DH methods enrich authenticity and critical engagement; together they offer a powerful, if not yet fully realized, path from traditional chalkboard instruction to adaptive, data-informed, and multimodal language learning environments.

The research questions cantered on the two main components of the TAM: Perceived Ease of Use and Perceived Usefulness.

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The results indicate a strong positive consensus regarding the adoption and impact of chatbots in linguistics education:

1. Perceived Ease of Use (PEOU)

Students widely found the AI chatbots simple to use and user-friendly, especially for complex topics.

- **Low Cognitive Effort:** Interacting with the chatbot to grasp fundamentals like morphology and syntax requires little mental work.
- **User-Friendliness:** 79.38% of students agreed the chatbot's interface facilitates their understanding of core courses like phonology and phonetics.

2. Perceived Usefulness (PU)

Students overwhelmingly agreed that chatbots were beneficial for their academic success and motivation.

- **Improved Performance:** Over 81% of students recognized an improvement in their overall performance in linguistics courses.
- **Enhanced Motivation:** The integration of the chatbot had a significant motivating effect, with 81% of students agreeing.
- **Resource Value:** A high percentage of students intend to use the chatbot as a regular academic resource for performing better across all their linguistics courses.

The study concludes that AI-driven Chatbots are highly accepted and effective as supplementary digital tutors in linguistics education. They significantly enhance student understanding of core linguistic areas and boost motivation and engagement, thereby offering a powerful solution to the challenges faced by traditional teaching methods in the digital era. This article discusses the revolutionary shift in education due to Generative Artificial Intelligence (AI), focusing on its potential to personalize learning, enhance content creation, and drive advanced tutoring systems. Generative AI, defined as AI designed to create new content (text, images, etc.) by learning from existing data, is applied across several educational domains:

Area	Application of Generative AI	Key Benefit
Personalized Learning	Adaptive Learning Systems tailor content, difficulty, and learning paths based on real-time student performance and preferences.	Optimizes the unique learning journey and maintains student engagement (preventing boredom/frustration).
Content Creation	Automated Content Generation of quizzes, practice exercises, and textbook sections using NLP. Creation of Multimedia Content like videos, animations, and interactive simulations.	Frees up educators' time; provides customized, engaging resources for different learning styles.
Intelligent Tutoring	Virtual Tutors (chatbots) provide personalized, one-on-one assistance, real-time feedback, and address specific learning needs through natural language interaction.	Offers 24/7 Availability, supporting self-directed and flexible learning.
Assessment & Feedback	Automated Grading using NLP for fast, accurate feedback on written assignments. Formative Assessment provides continuous evaluation and real-time feedback to guide student improvement.	Ensures faster feedback turnaround and reduces teacher workload.

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Area	Application of Generative AI	Key Benefit
Language Learning	Natural Language Processing (NLP) enables conversational practice with adaptive chatbots and creates context-aware translation exercises. Virtual Reality (VR)/Augmented Reality (AR) create immersive practice simulations.	Makes language acquisition interactive, efficient, and immersive.
Data-Driven Insights	Learning Analytics (Micro-Analytics and Big Data) analyses student data to identify patterns, strengths, and weaknesses. Predictive Analytics forecasts student performance and identifies at-risk students for targeted interventions.	Enables informed decision-making and proactive support for student retention.

Ethical Considerations

The integration of Generative AI must address critical ethical concerns:

- **Bias and Fairness:** AI systems can perpetuate biases from training data, necessitating the use of diverse datasets, transparent algorithms, and continuous monitoring to ensure equitable outcomes for all student groups.

Generative AI is expected to continue advancing, creating more innovative applications like sophisticated immersive simulations. Successfully navigating challenges like equitable access and content quality will be crucial to maximizing the immense potential of AI in making education more accessible, engaging, and effective globally. This study aimed to explore the efficacy and acceptance of Artificial Intelligence (AI)-powered tools in learning English as a Second Language (ESL) among undergraduate students in Pakistan. The study confirmed that participants used AI tools (such as Grammarly, Duolingo, ChatGPT, Quill Bot, and ELSA) and these tools improved their English language skills (speaking, writing, reading, and listening). ESL students held positive opinions regarding the use of these tools. The field of English Language Teaching (ELT) has experienced a significant transformation over the past forty years, moving from teacher-centered, traditional instruction to learner-centered, technology-mediated environments.

The Traditional and Early Digital Eras

- **Historical Context (Pre-2000s):** Early ELT classrooms were dominated by chalkboards, printed books, and teacher-led delivery, limiting personalized learning. Key practitioners like Harmer (2007) and Richards and Rodgers (2001) championed the shift toward interaction and communicative competence in the 80s and 90s, but the technology of the time restricted the ability to provide instant feedback or rich multimodal content.
- **The Call Transition (Early 21st Century):** The rise of digital technology introduced Computer-Assisted Language Learning. This offered new interactive possibilities via audio-visual materials and digital exercises, enhancing learner motivation and autonomy (Cohen, 2011). However, these tools were initially supplementary, not fully integrated into core teaching practices.

The Modern Digital Ecosystem: AI and Digital Humanities

- **The AI Revolution (2010s Onwards):** The integration of Artificial Intelligence (AI) marked a new phase. AI applications including intelligent tutoring, automated evaluation, and adaptive platforms enabled real-time interaction and personalized

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support. This led to an "augmented pedagogy" where teachers could better manage diverse needs by providing context-sensitive feedback and modelling natural language.

- **The Rise of Digital Humanities (DH):** Parallel to AI, Digital Humanities provided access to authentic, multimodal language resources like digital corpora and online archives. These DH tools help learners explore linguistic patterns and cultural contexts, directly supporting the development of communicative competence through contextualized input (Harmer, 2015).

Implications for ELT and Research Gap

- **Contextual Opportunities (Pakistan):** In regions facing infrastructural and pedagogical hurdles, like Pakistan, AI and DH offer powerful tools to deliver personalized instruction, boost engagement, and support autonomous learning (Dornyei, 2001).
- **The Research Need:** Despite the adoption of these technologies, there is a significant gap in research regarding the combined impact of AI + Digital Humanities on ELT practices, learner motivation, and language outcomes, particularly in South Asian contexts. Most studies focus only on general technology or Call.

The Present Study's Focus

This study aims to bridge this gap by examining how the contemporary digital ecosystem combining AI-driven tools (chatbots, adaptive learning) and DH resources (corpora, digital archives) influences learner interaction, motivation, autonomy, and linguistic development, while simultaneously supporting educators with adaptive, data-rich instructional environments. A chronological background follows in this research, telling how ideas, methods or advanced technologies evolved from earlier stages to present. Generative AI is poised to revolutionize education by offering unprecedented levels of personalization, efficiency, and engagement. It moves beyond traditional AI's analytical functions to create new content like text, images, and simulations, fundamentally changing how content is delivered, assessed, and experienced by students and educators.

Introduction to Generative AI

Generative AI is a class of artificial intelligence technologies designed to create new content (text, images, music, etc.) based on patterns learned from vast existing data. Unlike traditional AI that primarily analyses or categorizes, AI produces original outputs that mimic human creativity. Generative AI is a subset of AI techniques that involves the creation and generation of new content. It employs advanced machine learning algorithms, such as Generative Adversarial Networks (GANs), which consist of a generator and a discriminator network that work in opposition to create increasingly realistic outputs. The concept traces back to early AI pioneers like Alan Turing and John McCarthy in the 1950s.

Generative AI significantly enhances personalized learning, an approach that tailor's instruction to an individual student's unique needs, interests, and abilities, moving away from a one-size-fits-all curriculum.

- **Adaptive Learning Systems:** These systems use machine learning to analyse student performance, learning pace, and preferences. The AI then dynamically tailor's educational content and learning paths in real-time to optimize the experience for each student, filling specific knowledge gaps.
- **Student Engagement**: AI maintains motivation by adjusting the difficulty and content type. It can introduce alternative or scaffolded materials when a student struggles, or more challenging content when they excel. This optimal level of challenge, often informed by a student's cognitive and emotional state, prevents frustration or boredom.

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Content Creation

AI is transforming the development of educational materials, saving educators time and ensuring resources are highly relevant and engaging.

- **Automated Content Generation:** AI automates the creation of resources, from practice exercises and quizzes to entire textbook sections, using techniques like Natural Language Processing (NLP). Platforms like GPT-3 can generate coherent and contextually relevant text, automate the production of assessment materials and aid in curriculum development by identifying gaps.
- **Multimedia Content:** AI can create dynamic and immersive learning resources such as videos**,** animations, and interactive simulations. Tools leverage AI to automate scene creation, character animation, and voiceovers, providing hands-on experiences that enhance understanding and retention of complex concepts.

Intelligent Tutoring Systems

AI-powered virtual tutors are revolutionizing support by providing personalized, responsive, and always-available learning assistance.

- Virtual Tutors: These systems use AI to understand a student's strengths, weaknesses, and learning style, delivering tailored instruction and targeted feedback. They can simulate human-like interactions using natural language processing (NLP) to address misconceptions, scaffold learning, and provide immediate, individualized support.
- 24/7 Availability: Unlike traditional tutoring, virtual tutors are accessible anytime and anywhere. This continuous support is vital for students needing extra help outside of school hours or engaged in distance learning, allowing them to learn at their own pace without time constraints.

Assessment and Feedback

AI is making assessment more efficient and providing students with immediate, actionable feedback to drive improvement.

- **Automated Grading: Providing Instant Feedback:** AI systems use machine learning to analyse and evaluate student responses for assignments and exams, assessing grammar, structure, and content against rubrics. This automated process provides faster turnaround times for feedback, allowing students to make prompt improvements and reducing the workload on teachers.
- **Formative Assessment**: **Continuous Evaluation and Real-Time Feedback:** AI goes beyond grading by enabling continuous evaluation. Adaptive learning platforms track student progress, identify patterns, and generate personalized recommendations and adaptive learning paths. This supports self-directed learning and facilitates targeted interventions to address specific learning gaps in real-time.

Generative AI is making language acquisition more interactive, efficient, and immersive.

  - **Conversational Practice:** Natural Language Processing chatbots that simulate conversations, adapting difficulty and communication style, and providing real-time feedback on grammatical errors to improve fluency.
  - **Translation Exercises**: AI provides context-aware translations and personalized feedback on student translations, moving beyond simple "correct or incorrect" to suggest improvements in grammar and phrasing. AI creates immersive experiences accessible from anywhere, such as Virtual Reality (VR) simulations of real-world scenarios (e.g. a Parisian market) and Augmented Reality (AR) interactions that overlay language aids onto the real world.

AI is fundamentally changing how educational data is used, providing valuable insights to optimize learning.

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- **Learning Analytics:** AI analyses large volumes of student data (Big Data in Education) to uncover nuanced learning patterns (Micro-Analytics). This information is used to personalize learning by identifying individual student preferences, strengths, and areas for improvement, allowing for tailored content delivery.
- **Predictive Analytics**: AI algorithms analyse historical educational data to forecast student outcomes and identify students who may be at risk of academic failure or dropout. These early warning systems enable educators to implement targeted interventions and support strategies proactively to improve student retention and success.

The future of Generative AI in education is bright, promising further innovations that will make learning more accessible, engaging, and effective globally. The ongoing advancement of technology will lead to more innovative applications, though maintaining equitable access and content quality will be crucial for maximizing benefits.

While research on technology in English Language Teaching (ELT) is substantial, several crucial areas remain unexplored, particularly regarding the integrated use of cutting-edge technologies. Previous studies predominantly examined older technologies (like traditional CALL and general multimedia) but have not adequately addressed the combined impact of Artificial Intelligence (AI) and Digital Humanities (DH) on language teaching. AI tools (chatbots, intelligent tutors, etc.) are often studied in isolation, overlooking how they can synergize with DH resources like digital corpora, multimodal archives, and cultural datasets. Most research focuses narrowly on either pedagogical efficiency or student motivation. There is a distinct absence of models that comprehensively analysed the multifaceted improvements resulting from the integration of AI and DH, such as enhancing personalized feedback, fostering learner autonomy, supporting multimodal engagement, and promoting authentic, data-driven learning. The potential of DH to deepen linguistic, cultural, and contextual understanding in ELT remains significantly under-researched.

Existing literature rarely addresses the challenges and opportunities of adopting these advanced technologies in resource-constrained environments, such as Pakistan and other South Asian regions. There is a need for research on how AI and DH can bridge compensate for teacher shortages, and support English learning where technological adoption is uneven. Furthermore, the crucial role of teacher preparedness, digital literacy, and perceptions regarding AI-assisted pedagogy has not been sufficiently investigated.

Current research offers limited empirical evidence on the synergistic relationship between emerging AI and DH enhanced methods and established ELT principles (e.g., communicative language teaching, task-based learning, learner-centered pedagogy). It is unclear how these innovations coexist with or contrast against traditional approaches. There is a critical need for empirical and theoretical research to investigate how the combined integration of AI and Digital Humanities can enhance the efficiency, quality, and accessibility of English language teaching in contemporary settings. This gap forms the basis for the current study.

RESEARCH METHODOLOGY

The present study adopts a mixed-methods research design, combining both quantitative and qualitative approaches. This choice allows the study to capture numerical data related to the efficiency of AI and Digital Humanities in ELT, while also exploring teacher's and learner's lived experiences, perceptions, and classroom practices. The quantitative component examines measurable outcomes such as learner engagement, technological usability, perceived effectiveness, and frequency of chatbot AI and DH tool usage. The qualitative component explores deeper insights regarding challenges, attitudes, pedagogical shifts, and contextual factors through descriptive data. A mixed-method design strengthens the study by enabling

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triangulation, increasing validity, and ensuring a holistic understanding of how AI and DH influence English language teaching. The study is grounded in the Pragmatic Paradigm, which emphasizes practical solutions to real-world educational problems. Pragmatism supports the use of multiple data sources, tools, and analytical techniques to understand complex phenomena such as technological integration in ELT.

Research Framework

The conceptual framework guiding this study integrates three core components:

- **Technological Component**

Use of chatbots, AI writing assistants, adaptive learning platforms, digital corpora, multimodal DH archives.

- **Pedagogical Component**

Communicative language teaching, blended learning, task-based teaching, and data-driven learning.

- **Learner-Outcome Component**

Measuring efficiency through engagement, motivation, autonomy, classroom interaction, assessment accuracy, and linguistic improvement. These components interact to evaluate how AI and Digital Humanities together shape instructional quality and learning outcomes.

Population

The target population for this study includes English language teachers working in English language institutes. Primary and Secondary level language learners who have been exposed to AI and DH tools in their English classes. The population specifically represents institutions transitioning from traditional instruction (chalkboards) to technology-assisted teaching (chatbots, AI platforms, DH resources).

Sample Size

A sample of 20 participants is selected, comprising 15 students and 5 English language teachers. This size ensures statistical reliability in quantitative analysis and sufficient depth in qualitative inquiry.

Sampling Technique

The study uses a combination of a Stratified Sampling (Quantitative). Participants are divided into strata based on Institution type. This ensures balanced representation.

Purposive Sampling (Qualitative)

Teachers and experts with prior experience in AI and DH-based teaching are intentionally selected, as their insights are essential for the study's depth. Teachers using or experimenting with AI or digital tools in ELT. Students enrolled in English language courses with at least some exposure to technology-enhanced learning.

Sample Representative

The sample is considered representative because it includes a diverse mix of institutions, ensuring contextual variation. Participants vary in gender, academic background, proficiency level, and technological access. Teachers and experts with direct AI and DH experience provide authentic insights. Stratified sampling ensures proportional representation from multiple groups. Thus, the sample reflects the broader population of technologically transitioning ELT contexts.

Data Collection Tools

A combination of tools is used to ensure methodological rigor is Structured Questionnaire (Quantitative) and Semi-Structured Interviews (Qualitative) that is Conducted with teachers, students and experts to explore Attitudes toward AI and DH and Classroom integration strategies. Quantitative Analysis **is** Conducted using SPSS.

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The methodological design of this study ensures a comprehensive, valid, and contextually rich investigation into the efficiency of AI and Digital Humanities in ELT. The mixed-methods approach, supported by the pragmatic paradigm, enables the study to capture both measurable outcomes and deeper pedagogical nuances. A carefully stratified and purposive sample ensures that the findings are both representative and analytically meaningful. The use of multiple instruments questionnaires and interviews strengthens data reliability. Through quantitative and qualitative analyses, the methodology supports the study's aim of offering empirical evidence on how AI chatbots, adaptive technologies, and DH tools collectively enhance English language teaching. This approach ensures that the conclusions and recommendations will be well-grounded, credible, and beneficial for educators, policymakers, and institutions transitioning toward AI-augmented pedagogy.

THEORETICAL FRAMEWORK

This research is fundamentally rooted in the Interactionist Theory of Second Language Acquisition (SLA), which posits that language proficiency is best developed through active communication and the "negotiation of meaning." Central to this theory is the idea that learners progress when they engage in dialogue that forces them to recognize linguistic gaps, receive feedback, and adjust their speech or writing accordingly (Long, 1996). By merging the cognitive and social elements of learning, the interactionist approach underscores the necessity of both receiving understandable input and producing purposeful output.

AI Chatbots as Interactionist Tools

AI chatbots serve as a digital manifestation of this framework by providing a simulated yet structured conversational space. These tools offer several key benefits aligned with interactionist principles:

- Simulated Authenticity: Chatbots mirror real-world social exchanges, allowing for interactive English practice where learners receive instantaneous feedback (Fryer, Ainley, Thompson, Gibson, & Sherlock, 2019).
- Negotiation of Meaning: Through iterative prompts that require users to clarify or rephrase their input, chatbots encourage the cognitive processing required to internalize grammar and vocabulary.
- Affective Support: Unlike face-to-face human interaction, chatbots offer a low-stakes environment. This reduces learner anxiety and fosters the confidence needed to experiment with language—addressing both the cognitive and emotional pillars of SLA (Krashen, 1985; Fryer et al., 2019).

Within this study, AI chatbots are viewed as a functional medium for applying interactionist tenets. This theoretical lens allows for a nuanced analysis of how chatbot-mediated exercises impact specific outcomes like grammatical accuracy, lexical growth, and fluency. Ultimately, the interactionist framework ensures that the study prioritizes communicative competence over traditional rote learning methods.

DATA ANALYSIS

The data analysis for this study was conducted in several stages to examine the impact of Artificial Intelligence (AI) tools and Digital Humanities (DH) resources on English Language Teaching (ELT). Quantitative analyses focused on changes in learners' linguistic performance, motivation, and engagement, while qualitative analyses explored learner perceptions and interactional patterns. This mixed-methods analytical strategy aligns with current empirical norms in AI-supported language learning research (Lyu, 2025; Ekizer, 2025).

Syllabus: Enhancing English Proficiency via AI Chatbots and Digital Humanities

The course is designed to enhance students' English language proficiency through the guided use of AI chatbots and Digital Humanities (DH) tools. Moving from traditional

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chalkboard-based instruction to technology-enhanced learning, the course integrates AI-powered conversational practice, instant feedback, and digital text analysis to develop learners' grammar, vocabulary, reading, writing, and speaking skills.

AI chatbots are used as supportive learning tools to promote learner autonomy, engagement, and reflective learning under teacher supervision.

- Target Learners
- High school students or intermediate-level students
- Course Duration
- 8 weeks (3 hours per week)

Course Objectives

By the end of the course, students will be able to:

- Use AI chatbots effectively to practice English language skills.
- Improve grammatical accuracy and lexical range through AI-assisted feedback.
- Develop reading and writing skills using digital and corpus-based tools.
- Enhance speaking fluency and confidence through AI-supported interaction.
- Demonstrate learner autonomy and critical awareness of AI-generated content.

Course Learning Outcomes

Students will be able to:

1. Interact with AI chatbots for guided language practice.
2. Identify and correct common grammatical and lexical errors using AI feedback.
3. Analyse texts using basic Digital Humanities techniques.
4. Produce coherent written and spoken English with improved accuracy.
5. Reflect critically on the ethical and academic use of AI in language learning.

Weekly Course Outline

Week 1: Introduction to AI and English Language Learning

- Overview of AI chatbots in ELT.
- Ethical and responsible use of AI.
- AI Task: Simple chatbot conversation.

Week 2: Grammar Development through AI Feedback

- Review of sentence structure and tense usage.
- AI Task: Grammar correction and explanation via chatbot.
- Classroom discussion on AI feedback accuracy.

Week 3: Vocabulary Building and Lexical Awareness

- Collocations and word choice.
- AI Task: Vocabulary expansion using chatbot prompts.

Week 4: Reading Skills and Digital Text Analysis

- Reading strategies (skimming, scanning).
- Introduction to digital annotation tools.
- AI Task: Summarizing and questioning texts using chatbots.

Week 5: Writing Paragraphs with AI Support

- Paragraph structure and coherence.
- AI Task: Drafting and revising paragraphs using chatbot feedback.
- Teacher-guided revision.

Week 6: Speaking Skills and Conversational Practice

- Fluency and pronunciation strategies.

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- AI Task: Simulated conversations with chatbots.
- Peer and teacher feedback.

Week 7: Digital Humanities and Language Awareness

- Introduction to basic corpus tools.

Week 8: Integrated Skills Project

- Combining reading, writing, speaking, and AI tools.
- AI Task: Project planning and language support.

This is a comprehensive syllabus that effectively bridges the gap between traditional ELT pedagogy and modern educational technology. The study utilized a mixed-methods research design, blending quantitative data from students with qualitative insights from educator questionnaires. The participant pool (N=20) was gathered via purposive sampling, consisting of 15 students and 5 English language teachers, all of whom possessed experience with AI and digital instructional tools.

Quantitative Analysis: Student Surveys

Data from the 15 student participants were gathered through structured questionnaires featuring questions. These items evaluated key metrics: engagement, feedback quality, motivation, language proficiency growth, and instructional efficiency.

Comparative Results: To measure the impact of AI integration, paired samples were performed. These tests indicated significant gains in student confidence, engagement, and satisfaction with feedback. To validate the practical impact of these results, Cohen's effect sizes were calculated.

Qualitative Analysis: Educator Insights

The perspectives of the five English language teachers were captured through questionnaires. This data underwent a rigorous thematic analysis, moving from initial coding to the establishment of formalized themes.

Key Findings from Teachers:

Instructional Benefits: AI chatbots improved the speed of feedback and enabled personalized learning, while Digital Humanities tools fostered deeper textual analysis.

Efficiency: Teachers noted a reduction in administrative workload and a boost in classroom participation.

Barriers: Significant concerns were raised regarding students becoming overly dependent on technology and the necessity for comprehensive faculty training.

By triangulating the quantitative survey trends with qualitative themes, the study achieved a more robust validation of its results. The data revealed a clear convergence: students' reported increases in engagement and efficiency were directly mirrored by teachers' observations of higher learner autonomy and classroom activity. The analysis indicates that AI and Digital Humanities tools significantly enhance the English Language Teaching (ELT) environment. While the study is exploratory due to its small sample size, the mixed-methods evidence provides a strong justification for the efficacy of digital integration and serves as a pilot for more extensive future research. The survey was developed to investigate how students perceive the utility of AI chatbots and Digital Humanities informed tasks in the context of English language acquisition. The theoretical framework for this instrument is rooted in constructivism, interactionist theory, and technology-enhanced language learning (TELL) (Richards & Rodgers, 2014; Zawacki-Richter et al., 2019; Huang et al., 2023).

The qualitative instrument is designed to investigate students' nuanced insights, personal encounters, and reflective thoughts regarding the integration of AI chatbots and Digital Humanities (DH) resources within the English Language Teaching (ELT) framework. Utilizing open-ended inquiries allows for the capture of authentic learner voices and situational

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perspectives that traditional quantitative measures may overlook (Creswell, 2014; Braun & Clarke, 2006).

Q No.1: How would you describe the overall experience through AI chatbots?
Ans: The overall experience with AI chatbots was very effective. Everything is very accessible and helpful. Furthermore, the portability and accessibility of AI platforms facilitated a seamless transition between classroom instruction and independent practice, thereby strengthening learner agency and autonomy. Ultimately, this technology-driven approach proved more motivating and time-efficient than conventional pedagogical methods used in isolation (Richards & Rodgers, 2014; Huang et al., 2023).
Q No.2: How AI chatbots are effective in English Language learning?
Ans: The effectiveness of AI chatbots in English language education is gaining widespread recognition due to their capacity to provide real-time feedback. AI-driven platforms deliver instantaneous, tailored responses regarding a learner's syntax, lexicon, and grammatical accuracy. This immediate corrective mechanism allows students to recognize linguistic gaps and refine their output, a process fundamental to language growth (Fryer et al., 2019).
Q No.4: How chatbots promote self regulation?
Ans: Chatbots promote self-regulation and independent study by offering 24/7 accessibility. This shift toward "anytime, anywhere" practice supports the modern pedagogical goal of fostering self-directed learners who can manage their own pace and content (Richards & Rodgers, 2014). Such flexibility ensures that engagement with the target language persists well beyond the physical classroom.
Q No. 5: How AI chatbots enhances confidence and motivation?
Ans: The integration of relevant technology into the curriculum increases student enthusiasm and participation. Within constructivist and technology-enhanced frameworks, AI shifts the educational focus from teacher-led instruction to a learner-cantered model (Zawacki-Richter et al., 2019).
Q No. 6: What roles should teachers play when using AI chatbots?
Ans: In English language education, the integration of AI chatbots does not render the educator obsolete; rather, it reinforces the teacher’s essential mediating and pedagogical influence. Teachers serve as the primary architects of the learning experience, guiding students in the strategic use of AI. By designing purposeful tasks and selecting chatbot activities that align with specific learning outcomes, educators ensure that technology serves the broader curriculum rather than functioning in isolation (Richards & Rodgers, 2014; Huang et al., 2023). Chatbots offer rapid feedback, the educator is responsible for clarifying nuanced grammatical structures, resolving pragmatic complexities, and providing the cultural context that AI often overlooks (Zawacki-Richter et al., 2019). This oversight maintains linguistic standards and discourages an uncritical reliance on automated tools. Teachers educate students on the ethics of AI, including data privacy, responsible usage, and academic honesty. By encouraging a critical perspective, they help learners appreciate the advantages of AI while remaining cognizant of its inherent limitations (Huang et al., 2023).

The data analysis indicates that incorporating AI chatbots into English language instruction yields a predominantly favourable influence on student involvement, self-assurance, and linguistic progress. Questionnaire data suggests that these tools successfully bolster grammatical and lexical acquisition by providing tailored, real-time feedback. This immediacy empowers students to recognize and rectify inaccuracies autonomously, echoing interactionist and feedback-oriented theories of second language acquisition that prioritize the cycle of timely input and modified output (Fryer et al., 2019; Richards & Rodgers, 2014).

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Additionally, the results demonstrate that AI chatbots play a vital role in mitigating language-related anxiety and fostering a greater readiness to converse in English. Students frequently noted a higher level of comfort when practicing within a non-critical, digital space a finding that reinforces the Affective Filter Hypothesis (Krashen, 1985). This low-stakes environment incentivized regular linguistic experimentation, resulting in a measurable boost in confidence across both oral and written modalities.

The analysis further underscores how AI chatbots facilitate learner agency and informal education. Participants highly valued the convenience and 24/7 availability of AI-driven practice, which extended their language engagement far beyond the confines of the physical classroom. This trend aligns with modern, learner-centric pedagogical frameworks that emphasize the importance of sustained, independent technology-enhanced learning (Zawacki-Richter et al., 2019).

Despite these benefits, the data suggests that the utility of AI chatbots is optimized when they function as a pedagogical supplement rather than a substitute for human educators. Respondents highlighted the indispensable nature of the teacher's role in structuring tasks, verifying AI-generated feedback, and providing emotional encouragement. Educators are viewed as critical mediators who maintain instructional consistency and ethical standards, highlighting a symbiotic relationship between human expertise and machine intelligence (Huang et al., 2023).

Ultimately, the data confirms that AI chatbots enrich the English learning experience by cultivating motivation, independence, and technical precision. However, their success is contingent upon deliberate, supervised integration. These results advocate for a hybridized, teacher-led approach as the most effective strategy for advancing English language pedagogy in contemporary digital and blended settings (Huang et al., 2023; Richards & Rodgers, 2014).

DISCUSSION

This research aimed to evaluate the effectiveness of AI chatbots and Digital Humanities (DH) resources in optimizing English language pedagogy. The analysed data suggests that when woven into the English curriculum, AI chatbots serve as a robust support system for advancing linguistic proficiency, student motivation, and learner agency. The following discussion situates these outcomes within current theoretical frameworks and empirical research, addressing both the pedagogical advantages and the inherent constraints of these technologies.

1. Linguistic Development and Data-Driven Learning

The study confirms that AI chatbots foster significant gains in grammatical precision, lexical range, writing quality, and communicative assurance. The ability of students to receive tailored, instantaneous feedback allows for efficient error detection and correction, validating interactionist theories that emphasize the necessity of timely feedback in second language acquisition (Fryer et al., 2019). These results mirror previous academic work suggesting that digital feedback mechanisms often surpass traditional, delayed correction in promoting engagement and accuracy (Hyland, 2016). Furthermore, the application of AI tools aligns with the corpus-informed and data-driven methodologies central to Digital Humanities, which utilize digital patterns to deepen linguistic understanding (Biber et al., 2011).

2. Affective Benefits and Anxiety Reduction

A critical outcome of this study concerns the emotional state of the learners. Participants reported a notable decrease in language-related anxiety and an increase in self-confidence. This evidence reinforces the Affective Filter Hypothesis (Krashen, 1985), which posits that language acquisition is most successful in low-stress environments. Because chatbots provide a private, non-critical platform for practice, students felt liberated to experiment with the language

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without the social risks of embarrassment. This aligns with prior research indicating that AI-mediated settings significantly boost a student's "willingness to communicate" (Fryer et al., 2019).

3. Autonomy and Expanded Learning Spaces

The findings underscore the capacity of AI chatbots to drive learner autonomy and self-regulated study. Students favoured the 24/7 accessibility of these tools, which facilitated iterative practice and revision outside of formal instructional hours. This shift toward self-directed engagement is a cornerstone of learner-cantered and communicative language teaching (Richards & Rodgers, 2014). From a Digital Humanities perspective, these tools broaden access to complex linguistic resources and encourage active exploration of digital texts (Biber et al., 2011).

4. The Indispensable Role of the Educator

Despite the technological advantages, the results clarify that AI is a supplement to not a replacement for human teachers. Participants identified teacher intervention as vital for task conceptualization, feedback interpretation, and emotional mentorship. This corroborates existing literature regarding AI's shortcomings, specifically its struggle to grasp the cultural, pragmatic, and contextual nuances of language (Zawacki-Richter et al., 2019). Consequently, teachers act as essential pedagogical mediators who ensure instructional logic and ethical standards are maintained (Huang et al., 2023).

5. Challenges and Digital Literacy

The study also noted obstacles such as occasional technical hallucinations (inaccuracies) and a tendency for students to rely too heavily on AI for pre-packaged answers. These challenges emphasize the critical need for fostering digital literacy and maintaining rigorous teacher oversight. As noted in earlier studies, the successful deployment of AI requires intentional scaffolding and a clear understanding of the software's limitations (Huang et al., 2023).

The discussion highlights that AI chatbots and Digital Humanities tools significantly elevate English language teaching when utilized as complementary assets. The findings support a blended instructional model where AI handles repetitive practice and immediate feedback, while the educator provides essential validation, complex guidance, and human connection. This integrated approach leverages the power of automation while preserving the human-centric nature of education (Richards & Rodgers, 2014; Zawacki-Richter et al., 2019).

CONCLUSION

This study explores how AI chatbots and Digital Humanities (DH) tools optimize English language pedagogy. The results indicate that AI serves as a powerful instructional supplement, boosting proficiency in grammar, vocabulary, writing, and speaking, while simultaneously increasing student engagement. By offering instantaneous, tailored feedback, these tools help students correct errors and internalize linguistic structures, fostering a sense of autonomy. These observations align with interactionist theories of second language acquisition, which posit that immediate feedback and output are vital for linguistic growth (Fryer et al., 2019; Richards & Rodgers, 2014).

Additionally, the use of AI lowered learner anxiety and bolstered confidence, especially during productive tasks. The low-stakes, non-judgmental nature of AI interactions allowed students to practice more comfortably, a phenomenon that supports Krashen's (1985) Affective Filter Hypothesis. This accessibility encourages self-directed learning, matching modern, student-cantered educational frameworks (Zawacki-Richter et al., 2019).

Despite these benefits, the research emphasizes that AI is a supplement to, not a replacement for, human educators. Teachers are indispensable for crafting meaningful

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curricula, verifying AI feedback, offering emotional encouragement, and ensuring the ethical application of technology (Huang et al., 2023). Successful implementation depends on a synergistic model where the teacher guides the AI's role within the pedagogical framework. Ultimately, AI and DH tools can transform English instruction into a more interactive and personalized experience when applied strategically. While they improve linguistic skills and motivation, the teacher's role in providing scaffolding and oversight remains paramount (Fryer et al., 2019; Huang et al., 2023; Richards & Rodgers, 2014; Zawacki-Richter et al., 2019).

FINDINGS

This research examined the impact of AI chatbots and Digital Humanities (DH) tools on English language acquisition among a cohort of 15 students and 5 instructors. Utilizing a mixed-methods approach of quantitative surveys and qualitative feedback, the study identified significant pedagogical advantages alongside specific integration challenges. The data suggests that AI chatbots are highly effective at identifying grammatical errors and broadening vocabulary, as evidenced by high quantitative scores. Participants noted that the immediacy of AI feedback allowed for real-time self-correction and stronger retention of linguistic patterns. These findings reinforce existing literature suggesting that AI-driven feedback improves learner accuracy and engagement (Fryer et al., 2019; Biber, Conrad, & Reppen, 2011). Students specifically valued the adaptive explanations that clarified the "why" behind their mistakes.

AI tools positively influenced literacy skills. In writing, chatbots supported a systematic revision process, enabling students to experiment with sentence structures; a hallmark of process-oriented writing pedagogy (Hyland, 2016). For reading, the tools provided guided questioning and instant clarification, which improved overall comprehension. One of the most notable outcomes was the reduction in "language anxiety." Mean scores (4.2–4.6) indicated a surge in speaking fluency and confidence. Qualitative feedback suggests that the non-judgmental nature of a chatbot creates a safe environment for oral practice, validating Krashen's (1985) Affective Filter Hypothesis. This aligns with previous findings that AI practice reduces the fear of making mistakes (Fryer et al., 2019).

The study highlighted a shift toward self-directed learning, with students valuing the 24/7 availability of AI tools to practice outside the classroom. This flexibility fosters learner autonomy, a core tenet of modern learner-cantered models (Richards & Rodgers, 2014). Furthermore, the interactive nature of these tools significantly boosted intrinsic motivation and engagement, making the learning process less repetitive (Zawacki-Richter et al., 2019).

Both cohorts agreed that AI is most effective as a supervised supplement. Teachers remain vital for:

- Designing pedagogically sound activities.
- Verifying the accuracy of AI feedback.

Navigating cultural nuances and providing emotional scaffolding. This supports the consensus that AI should enhance, rather than substitute, human-led instruction (Huang, Spector, & Yang, 2023; Zawacki-Richter et al., 2019).

In conclusion, the integration of AI and DH tools aligns with constructivist and technology-enhanced frameworks, offering a transformative potential for ELT when guided by expert human oversight (Fryer et al., 2019; Huang et al., 2023; Krashen, 1985; Richards & Rodgers, 2014; Zawacki-Richter et al., 2019).

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REFERENCES

Biber, D., Conrad, S., & Reppen, R. (2011). Corpus linguistics: Investigating language structure and use. Cambridge University Press.

Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. Qualitative Research in Psychology, 3(2), 77–101.

Creswell, J. W. (2014). Research design: Qualitative, quantitative, and mixed methods approach (4th ed.). Sage.

Fryer, L. K., Ainley, M., Thompson, A., Gibson, A., & Sherlock, Z. (2019). Stimulating interest and engagement in language learning through chatbots. Computer Assisted Language Learning, 32(5–6), 1–27.

Huang, J., Spector, J. M., & Yang, J. (2023). Artificial intelligence in language education: Opportunities and challenges. Educational Technology Research and Development, 71(2), 1–18.

Hyland, K. (2016). Teaching and researching writing (3rd ed.). Routledge.

Krashen, S. D. (1985). The input hypothesis: Issues and implications. Longman.

Richards, J. C., & Rodgers, T. S. (2014). Approaches and methods in language teaching (3rd ed.). Cambridge University Press.

Zawacki-Richter, O., Marín, V. I., Bond, M., & Gouverneur, F. (2019). Systematic review of research on artificial intelligence applications in higher education. International Journal of Educational Technology in Higher Education, 16(39).

Baker, P., Hardie, A., & McEnery, T. (2013). A glossary of corpus linguistics (2nd ed.). Edinburgh University Press.

Deshors, S. C. (2014). A case for a unified treatment of EFL and ESL.

Lieber, R. (2004). Morphology and lexical semantics. Cambridge University press.

Richards, J. C., & Rodgers, T. S. (2014). Approaches and methods in language teaching (3rd ed.). Cambridge University Press.