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| RESEARCH ARTICLE

Increasing AI Intervention in ELT: A Prognosis of Saudi Context

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| ABSTRACT

The rapid proliferation of artificial intelligence (AI) technologies is reshaping educational paradigms across the globe, with English Language Teaching (ELT) emerging as one of the fields most profoundly affected. In the Kingdom of Saudi Arabia (KSA), where English occupies a pivotal role in national development agendas—most notably Vision 2030—the intersection of AI and ELT holds both transformative promise and critical challenges. This paper provides a comprehensive prognosis of increasing AI intervention in ELT within the Saudi context, examining the current technological landscape, pedagogical implications, institutional readiness, learner outcomes, and sociocultural considerations. Drawing on an extensive review of contemporary literature, the study traces the trajectory of AI-enhanced language learning tools—including intelligent tutoring systems, natural language processing applications, adaptive learning platforms, automated writing evaluation systems, and conversational AI agents—and analyses their appropriateness and projected impact within Saudi classrooms. Findings suggest that while AI presents unprecedented opportunities to personalize instruction, bridge achievement gaps, and cultivate globally competitive English proficiency, significant barriers related to infrastructure, teacher preparedness, digital equity, and cultural alignment must be systematically addressed. The paper concludes with evidence-informed recommendations for policymakers, curriculum designers, and ELT practitioners navigating this evolving terrain.

| KEYWORDS

Artificial intelligence, English language teaching, ELT, adaptive learning, natural language processing, intelligent tutoring systems

| ARTICLE INFORMATION

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1. Introduction

The integration of artificial intelligence into education represents one of the most consequential technological shifts of the twenty-first century. Within the domain of English Language Teaching, AI is rapidly transitioning from a peripheral novelty to a central pedagogical resource, fundamentally altering how learners acquire language skills, how teachers design instruction, and how institutions assess proficiency. This transformation is unfolding with particular urgency in the Kingdom of Saudi Arabia, where English language competence has been elevated to a matter of national strategic importance.

Saudi Arabia's Vision 2030 reform agenda, launched under the leadership of Crown Prince Mohammed bin Salman in 2016, positions English language proficiency as a cornerstone of economic diversification, global integration, and human capital development (Al-Seghayer, 2021). As the Kingdom seeks to reduce its dependence on oil revenues and build competitive knowledge-based industries, English emerges as the lingua franca of international commerce, science, technology, and diplomacy. Yet despite decades of ELT investment, Saudi learners continue to register comparatively modest outcomes on international benchmarks such as IELTS and TOEFL, highlighting structural deficiencies in existing pedagogical approaches (Bax, 2011; Faruk, 2014).

Against this backdrop, AI-driven technologies offer a compelling suite of interventions. Intelligent tutoring systems can provide individualized feedback at scale; natural language processing tools can analyse learner output with a precision and consistency that human teachers cannot match across entire cohorts; conversational AI agents can create low-stakes speaking practice opportunities unavailable in traditional classrooms; and adaptive learning platforms can calibrate content difficulty in real time, responding to each learner's evolving proficiency profile. These capabilities speak directly to the challenges confronting Saudi ELT:

large class sizes, uneven teacher quality, limited authentic English-use environments, and learner reticence rooted in sociocultural norms.

However, enthusiasm for AI in ELT must be tempered by a rigorous examination of contextual realities. Technological adoption does not occur in a vacuum; it is shaped by institutional infrastructure, educator preparedness, learner dispositions, cultural values, and policy environments. The Saudi context presents a distinctive constellation of enabling factors and structural constraints that any prognosis of AI intervention must carefully weigh.

This paper aims to provide such a prognosis. Proceeding through a systematic review of relevant scholarship, it maps the current state of AI in ELT globally, situates this landscape within the Saudi context, evaluates the likely trajectory of AI adoption in Saudi classrooms, and proposes a set of evidence-informed recommendations. The paper is organised as follows: following this introduction, a review of the literature examines key AI technologies in language learning and the Saudi ELT context; subsequent sections analyse opportunities, challenges, and projected developments; and a concluding section synthesises findings and offers policy-oriented guidance.

2. Literature Review

2.1 AI Technologies in Language Learning: An Overview

The scholarly conversation on AI in language learning has evolved considerably over the past two decades. Early applications focused primarily on computer-assisted language learning (CALL), a broad category encompassing any use of digital technology in language instruction (Warschauer & Healey, 1998). The emergence of machine learning, deep learning, and natural language processing has since enabled a qualitatively different generation of tools capable of understanding, generating, and evaluating language with increasing sophistication.

Intelligent Tutoring Systems (ITS) represent one of the most thoroughly researched AI applications in education. In language learning contexts, ITS platforms such as Carnegie Learning's MATHia—adapted for language tasks—employ cognitive modelling to diagnose learner difficulties and provide targeted instructional scaffolding (VanLehn, 2011). Research indicates that ITS can produce learning gains comparable to one-on-one human tutoring, particularly for grammar acquisition and reading comprehension (Graesser et al., 2012). More recent iterations incorporate dialogue-based interaction, allowing learners to engage in extended written conversations with an AI tutor that monitors grammatical accuracy, vocabulary use, and discourse coherence.

Natural Language Processing (NLP) applications have proliferated most visibly in automated writing evaluation (AWE). Systems such as Grammarly, Turnitin's Revision Assistant, and ETS's e-rater provide instant feedback on written texts, flagging grammatical errors, stylistic infelicities, and organisational weaknesses (Warschauer & Grimes, 2008). While early AWE tools attracted criticism for their insensitivity to rhetorical context and creative expression, advances in transformer-based language models—most notably the GPT family and BERT—have dramatically improved the contextual sensitivity and explanatory richness of automated feedback (Ramesh & Sanampudi, 2022).

Conversational AI agents, or chatbots, constitute another rapidly growing AI application in ELT. From rule-based systems to the sophisticated large language models (LLMs) now powering tools like ChatGPT, Duolingo's AI conversation features, and Elsa Speak, these agents provide learners with interactive speaking and writing practice outside formal classroom hours (Fryer et al., 2020). Research documents benefits including increased speaking confidence, reduced foreign language anxiety, and higher motivation among learners who would otherwise lack opportunities for authentic English interaction (Bibauw et al., 2022). The round-the-clock availability of conversational AI is particularly salient in monolingual environments like Saudi Arabia, where opportunities for English conversation with native speakers are severely constrained.

Adaptive learning platforms such as Duolingo, Babbel, and Rosetta Stone use spaced repetition algorithms and performance analytics to personalise the sequencing and difficulty of learning content. More sophisticated platforms like Knewton and Smart Sparrow employ predictive modelling to anticipate learner difficulties before they manifest, proactively adjusting the curriculum (Essa & Ayad, 2012). The potential of adaptive platforms to accommodate the considerable heterogeneity typical of Saudi English classrooms—where learners range from near-beginners to near-native speakers within the same cohort—is substantial.

Speech recognition and pronunciation training tools represent a further domain of AI application with particular relevance to ELT. Platforms such as Speechace, ELSA Speak, and Google's Pronunciator use acoustic modelling to assess learner pronunciation at the phoneme level, identifying patterns of L1 interference and generating targeted remediation exercises. For Saudi learners, whose Arabic mother tongue shares few phonological features with English, pronunciation development is a persistent challenge, and AI-driven tools offer a scalable supplement to limited classroom pronunciation instruction (Al-Mohanna, 2014).

2.2 ELT in Saudi Arabia: Historical and Contemporary Context

English language education in Saudi Arabia has been formally institutionalised since the 1920s, though its character and ambitions have shifted markedly over subsequent decades. For much of the twentieth century, English instruction was confined to secondary and tertiary levels, emphasising grammar-translation approaches and producing learners with passive reading competence but limited communicative ability (Faruk, 2014). The oil boom of the 1970s and the accompanying influx of expatriate workers and international business relations elevated the functional importance of English, prompting a gradual curriculum shift toward communicative language teaching (CLT) approaches.

Despite sustained investment—Saudi Arabia devotes a substantial proportion of its national budget to education—ELT outcomes have historically lagged behind comparable Gulf Cooperation Council states. Studies document persistent challenges including teacher shortages, particularly of qualified native-speaker English instructors; heavy reliance on examination-driven pedagogy that privileges rote memorisation over communicative competence; large class sizes that inhibit individualised instruction; and learner motivation profiles shaped by instrumental rather than integrative orientations (Al-Seghayer, 2014).

The advent of Vision 2030 has introduced a new urgency to ELT reform. The National Transformation Programme and the Quality of Life Programme both identify English proficiency as instrumental to achieving the Kingdom's economic and social goals (Al-Othman & SFormula, 2022). Responding to this mandate, the Ministry of Education (MoE) has introduced English instruction at the primary level, revised national curricula, expanded teacher training programmes, and established partnerships with international educational technology providers. The incorporation of technology-mediated instruction, including AI-driven tools, forms an explicit component of this reform agenda.

Saudi Arabia's rapidly expanding digital infrastructure provides a relatively favourable material foundation for AI adoption in education. Internet penetration exceeds 95%, smartphone ownership is among the highest in the world, and the government has committed substantial investment to national broadband expansion and cloud computing infrastructure (Statista, 2023). Saudi universities and schools have accelerated adoption of learning management systems (LMSs), and the COVID-19 pandemic—which compelled a nationwide shift to remote learning in 2020—dramatically accelerated both institutional and individual familiarity with digital education tools (Alqahtani & Rajkhan, 2020).

Nevertheless, the Saudi ELT context also presents distinctive challenges for AI adoption. Sociocultural factors exert considerable influence on learner behaviour; for instance, gender-segregated education affects the types of interaction that are considered appropriate, and traditional conceptions of teacher authority may create resistance to student-centred, AI-mediated learning modalities. Religious and cultural sensitivities shape the content of permissible AI-generated material, necessitating careful curation of AI tools and outputs. Furthermore, while urban centres like Riyadh, Jeddah, and Dammam enjoy high levels of digital connectivity and technological sophistication, significant disparities persist between urban and rural educational environments.

2.3 AI in ELT: Global Adoption Patterns and Emerging Evidence

Globally, AI adoption in ELT has accelerated dramatically since approximately 2017, driven by the maturation of deep learning architectures, the commercial success of consumer AI applications, and the COVID-19 pandemic's disruption of conventional instruction. A growing corpus of empirical studies documents outcomes across diverse contexts, though systematic reviews caution that much of this literature suffers from small sample sizes, short treatment durations, and limited ecological validity (Zou & Lee, 2021).

Within the East Asian context—particularly China, South Korea, and Japan—AI-driven ELT tools have achieved substantial market penetration and have been the subject of extensive government-sponsored research. China's Ministry of Education has integrated AI-assisted English instruction into its national educational technology framework, and Chinese edtech companies such as New Oriental and TAL Education have developed sophisticated AI tutoring platforms serving tens of millions of learners (Huang et al., 2021). Korean platforms like Riiid and Japanese initiatives involving AI pronunciation coaching have similarly attracted significant empirical attention.

In the Middle Eastern and Gulf contexts, research on AI in ELT remains comparatively sparse, though the pace of adoption is accelerating. The United Arab Emirates, which has positioned itself as a global hub for AI innovation and has mandated AI literacy across its educational system, offers the most developed model in the region (UNESCO, 2021). Saudi Arabia's trajectory, while lagging slightly behind the UAE, shares many structural features and is likely to follow a similar, if contextually distinct, developmental path.

A consistent finding across multiple contexts is that AI tools are most effective when integrated into broader pedagogical frameworks rather than deployed as standalone interventions (Godwin-Jones, 2022). Learners benefit most from AI-generated feedback when they are equipped with the metacognitive skills to interpret and act upon it; conversational AI is most effective when combined with structured reflection activities that help learners notice linguistic features; and adaptive platforms produce the deepest learning when embedded within curricula that foreground meaning-making alongside form-focused practice. These findings carry direct implications for how AI should be introduced into Saudi ELT contexts.

3. Opportunities: AI's Transformative Potential in Saudi ELT

3.1 Personalised and Adaptive Instruction

Perhaps the most frequently cited potential of AI in ELT is its capacity to personalise instruction in ways that exceed human teachers' practical reach. In the typical Saudi English classroom, a single instructor must simultaneously manage the learning of thirty to forty students whose proficiency levels, learning styles, and linguistic backgrounds may vary enormously. Traditional one-size-fits-all instruction inevitably underserves significant proportions of any given cohort—leaving advanced learners understimulated and struggling learners overwhelmed.

AI-driven adaptive systems address this challenge by continuously analysing learner performance data and adjusting content, pacing, and scaffolding accordingly. Platforms employing item response theory and Bayesian knowledge tracing can maintain

dynamic models of each learner's competence across multiple skill dimensions—phonology, morphosyntax, lexis, discourse, pragmatics—and use these models to sequence practice activities that maintain optimal challenge. Research in Saudi Arabian university contexts suggests that learners exposed to adaptive English instruction platforms show significantly greater vocabulary gains and reading comprehension improvements compared to control groups receiving conventional instruction (Al-Ahdal & Al-Hammad, 2022).

The implications for Saudi ELT are particularly compelling given the persistent heterogeneity of Saudi learner cohorts. Students arrive at secondary school and university English programmes with widely varying foundational competencies, reflecting disparities in prior schooling quality, family educational backgrounds, and exposure to English outside formal settings. AI systems capable of providing personalised developmental pathways for each learner could substantially reduce the attainment gaps that currently frustrate both educators and learners.

3.2 Expanding Access to Authentic English Interaction

A structural limitation of ELT in predominantly Arabic-speaking environments like Saudi Arabia is the scarcity of authentic English interaction opportunities outside the classroom. Unlike learners in multilingual societies or countries with significant English-medium media ecosystems, Saudi learners frequently experience English only within the bounded, often artificial discourse of the language classroom. This severely constrains the development of communicative fluency and pragmatic competence.

AI conversational agents offer a partial but significant remedy. Large language model-powered chatbots can sustain extended, topically coherent conversations across an essentially unlimited range of subjects, providing learners with authentic-feeling interactional practice at any hour and with minimal stakes. Research consistently documents reductions in foreign language anxiety among learners who practise with conversational AI, and several studies report transfer effects on human-to-human conversational performance (Fryer et al., 2020; Bibauw et al., 2022). For Saudi learners—particularly in light of gender norms that may further limit opportunities for mixed-gender or stranger-inclusive English conversation—AI interlocutors may represent a culturally sensitive pathway to communicative development.

Platforms such as ELSA Speak, which combines ASR-based pronunciation coaching with conversational practice exercises, have attracted a substantial Saudi user base and have been piloted in several Saudi university English programmes (Al-Harbi & Trigui, 2023). Preliminary data from these pilots indicate significant improvements in learner pronunciation accuracy and self-reported speaking confidence, though longitudinal studies with robust comparison conditions remain limited.

3.3 Scalable, Immediate, and Actionable Feedback

Effective language learning requires abundant, timely, and specific feedback. Human teachers in large Saudi classrooms are structurally constrained in their capacity to provide individualised feedback on every learner's writing, speaking, and grammatical production; even highly skilled instructors must prioritise certain error types and certain students, inevitably leaving significant feedback gaps. AI systems are not subject to these human capacity constraints.

Automated writing evaluation systems can analyse a learner's written text within seconds, flagging grammatical errors, coherence weaknesses, vocabulary limitations, and style infelicities with explanatory annotations. Modern AWE systems, particularly those built on transformer architectures, demonstrate substantial agreement with trained human raters on holistic scores, and some studies suggest that the granularity of AI feedback—covering specific linguistic features rather than providing only holistic scores—is superior to the feedback that overtaxed classroom teachers typically produce (Ramesh & Sanampudi, 2022). For Saudi learners' writing development, which represents a particularly acute educational challenge given the typological distance between Arabic and English orthographic and discourse conventions, scalable AWE feedback could be transformative.

Similar arguments apply to speaking and pronunciation feedback. Traditional classroom pronunciation instruction tends to be incidental and episodic; dedicated pronunciation teaching is resource-intensive and rarely individualised. AI-driven pronunciation tools can provide phoneme-level feedback on every utterance a learner produces, tracking error patterns across sessions and prioritising the specific sounds that most impede intelligibility for that individual learner. This level of individualised, continuous feedback is simply unavailable through conventional ELT approaches.

3.4 Supporting Teacher Professional Development

AI's potential contribution to Saudi ELT is not limited to direct learner interaction. AI tools can also play a significant role in supporting and extending the professional capacities of ELT teachers, who represent the ultimate delivery mechanism for any educational reform initiative. Saudi Arabia faces well-documented shortages of highly qualified English teachers, particularly at primary and intermediate levels (Al-Seghayer, 2014). AI cannot replace the relational, motivational, and socially sensitive dimensions of effective teaching, but it can substantially extend teachers' analytical and instructional capacities.

AI-powered classroom observation and analysis tools can process video or audio recordings of teaching sessions, generating detailed analyses of teacher talk time, question types, student engagement patterns, and learner participation distribution. These analyses can support reflective professional development conversations that would otherwise require dedicated instructional coaches—resources that most Saudi schools lack. Similarly, AI-driven curriculum planning tools can assist teachers in designing

differentiated lesson activities, selecting appropriate authentic materials, and sequencing learning objectives in evidence-aligned ways.

For the large proportion of Saudi English teachers whose own English proficiency is limited—a long-recognised structural problem that reforms have only partially addressed—AI language tools can serve as pedagogical support systems, helping teachers prepare more accurate and nuanced explanations, identify error correction priorities, and access a wider range of instructional strategies than their existing knowledge base would independently support.

4. Challenges and Constraints : Situating AI in Saudi ELT Realities

4.1 Infrastructure and Digital Equity

While Saudi Arabia's overall digital infrastructure is relatively advanced, significant disparities exist between urban and rural, public and private, and gender-segregated educational environments. Schools in remote governorates may lack the stable broadband connectivity, computing device availability, and technical support personnel needed to deploy AI-driven ELT tools reliably. Although the Ministry of Education has invested substantially in educational technology infrastructure, implementation gaps are documented in numerous policy evaluations (Al-Asmari & Khan, 2014).

Device access represents another dimension of digital equity. While smartphone ownership is nearly universal among Saudi youth, effective engagement with many AI ELT platforms—particularly those involving extended text composition, detailed visual feedback, or processor-intensive speech analysis—is better supported by tablets or computers than by smartphones. Providing equitable device access across the socioeconomic spectrum of Saudi students remains an ongoing challenge.

Data privacy and security also constitute important infrastructure concerns. AI ELT platforms collect substantial volumes of learner data—performance histories, recorded speech samples, written texts—to fuel their adaptive algorithms. Saudi regulatory frameworks governing educational data privacy are still evolving, and ensuring that platforms deployed in Saudi schools comply with appropriate data protection standards requires careful regulatory oversight that current institutional frameworks may be inadequate to provide.

4.2 Teacher Readiness and Professional Culture

Research consistently identifies teacher attitudes and competencies as the primary determinant of whether educational technology adoption succeeds or fails. In the Saudi context, this nexus of teacher readiness is particularly complex. Many Saudi English teachers were trained in pedagogical traditions that position the teacher as the authoritative knowledge source, foreground explicit grammatical instruction, and treat student-centred learning with some scepticism. Integrating AI tools that shift instructional authority—toward the learner, toward an algorithm—into these professional cultures requires sustained and sensitive professional development, not merely technical training.

Survey research among Saudi ELT teachers documents a heterogeneous range of attitudes toward AI. While many teachers express enthusiasm for tools that can reduce their administrative and assessment burdens, significant proportions express anxiety about technological complexity, scepticism about AI's ability to provide culturally and pedagogically appropriate feedback, and concern that AI-mediated instruction may erode the relational dimensions of teaching that they consider essential (Alshahrani, 2021). These attitudes are not monolithic, and teacher age, technological self-efficacy, and institutional context all moderate individual teachers' openness to AI adoption.

Effective professional development for AI-integrated ELT must address both technical competencies—how to configure, deploy, and troubleshoot specific tools—and pedagogical competencies—how to sequence AI-mediated activities within coherent instructional frameworks, how to interpret AI-generated data to inform teaching decisions, and how to support learners in developing the metacognitive skills needed to benefit from AI feedback. Current Saudi teacher training programmes at both pre-service and in-service levels have only begun to incorporate these dimensions, and much of the existing provision is superficial and disconnected from classroom practice.

4.3 Learner Factors: Motivation, Autonomy, and Cultural Alignment

The effectiveness of AI ELT tools depends fundamentally on learner engagement and autonomous use, both of which are shaped by factors that the Saudi educational context may not automatically support. Saudi learners, educated within a system that has historically emphasised compliance, rote memorisation, and examination performance, may lack the self-directed learning orientations that AI-mediated instruction tends to presuppose. Platforms that require learners to set their own goals, monitor their own progress, and persist through difficulty without teacher direction may be less effective in this context than their developers—often working from Western or East Asian educational assumptions—intended.

Learner motivation in Saudi ELT is predominantly instrumental—driven by examination success, university admission requirements, and employability—rather than integrative. While instrumental motivation can sustain engagement with AI tools that provide clear and proximate learning benefits, it may not support the kind of extended, intrinsically motivated self-directed use that would maximise AI's potential. Design features that make AI tools more immediately rewarding—gamification elements, social comparison features, celebration of incremental progress—can partially address this challenge, but cannot substitute for the deeper motivational orientations that enable sustained independent learning.

Cultural alignment of AI content also deserves careful attention. Large language models and the corpora on which they are trained are predominantly Anglophone and Western in their cultural assumptions, reference points, and implicit value systems. AI-generated conversation prompts, writing tasks, and reading texts may contain cultural references, social assumptions, or implicit normative frameworks that are unfamiliar, uncomfortable, or incompatible with Saudi learners' cultural contexts and Islamic values. The potential for culturally incongruent AI content to disrupt learning engagement or provoke institutional resistance should not be underestimated, and the development of culturally localised AI ELT tools for the Saudi market represents an important research and design priority.

4.4 Assessment Validity and Academic Integrity

The widespread adoption of generative AI tools—most notably large language models capable of producing fluent, grammatically accurate English text—poses fundamental challenges for ELT assessment validity. If Saudi learners can generate near-unlimited quantities of high-quality English text by prompting an AI system, then traditional written assessments of English proficiency become structurally compromised. This is not merely a concern for high-stakes examinations; it permeates routine coursework assessment and undermines the feedback mechanisms through which teachers monitor learner development.

Saudi higher education institutions are grappling with this challenge in real time, developing AI detection policies, redesigning assessment tasks to resist AI-facilitated completion, and exploring alternative assessment modalities—oral examinations, in-class writing tasks, portfolio assessment—that reduce opportunities for AI-assisted academic dishonesty. ELT-specific responses include greater emphasis on process-oriented writing assessment, speaking assessment, and multimodal performance tasks that resist AI completion (Warschauer et al., 2023). However, rapidly evolving AI capabilities continuously outpace institutional response, making this a persistent rather than solvable challenge.

Conversely, AI also offers promising tools for assessment innovation. AI-driven speaking assessment platforms can evaluate spoken English performance across multiple dimensions—pronunciation, fluency, lexical complexity, grammatical accuracy, discourse coherence—with reliability and consistency comparable to trained human raters. These capabilities could enable large-scale, frequent, low-cost speaking assessment that has historically been prohibitively resource-intensive in Saudi educational contexts. The development and validation of such tools within the specific phonological and sociolinguistic parameters of Saudi-accented English remains an important research agenda.

5. Prognosis: Projected Trajectories of AI in Saudi ELT

5.1 Short-Term Trajectory (2024-2027)

In the immediate term, AI adoption in Saudi ELT is likely to follow an accelerating but uneven trajectory. Government policy commitment to digital education transformation, combined with significant investment in educational technology through initiatives such as the National Education Development Programme, will create systemic pressure for AI integration across institutional levels. Commercial AI ELT platforms—particularly those with existing Gulf market presence, such as Duolingo, Grammarly, and ELSA Speak—are likely to expand their Saudi user bases substantially, both through direct consumer adoption and through institutional licensing agreements with universities and schools.

Generative AI tools, led by platforms such as ChatGPT, are already reshaping Saudi learners' engagement with English reading and writing tasks; their integration into legitimate pedagogical frameworks—as writing brainstorming tools, grammar explanation resources, and conversational practice partners—is likely to accelerate as educators develop clearer frameworks for principled AI use. Professional development initiatives—some Ministry-led, others driven by international ELT organisations such as IATEFL and TESOL—will begin to build teachers' capacity to integrate AI tools purposefully, though impact will be constrained by the scale of the professional development challenge and the heterogeneity of teacher readiness.

Early adopter institutions—typically elite private universities and well-resourced international schools—will generate the local evidence base through pilots and evaluations that will inform broader adoption decisions. The first systematic Saudi studies of AI ELT interventions are likely to emerge in this period, providing context-specific data that can complement the global literature and support evidence-informed policy development.

5.2 Medium-Term Trajectory (2027-2032)

Over the medium term, several structural developments are likely to reshape the AI in Saudi ELT landscape significantly. Continued advances in large language model capabilities—including improved multilinguality, reduced hallucination rates, and more sophisticated pedagogical dialogue management—will make AI ELT tools substantially more effective and appropriate for Saudi learner profiles. Arabic-English bilingual AI models, trained on large Saudi and Gulf Arabic corpora, will become increasingly available, enabling AI tools to engage more sensitively with Saudi learners' specific linguistic backgrounds and error patterns.

Institutional embedding of AI in Saudi ELT is likely to deepen as universities and schools incorporate AI tools into formal curriculum frameworks, assessment policies, and quality assurance systems. National credentialing frameworks for AI-integrated English instruction may emerge, building on the Ministry of Education's ongoing curriculum reform initiatives. Saudi EdTech entrepreneurs—a community growing rapidly in Riyadh's emerging innovation ecosystem—are likely to develop locally designed

and culturally calibrated AI ELT tools that outperform globally designed platforms on dimensions of cultural appropriateness and alignment with Saudi curriculum standards.

Teacher professional identity and role conceptions will face sustained reconfiguration as AI assumes increasing responsibility for routine instructional functions. The pedagogical role of the Saudi English teacher is likely to evolve toward higher-order functions: curating AI-generated content for cultural and pedagogical appropriateness, facilitating collaborative and communicative learning activities that leverage AI-supported foundational skill development, interpreting AI-generated learning analytics to inform instructional decisions, and providing the relational and motivational scaffolding that AI cannot supply. This role evolution will require sustained investment in professional development and may encounter resistance from educators whose professional identities are anchored in traditional conceptions of teaching authority.

5.3 Long-Term Trajectory (2032 and Beyond)

The longer-term trajectory of AI in Saudi ELT is inherently more speculative, conditioned on developments in AI capabilities, geopolitical dynamics, economic evolution, and social change that cannot be reliably predicted. Nevertheless, several broad scenarios can be sketched. In an optimistic scenario, sustained investment and evidence-based policy development produce an ELT ecosystem in which AI tools are seamlessly and equitably integrated across the Saudi educational system, substantially reducing current attainment disparities and producing a generation of Saudi learners with genuine communicative competence in English. This scenario would represent a significant contribution to Vision 2030's human capital development objectives.

In a more cautious scenario, the enthusiasm of early adoption gives way to a more sober reckoning with AI's limitations and risks. Concerns about academic integrity, cultural misalignment, data privacy, and the erosion of human relational dimensions in education generate regulatory and pedagogical pushback, resulting in a more circumscribed role for AI as a supplementary tool rather than a transformative force. In this scenario, AI's contribution to Saudi ELT—while real—remains modest and unevenly distributed.

A third scenario acknowledges that AI may ultimately challenge the very institutional architectures within which ELT currently operates. If AI-powered learning tools become sufficiently effective that learners can achieve high levels of English proficiency through largely self-directed AI-mediated study outside formal classrooms, the social and institutional significance of school-based ELT may diminish. This disruptive scenario carries profound implications for educational workforce planning, curriculum design, and the social functions of schooling that extend well beyond the domain of ELT itself.

6. Recommendations

6.1 For Policymakers

National educational technology policy should explicitly address AI integration in ELT, establishing clear standards for platform evaluation, data privacy, cultural appropriateness, and pedagogical effectiveness. The Ministry of Education should develop a national AI in ELT framework that guides institutional adoption, coordinates research, and ensures equitable access across geographic and socioeconomic divides. Investment in national broadband infrastructure for schools and in device provision programmes should be sustained and accelerated, with particular attention to underserved regions.

Regulatory frameworks for educational AI, including assessment integrity policies and data protection standards, should be developed proactively rather than reactively. Engagement with international AI governance processes—including UNESCO's AI in Education initiatives—would allow Saudi policymakers to contribute to and benefit from global norm-setting in this domain. Public funding for Saudi-specific research on AI ELT interventions, including longitudinal studies with adequate sample sizes and rigorous comparison conditions, is urgently needed to build the local evidence base that contextually appropriate policy development requires.

6.2 For Curriculum Designers

ELT curricula at all levels should be reviewed and revised to incorporate AI-integrated learning pathways that leverage the personalisation, feedback, and practice opportunities that AI tools provide while ensuring that human-mediated communicative, collaborative, and critical learning activities remain central. Curriculum frameworks should explicitly address the development of AI literacy competencies—helping learners to understand, evaluate, and critically engage with AI-generated language—as an embedded dimension of English language education rather than an add-on.

Assessment design must evolve to maintain validity in an AI-saturated environment. Curriculum designers should prioritise assessment modalities—spoken performance, collaborative tasks, process portfolios, in-class writing—that resist AI-facilitated completion and that provide richer and more authentic evidence of learner competence than traditional written examinations. Explicit guidance on the ethical and pedagogically appropriate use of AI tools within assessed tasks should be integrated into curriculum documentation.

6.3 For ELT Practitioners

English teachers in Saudi Arabia should be supported and encouraged to develop informed, critical, and creative orientations toward AI tools rather than either wholesale embrace or reflexive rejection. Professional learning communities focused on AI in

ELT—both within institutions and across the broader Saudi ELT community—can provide forums for sharing experimentation, evaluating evidence, and developing collective professional wisdom. Teacher education programmes, both pre-service and in-service, should systematically integrate AI ELT literacy as a component of professional competence, equipping teachers with both the technical skills and the pedagogical frameworks needed for principled AI integration.

Individual teachers should experiment with AI tools in low-stakes contexts, developing personal familiarity with their capabilities and limitations, and should engage their learners in explicit discussions about the role of AI in language learning. Encouraging learner metacognitive reflection on AI-generated feedback—asking learners to interpret, evaluate, and act on AI suggestions rather than simply accepting them—is likely to maximise the learning benefits of AI interaction while developing the critical thinking competencies that the twenty-first century knowledge economy demands.

6.4 For Researchers

The scholarly literature on AI in Saudi ELT is currently thin and methodologically uneven. Researchers should prioritise longitudinal studies of sufficient duration to capture meaningful learning trajectories; mixed-methods designs that integrate quantitative outcome measurement with qualitative investigation of learner experiences and institutional processes; and systematic comparisons between AI-integrated and conventional ELT approaches that employ rigorous control conditions. Research should attend to differential effects across learner subgroups—by gender, proficiency level, socioeconomic background, and regional context—to illuminate equity dimensions that aggregate analyses obscure.

Comparative research situating Saudi AI ELT developments within the broader Gulf and Middle Eastern regional context would also be valuable, both for its intrinsic scholarly contribution and for its policy relevance to regional ELT coordination initiatives. Interdisciplinary collaboration—bringing together ELT specialists, educational technologists, AI researchers, cognitive scientists, and policy scholars—is needed to address the complexity of AI integration in ELT adequately.

7. Conclusion

The increasing integration of artificial intelligence into English Language Teaching in Saudi Arabia represents both a significant opportunity and a profound challenge. The transformative potential of AI—its capacity to personalise instruction, expand access to authentic language interaction, provide scalable and immediate feedback, and support teacher professional development—speaks directly to the persistent structural challenges that have limited ELT effectiveness in the Kingdom despite sustained investment and reform effort. In the context of Vision 2030's ambitious human capital development agenda, AI-enhanced ELT offers a pathway toward the English language proficiency outcomes that Saudi Arabia's global integration goals demand.

However, this potential will not be realised automatically or equitably. The success of AI integration in Saudi ELT depends on policy frameworks that prioritise equity, evidence, and cultural appropriateness; professional development systems that build teacher capacity for pedagogically principled AI use; curriculum and assessment designs that leverage AI's strengths while preserving the communicative, collaborative, and critically engaging dimensions of human-mediated language learning; and a research agenda that generates the Saudi-specific evidence needed to inform these design decisions.

The prognosis offered in this paper is cautiously optimistic. The conditions for meaningful AI-enhanced ELT in Saudi Arabia—strong governmental commitment, expanding digital infrastructure, a rapidly evolving EdTech ecosystem, and a learner population with high digital fluency and significant English learning motivation—are in place. What remains to be developed, with urgency and care, is the institutional, pedagogical, and regulatory ecosystem that enables AI to realise its potential while safeguarding the relational, cultural, and ethical dimensions of education that make learning genuinely human.

As Saudi Arabia navigates its transformative Vision 2030 journey, the thoughtful integration of AI into ELT will not only serve immediate language learning goals but will also model the broader challenge of deploying powerful technologies in ways that are equitable, culturally grounded, and aligned with human flourishing. This is, ultimately, a challenge not only for ELT but for education—and for society—in the age of artificial intelligence.

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