

Artificial Intelligence in EFL Education: A Critical Review of Risks Based on the Four Dimensions of English Core Competencies in China

Huan Wen *

Sichuan Normal University, Chengdu, China

* Corresponding Author Email: 315434094@qq.com

Abstract. The widespread adoption of generative AI in language education brings benefits but also significant risks. Yet existing reviews largely address these risks within general education frameworks, lacking discipline specific analysis. This paper systematically examines AI risks in EFL education through China's four-dimensional English core competencies: language competence, cultural awareness, learning ability, and thinking quality. The analysis reveals four educational risk categories: imbalanced skill development and output homogenization in language competence; Western-centric biases and cultural recolonization risks in cultural awareness; undermined learner autonomy and self-regulation in learning ability; and inhibited critical thinking and creativity in thinking quality. By shifting from general educational ethics to EFL specific concerns, this paper offers a discipline sensitive framework for risk identification and a theoretical foundation for future empirical research.

Keywords: Generative AI; EFL education; English core competencies; educational risks.

1. Introduction

Generative AI (GenAI) is transforming language education. Tools like ChatGPT produce human-like text, simulate dialogues, generate writing samples, provide translation support, and enable conversation [1, 2, 3]. Empirical studies confirm they enhance writing [4], reading [5], and speaking skills [6]. However, growing research raises concerns about psychological well-being, intellectual agency, equity, integrity, teacher identity, and job security (Garzón et al., 2025; Pikhart & Al-Obaydi, 2025; Sun et al., 2025; Tao et al., 2026). Most existing studies address risks within general education frameworks [10], but EFL teaching entails distinct exclusive risks. To fill this gap, this paper adopts China's four-dimensional English core competencies framework—language competence, cultural awareness, learning ability, and thinking quality [11], to systematically examine AI risks in EFL education. This shifts risk discussion from general ethics to language-specific contexts, offering a targeted lens for AI risk identification.

This review addresses the following research questions: What are the potential risks of AI in EFL education when analyzed through the four dimensions of English core competencies in China? What are the strategies to mitigate these risks?

2. Literature Sources and Analytical Approach

In order to review the general educational risks, this review draws on two categories of literature. The first consists empirical and review studies (mainly published from 2020–2026) of the risks of AI in “broad education”, covering K-12 education, higher education, teacher cognition, and assessment technologies. The second category includes recently retrieved studies that specifically address the intersection of EFL education and AI risks, supplementing gaps of the general risks that most of the researchers reviewed in past studies.

The analytical method employs thematic synthesis, using the four-dimensional framework of English core competencies to classify and reorganize the risks identified in the literature.

3. Risk Analysis Based on the Four Dimensions of English Core Competencies in China

3.1. Risks in the Language Competence Dimension

Language competence constitutes the foundational element of English core competencies, encompassing the four basic skills of listening, speaking, reading, and writing, along with the integrated ability to apply language knowledge (phonetics, vocabulary, grammar, pragmatics) [11]. The application of AI in EFL education may pose the following risks to students' development of language competence.

3.1.1. Compensatory Imbalance in Language Skill Development

AI tools significantly lower the technical threshold for language production: AI can be served as a conversational partner for listening and speaking practice [12, 13, 14]; pronunciation improvement [15]; grammar checker [16, 17]. For example, grammar correction tools can automatically fix errors; writing assistants can generate complete paragraphs; and translation tools can instantly convert between languages [18]. While convenient, this may lead to compensatory dependence. When AI can perform those tasks, learners' motivation and effort to practice specific skills may decline.

Liu et al. [19] found that excessive use of intelligent tools simplifies information acquisition, potentially reducing student motivation and negatively affecting problem-solving abilities over time. In EFL writing, if students habitually rely on AI for grammar correction and expression optimization, they may lose the ability to independently identify and correct language errors. In a word, in the language competence dimension, the above studies manifest as students becoming "passive recipients" rather than "active constructors" of language.

3.1.2. Homogenization and Standardization of Language Output

Large language models (LLMs) are trained on massive corpora, and their outputs are essentially probabilistic presentations of the "most mainstream" and "most common" linguistic expressions. This means AI tends to generate standardized, formulaic language rather than diverse, personally stylized expression [20]. When students over-rely on AI for writing or speaking, their language output may converge toward homogeneity, losing individual variation and creative expression.

Sun et al. (2025) found that Chinese EFL students, while appreciating GenAI's ability to improve writing mechanics, expressed concerns about originality and diversity of expression. This finding suggests that while AI tools enhance linguistic accuracy, they may sacrifice richness of expression and individual style.

3.1.3. Weakening of Pragmatic Competence

Language competence includes not only grammatical accuracy but also the ability to use language appropriately in specific contexts, which is pragmatic competence. However, existing AI tools have limitations in developing pragmatic competence. Although Amiri and Ramezanzadeh [21] found that AI chatbots can use politeness strategies in interactions and, to some extent, promote learners' pragmatic accuracy, whether such "simulated" pragmatic interaction transfers to real interpersonal communication remains to be validated.

A more fundamental problem is that language's core functions are interpersonal communication and cultural expression. When learners interact more with AI than with real humans, they may miss opportunities to develop pragmatic competence in authentic communicative situations. Sun et al. [22] identified "social isolation" and "reduced student-teacher rapport" as two of the six major socio-emotional risks of AI use, precisely the erosion of the soil in which pragmatic competence develops.

3.2. Risks in the Cultural Awareness Dimension

Cultural awareness is a distinctive dimension of English core competencies, involving understanding of Chinese and foreign cultures, respect for cultural diversity, and the ability to

appropriately express and communicate in cross-cultural contexts [11]. AI applications in EFL education may pose unique cultural risks in this dimension.

3.2.1. Western-Centric Cultural Bias

Current AI LLMs is primarily developed by Western technology companies, trained mainly on English language corpora drawn predominantly from Western cultural contexts. Consequently, AI-generated content inevitably carries Western-centric cultural biases.

Stewart and Zheng [23] provide empirical evidence of Western-centric biases in AI-generated EFL materials. Using a two-step prompt method to produce Confucian-based moral stories for Chinese EFL, their appraisal analysis revealed ChatGPT embeds Western values like democratic power structures, individual rights, and institutionalized authority. Even with Mandarin prompts, AI showed superficial mimicry: misapplying naming conventions and generating meaningless transliterations. When generating character names, ChatGPT chose Western biblical or Hebrew names, ignoring the story's Chinese context. Sun and Lan [24] confirmed Chinese EFL students worry AI may "perpetuate Western-centric biases." In Saudi EFL contexts, Hago Elmahdi et al. [25] note AI risks misaligning with local values such as teacher authority, collective learning, gender segregation, and cultural identity preservation, raising concerns of Western cultural penetration.

The findings challenge the "prompt engineering as solution" narrative, suggesting that addressing cultural bias requires fundamental changes to training data and model design, not merely better user prompts input.

3.2.2. Narrowing of Cultural Diversity and Mechanization of Language Expression

Language learning involves not only mastering vocabulary and grammar but also rich cultural connotations, that is, different modes of expression carry different ways of thinking, value systems, and cultural traditions. However, AI-generated language content tends to be the most frequently used mainstream expressions, making it difficult to capture the rich nuances, regional characteristics, and cultural particularities of language.

A key risk is that AI-generated language may become rigid and mechanical, narrowing cultural and linguistic diversity. Almashour et al. [26] coin "algorithmic monolingualism" to describe how AI enforces standardized English norms while marginalizing multilingual practices. Nguyen [27] adds that most AI tools are built on Western-centric frameworks, lacking cultural responsiveness. Ugwuanyi et al. [28] warn that AI favors American English, overlooks other English varieties, and flattens scholarly nuance. Sun [29] similarly argues that GenAI reinforces monolingual Western standards, leading to "homogenization" that marginalizes students' diverse linguistic resources. Collectively, these studies confirm that AI-driven language learning risks producing mechanical expression and inadequately developing learners' cross-cultural awareness and sensitivity.

3.2.3. Subtle Ideological Penetration

This represents a more hidden risk. Through generated language content, AI tools may transmit specific ideologies and values under the guise of "objective neutrality." When adolescent learners, whose value judgment capacities are still developing, are persistently exposed to AI-generated English content, they may unconsciously absorb Western ideologies and cultural values through the contextual and discursive logic of the content.

Empirical evidence supports this concern. Albeih & Rice [30] argue that LLMs perpetuate linguistic hierarchies and reinforce "imperialist and capitalist values" through their reliance on Standard English datasets. They contend that AI technologies amplify linguistic imperialism by devaluing non-standard English varieties and other languages, thereby perpetuating inequities in education. Similarly, Stewart and Zheng [23] demonstrated that ChatGPT generated moral dilemmatic stories embed WEIRD (Western, educated, industrial, rich, and democratic) cultural values, including Western democratic power structures, individual rights, and institutionalized authority. Their appraisal analysis revealed that even with carefully engineered prompts, cultural biases persist in AI outputs.

The mechanism of ideological influence operates through what Darwin [31] described as the “distributed agency of human and nonhuman interactants”. AI tools are not neutral conduits but actively shape writing practices by privileging certain ways of thinking and writing. Darwin [31] further notes that without critical awareness, L2 learners may treat GenAI technologies as “neutral tools that provided accurate answers,” failing to examine underlying biases. This uncritical acceptance is particularly concerning for adolescent EFL learners, who may lack the metalinguistic awareness to detect ideological framing.

3.3. Risks in the Learning Competence Dimension

Learning competence refers to students’ awareness, quality, and potential to actively use and adjust English learning strategies, broaden learning channels, and improve learning efficiency [11]. AI applications may have complex effects on this dimension, offering both empowering potential and debilitating risks.

3.3.1. Passive Weakening of Learner Autonomy

The core of learning competence lies in learner autonomy, which is the ability to set learning goals, select learning strategies, monitor learning processes, and evaluate learning outcomes. However, the “convenience” of AI may undermine this autonomy.

Galindo-Domínguez et al. [32] found that self-regulation acts as a protective factor against excessive AI dependence. This means that when students lack sufficient self-regulation skills, they are more prone to passive dependence on AI. In such a state, learners are no longer the masters of their learning process but passive recipients of AI output. Karimi and Keshvari [33] revealed this issue from the teacher perspective. They found that AI-driven student autonomy triggered emotional vulnerability and identity tensions among mid-career EFL teachers. Teachers worried that AI was undermining their mediating role in the learning process. This indirectly confirms that AI’s impact on learner autonomy is not unidirectionally positive.

3.3.2. Short-Circuiting of Cognitive Construction Processes

Language learning is an active process of meaning construction. Learners continuously construct and adjust their language knowledge systems through understanding, using, and reflecting on language. However, AI’s immediate feedback and answer generation may “short-circuit” this cognitive construction process.

Specifically, Amir [34] argues that instant answers reduce learners’ cognitive engagement and sense of agency, bypassing Piaget’s essential cognitive adaptation between prior and new concepts. Compounding this concern, research reveals a trend toward “cognitive offloading,” [35, 36], whereby learners reduce reliance on their own memory and analytical skills when using AI. Although Hsu [37] notes that ChatGPT can promote distributed cognition, he emphasizes the critical need to mitigate over-dependence risks. Furthermore, a study of 425 university students found that AI’s immediate feedback and authority validation reinforce “transactional learning strategies,” causing students to prioritize expediency over metacognitive engagement [38]. Similarly, Liu et al. [19] cite multiple studies indicating that AI tools may lead to students’ “passive dependence on machine-generated content,” thereby weakening their ability to independently analyze, question, and express their own ideas.

In essence, when students can instantly obtain AI assistance without traversing the learning cycle of “confusion-trial-error-revision”, they miss the very struggles that drive deep learning. This absence of productive struggle is not merely inefficient; it is pedagogically damaging. Without the cognitive friction that necessitates reflection, hypothesis testing, and error correction, learners fail to develop durable language competence and authentic analytical capacity. Thus, the most insidious risk of AI may not be what it does incorrectly, but what it prevents learners from doing for themselves.

3.4. Risks in the Thinking Quality Dimension

Thinking quality is a higher-order dimension of English core competencies, referring to students' thinking abilities and qualities in understanding, analyzing, comparing, inferring, evaluating, and creating [11]. AI's risks in this dimension may be the most fundamental and far-reaching.

3.4.1. Inhibition of Critical Thinking

Critical thinking is central to thinking quality, involving questioning, analyzing, evaluating, and reflecting on information. However, the "authoritativeness" and "immediacy" of AI tools may inhibit the development of students' critical thinking.

Multiple studies link students' over-reliance on AI to impaired critical thinking and creativity [2, 39, 40]. Liu et al. [19] reviewed 15 studies: 66.67% reported positive effects on critical thinking, yet 33.33% reported negative effects, a proportion demanding attention. Negative mechanisms include uncritical acceptance of AI content [41], over-reliance on automated responses [42], and treating AI output as "standard answer" [19]. Sun and Lan [24] found Chinese EFL students identified over-reliance and misinformation as major risks. Cognitively, "cognitive outsourcing" weakens neural connections for critical reasoning [43], eroding intellectual confidence. Gerlich [44] shows regular AI reliance inversely links to critical thinking, mediated by increased cognitive offloading.

In my view, the 33.33% negative impact rate, while not a majority, is alarmingly substantial in educational contexts where even one-third of learners may experience cognitive harm. Moreover, the very features of speed and apparent authority, which make AI appealing, are precisely what undermine the slow, effortful deliberation that cultivates critical thinking.

3.4.2. Homogenization of Creative Thinking

Creative thinking involves generating novel, unique, and valuable ideas and expressions. However, the probabilistic generation nature of AI tools determines that their outputs are the "most common" and "most likely" combinations, not the "most innovative" ones [45, 29]. This means AI-generated content tends toward "averaging" rather than "innovation."

Multiple studies have substantiated this concern. Sourati et al. [45] argue that LLMs "risk standardizing language and reasoning" by mirroring dominant patterns in training data while marginalizing alternative voices. When billions of people use the same handful chatbots, "cognitive diversity is shrinking worldwide," producing "standardized expressions and thoughts across users" [45]. This homogenization effect operates through a recursive feedback loop: as users defer to model suggested continuations, "agency gradually shifts from the user to the model" [45]. Jeon et al. [46] identify this as the "creativity standardization dilemma": GenAI systems are designed "to operate in the realm of statistical probability, standardizing what is already prevalent." Sun [29] found that while GenAI enhances writing efficiency, it "reinforces monolingual norms and Western cultural standards," leading to "homogenization", a narrowing of language and cultural expression toward a single, standardized style. Empirical evidence from Shi et al. [47] reveals a troubling trade-off: ChatGPT users showed significantly improved writing performance but experienced a notable decline in "ideal L2 writing self," with participants expressing concerns about over-reliance leading to loss of creativity and autonomy.

In my assessment, the most concerning finding is Shi et al. [47]'s demonstration of a direct trade-off between performance gains and creative self-concept, students write "better" by external metrics yet feel less like authentic authors. This suggests that homogenization is not merely a stylistic risk but an ontological one: when AI optimizes for the average, it systematically erodes what makes learners' voices distinctively their own.

4. Discussion: The Systemic Nature of Risks and Mitigation Strategies

The foregoing analysis reveals that AI risks in EFL education constitute an interconnected systemic network across the four dimensions of English core competencies. Excessive AI dependence lowers EFL learners' motivation and problem solving skills, erodes self-editing capacity, harms

expressive originality, restricts pragmatic development, and weakens teacher-student relationships (Liu et al., 2025; Sun et al., 2025; Zheng et al., 2025; Amiri & Ramezanzadeh, 2026). Thus, instructional constraints on AI are urgently needed. Culturally, AI carries Western-centric biases behind alleged neutrality, overlooks diverse features, and risks adolescents internalizing embedded values [23, 24, 26], impeding balanced cross-cultural awareness. Regarding learning competence, AI erodes learner autonomy and short-circuits cognitive construction through “cognitive offloading” [32, 33], making students passively reliant on AI and upsetting teachers’ roles. For thinking quality, over-reliance discourages critical judgment, as learners accept AI outputs as definitive answers, and causes thought homogenization, curbing creativity [2, 48, 19]. These four dimensional risks form an interconnected network: language dependence reinforces passive thinking, while cultural biases interact with narrowed learning strategies, creating a closed cognitive loop.

Based on the systemic risks of AI application summarized across the four core dimensions of English competencies, targeted solutions and implementation strategies are proposed respectively as follows. For language competence risks, teachers should impose tiered restrictions on AI use in EFL learning. Students must finish self-editing and error checking independently before accessing AI grammar polishing, preventing full reliance on machine revision and preserving their capacity to spot linguistic mistakes. For cultural awareness, instructors should curate multicultural resources covering indigenous and Eastern civilizations to counteract AI’s Western-centric bias. Teachers can organize comparative analysis activities, guiding students to spot biased expressions in AI-generated texts and reflect on diverse cultural connotations, preventing blind acceptance of implanted Western values. Regarding learning competence, teachers should reform the design of writing assignments; restructure assignments into progressive, process oriented tasks instead of result focused ones. Learners are required to finish core reasoning independently before permitted AI auxiliary use, which avoids cognitive offloading, preserves autonomous goal setting and knowledge construction, and restores teachers’ guiding role. For thinking quality, educators can design open ended exploratory tasks with no fixed standard answers. Students need to question, verify and evaluate AI outputs critically in group discussions. Such practice resists standardized thought homogenization, fosters independent critical judgment and personalized creative thinking against overreliance on uniform AI replies.

5. Conclusion and Research Directions

This study systematically unpacks three layered risks AI poses to EFL learners’ core literacy: it weakens autonomous learning and blocks cognitive construction, suppresses critical thinking and diversified creativity via homogenized outputs, and implants hidden Western cultural biases to distort balanced cross-cultural awareness. These hazards do not negate AI’s educational value but reveal an urgent need for guided, restrained classroom application rather than blind reliance.

For future research, scholars may explore localized instructional frameworks to neutralize AI’s cultural prejudice and cultivate students’ AI literacy. Longitudinal empirical studies are also required to track how sustained AI use reshapes students’ learning habits and thinking traits, alongside targeted intervention strategies to mitigate its adverse long-term impacts.

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