REFRAMING EFL INSTRUCTION THROUGH DIGITAL CITIZENSHIP AND ARTIFICIAL INTELLIGENCE: A CONCEPTUAL REVIEW

REENQUADRANDO O ENSINO DE INGLÊS COMO LÍNGUA ESTRANGEIRA POR MEIO DA CIDADANIA DIGITAL E DA INTELIGÊNCIA ARTIFICIAL: UMA REVISÃO CONCEITUAL

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Abstract. Artificial Intelligence (AI) is rapidly transforming English as a Foreign Language (EFL) instruction by enabling personalized, adaptive, and autonomous learning. However, these developments also introduce ethical, pedagogical, and sociocultural challenges, including overreliance on automated tools, risks to academic integrity, and widening digital inequalities. Although research on AI in education and digital citizenship has grown substantially, their integration within EFL pedagogy remains under-theorized. This study presents a conceptual review based on a narrative synthesis of 21 scholarly sources published between 2019 and 2024. The analysis identifies three recurring and interrelated dimensions shaping AI-mediated language learning: AI-driven personalization, digital citizenship, and sociocultural responsiveness. Building on this synthesis, the article proposes a triadic framework for ethical AI-enhanced EFL instruction, conceptualizing language learning as the intersection of technological capability, ethical awareness, and cultural relevance. The study offers an integrative theoretical contribution with implications for instructional design, teacher education, and educational policy. By embedding digital citizenship within AI-enhanced EFL instruction, the proposed framework aims to foster critical digital literacy and support learners' responsible participation in increasingly AI-mediated educational environments.

Keywords: Digital Citizenship; Artificial Intelligence; English Language Learning; Educational Technology; Digital Ethics.

Resumo. A Inteligência Artificial (IA) está transformando rapidamente o ensino de Inglês como Língua Estrangeira (EFL) ao possibilitar uma aprendizagem personalizada, adaptativa e autônoma. No entanto, esses avanços também introduzem desafios éticos, pedagógicos e socioculturais, incluindo a dependência excessiva de ferramentas automatizadas, riscos à integridade acadêmica e o agravamento das desigualdades digitais. Embora as pesquisas sobre IA na educação e cidadania digital tenham crescido substancialmente, sua integração no âmbito da pedagogia de EFL ainda permanece pouco teorizada. Este estudo apresenta uma revisão conceitual com base em uma síntese narrativa de 21 fontes acadêmicas publicadas entre 2019 e 2024. A análise identifica três dimensões recorrentes e inter-relacionadas que moldam a aprendizagem de línguas mediada por IA: personalização orientada por IA, cidadania digital e responsividade sociocultural. Com base nessa síntese, o artigo propõe um framework triádico para um ensino ético de EFL potencializado por IA, concebendo a aprendizagem de línguas como a interseção entre capacidade tecnológica, consciência ética e relevância cultural. O estudo oferece uma contribuição teórica integradora, com implicações para o desenho instrucional, a formação de professores e as políticas educacionais. Ao incorporar a cidadania digital ao ensino de EFL apoiado por IA, o framework proposto busca promover o letramento digital crítico e apoiar a participação responsável dos estudantes em ambientes educacionais cada vez mais mediados por IA.

Keywords: Cidadania Digital; Inteligência Artificial; Aprendizagem da Língua Inglesa; Tecnologia Educacional; Ética Digital.

1. INTRODUCTION

The rapid evolution of digital technologies, particularly Artificial Intelligence (AI), has significantly transformed educational landscapes worldwide. In English as a Foreign Language (EFL) learning, AI-powered applications such as ChatGPT, Grammarly, and Duolingo have created new opportunities for personalized instruction, autonomous practice, and real-time feedback (Eswaran et al., 2024; Huang et al., 2021; Moorhouse et al., 2023). These innovations offer learners greater flexibility, engagement, and adaptability, aligning language education with the demands of the 21st century.

However, alongside these benefits, complex ethical and pedagogical challenges have emerged. Learners may become overly dependent on AI-generated content, potentially diminishing critical thinking, creativity, and linguistic autonomy (Idham et al., 2024; Sabari & Hashim, 2023). Concerns regarding data privacy, digital plagiarism, and unequal access to AI tools further complicate educational practice (Kartal, 2023; Konyrova, 2024; Yunina, 2023). These challenges demonstrate that effective AI integration requires more than technical proficiency; it demands a principled framework to guide responsible participation in digital learning environments.

Digital citizenship, defined as responsible, ethical, and informed participation in digital spaces, offers a promising foundation for addressing these concerns (Bal & Akcil, 2024; Ribble, 2015). It encompasses competencies such as digital literacy, online safety, information evaluation, ethical communication, and civic responsibility. In EFL contexts, digital citizenship can ensure that language development is accompanied by reflective and responsible technology use. Despite its growing importance, digital citizenship remains underrepresented in many EFL curricula, which often prioritize linguistic performance and technological proficiency over ethical engagement with digital tools (Kruk & Kałużna, 2024).

Existing research has explored AI-driven personalization in education, digital citizenship in online learning, and sociocultural approaches to language pedagogy. Nevertheless, these strands of scholarship have largely developed in parallel, and few studies have integrated them into a unified conceptual model for AI-supported EFL instruction. As a result, a comprehensive theoretical framework connecting technological, ethical, and sociocultural dimensions of AI-enhanced language learning remains underdeveloped.

This article draws on a narrative synthesis of 21 scholarly sources published between 2019 and 2024 across the domains of artificial intelligence in education, digital ethics, and language pedagogy. This synthesis provides the empirical and theoretical foundation for the proposed framework.

To address this gap, the present study proposes a triadic framework that conceptualizes AI-enhanced EFL instruction as the intersection of AI-driven personalization, digital citizenship, and sociocultural responsiveness. By integrating adaptive learning, ethical technology use, and culturally contextualized pedagogy, the study offers a conceptual model for rethinking EFL education in the age of AI and provides educators, researchers, and policymakers with a value-based framework for designing inclusive and ethically responsible AI-mediated language learning environments

The remainder of this article is organized as follows. Section 2 reviews the theoretical foundations of AI in education, digital citizenship, and sociocultural perspectives in language learning. Section 3 outlines the methodological approach used in this conceptual review. Section 4 presents the discussion and practical pedagogical implications of the proposed framework. The final section concludes with recommendations for future research and practice.

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2. THEORETICAL FRAMEWORK

This section reviews key theoretical perspectives that inform the integration of Artificial Intelligence (AI), digital citizenship, and sociocultural responsiveness in English as a Foreign Language (EFL) education. It synthesizes scholarship from AI in education, digital literacy, and language pedagogy to establish the conceptual foundations for the triadic framework proposed in this study.

2.1 The Role of Artificial Intelligence in English Language Learning

Artificial Intelligence has emerged as a transformative force in contemporary language education. AI technologies, including intelligent tutoring systems, adaptive learning platforms, and generative language tools, are reshaping EFL instruction by enabling personalized, interactive, and data-informed learning environments (Eswaran et al., 2024; Son et al., 2023).

AI-powered applications provide learners with opportunities for real-time language practice and feedback. Writing tools support metacognitive development through automated feedback, while conversational agents and voice assistants facilitate speaking practice and pronunciation improvement. Machine learning–based platforms further enhance learner engagement by adapting instructional content based on performance data (Huang et al., 2021). At the instructional level, AI-driven analytics offer insights into learner behavior that support targeted pedagogical interventions (Moorhouse et al., 2023).

Despite these benefits, the integration of AI presents important pedagogical and ethical concerns. Overreliance on automated feedback may reduce deep cognitive engagement and limit learners' active role in knowledge construction (Sabari & Hashim, 2023). Furthermore, AI tools often struggle with cultural nuance and context-sensitive communication, highlighting the continuing importance of human mediation in language education (Fu, 2021).

Ethical concerns also arise regarding data privacy, academic integrity, and responsible technology use (Kartal, 2023; Yunina, 2023). These challenges underscore the need for a pedagogical framework to support responsible AI use in EFL contexts.

2.2 Digital Citizenship in AI-Mediated Language Learning

Digital citizenship provides a framework for responsible, ethical, and informed participation in digital environments. It encompasses competencies such as digital literacy, online safety, information evaluation, ethical communication, and civic engagement (Ribble, 2015). As digital technologies increasingly shape educational practices, these competencies have become central to preparing learners for participation in digitally mediated societies.

In AI-mediated language learning, digital citizenship extends beyond technical skills to include critical awareness of AI-generated content, academic integrity in AI-assisted writing, and understanding of data privacy and algorithmic bias. Recent scholarship emphasizes that learners must be able to critically evaluate automated outputs, recognize limitations of AI-generated information, and use digital tools responsibly in academic contexts (Alasadi & Baiz, 2023; Nwoyibe, 2025). The rapid expansion of generative AI has further intensified concerns about plagiarism, misinformation, and uncritical reliance on automated systems, reinforcing the importance of embedding ethical and critical digital practices into language education (Kasneci et al., 2023).

From a pedagogical perspective, integrating digital citizenship into EFL instruction supports the development of critical thinking, intercultural communication, and responsible digital participation. These competencies align language learning with broader educational goals that emphasize ethical technology use and global citizenship (Simões & Brás, 2025). Consequently, digital citizenship should be understood not as an additional component of language education but as a foundational dimension of AI-enhanced learning environments.

However, the integration of digital citizenship presents both practical challenges and significant opportunities for EFL education. These issues are explored in the following section.

2.3 Challenges and Opportunities in Implementing Digital Citizenship

The preceding discussion highlights the growing importance of digital citizenship in AI-mediated language learning. However, translating these principles into classroom practice is complex. The implementation of digital citizenship within AI-supported EFL instruction presents both significant challenges and promising opportunities.

2.3.1 Challenges

The implementation of digital citizenship in AI-supported EFL education is shaped by several interconnected challenges related to infrastructure, digital literacy, and institutional readiness.

One major challenge is the digital divide. Unequal access to devices, stable internet connectivity, and AI-powered tools limits learners' ability to participate fully in technology-enhanced language learning environments. When digital citizenship initiatives are implemented without equitable access, they may unintentionally reinforce existing educational disparities, as learners with greater technological resources gain disproportionate opportunities to develop digital and linguistic competencies (Othman, 2025).

A second challenge is the digital skills gap. Although many learners are familiar with everyday technologies, they often lack the critical digital literacies required to evaluate AI-generated content, identify misinformation, and engage responsibly with automated tools (Martínez-Bravo et al., 2022). Similarly, teachers frequently face difficulties due to limited training and institutional support for integrating AI and digital citizenship into classroom practice (Ng et al., 2023).

Recent empirical research further highlights the urgency of digital citizenship integration. Studies report increasing instances of AI-assisted plagiarism, academic misconduct, and uncritical acceptance of AI-generated misinformation following the widespread adoption of generative AI tools (Kasneci et al., 2023). These findings indicate that the absence of digital citizenship education may undermine both academic integrity and the development of critical thinking skills.

These challenges underscore the need for structured pedagogical and institutional strategies to support responsible AI integration in language education.

2.3.2 Opportunities

Despite these challenges, the integration of digital citizenship presents significant opportunities to enhance AI-mediated EFL education. Research consistently demonstrates that technology-mediated learning environments can support the development of 21st-century competencies, including critical thinking, collaboration, creativity, and digital literacy (Haryaka & Khadijah Razak, 2025). When combined with ethical and reflective practices, AI tools can contribute to more engaging and learner-centered language learning experiences.

Digital citizenship also supports the development of learner autonomy and self-regulated learning, which are central goals in contemporary language education. Studies in educational psychology and digital learning highlight that awareness of digital rights, responsibilities, and information evaluation is associated with increased learner agency and reflective learning practices (Zimmerman, 2002). In AI-enhanced EFL contexts, this awareness enables learners to use AI tools as scaffolding for language development rather than as substitutes for cognitive effort.

At the pedagogical level, integrating digital citizenship encourages the design of learning activities that combine language development with ethical reflection and critical evaluation of digital content. At the institutional level, embedding digital citizenship into curricula can promote innovation in teacher education, assessment practices, and policy development related to ethical technology use(Falloon, 2020).

Taken together, these opportunities highlight the transformative potential of digital citizenship as a foundation for responsible AI integration in language education.

2.4 Theoretical Synthesis and Orientation

The literature reviewed above highlights the need for an integrated perspective that connects technological innovation, ethical responsibility, and sociocultural awareness in AI-enhanced EFL instruction. Research on AI in education demonstrates the potential of adaptive technologies to transform language learning, while scholarship on digital citizenship emphasizes ethical technology use and responsible participation in digital environments. Sociocultural approaches further stress the importance of cultural context, identity, and inclusivity in shaping meaningful learning experiences.

Together, these strands of research suggest that AI integration in EFL education should be understood not merely as technological adoption but as a broader pedagogical transformation. Effective AI-enhanced language learning requires alignment between technological capability, ethical awareness, and cultural responsiveness. Without such alignment, AI integration risks prioritizing efficiency and performance outcomes while neglecting ethical and sociocultural dimensions of learning.

This synthesis provides the theoretical foundation for the triadic framework presented in the following section.

3. METHOD

To address the research objective of developing a conceptual framework for AI-enhanced EFL instruction, this study employed a conceptual review using a narrative synthesis approach. Narrative reviews are particularly suitable for emerging and interdisciplinary topics because they enable the interpretive integration of diverse theoretical and empirical contributions rather than statistical aggregation (Snyder, 2019; Sukhera, 2022). Such approaches are widely recommended for synthesizing literature in complex and rapidly evolving fields and for identifying conceptual relationships across studies (Xiao & Watson, 2019).

3.1 Search Strategy and Data Sources

To ensure transparency and methodological rigor, a structured literature search was conducted across major academic databases, including Scopus, Web of Science, ERIC, and Google Scholar. The search focused on publications from 2019 to 2024 to capture the rapid evolution of AI tools and digital citizenship frameworks in educational contexts. The use of multiple databases is recommended to enhance coverage and reduce publication bias in review studies (Bramer et al., 2017).

The search employed combinations of keywords related to artificial intelligence, digital citizenship, and language learning. These included terms such as *artificial intelligence*, *AI in education*, *AI-assisted language learning*, *digital citizenship*, *digital ethics*, *technology-enhanced language learning*, and *EFL/ESL*. Backward and forward citation tracking was also conducted to identify additional relevant sources and strengthen the comprehensiveness of the review (Sukhera, 2022).

3.2 Inclusion and Exclusion Criteria

Explicit inclusion and exclusion criteria were applied to ensure the relevance and quality of the reviewed literature. Studies were included if they were published in peer-reviewed journals or scholarly books, focused on artificial intelligence in education, digital citizenship, or technology-enhanced language learning, provided theoretical, conceptual, or empirical insights relevant to EFL contexts, were published between 2019 and 2024, and were written in English.

Studies were excluded if they focused solely on technical AI development without educational implications, addressed general technology use without explicit discussion of artificial intelligence or digital citizenship, or consisted of non-scholarly sources and opinion-based publications. Following the screening and eligibility process, 21 key sources were selected for in-depth analysis and synthesis.

3.3 Analytical Procedure

The selected studies were analyzed using a thematic narrative synthesis approach. This method enables the integration of diverse theoretical and empirical contributions through an iterative process of interpretation and conceptual mapping (Sukhera, 2022).

The analytical procedure was conducted in three stages. First, recurring themes related to artificial intelligence in language learning, digital citizenship, and sociocultural perspectives were identified across the selected literature. Second, conceptual relationships among these themes were mapped to explore how technological, ethical, and sociocultural dimensions interact in AI-mediated EFL instruction. Third, the synthesized insights were used to identify gaps in the existing literature and emerging directions for future research.

This analytical process enabled the development of a triadic conceptual framework that integrates AI-driven personalization, digital citizenship, and sociocultural responsiveness as interconnected dimensions of AI-enhanced language learning.

3.4 Limitations of the Study

Despite efforts to ensure methodological rigor, this conceptual review has several limitations. First, the study focused on publications written in English and indexed in major academic databases, which may have resulted in the exclusion of relevant research published in other languages or regional outlets. This limitation may reduce the global representativeness of the reviewed literature, particularly in underrepresented educational contexts.

Second, the narrative synthesis approach emphasizes conceptual interpretation rather than systematic quantitative aggregation. Consequently, the findings should be interpreted as a theoretical synthesis rather than an exhaustive systematic review or meta-analysis.

Third, the rapidly evolving nature of artificial intelligence in education means that new tools, policies, and empirical findings may emerge beyond the selected timeframe (2019–2024). As a result, the proposed framework should be viewed as a dynamic and evolving model that may require further refinement as the field develops.

Future research is encouraged to complement this conceptual review with empirical studies and systematic reviews that test, validate, and extend the proposed framework across diverse educational contexts.

4. DISCUSSION

4.1 From Conceptual Framework to Pedagogical Practice

The preceding sections established the conceptual foundations for integrating artificial intelligence (AI), digital citizenship, and sociocultural responsiveness in EFL education. Building on this synthesis, the present section examines the pedagogical, professional, and

institutional implications of this integration. By moving from conceptual reflection toward applied interpretation, this discussion clarifies how ethical, civic, and technological dimensions can be meaningfully aligned in AI-enhanced EFL instruction.

AI offers substantial opportunities for personalized and autonomous language learning. Adaptive platforms and generative tools provide immediate feedback, individualized learning pathways, and expanded opportunities for practice (Huang et al., 2021). These affordances can strengthen learner autonomy and engagement. However, research consistently warns that uncritical reliance on automated outputs may reduce deep cognitive engagement and limit learners' active role in knowledge construction (Kasneci et al., 2023). This tension highlights the need for a balanced pedagogical approach in which AI functions as a scaffold for learning rather than a substitute for critical thinking.

Within this context, digital citizenship emerges as a foundational pedagogical principle rather than an optional complement. Ethical information use, awareness of digital rights and responsibilities, online safety, and critical media literacy are directly relevant to AI-mediated language learning (Ribble, 2015). When embedded into curriculum design, these principles foster reflective and accountable technology use, supporting the development of responsible digital participation among learners (Jordan et al., 2024).

Teacher readiness constitutes a second critical dimension. Although educators increasingly recognize the value of AI tools, many report limited competencies in AI literacy and digital ethics. Research on teacher digital competence emphasizes the importance of professional development that integrates pedagogical, technological, and ethical knowledge (Falloon, 2020). Effective training should therefore extend beyond technical instruction to include critical reflection, case-based learning, and scenario-based discussions that prepare teachers to address ethical dilemmas in AI-mediated classrooms.

Institutional support further shapes the sustainability of ethical AI integration. Schools and universities play a key role in establishing policies aligned with digital citizenship values, including academic integrity guidelines, data privacy protections, and equitable access strategies (Hidayati et al., 2021). Without institutional frameworks, teachers may struggle to maintain consistent and responsible practices in AI-enhanced learning environments.

The discussion also underscores the importance of culturally responsive pedagogy. In multilingual and multicultural contexts, particularly in Southeast Asia, digital citizenship cannot be implemented as a universal model. Learners' cultural backgrounds influence their digital practices, ethical judgments, and communication styles. Consequently, digital citizenship education must be contextualized within local sociocultural values, including collectivism, community responsibility, and religious perspectives on technology use (Hutchison & McAlister-Shields, 2020).

Although empirical evidence remains limited, conceptual syntheses provide a foundation for future experimentation and pedagogical innovation. Tables 1 and 2 summarize key opportunities and challenges associated with AI integration in EFL education.

Table 1. Opportunities of AI in EFL Learning

Opportunities	Explanation
Personalized Learning	AI customizes materials and learning paths to meet individual student needs (Huang et al., 2021).
Immediate and Formative Feedback	Tools like Grammarly and ChatGPT provide real-time input that supports iterative language practice.
Enhanced Motivation and Engagement	Gamified AI apps and interactive platforms increase learners' interest and persistence (Murari, 2025).
Development of 21st-Century Skills	Learners gain skills in digital literacy, critical thinking, and self-directed learning.

Table 1 highlights major pedagogical opportunities, including personalized learning, immediate feedback, enhanced motivation, and the development of 21st-century skills. Personalized learning enables AI systems to dynamically adapt instructional content, supporting learner autonomy and self-regulated learning (Huang et al., 2021). Immediate feedback facilitates iterative language practice and metacognitive development (Kasneci et al., 2023), while interactive platforms can increase motivation and persistence. Collectively, these affordances align AI-enhanced learning with global educational priorities emphasizing digital literacy and critical thinking.

Table 2. Challenges of AI in EFL Learning

Challenges	Explanation
Overreliance on AI	Learners may avoid deeper cognitive engagement by relying too much on AI-generated answers.
Reduced Human Interaction	Excessive AI use can limit opportunities for authentic communication and peer collaboration.
Ethical Concerns	Issues related to data privacy, plagiarism (e.g., through QuillBot), and transparency in AI-generated content.
Digital Literacy Gap	Both students and teachers may lack the skills or access required to fully utilize AI tools (Bal & Akcil, 2024).

Table 2 presents key challenges that accompany AI integration. Overreliance on automated tools may weaken authentic language production and reduce opportunities for meaningful interaction (Massaroni et al., 2023). Ethical concerns, including plagiarism and data privacy, academic integrity, and transparency, remain central issues in AI-in-education research. In addition, persistent digital literacy gaps among both learners and teachers may exacerbate educational inequalities if not addressed through targeted training and infrastructure development (Bal & Akcil, 2024).

Taken together, these insights reinforce the central premise of the proposed triadic framework: effective AI-enhanced EFL instruction requires the simultaneous integration of technological capability, ethical awareness, and sociocultural responsiveness. By connecting these dimensions, the framework moves beyond tool-oriented approaches toward a holistic model of language education grounded in responsible and context-sensitive technology use. The following section translates this conceptual orientation into illustrative classroom scenarios that demonstrate how the framework can inform instructional practice.

4.2 Practical Classroom Applications of AI and Digital Citizenship in EFL

To translate the proposed triadic framework into pedagogical practice, this section presents illustrative classroom scenarios that demonstrate how AI-driven personalization, digital citizenship, and sociocultural responsiveness can be integrated into EFL instruction. Although the framework is conceptual, recent scholarship emphasizes the importance of connecting theoretical models with classroom implementation in AI-enhanced education (Pham & Sampson, 2022). The scenarios presented below therefore function as pedagogical exemplars that operationalize the three dimensions of the framework across diverse language skills and instructional contexts.

4.2.1 AI-Assisted Writing with Ethical Reflection

AI-assisted writing tasks provide a productive context for integrating language development with ethical awareness and metacognitive reflection. Research indicates that AI-generated feedback can strengthen learner autonomy and formative assessment when accompanied by reflective pedagogical design (Huang et al., 2021; Kasneci et al., 2023).

In this scenario, students compose an argumentative essay on a global issue such as climate change, social media, or cultural diversity. The activity begins with an independently written draft to establish baseline performance. Students then interact with AI tools (e.g., ChatGPT or Grammarly) to obtain feedback on grammar, coherence, and vocabulary. The task concludes with a reflective commentary in which students evaluate the changes introduced through AI assistance and consider the ethical implications of AI-supported writing.

Assessment focuses on writing improvement, ethical reflection, and evidence of critical decision-making. Reflective writing has been shown to strengthen metacognitive awareness and responsible technology use, making this activity particularly suitable for embedding digital citizenship within academic writing instruction. This scenario exemplifies the integration of automated personalization, ethical reflection, and engagement with globally relevant topics.

4.2.2 Digital Citizenship Debate Using AI-Supported Research

Developing critical media literacy is essential in AI-mediated learning environments. Digital citizenship education has been closely linked to learners' ability to evaluate online information and engage in responsible digital communication (Ribble, 2015).

In this activity, students participate in a structured debate on the motion *"AI should be freely used in language learning classrooms."* Students use AI tools and online resources to gather arguments, evaluate the credibility of sources, and identify potential bias. The activity culminates in a formal debate followed by a reflective discussion on academic integrity and ethical AI use.

Debate-based learning is widely recognized for enhancing communicative competence and critical thinking in EFL contexts. Assessment emphasizes the quality of argumentation, evidence evaluation, and reflective participation. This scenario integrates AI-supported research with collaborative communication and ethical reasoning, illustrating the intersection of technological, civic, and sociocultural dimensions of the framework.

4.2.3 AI-Supported Intercultural Communication Project

Intercultural communicative competence is a central objective of contemporary language education. AI tools can support intercultural communication when learners critically examine translation and communication technologies (Cong-Lem, 2025).

In this project, students collaborate with peers from different cultural backgrounds or engage in simulated intercultural exchanges to create multimedia presentations about local cultural practices. AI tools are used to adapt and translate the presentations for international audiences. Students subsequently reflect on the limitations of AI translation, focusing on cultural nuance, shifts in meaning, and potential misunderstandings.

Assessment prioritizes communication effectiveness, intercultural awareness, and critical reflection on AI limitations. This activity exemplifies sociocultural responsiveness while reinforcing ethical and reflective engagement with AI-mediated communication.

4.2.4 Evaluating AI Bias and Digital Ethics

Critical AI literacy is increasingly recognized as a key component of digital citizenship education. AI systems may reproduce social and cultural biases embedded in training data, making ethical evaluation an essential learning objective (Shahmerdanova, 2025).

In this activity, students generate AI responses to culturally sensitive prompts and analyze potential bias, ethical implications, and strategies for responsible AI use. The activity promotes critical reading, discussion, and ethical reasoning while strengthening language skills.

By explicitly addressing algorithmic bias and responsible technology use, this scenario foregrounds digital citizenship and ethical AI awareness within language learning.

4.2.5 Synthesis

Collectively, these scenarios demonstrate how the triadic framework can inform authentic classroom practice. Each activity integrates AI-based personalization with ethical reflection and sociocultural awareness, illustrating how language learning can move beyond technology adoption toward responsible and context-sensitive digital engagement.

By operationalizing the conceptual framework in classroom contexts, this section provides a practical bridge between theoretical synthesis and pedagogical implementation. The following section returns to the theoretical level to further elaborate on the triadic framework and its implications for future research and professional development.

4.3 Pedagogical Implications

Collectively, the classroom scenarios presented in the previous subsection demonstrate how the triadic framework can be translated into pedagogically meaningful practices. By embedding ethical reflection and critical evaluation into AI-assisted tasks, these activities align with global recommendations for responsible AI integration in education (Hidayati et al., 2021).

More importantly, the scenarios illustrate how EFL instruction can move beyond technology adoption toward values-oriented digital engagement that simultaneously promotes linguistic development, ethical awareness, and intercultural competence. The integration of AI-based personalization, digital citizenship, and sociocultural responsiveness provides a practical pathway for designing learning environments that prepare students for participation in increasingly AI-mediated societies.

These pedagogical implications reinforce the need for teacher professional development, curriculum innovation, and institutional support to ensure that AI integration remains ethically grounded and contextually responsive. The following subsection returns to the theoretical level to consolidate the study's central conceptual contribution

4.4 Synthesis of the Triadic Framework in Practice

This study contributes to the growing scholarship on AI-enhanced language education by proposing a triadic conceptual framework that integrates AI-driven personalization, digital citizenship, and sociocultural responsiveness. The framework responds to increasing recognition that technology integration in education cannot be addressed solely through technical or pedagogical perspectives but must also incorporate ethical and sociocultural considerations (Shahmerdanova, 2025). Drawing on the thematic synthesis of the reviewed literature, the framework conceptualizes AI-enhanced EFL instruction as a values-oriented pedagogical ecosystem in which technological innovation is systematically aligned with ethical responsibility and cultural relevance.

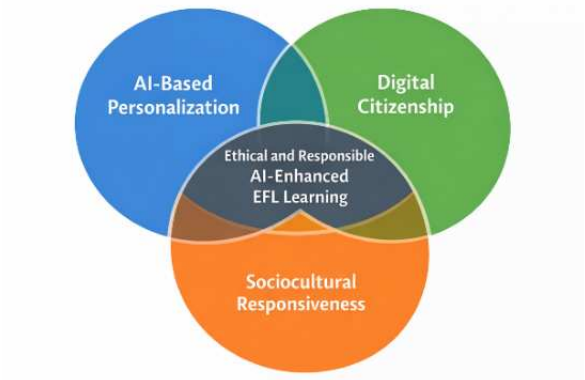

Figure 1. Triadic Framework for Ethical AI-Enhanced EFL Instruction

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Figure 1 illustrates the framework as a Venn diagram composed of three intersecting components. The central intersection represents ethical and responsible AI-enhanced EFL learning, which emerges from the dynamic interaction of technological capability, ethical awareness, and sociocultural sensitivity. The figure functions as a visual synthesis of the narrative review and highlights the interdependence of the three dimensions. The figure, therefore, functions not merely as an illustration but as a conceptual map that synthesizes the key findings of the narrative review and guides the pedagogical implications discussed in later sections.

4.4.1 Rationale for an Integrated Framework

Research on artificial intelligence in education has primarily emphasized adaptive learning systems, intelligent tutoring, and automated feedback mechanisms (Huang et al., 2021). While these developments demonstrate the transformative potential of AI for personalized learning, they frequently prioritize efficiency and performance outcomes over ethical and civic dimensions of technology use (Kasneci et al., 2023).

Conversely, scholarship on digital citizenship has focused on responsible participation in digital environments, online safety, and ethical communication (Ribble, 2015), often treating AI as only one component of broader digital literacy. As a result, the intersection between AI-powered personalization and digital citizenship education remains under-theorized.

Sociocultural perspectives in language education further emphasize the importance of contextualizing pedagogy within learners' cultural, linguistic, and technological realities. However, these perspectives have rarely been integrated into discussions of AI-enhanced language learning.

Taken together, the literature reveals a persistent fragmentation in which technological innovation, ethical responsibility, and sociocultural awareness are often examined separately. The proposed framework addresses this fragmentation by integrating these strands into a coherent conceptual model for AI-enhanced EFL instruction.

4.4.2 Dimension 1: AI-Driven Personalization

AI-driven personalization refers to the use of intelligent technologies to adapt learning content, feedback, and pacing to individual learner needs. AI systems can analyze learner data to provide tailored instruction, immediate feedback, and adaptive learning pathways (Huang et al., 2021). In EFL contexts, these capabilities support learner autonomy, self-regulated learning, and differentiated instruction.

Examples include automated writing feedback, adaptive grammar and vocabulary exercises, pronunciation support, and learning analytics that inform instructional decision-making. However, excessive reliance on automated systems may reduce learners' critical engagement if not accompanied by pedagogical guidance (Kasneci et al., 2023). Consequently, personalization must be balanced with ethical and reflective learning practices.

4.4.3 Dimension 2: Digital Citizenship

Digital citizenship provides the ethical and civic foundation for integrating AI into language education. It encompasses responsible technology use, critical media literacy, online safety, and awareness of digital rights and responsibilities (Ribble, 2015).

Within AI-mediated EFL learning, digital citizenship includes ethical use of AI-generated content, academic integrity in AI-assisted writing, data privacy awareness, and critical evaluation of automated outputs. Embedding these competencies into language education supports learners in becoming responsible participants in digital societies.

4.4.4 Dimension 3: Sociocultural Responsiveness

Language learning is inherently sociocultural. Sociocultural responsiveness emphasizes the role of cultural context, identity, and local values in shaping learning experiences. In AI-enhanced EFL contexts, this dimension involves adapting AI tools to diverse learning environments, recognizing cultural variation in digital practices, promoting intercultural communication, and addressing digital inequality (Hidayati et al., 2021).

4.5 Interrelationship of the Three Dimensions

The proposed triadic framework conceptualizes AI-enhanced EFL instruction as the dynamic intersection of technological capability, ethical guidance, and sociocultural relevance. Within this model, AI-driven personalization provides the technological infrastructure for adaptive and data-informed learning; digital citizenship offers the ethical orientation necessary for responsible technology use; and sociocultural responsiveness ensures contextual sensitivity across diverse learning environments.

Rather than functioning as isolated components, these dimensions operate as mutually reinforcing elements of a unified pedagogical ecosystem. AI-driven personalization without digital citizenship risks overreliance on automation and weakened critical engagement. Digital citizenship without sociocultural responsiveness may overlook cultural diversity and local educational realities. Likewise, sociocultural responsiveness without technological integration may fail to leverage the transformative potential of AI-supported learning. The framework, therefore, emphasizes the simultaneous and interdependent interaction of the three dimensions.

This integrative perspective reframes AI from a standalone instructional tool into a catalyst for values-oriented language education. By bridging three strands of scholarship that have largely developed in parallel—AI in education, digital citizenship, and sociocultural language pedagogy—the framework offers a coherent conceptual model for understanding AI-mediated EFL learning as both technologically innovative and ethically grounded.

As illustrated in Figure 1 and operationalized through the pedagogical scenarios presented earlier, effective AI-enhanced EFL instruction emerges from the convergence of personalization, ethics, and cultural responsiveness. This synthesis provides a conceptual foundation for future empirical research, curriculum design, and teacher professional development aimed at fostering responsible and inclusive language education in increasingly AI-mediated societies.

5. CONCLUSION

Artificial intelligence offers significant pedagogical potential for EFL education, particularly through personalized learning, adaptive feedback, and enhanced learner autonomy. However, existing research also highlights risks such as overreliance on automated systems, reduced critical engagement, and widening digital inequalities when AI is implemented without ethical guidance (Huang et al., 2021; Kasneci et al., 2023). These tensions emphasize the need for value-oriented frameworks to guide responsible AI integration.

This conceptual review has argued that digital citizenship provides the ethical foundation for AI-mediated language learning and proposed a triadic framework that integrates AI-driven personalization, digital citizenship, and sociocultural responsiveness into a unified model for AI-enhanced EFL instruction. By bridging these previously parallel strands of research, the framework offers a conceptual foundation for teacher professional development, institutional policy, and culturally responsive curriculum design.

Future research should extend this work through empirical investigations of classroom implementation, assessment practices, and long-term learning outcomes across diverse educational contexts. Ultimately, embedding digital citizenship within AI-enhanced EFL

instruction provides a pathway toward responsible, inclusive, and future-oriented language education, preparing learners to participate critically and ethically in increasingly AI-mediated societies.

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