

ARTIFICIAL INTELLIGENCE IN ENGLISH TEACHING: OPPORTUNITIES AND CHALLENGES FOR FAIR EDUCATION IN PAKISTANI INSTITUTIONS

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Abstract

Artificial Intelligence (AI) is becoming more common in English teaching. It helps students learn in new ways by giving personal support and easy access to learning materials. Many people believe that AI can support fair and sustainable education. However, this idea does not fully consider important problems such as equal access, fairness, and control. Framed by the theoretical concepts of the digital divide and digital colonialism, this study looks at how AI in English teaching can both help and create challenges, especially in developing countries like Pakistan. It uses an interpretive qualitative method. Data were collected through semi-structured interviews with English teachers (n=10) and university students (n=15), complemented by a technological artifact analysis of popular AI learning tools.

The results show that AI can improve student interest, independence, and language skills. However, not all students benefit equally. Students who have better access to technology and stronger digital skills gain more, while others face a secondary layer of structural exclusion. Also, many AI tools are developed in Western countries, forcing local learners to conform to foreign standards, which risks linguistic erasure and creates digital dependence. The study concludes that if AI is not used in a careful and fair way, it may reinforce social stratification rather than support fair education. It suggests using AI in ways that are more inclusive, decolonized, and suitable for local needs.

Keywords: *Artificial Intelligence (AI); English Teaching; Fair Education; Equity; Access; Higher Education; Digital Colonialism*

Introduction

In recent years, Artificial Intelligence (AI) has become an important part of education across the world. It is now widely used in English Language Teaching (ELT) to support learning in new and effective ways. AI-based tools, such as writing assistants, chatbots, and automated feedback systems, help students improve their language skills by offering quick responses, personalized learning paths, and easy access to learning materials (Holmes et al., 2023; Kukulska-Hulme, 2020). These tools also allow learners to study at their own pace and develop independent learning habits. Because of these advantages, AI is often seen as a key tool for improving the quality of education and supporting the goals of sustainable and inclusive learning (UNESCO, 2024).

At the same time, the rapid growth of AI in education raises important questions about fairness and equality. While AI can increase access to learning, it does not benefit all learners in the same way. Many students, especially in developing countries like Pakistan, still face problems such as limited internet access, lack of digital devices, and low digital literacy. These challenges create a digital divide, where some students can fully benefit from AI tools while others are left behind

(Mokoena & Seeletse, 2025; UNESCO, 2024). As a result, the use of AI may increase educational inequality instead of reducing it.

Another important concern is related to the cultural and linguistic relevance of AI tools. Most AI systems used in ELT are developed in Western countries and are based on dominant global languages and cultures. This means that they may not fully represent the local realities, languages, and learning needs of students in non-Western contexts. Scholars argue that this imbalance can lead to a form of “digital colonialism,” where local users depend on foreign technologies that shape knowledge and learning practices (Selwyn, 2024; Williamson, 2021). In such cases, AI does not simply support learning; it also influences what is learned and how it is understood.

Moreover, the idea of “sustainable education” is often linked with fairness, inclusion, and equal opportunities for all learners (Bahroun et al., 2023). However, the use of AI creates a paradox. On one hand, AI offers new opportunities for improving education and making learning more accessible. On the other hand, it may deepen existing inequalities and create new forms of dependence. This tension shows that technology alone cannot solve educational problems. Instead, careful planning and critical understanding are needed to ensure that AI supports both quality and fairness in education (Al-Zahrani, 2024).

In the context of Pakistan, these issues become even more important. The country faces challenges such as unequal access to digital resources, structural gaps between urban and rural education, and limited local development of educational technologies (Khan & Ahmed, 2024). While universities and students are increasingly using AI for language learning, there is still limited empirical research on how these tools affect fairness and inclusion in local settings. This creates a need for context-based studies that explore both the structural benefits and the socio-technical challenges of AI in ELT.

To systematically address this gap and offer an organized evaluation of technology integration, this study establishes a structural alignment between its underlying goals and findings.

Research Objectives

- 1 To investigate the pedagogical opportunities and functional benefits of integrating Artificial Intelligence (AI) tools in English Language Teaching (ELT) within Pakistani higher education.
- 2 To examine the socio-technical challenges and systemic inequalities—specifically regarding the digital divide and digital colonialism—arising from AI integration in Pakistani ELT.

Research Questions

- 1 How do university teachers and students experience the pedagogical opportunities and benefits of AI tools in English language learning?
- 2 What socio-technical challenges and systemic inequities do educators and learners face when navigating foreign-coded AI tools in the Pakistani educational context?

2. Literature Review

2.1 Artificial Intelligence in English Language Teaching

Artificial Intelligence (AI) has become an important tool in English Language Teaching (ELT). It is widely used to support language learning through tools such as automated writing assistants, chatbots, and intelligent tutoring systems. These technologies can provide quick feedback, personalized learning, and flexible access to educational content (Holmes et al., 2023). Research shows that AI can improve students’ writing skills, vocabulary, and overall engagement, while supporting independent learning by allowing students to study at their own pace (Bahroun et al., 2023). However, scholars also warn that the use of AI in education should not be seen as completely positive, citing concerns about over-reliance on technology, reduced critical thinking, and unequal access to digital tools (Al-Zahrani, 2024; Selwyn, 2024).

2.2 Digital Divide and Educational Inequality

The concept of the digital divide is central to understanding the challenges of AI in education. The digital divide refers to the gap between people who have access to digital technologies and those who do not, alongside differences in digital literacy skills (Mokoena & Seeletse, 2025). In the context of AI in ELT, the digital divide means that some students can benefit from advanced tools, while others cannot. Students who have stable internet access, modern devices, and digital skills are more likely to use AI successfully, whereas students from low-income or rural backgrounds face serious limitations (Al-Sowaidi & Clarke, 2025; UNESCO, 2024). Therefore, the digital divide framework helps explain why AI does not benefit all learners equally and why structural fairness remains a key concern.

2.3 Digital Colonialism and Cultural Representation

Digital colonialism refers to the dominance of powerful nations and corporations in creating and controlling digital infrastructures. In education, this means that many AI tools are developed in Western contexts and are based on global languages, values, and knowledge systems (Williamson, 2021). In ELT, this issue becomes highly visible because English is a global language, and AI tools often enforce standard inner-circle forms of language while ignoring local varieties and identities (Abbasi & Tunio, 2026). According to Selwyn (2024), digital technologies carry cultural and political influences that reinforce existing power structures. The framework of digital colonialism helps explain how AI can shape learning in ways that systematically devalue local linguistic diversity and cultural representation.

2.4 Linking AI, Equity, and Sustainable Education

Sustainable education relies on fairness, inclusion, and equal opportunities. When viewed through the lenses of the digital divide and digital colonialism, a complex paradox emerges: AI can expand localized learning opportunities while simultaneously reinforcing broader global dependency on external technological systems (Al-Zahrani, 2024). A critical and balanced approach is therefore required to ensure that AI contributes to a truly sustainable education rather than deepening historical and socio-technical inequalities.

3. Methodology

This study adopts a qualitative research design to explore the real-life experiences, perceptions, and challenges faced by teachers and students using AI in ELT. Qualitative research is especially useful for understanding complex social and educational issues in depth, as it focuses on meanings and context rather than numbers alone (Creswell, 2018).

3.1 Research Design and Philosophical Paradigm

This study adopts an interpretive qualitative research design to explore the lived experiences of educators and learners. Given the study's focus on complex social constructs such as equity, fairness, and cultural relevance, an interpretive lens is essential for capturing the nuanced meanings that participants assign to their interactions with technology (Denzin & Lincoln, 2018). The methodology is grounded in the frameworks of the Digital Divide and Digital Colonialism, allowing for a critical analysis of how power dynamics and infrastructure disparities shape pedagogical outcomes in Pakistan.

3.2 Participants and Sampling Strategy

Using a purposive sampling technique to acquire information-rich cases (Creswell, 2018), the study population comprised two distinct cohorts ($N=25$):

Educators ($n=10$): English language faculty from public and private universities with a minimum of two years of experience in integrating digital tools.

Students ($n=15$): University-level learners enrolled in English-intensive programs who actively utilize AI platforms for academic purposes.

Participants were recruited from varied socioeconomic backgrounds and institutional types to ensure a representative spectrum of digital access and literacy levels.

3.3 Data Collection Instruments

Data triangulation was achieved through a dual-method approach:

Semi-Structured Interviews: Primary data were collected through hybrid semi-structured interviews lasting 40 to 60 minutes, focusing on AI utility, pedagogical challenges, and perceptions of cultural bias (Kvale, 2009).

Technological Artifact Analysis: A systematic review of prevalent AI tools (e.g., LLM chatbots, writing assistants) was conducted to evaluate inherent linguistic biases and Western-centric cultural embedding within software interfaces (Holmes et al., 2023).

3.4 Data Analysis Framework

The qualitative data were processed using Thematic Analysis following the six-phase recursive framework established by Braun and Clarke (2006). This involved data familiarization, initial coding, theme development (e.g., "Infrastructure Barriers," "Linguistic Erasure"), and theme refinement to ensure deep critical alignment with the guiding theoretical frameworks.

3.5 Ethical Considerations

The study adhered to the ethical standards of the American Educational Research Association (2011). Participants provided informed written consent, pseudonyms were assigned to maintain anonymity, and all digital data were stored in encrypted files to ensure confidentiality.

3.6 Trustworthiness and Rigor

To establish trustworthiness, the study employed the criteria outlined by Lincoln and Guba (1985): credibility was maintained through participant member checking; transferability was achieved through thick descriptions of the Pakistani higher education context; and dependability was ensured by keeping an audit trail of all raw data, coding sheets, and field notes.

4. Results and Discussion

4.1 The Paradox of Access: Empowerment vs. Exclusion (Addressing RQ1 and RQ2)

The findings indicate a sharp divide in how AI tools are experienced, directly addressing the tension between pedagogical opportunities (RQ1) and socio-technical challenges (RQ2). For students in well-funded private institutions, AI acts as a "pedagogical equalizer," providing high-level writing support and conversational practice that was previously only accessible through expensive private tutoring.

However, for participants from rural or lower-income backgrounds, the humanitarian promise of AI is hindered by infrastructure fragility. Several student participants noted that intermittent electricity (load-shedding) and high data costs turn a quick AI query into a frustrating hour-long ordeal—a phenomenon termed the "Buffer Barrier." Furthermore, teachers observed that students with lower initial English proficiency struggle to formulate the precise prompts necessary to extract high-quality output from LLMs, creating a secondary layer of the digital divide: Prompt Inequality (Butt et al., 2026). This suggests that AI can act as an amplifier of existing linguistic and economic privilege, creating a double disadvantage for marginalized learners.

4.2 Linguistic Hegemony and "Digital Colonialism" (Addressing RQ2)

A dominant theme answering RQ2 emerged regarding the cultural mismatch of AI tools. Interviewees noted that most AI writing assistants strictly enforce Western-centric "Standard Global English," which systematically strips away the local variations and legitimate nuances of Pakistani English.

"When I use AI to help with my essays, it often suggests changes that make my writing sound like a textbook from London or New York. My own cultural context and way of expressing thoughts are often flagged as 'errors' by the algorithm." (Student Participant P04)

The findings resonate with the critical scholarship of Abbasi and Tunio (2026), who argue that AI-mediated language platforms reproduce systemic linguistic hierarchies by privileging inner-circle native-speaker norms. By relying on foreign-coded AI, Pakistani learners face subtle pressure to adopt Western linguistic structures to be deemed "correct" by algorithms. This creates a form of

technological dependence where local knowledge systems and cultural identities are devalued in favor of algorithmic universals, reinforcing the power imbalances described by digital colonialism (Williamson, 2021).

4.3 The Shifting Role of the Educator: From Authority to Facilitator (Addressing RQ1 and RQ2)

The data suggests that AI is not replacing teachers but is humanizing their role, shifting it away from rote correction (RQ1) toward managing new ethical burdens (RQ2). As a "Tireless Assistant," AI handles basic syntax and vocabulary drills, allowing educators to dedicate valuable classroom time to fostering critical thinking, local relevance, and interactive language production.

However, this shift introduces an Ethical Burden. Educators expressed deep concern over their lack of formal training in AI ethics and algorithmic bias. They feel a responsibility to protect students from AI-generated misinformation and cultural homogenization, but they lack localized instructional frameworks to do so effectively (Selwyn, 2024). This underscores Abbasi's (2024) assertion that the efficacy of automated tools relies heavily on context-sensitive, human-centric instructional choices rather than the infrastructure alone.

4.4 Synthesis: Moving Toward "Decolonial AI"

The discussion reveals that for AI to be truly fair in the Pakistani context, it must transition from universalism to contextualization. There is an urgent need for digital tools that recognize local dialects, multilingual realities, and translanguaging practices (Zaman et al., 2025). Sustainability in education cannot simply mean increasing the quantity of technology; it must focus on the equity of access and the maintenance of local cultural agency.

Table 1: Thematic Map of AI Experiences in Pakistani ELT

CORE CATEGORY	Emergent Themes	Key Participant Insights	Theoretical Alignment
OPPORTUNITIES (The 'Promise') Addresses RO1 & RQ1	Radical Personalization	AI provides 24/7 speaking practice and instant grammar feedback that large classes cannot provide.	Educational Equity (Holmes et al., 2023)
	Autonomous Agency	Students feel more confident experimenting with language in a "judgment-free" digital environment.	Learner Autonomy (Bahroun et al., 2023)
CHALLENGES (The 'Reality') Addresses RO2 & RQ2	Infrastructure Fragility	Access is dictated by electricity (load-shedding) and the high cost of mobile data.	Digital Divide (Mokoena & Seeletse, 2025)
	Linguistic Erasure	AI tools often "correct" local Pakistani cultural expressions to match Western norms.	Digital Colonialism (Abbasi & Tunio, 2026)
	Prompt Inequality	Students with lower initial English levels struggle to "command" the AI effectively.	Double Disadvantage (Butt et al., 2026)

Table 2: Critical Analysis of Prevalent AI Tools

AI Tool Category	Functional Benefit (RQ1)	Inherent Bias / Risk (RQ2)	Impact on Fair Education
LLM Chatbots (e.g., ChatGPT, Claude)	Scaffolding for essay structures and creative writing.	High tendency to hallucinate Western cultural contexts as "universal."	High potential, but requires high digital literacy to use safely (Al-Zahrani, 2024).
Writing Assistants (e.g., Grammarly)	Immediate correction of syntax and mechanics.	Strictly enforces "Standard American/British" English; ignores local varieties.	Risks "Standardization" which can lead to linguistic colonialism (Williamson, 2021).
Automated Translation (e.g., Google Translate)	Bridges initial vocabulary gaps for beginners.	Often lacks nuance in Urdu/Sindhi-to-English transitions, leading to "mechanical" output.	Supports basic access but may hinder deep conceptual learning (Zaman et al., 2025).

As illustrated in Table 1, the transition to AI-integrated ELT in Pakistan is not a linear path toward progress. Instead, it reveals a profound 'Socio-Technical Gap.' While Table 2 shows that the functional benefits of these tools are undeniable, the 'Linguistic Erasure' identified in the tool analysis suggests that Pakistani learners are paying a 'cultural tax' for technological access. The data confirms that without localized AI development or at least a critical 'AI Literacy' curriculum; the use of these tools may inadvertently reinforce the power structures described by Digital Colonialism.

5. Recommendations and Practical Implications

The findings of this study demonstrate that AI integration is not merely a technical upgrade but a social intervention. Therefore, the following recommendations are proposed to ensure that AI serves as a tool for equity rather than an instrument of stratification.

5.1 Strategic Policy and Infrastructure Reform

Mitigating Infrastructure Fragility: Educational policymakers in Pakistan must move beyond "hardware-centric" digital policies. The "Buffer Barrier" identified in this study suggests that access is often interrupted by localized load-shedding and high data costs. Governments should incentivize the development of low-bandwidth, "lite" AI applications and provide institutional "zero-rated" data access specifically for educational LLM platforms to ensure rural students are not systematically excluded.

Fostering "Sovereign AI" Development: To counter the risks of Digital Colonialism, the Higher Education Commission (HEC) and local tech hubs should prioritize the development of localized AI models. By training algorithms on Pakistani English corpora and local cultural datasets, the academic community can protect indigenous linguistic nuances from the "Standardization" and "Linguistic Erasure" currently enforced by Western-centric tools.

5.2 Redefining Pedagogical Frameworks

Implementing Critical AI Literacy: ELT curricula must evolve from "Functional Literacy" (how to use the tool) to "Critical AI Literacy" (how the tool uses the user). Students should be trained to perform "algorithmic audits" on AI-generated text, identifying where the AI has replaced local cultural idioms with Western-centric equivalents. This empowers the learner to maintain their "Cultural Agency" while benefiting from technological scaffolding.

The Transition to Ethical Mentorship: As AI automates the "low-stakes" aspects of language learning (grammar and syntax), the teacher's role must be elevated to that of an Ethical Mentor and Facilitator. Institutions should provide professional development programs that focus on "AI

Ethics and Bias Detection," allowing teachers to guide students through the complexities of algorithmic misinformation and cultural homogenization.

6. Limitations and Future Research

While this research provides a vital "Global South" perspective on AI in education, certain limitations must be acknowledged. First, the qualitative nature of this study, involving 25 participants, provides deep "thick description" but does not allow for broad statistical generalization across the entire Pakistani higher education landscape. The study was also conducted during a specific period of rapid AI evolution; therefore, the "Technological Artifact Analysis" reflects tools as they existed at the time of writing.

Future research should adopt a Mixed-Methods approach, utilizing large-scale surveys to quantify the "Prompt Inequality" gap across different socioeconomic tiers. Furthermore, longitudinal studies are required to track whether prolonged exposure to Western-centric AI leads to a permanent shift in the linguistic identity and "worldview" of Pakistani university students. Exploring the potential for "Human-in-the-Loop" AI systems that allow for local cultural inputs remains a promising frontier for subsequent scholarly inquiry.

7. Conclusion

This study has critically examined the intersection of Artificial Intelligence (AI) and English Language Teaching (ELT) within the unique socio-technical landscape of Pakistan. By navigating the tension between the "pedagogical promise" of AI and the "structural reality" of the Pakistani classroom, the research has revealed that technology is never a neutral agent. Through an interpretive qualitative lens, it was found that while AI acts as a powerful catalyst for personalized learning and student autonomy, it simultaneously risks reinforcing the Digital Divide and acting as a conduit for Digital Colonialism.

The findings confirm that the democratization of education through AI remains an elusive goal in the Global South. For the students and teachers involved in this study, the "humanitarian" potential of AI is frequently hampered by infrastructure fragility, where load-shedding and data costs turn modern tools into sources of frustration rather than empowerment. Furthermore, the analysis of linguistic hegemony highlights a profound paradox: while AI provides immediate scaffolding for language learners, it often exacts a "cultural tax" by erasing local Pakistani linguistic nuances in favor of Western-centric "Standard English." If left unmanaged, this reliance on foreign-coded algorithms may inadvertently lead to a new form of digital dependence, where technological efficiency is exchanged for the devaluation of local knowledge systems.

Ultimately, for AI to contribute to a truly fair and sustainable education, it must be decoupled from the "one-size-fits-all" Western model. The path forward requires a decolonial approach to educational technology—one that values local diversity as much as algorithmic accuracy. This study concludes that the mere presence of AI in the classroom is not a metric of progress; rather, progress must be measured by the degree of equitable access and cultural agency afforded to the learner.

By centering equity, investing in localized digital infrastructure, and fostering critical AI literacy among educators and students alike, Pakistan can ensure that the AI revolution serves as a bridge toward global participation rather than a new wall of exclusion. This research serves as a call to action for policymakers, developers, and scholars to move beyond technocentrism and prioritize a human-centric, context-sensitive future for language education in the Global South.

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