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AI-Powered Digital Pedagogy in English Language Education: A Framework for Twenty-First Century Learning

[1]Dr. Moulieswaran N*, [2]Dr. Stephen Samuel A, [3]Dr.Arthi Manoharan

[1]Assistant Professor of English,
School of Engineering and Technology,
Jeppiaar University,
Chennai - 600119
[1]E-Mail: drmoulieswarann@gmail.com
ORCID ID: 0009-0001-2344-0629
[2]Assistant Professor,
Department of English,
Adhiyamaan College of Engineering (Autonomous),
Hosur - 635 109.
[2]E-Mail: stephensamuel386@gmail.com
[3]Assistant Professor
Department of Humanities and Social Sciences
Sri Venkteshwara College of Engineering.
[3]E-Mail: arthim@svce.ac.in

Abstract

The rapid development of Artificial Intelligence has accelerated the transformation of English language education from predominantly teacher-centred instruction towards digitally mediated, personalized, interactive, and data-informed learning environments. Artificial intelligence applications now support language learners through intelligent tutoring, automated feedback, generative dialogue, adaptive learning pathways, speech recognition, academic writing assistance, multimodal content generation, and formative assessment. These developments have contributed to the emergence of AI-powered digital pedagogy, an instructional approach in which artificial intelligence is integrated with pedagogical principles to enhance language learning rather than merely automate educational tasks. This conceptual research paper examines the role of AI-powered digital pedagogy in English language education and proposes a framework for twenty-first-century learning. The study adopts an integrative review and conceptual analysis of contemporary scholarship concerning AI in English Language Teaching, personalized learning, generative AI, digital literacy, multimodal pedagogy, assessment, learner autonomy, and teacher AI competence. The discussion identifies six interconnected dimensions of effective AI-powered pedagogy: personalized language learning, interactive and multimodal learning, intelligent feedback and assessment, learner autonomy and self-regulation, teacher mediation and AI literacy, and ethical and inclusive implementation. Available empirical evidence indicates that generative

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AI can contribute positively to English proficiency and self-regulated learning when its use is structured pedagogically. Nevertheless, concerns remain regarding inaccurate information, academic integrity, algorithmic bias, privacy, unequal access, overdependence, and the possible weakening of human interaction. The paper therefore argues for a human-centred model in which AI functions as a pedagogical partner rather than a substitute for teachers. The proposed framework positions critical thinking, digital literacy, ethical judgment, communication, collaboration, creativity, and learner agency as central outcomes of twenty-first-century English language education.

Keywords: Artificial Intelligence, Digital Pedagogy, English Language Teaching, Generative AI, Personalized Learning, Digital Literacy, Twenty-First Century Learning, Learner Autonomy

1. Introduction

The twenty-first century has witnessed significant changes in how knowledge is produced, communicated, accessed, and evaluated. Digital technologies have expanded learning beyond conventional classrooms and printed textbooks into networked environments in which students engage with information through text, audio, video, images, interactive platforms, mobile applications, virtual communication, and increasingly, artificial intelligence. Consequently, English language education can no longer be understood solely as the teaching of grammar, vocabulary, reading, writing, listening, and speaking through conventional classroom methods. Contemporary learners must also develop the ability to communicate effectively within digital and multimodal environments.

Artificial Intelligence has become one of the most influential forces accelerating this transformation. AI-enabled systems can generate language, evaluate writing, simulate conversation, identify grammatical patterns, analyse pronunciation, recommend personalized learning activities, summarize texts, create instructional materials, and respond immediately to learner questions. Recent research in English Language Teaching suggests that such systems can support personalized learning, learner autonomy, differentiated instruction, interactive language practice, assessment, and immediate feedback [1], [2].

The development of AI-powered writing and language tools has further changed how students interact with English. Learners may now receive grammar explanations, vocabulary suggestions, paraphrasing support, revision guidance, and feedback without waiting for direct teacher intervention. AI writing tools can increase access to linguistic assistance, although excessive reliance raises concerns about originality, independent thinking, and academic integrity [3].

At the same time, twenty-first-century language competence extends beyond linguistic correctness. Learners increasingly need digital literacy, critical thinking, collaborative competence, creativity, information literacy, intercultural communication, self-regulation, and the ability to evaluate technologically generated information. Multimodal communication has therefore become closely connected to contemporary English competence because learners communicate through combinations of linguistic, visual, auditory, and interactive modes [4].

These developments require a shift from simply using digital tools in language classrooms to developing a coherent digital pedagogy. Digital pedagogy refers to the purposeful integration of

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technology with theories of learning, instructional design, teacher guidance, learner participation, assessment, and reflection. The inclusion of artificial intelligence adds a new dimension because AI systems do not merely display information; they can respond, predict, generate, personalize, evaluate, and adapt.

AI-powered digital pedagogy may therefore be defined as a human-centred instructional approach that integrates artificial intelligence into pedagogically structured digital learning environments to support personalized, interactive, reflective, ethical, and autonomous language development.

The educational challenge is not simply to increase the number of AI tools used in English classrooms. Technology itself does not guarantee meaningful learning. The central question is how AI can be integrated in ways that strengthen linguistic competence while developing the intellectual, social, ethical, and digital capacities required for twenty-first-century communication.

2. Objectives of the Study

The objectives of the present study are:

1. To examine the emerging role of Artificial Intelligence in digital English language pedagogy.
2. To identify major pedagogical applications of AI in English language education.
3. To analyse the contribution of AI to personalized and multimodal language learning.
4. To examine AI-supported feedback, assessment, learner autonomy, and self-regulation.
5. To investigate the changing role of English language teachers in AI-enhanced classrooms.
6. To analyse ethical, academic, and accessibility challenges associated with AI integration.
7. To propose an AI-powered digital pedagogy framework for twenty-first-century English language learning.

3. Research Questions

The study addresses the following research questions:

1. How is artificial intelligence transforming digital pedagogy in English language education?
2. How can AI support personalized, interactive, and multimodal English learning?
3. What role can AI play in feedback and language assessment?
4. How can AI contribute to learner autonomy and self-regulation?
5. What competencies do English language teachers require in AI-enhanced classrooms?
6. What ethical and pedagogical challenges must be addressed?
7. What framework can guide responsible AI-powered English language pedagogy?

4. Research Methodology

The present study adopts an integrative literature review and conceptual research design. The method is appropriate because the objective is to synthesize recent scholarship and construct a pedagogical framework rather than report a new experiment involving human participants.

The review focuses on scholarship related to:

- artificial intelligence in English Language Teaching;
- generative artificial intelligence;
- personalized and adaptive learning;
- digital pedagogy;

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- automated language feedback;
- AI-supported assessment;
- informal digital English learning;
- self-regulated learning;
- multimodal communication;
- digital and AI literacy;
- teacher competence; and
- ethical AI implementation.

Peer-reviewed journal articles, systematic reviews, meta-analyses, conceptual studies, and international educational frameworks were examined. Studies were analysed thematically according to their relevance to language pedagogy, learner outcomes, teacher practices, and ethical considerations.

The analysis resulted in six major components that form the basis of the framework proposed in this paper:

1. Personalized Language Learning;
2. Interactive and Multimodal Learning;
3. Intelligent Feedback and Assessment;
4. Learner Autonomy and Self-Regulation;
5. Teacher Mediation and AI Literacy; and
6. Ethical, Inclusive, and Human-Centred Implementation.

Since the study is conceptual, no fabricated survey results, participant responses, or experimental statistics are presented.

5. Review of Literature

5.1 Artificial Intelligence and English Language Teaching

Artificial Intelligence has moved rapidly from a specialized technological field into everyday educational practice. In English language education, intelligent tutoring systems, speech recognition tools, automated writing evaluation, adaptive learning environments, chatbots, translation systems, and generative AI applications can now contribute to different stages of language learning.

Malinee, Suganya, and Manojkumar argue that generative AI is reshaping lesson design, feedback, assessment, interactive practice, writing support, and learner autonomy in English Language Teaching [1]. Their study also emphasizes that AI should function as a pedagogical support tool rather than as a replacement for teachers.

Chandrika and Malinee similarly identify pedagogical transformation, assessment innovation, and learner engagement as central areas affected by AI [2]. AI can facilitate differentiated instruction and immediate feedback while allowing students to participate in technology-supported learning beyond fixed classroom schedules.

These developments represent a move from technology as a supplementary classroom resource towards technology as part of the instructional environment itself.

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5.2 Digital Pedagogy in Twenty-First-Century Learning

Digital pedagogy should not be confused with the simple use of electronic devices. A teacher may use a projector, presentation software, or learning management system without fundamentally changing the pedagogical process. Digital pedagogy requires teachers to reconsider how learners encounter information, communicate, collaborate, produce knowledge, receive feedback, and demonstrate learning.

Twenty-first-century English communication increasingly occurs through multimodal forms. Samuel, Moulieswaran, and Melina argue that text, sound, video, image, gesture, multimedia, and interactive environments contribute to English competence and digital literacy [4]. Language teaching therefore needs to move beyond print-dominant communication and expose learners to authentic multimodal tasks.

AI adds adaptive and generative capabilities to such environments. For example, learners can interact with an AI conversational system, request explanations, generate practice scenarios, receive immediate feedback, compare different language forms, and revise their responses.

Digital pedagogy thus becomes more dynamic when AI is included because learners are not merely consuming digital material but interacting with systems that generate new responses according to their input.

5.3 Personalized Learning

One of the strongest educational arguments for AI concerns personalization. Conventional classrooms usually contain students with different levels of language proficiency, learning speed, interests, goals, and educational backgrounds. It is difficult for a teacher to provide a completely different sequence of exercises for each learner.

AI-driven learning systems can potentially adapt difficulty levels, explanations, practice tasks, feedback, and content according to learner needs. Brindha, Unnatha, and Sona describe AI-driven personalized learning as an approach that adjusts content, pace, feedback, and activities according to learners' abilities and progress [5].

Personalization can benefit different areas of English language learning:

- vocabulary development;
- grammatical accuracy;
- pronunciation;
- reading comprehension;
- writing development;
- listening practice;
- conversational fluency; and
- academic communication.

Such personalization does not mean that AI should independently decide the educational goals of learners. Teachers remain responsible for curriculum alignment and pedagogical judgment.

5.4 Generative AI and Academic Writing

Generative AI has significantly affected writing instruction. Learners may use AI during brainstorming, organization, drafting, revision, proofreading, and language correction. Kadir, Sona,

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and Haritha explain that AI writing tools can provide immediate language correction, vocabulary enhancement, suggestions, and writing assistance [3]. These affordances are especially relevant to learners who require repeated linguistic support.

However, the educational value of AI depends on whether students remain cognitively engaged. If learners ask AI to correct a limited number of recurring language problems and then analyse the corrections, learning may occur. If they request complete essays and submit generated material with little reflection, the technological assistance may replace rather than develop writing competence.

The distinction between **AI-assisted writing** and **AI-generated authorship** is therefore pedagogically important.

5.5 AI and Self-Regulated Learning

Self-regulation is central to twenty-first-century learning because learners increasingly access digital resources beyond formal classroom hours. Kong, Lee, and Tsang propose a six-phase approach to generative-AI-supported academic writing: plan, prompt, preview, produce, peer-review, and portfolio-tracking [6]. This model is significant because it does not place AI at the beginning as an automatic answer generator. Learners first plan their work, evaluate AI output, produce their own revised work, participate in peer review, and reflect on the process.

Such instructional sequencing demonstrates how AI can be used to strengthen self-regulated learning rather than encourage passive dependence.

6. AI-Powered Digital Pedagogy: Key Dimensions

6.1 Personalized Language Learning

Personalization is one of the most significant strengths of AI-supported education. Students differ in their vocabulary knowledge, grammar competence, fluency, confidence, preferred learning styles, and academic needs. In a conventional classroom, an instructor may teach a single grammatical concept to the entire class. AI-assisted learning can supplement this by allowing some students to request simpler explanations, others to practise advanced examples, and others to focus on recurring individual errors.

A personalized AI-supported English learning cycle may involve:

Diagnosis → Targeted Practice → Immediate Feedback → Revision → Progress Reflection

AI can therefore increase the number of individualized learning opportunities available without removing the teacher from instructional decision-making [5].

6.2 Interactive Conversational Learning

English is a communicative subject, yet many students have limited opportunities to practise extended conversation. Fear of mistakes, large class sizes, limited classroom time, and lack of conversation partners may reduce speaking practice.

AI dialogue systems can provide low-stakes conversational practice. Learners may simulate situations such as:

- job interviews;
- academic discussions;
- customer-service conversations;

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- conference presentations;
- travel communication;
- debates;
- workplace interaction; and
- everyday social communication.

After a conversation, AI can identify recurring vocabulary or grammatical problems and suggest additional practice.

Such systems should supplement rather than replace human communication because authentic communication includes emotion, social identity, cultural interpretation, interpersonal negotiation, and unpredictable human responses.

6.3 Multimodal Language Learning

Digital communication is increasingly multimodal. Students encounter English through podcasts, videos, online meetings, social media, infographics, digital presentations, subtitles, interactive games, virtual environments, and AI-generated media.

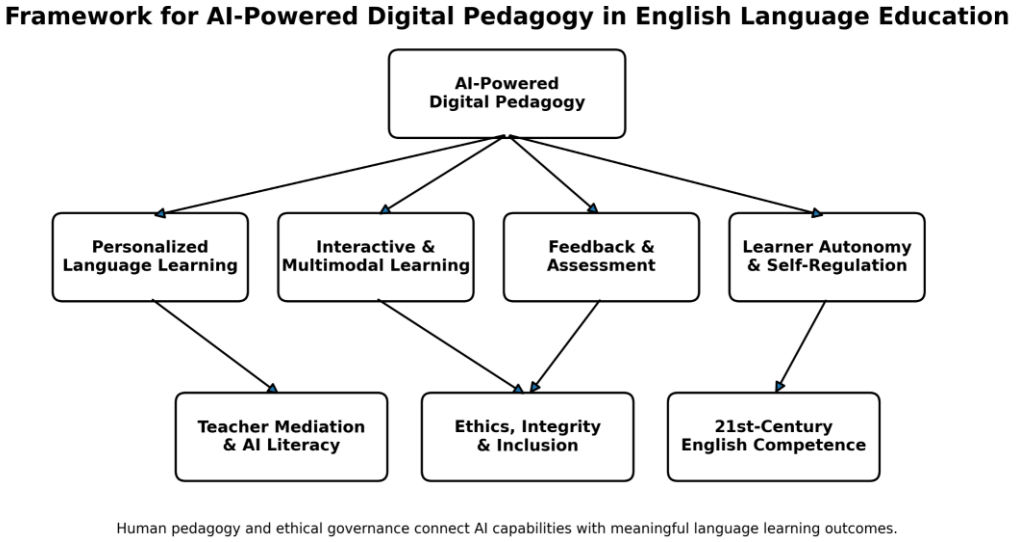

Figure 1. AI-Powered Digital Pedagogy Framework

The framework places **AI-Powered Digital Pedagogy** at the centre of six interconnected educational dimensions:

1. Personalized Language Learning;
2. Interactive and Multimodal Learning;
3. Feedback and Assessment;
4. Learner Autonomy and Self-Regulation;
5. Teacher Mediation and AI Literacy; and
6. Ethics, Integrity, and Inclusion.

These dimensions collectively contribute to twenty-first-century English competence.

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Caption:
Figure 1. Conceptual framework for AI-powered digital pedagogy in English language education. The model demonstrates how AI-supported personalization, multimodal learning, assessment, learner autonomy, teacher mediation, and ethical governance contribute to twenty-first-century English competence. Developed by the author.

Multimodal pedagogy can combine linguistic input with visual and auditory information, enabling learners to encounter language in diverse communicative contexts [4].

AI may further support multimodal pedagogy through:

- automatic transcription;
- text-to-speech;
- speech-to-text;
- pronunciation comparison;
- image-based vocabulary tasks;
- caption generation;
- interactive scenarios;
- multimedia lesson generation; and
- accessible content transformation.

This is particularly useful in classrooms containing learners with different educational and linguistic needs.

6.4 Intelligent Feedback

Feedback is one of the most important components of language learning. Students need to understand both what is incorrect and how improvement can be achieved.

AI can provide immediate feedback on:

- grammar;
- vocabulary;
- organization;
- spelling;
- punctuation;
- pronunciation;
- fluency;
- writing coherence;
- academic tone; and
- clarity of expression.

Immediate feedback allows students to attempt, receive guidance, revise, and attempt again without waiting for the next classroom session.

Nevertheless, AI-generated feedback should be critically evaluated. A fluent response is not necessarily correct. Teachers need to help students distinguish among errors, stylistic preferences, and discipline-specific conventions.

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6.5 AI-Supported Assessment

Artificial intelligence also creates possibilities for formative assessment. AI may assist teachers in constructing practice questions, identifying recurring learner errors, generating differentiated activities, and organizing preliminary feedback.

However, high-stakes assessment should not be delegated entirely to AI. Language performance involves context, communicative purpose, creativity, pragmatic competence, argument quality, cultural knowledge, and learner history.

The most appropriate assessment model is therefore:

AI-supported analysis + Teacher judgment + Learner reflection

Such a structure benefits from technological efficiency while maintaining human accountability.

6.6 Learner Autonomy

AI increases learners' ability to study beyond formal classes. A learner may practise vocabulary, writing, pronunciation, conversation, or reading at any time.

Guan, Li, and Gu's meta-analysis of 15 studies on AI-mediated informal digital English learning provides particularly useful evidence [7]. The researchers found that generative AI had a statistically significant positive overall effect on English proficiency and self-regulation, although its effect on learning motivation was not statistically significant.

These findings are important because they demonstrate that access to AI does not automatically increase every dimension of learning. Technology may support proficiency while still requiring pedagogical strategies to maintain learner motivation.

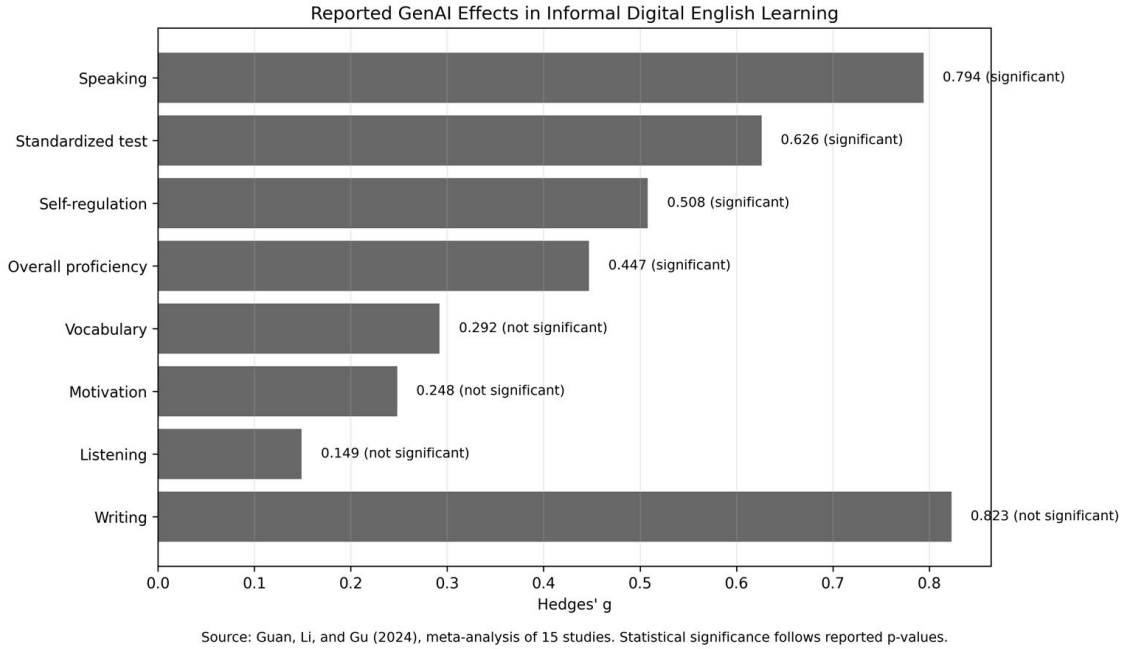

Figure 2. Reported Effects of Generative AI in Informal Digital English Learning

Guan, Li, and Gu reported an overall effect size of Hedges' g = 0.447 for English proficiency and g = 0.508 for self-regulation [7]. Speaking showed a significant effect of g = 0.794, while

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standardized English test performance showed g = 0.626. The overall effect on learning motivation was g = 0.248 and was not statistically significant [7].

Caption:

Figure 2. Selected effect sizes reported in the meta-analysis of AI-mediated informal digital English learning by Guan, Li, and Gu [7]. The graph distinguishes statistically significant from non-significant reported outcomes. No new empirical data were generated for the present paper.

The findings reinforce the need for structured digital pedagogy. The availability of AI does not by itself produce meaningful language learning. Learners require goals, strategies, reflection, feedback, and teacher guidance.

7. Teacher Roles in AI-Powered English Education

The growth of artificial intelligence does not make English language teachers unnecessary. Instead, teachers' responsibilities become more sophisticated.

The teacher increasingly operates as:

- a learning designer;
- facilitator;
- linguistic expert;
- feedback specialist;
- AI-output evaluator;
- digital-literacy educator;
- assessment designer;
- ethical guide; and
- mentor.

UNESCO's AI Competency Framework for Teachers identifies human-centred thinking, ethics of AI, AI foundations and applications, AI pedagogy, and AI-supported professional learning as major areas of teacher competence [8].

English teachers therefore need more than technical familiarity with AI applications. They must be able to determine whether a particular technology supports a pedagogical objective.

For example, the question should not be:

“How can I use AI in this lesson?”

A better pedagogical question is:

“What language-learning problem exists, and can AI meaningfully help students address it?”

This shift prevents technology from becoming the objective of instruction.

8. AI Literacy as a Twenty-First-Century Language Skill

Digital literacy traditionally refers to the ability to locate, evaluate, create, and communicate information through digital technologies. AI introduces an additional dimension because learners must evaluate machine-generated content.

AI literacy in English education should include the ability to:

1. understand the basic capabilities and limitations of AI;
2. write effective and context-specific prompts;
3. evaluate AI-generated language;

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4. verify factual claims;
5. identify possible bias;
6. distinguish assistance from authorship;
7. protect personal and research data;
8. acknowledge AI use appropriately;
9. compare AI output with authoritative sources; and
10. retain responsibility for final academic work.

UNESCO's student AI competency framework emphasizes a human-centred mindset, ethical AI use, understanding AI applications, and responsible participation in an AI-influenced society [9]. AI literacy should therefore be treated as part of communicative competence rather than as an isolated computer skill.

9. Twenty-First-Century Learning Outcomes

AI-powered digital pedagogy can contribute to a broader set of educational outcomes beyond language accuracy.

9.1 Communication

Students learn to communicate across face-to-face, written, digital, and multimodal environments.

9.2 Critical Thinking

Learners must evaluate AI suggestions instead of assuming that automatically generated language is correct.

9.3 Creativity

AI may assist brainstorming and alternative expression, but learners must retain control over ideas and final communication.

9.4 Collaboration

AI can supplement peer collaboration, although human interaction remains essential to social language development.

9.5 Digital Literacy

Students develop the ability to navigate digitally mediated communication environments.

9.6 Self-Regulation

Students can monitor their own progress, obtain feedback, and practise beyond classroom schedules.

9.7 Information Literacy

Learners must verify sources and distinguish reliable information from plausible but incorrect AI-generated output.

9.8 Intercultural Competence

Digital communication connects learners with multiple varieties of English and international communicative contexts.

Together, these competencies redefine English language education for contemporary learners.

10. The Proposed SMART-AI Pedagogical Framework

The present study proposes the SMART-AI Framework for responsible implementation of artificial intelligence in English language education.

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S – Specify the Learning Outcome
Teachers first identify the linguistic or communicative objective.
Examples include:

- improving paragraph coherence;
- practising pronunciation;
- developing vocabulary;
- strengthening speaking confidence;
- understanding a grammatical pattern; or
- analysing an academic text.

AI should never be introduced without a clear learning outcome.
M – Match AI with Pedagogy
The teacher selects an AI-supported activity only when it aligns with the learning objective.
For example:

- conversation simulation for speaking;
- automated comparison for pronunciation;
- targeted feedback for writing;
- adaptive exercises for grammar;
- vocabulary scenarios for lexical development.

A – Activate Learner Participation
Students should produce, respond, question, compare, and revise.
AI should not complete the intellectual task on behalf of the learner.
R – Review AI Output Critically
Students verify generated information, evaluate language choices, and identify possible inaccuracies or bias.
T – Transfer Learning
Students demonstrate the skill independently in a new task without relying entirely on AI assistance.
Transfer is essential because improved AI-assisted output does not necessarily prove improved competence.
A – Apply Ethical Guidelines
Learners follow institutional requirements for privacy, academic integrity, authorship, citation, and responsible AI use.
I – Integrate Human Interaction
Teacher feedback, peer discussion, classroom communication, and human judgment remain central to learning.
The SMART-AI model therefore positions AI between pedagogical intention and human learning rather than placing technology at the centre of education.

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11. Challenges of AI-Powered Digital Pedagogy

11.1 Inaccurate Information

Generative AI may produce incorrect or fabricated information with convincing language. Students therefore require verification skills.

11.2 Academic Integrity

AI-generated essays, assignments, and answers create uncertainty concerning authorship and originality [1], [3].

11.3 Overdependence

Frequent dependence on automated writing or correction may weaken students' ability to independently formulate ideas and solve language problems.

11.4 Algorithmic Bias

AI systems are trained on large collections of existing language and may reproduce linguistic, cultural, or social biases.

11.5 Privacy

Students may unknowingly upload personal information, research material, or unpublished work to external platforms.

11.6 Unequal Access

Advanced AI tools, stable internet connections, modern devices, and digital literacy are not equally available to all students.

11.7 Reduction of Human Interaction

English is fundamentally a social and communicative activity. Excessive automation may reduce meaningful teacher-student and student-student interaction.

11.8 Teacher Preparedness

Teachers require professional development to evaluate AI tools pedagogically and ethically [8].

12. Ethical Principles for AI-Supported English Education

Responsible implementation should be guided by the following principles:

Human Agency: Students and teachers retain decision-making authority.

Transparency: Learners understand when and how AI is being used.

Accountability: Human users remain responsible for academic and instructional decisions.

Privacy: Sensitive information should not be submitted to AI platforms without appropriate protection.

Equity: AI integration should not disadvantage learners who have limited technological access.

Academic Integrity: Students must distinguish legitimate assistance from unauthorized generation.

Critical Evaluation: AI-generated information should be verified.

Teacher Supervision: Important instructional and assessment decisions require human judgment.

UNESCO's frameworks similarly prioritize human agency, ethical AI use, responsibility, and teacher professional development [8], [9].

13. Pedagogical Recommendations

Educational institutions should avoid two extremes: completely prohibiting AI or allowing unrestricted use without pedagogical guidance.

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English departments should instead establish clear levels of acceptable AI assistance.
Teachers can classify tasks as:
Level 1 – No AI: Independent performance used to assess unaided competence.
Level 2 – AI for Practice: AI may explain vocabulary, grammar, or concepts.
Level 3 – AI for Feedback: Students may obtain feedback but must write the response independently.
Level 4 – AI Collaboration: AI may assist brainstorming or revision with disclosure.
Level 5 – AI-Critical Task: AI output itself becomes the object of analysis and evaluation.
Assessment should increasingly emphasize the learning process through:

- drafts;
- reflective notes;
- oral explanation;
- classroom performance;
- portfolio development;
- peer feedback;
- revision histories; and
- verification exercises.

Teachers should also incorporate AI literacy into English courses so that students understand both how to use AI and when not to rely on it.

14. Research Gap

Despite rapid growth in scholarship, several gaps remain.
First, many studies examine short-term attitudes or immediate writing performance rather than long-term language development.
Second, more research is needed on whether AI-supported improvements transfer to independent language performance after technological assistance is removed.
Third, comparatively little evidence exists from rural, under-resourced, and multilingual institutions.
Fourth, research should examine differences between school-level learners, undergraduate students, postgraduate students, and professional English learners.
Fifth, the relationship between AI use and learner motivation requires further investigation. The meta-analysis by Guan, Li, and Gu found significant gains in proficiency and self-regulation but not motivation [7].
Sixth, more longitudinal research is required on the impact of AI on:

- critical thinking;
- creativity;
- independent writing;
- authorial voice;
- intercultural competence;
- teacher identity;
- classroom relationships; and

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- language-learning persistence.

15. Future Scope

Future English language classrooms are likely to contain increasingly sophisticated AI tools capable of processing text, audio, images, speech, video, and learner data simultaneously. Future research should investigate AI-powered multimodal tutoring systems capable of integrating pronunciation, vocabulary, speaking, listening, and writing within one learning environment. Research should also explore locally adapted systems that account for learners' first languages, regional varieties of English, cultural contexts, and educational curricula. Another important area involves AI-supported teacher professional development. Instead of focusing only on student-facing technology, institutions should examine how AI can help teachers analyse lessons, develop differentiated activities, interpret learning patterns, and improve pedagogical reflection. Finally, researchers should develop reliable methods for measuring independent competence after AI assistance. This is crucial because the primary educational objective is not to produce better AI-assisted assignments but to develop learners who can think, communicate, and learn effectively.

16. Conclusion

Artificial intelligence is contributing to a fundamental transformation of English language education. Its importance extends beyond individual applications such as chatbots, writing assistants, grammar tools, and automated feedback systems. AI is becoming part of a broader digital learning environment in which instruction can become increasingly personalized, interactive, adaptive, multimodal, and learner-centred.

The educational value of this transformation, however, depends on pedagogy. Artificial intelligence does not automatically create better teaching. Its benefits emerge when technological capabilities are connected to clearly defined learning outcomes, teacher expertise, learner participation, critical reflection, ethical guidelines, and meaningful human interaction. AI-powered digital pedagogy can support personalized language practice, formative feedback, multimodal learning, learner autonomy, self-regulation, and differentiated instruction. Empirical evidence indicates that structured generative AI use can positively influence English proficiency and self-regulated learning [7]. Nevertheless, motivation, creativity, academic integrity, privacy, equity, and human communication require continued attention.

The proposed SMART-AI Framework responds to these challenges by emphasizing learning outcomes, pedagogical alignment, learner participation, critical review, transfer of learning, ethical responsibility, and human interaction. The future English classroom should therefore not be conceptualized as a choice between the human teacher and artificial intelligence. The more productive model is a teacher–AI–learner partnership in which teachers provide pedagogical purpose and human judgment, AI expands opportunities for practice and feedback, and learners remain active participants responsible for their own linguistic and intellectual development. In this framework, twenty-first-century English competence includes not only the ability to communicate effectively but also the capacity to evaluate digital information, collaborate across technological

environments, use AI responsibly, think critically, regulate one's own learning, and preserve human agency within increasingly intelligent educational systems.

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