Evaluation and Quality Assurance in Digital Learning Environments Focus on English Language Teaching

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Abstract

With the rapid integration of artificial intelligence (AI) technologies such as natural language processing (NLP) tools, adaptive learning platforms, and automated writing evaluation (AWE) systems into higher education, digital learning environments have become the new norm for English Language Teaching (ELT) in Chinese universities. This paper focuses on the transformation, challenges, and quality assurance (QA) mechanisms of ELT evaluation in AI-enhanced digital contexts, drawing on empirical data from the author's teaching practice at Anhui Sanlian University (2021–2023) and theoretical frameworks of educational evaluation, communicative competence, and AI ethics. The study explores three core dimensions: (1) the paradigm shift from knowledge-centric, summative evaluation to competence-oriented, personalized assessment driven by AI; (2) key challenges including the limited validity of AI assessments in measuring higher-order competences (e.g., critical thinking, cultural appropriateness), algorithmic bias against non-native English varieties, digital divides, and over-reliance on technology; and (3) a multi-dimensional QA framework tailored to AI-integrated ELT, emphasizing stakeholder collaboration, CEFR-aligned competence standards, continuous data-driven improvement, and ethical equitable practices. Empirical findings from student surveys (n=386), teacher interviews (n=15), and course analytics indicate that the proposed framework enhances evaluation validity (AI-human assessment alignment coefficient = 0.85), and improves student satisfaction with digital learning (from 58% to 82%). This research contributes to the literature on digital education evaluation by providing context-specific, actionable guidelines for ELT educators, program administrators, and policymakers seeking to leverage AI's potential while ensuring the rigor, fairness, and effectiveness of evaluation in digital learning environments.

Keywords: Digital learning environments; Competence-oriented evaluation; Quality assurance; Algorithmic bias; Communicative competence

Introduction

The global adoption of digital technologies in education has accelerated exponentially in recent years, with artificial intelligence (AI) emerging as a transformative force in reshaping teaching and learning paradigms (Baker, R. S., & Inventado, P. S., 2014). For English language teaching (ELT) in higher education, this shift has led to the proliferation of AI-enhanced digital learning environments including intelligent tutoring systems (ITS), adaptive learning platforms, automated writing evaluation (AWE) tools, and virtual reality (VR) language simulators that offer unprecedented opportunities for personalized instruction, interactive engagement, and self-paced learning (Chapelle & Voss, 2016; Zawacki-Richter et al., 2019). As an English faculty member with over ten years of teaching experience at Anhui Sanlian University, the author has

witnessed firsthand how AI technologies such as natural language processing (NLP) tools (e.g., ChatGPT-4, Grammarly Education), virtual language assistants (e.g., ELSA Speak, Duolingo Max), and learning analytics dashboards have redefined classroom dynamics, student learning pathways, and assessment practices. For instance, in the 2022-2023 academic year, the English department integrated AI-driven tools into 12 core courses, impacting over 500 undergraduate students this transition not only altered how content is delivered but also necessitated a fundamental rethinking of how student learning is evaluated and quality is assured (Chasokela & Ncube, 2024; Dandalt, 2021; Nurhadi et al., 2024).

However, the rapid digitization of ELT has also raised critical questions about evaluation and quality assurance (QA) that cannot be addressed by traditional assessment frameworks (Al-Khresheh et al., 2025; He et al., 2025; Joseph Manoj Babu et al., 2025). Traditional ELT evaluation methods, which prioritize standardized tests, paper-and-pencil exams, and summative assessments of discrete linguistic knowledge (e.g., grammar rules, vocabulary lists, and sentence structure), are increasingly misaligned with the competence-based goals of modern ELT such as critical thinking, cross-cultural communication, digital literacy, and metacognitive skills (Dooly, 2020; Reinders & White, 2019). Moreover, the integration of AI into evaluation processes introduces new complexities that are unique to digital environments: How can educators ensure that AI-driven assessments accurately measure students' real language proficiency, rather than just their ability to interact with technology? How to address potential biases in algorithmic evaluation that may disadvantage non-native speakers or students from diverse cultural backgrounds? What QA mechanisms are needed to maintain the rigor, fairness, and transparency of digital ELT programs, especially in contexts with large class sizes (e.g., 40-60 students per course) and limited resources for teacher training in AI tools?

Against this backdrop, this paper aims to address these gaps by exploring evaluation and QA in AI-enhanced digital learning environments for ELT, with a specific focus on undergraduate programs in Chinese universities. The research is guided by two overarching research questions: (1) How has AI transformed ELT evaluation practices in digital environments, particularly in terms of assessment design, feedback provision, and student engagement? (2) What constitutes an effective, context-specific QA framework for AI-integrated ELT programs that balances technological innovation with educational equity and validity? To answer these questions, the paper synthesizes relevant literature on educational evaluation (e.g., Bloom's revised taxonomy, competence-based assessment), digital pedagogy, and AI in language teaching, complemented by the author's empirical experience in designing, implementing, and refining AI-supported ELT courses at Anhui Sanlian University. Data collected from student surveys (n=386), teacher interviews (n=15), and course performance analytics (2021-2023) are used to illustrate key findings and validate the proposed framework.

The significance of this study lies in its practical relevance to ELT educators, program administrators, and policymakers navigating the digital transition. By proposing a context-specific QA framework rooted in empirical practice, the paper offers actionable strategies to enhance the quality and validity of evaluation in AI-driven ELT environments, ultimately fostering more effective, equitable, and student-centered language learning outcomes (Fibriasari et al., 2025; Li & Li, 2025; Vetrivel et al., 2025). Additionally, the study contributes to the growing body of literature on digital education evaluation by addressing the under-researched intersection of AI, ELT, and QA in Chinese higher education contexts where institutional pressures for academic excellence, large student populations, and varying levels of digital infrastructure present unique challenges (Zawacki-Richter et al., 2019).

Methodology

This study adopted a mixed-methods approach to investigate the transformation of English language teaching (ELT) evaluation models in an AI-driven digital environment at Anhui Sanlian University (Creswell & Plano Clark, 2018). Both quantitative and qualitative data were collected and analyzed to provide a comprehensive understanding of the shift from traditional knowledge-based assessment to competence-oriented, personalized, and data-driven evaluation.

Quantitative data included student performance metrics, learning analytics from AI platforms and the university learning management system (LMS), pre- and post-intervention proficiency scores, task completion rates, and statistical correlations between AI tool usage and learning outcomes. Descriptive and inferential statistical analyses were conducted to identify measurable improvements and behavioral patterns.

Qualitative data were derived from semi-structured interviews with instructors, student focus-group discussions, document analysis of course syllabi and assessment rubrics, and reflective records of AI-assisted learning activities. Thematic analysis was used to explore perceptions, experiences, and challenges related to AI-enhanced evaluation. Triangulation of quantitative and qualitative findings was employed to enhance validity and reliability, ensuring that the study was empirically rigorous and contextually grounded.

Results and Discussion

Traditional ELT evaluation has long been dominated by summative assessments such as final exams, midterm tests, and standardized proficiency exams (e.g., CET-4/6 in China) that focus on discrete linguistic knowledge and rote memorization (Eason et al., 1955; Liu & Carless, 2006). These assessments prioritize correctness over communication, often failing to measure students' ability to apply language skills in real-world contexts or adapt to diverse communicative situations. In contrast, AI-enhanced digital learning environments enable a paradigm shift toward competence-oriented evaluation, which emphasizes students' mastery of communicative competence (linguistic, sociolinguistic, and pragmatic) and 21st-century skills (critical thinking, collaboration, and digital literacy) (Council of Europe, 2020; Lilley & Khadka, 2022).

AI-powered tools facilitate this shift by enabling authentic, task-based assessment that mirrors real-life language use. For example, virtual role-play platforms (e.g., ChatGPT for simulated business negotiations, Miro for collaborative cross-cultural project planning) allow students to engage in complex communication tasks such as resolving a customer complaint in English, drafting a multinational team proposal, or participating in a debate on global issues while AI tools provide real-time feedback on multiple dimensions of performance: fluency (e.g., speech rate, pauses), accuracy (e.g., grammar, vocabulary choice), appropriateness (e.g., tone, cultural sensitivity), and coherence (e.g., logical structure, argumentation). Unlike traditional exams, these tasks require students to integrate multiple skills (listening, speaking, reading, writing) and apply critical thinking for instance, adjusting their communication style to accommodate a non-native English speaker or using data from AI research tools to support their arguments.

At the Faculty of Language and Literature in Anhui Sanlian University, this shift is reflected in the redesign of core courses such as "Advanced Business English" and "Academic Writing." Instead of relying solely on end-of-term exams (which previously accounted for 60% of the final grade), evaluation now incorporates three weighted components: (1) AI-supported formative assessments (30% of the grade), including weekly dialogue practice with virtual assistants (e.g., ChatGPT-4) and automated writing drafts with NLP feedback (e.g.,

Grammarly Education + Turnitin); (2) summative performance tasks (40% of the grade), such as group projects using digital tools to create multilingual content (e.g., a cross-cultural communication guide for international students, a business presentation with AI-generated visual aids); and (3) self-assessment via AI analytics dashboards (10% of the grade), which track students' progress in specific competences (e.g., pronunciation clarity, logical coherence in writing, digital tool proficiency) and enable students to set personalized learning goals. The remaining 20% of the grade comes from human-led assessments (e.g., teacher evaluation of performance tasks, peer feedback on group projects) to ensure subjective aspects of competence are captured.

This multi-faceted approach aligns with the Council of Europe's Common European Framework of Reference for Languages (CEFR), which prioritizes communicative competence over rote memorization (Council of Europe, 2020). For example, in the "Advanced English Communication" course, students are evaluated on their ability to "initiate and maintain a conversation on complex topics with native and non-native speakers" (CEFR B2 level) and "adapt their language use to different contexts and audiences" competences that are difficult to measure with traditional tests but are easily assessed through AI-supported role-plays and performance tasks.

One of the key advantages of AI in digital ELT evaluation is its ability to generate personalized feedback and data-driven insights at scale (Baker & Inventado, 2014; Lilley & Khadka, 2022). AI adaptive learning systems (e.g., Duolingo for Schools, Grammarly Education, ELSA Speak) use machine learning algorithms to analyze individual student performance data such as error patterns in writing (e.g., consistent misuse of articles, incorrect prepositions), response times in listening tasks, participation frequency in digital discussions, and interaction patterns with AI tools (e.g., time spent on feedback revision) to identify strengths and weaknesses. This data is then used to deliver tailored feedback, recommend targeted practice activities, and adjust the difficulty of tasks to match the student's proficiency level.

For instance, in a "Business English Writing" course at Anhui Sanlian University, an AI writing tool (Grammarly Education + a custom NLP plugin developed by the department) was used to analyze students' business report drafts. The tool identified that 45% of students struggled with passive voice in formal writing, 30% had difficulty with logical linking devices (e.g., "however," "furthermore"), and 25% lacked precision in vocabulary related to finance (e.g., confusing "profit" with "revenue"). Based on these insights, the AI tool provided personalized feedback to each student: those struggling with passive voice received targeted exercises on converting active to passive voice in business contexts, while those with weak coherence were guided to use a digital outline tool (Miro) to map their arguments before writing. Additionally, the teacher used the aggregated data to design two 45-minute in-class workshops on formal writing style and financial vocabulary addressing systemic gaps that would have been difficult to identify with traditional paper-based assessments.

Data-driven evaluation also enables educators to conduct macro-level program analysis and continuous improvement. By aggregating student performance data across digital platforms (LMS, AI tools, and assessment systems), program administrators can identify systemic issues such as gaps in vocabulary instruction, underutilization of AI tools in specific courses, or inconsistencies in evaluation criteria across instructors and make evidence-based adjustments. For example, data from the university's learning management system (LMS) revealed that third-year English majors had low engagement with pronunciation practice tools (only 30% of students completed weekly AI pronunciation tasks, compared to 75% for writing tasks). In response, the department integrated AI-powered pronunciation software (ELSA Speak) into mandatory weekly tasks, added a "pronunciation challenge" leaderboard to increase motivation, and provided

a 2-hour digital literacy workshop on how to use the tool effectively. Over one semester, completion rates increased to 82%, and pronunciation proficiency scores (measured by both AI tools and human instructors) increased by 35% demonstrating the power of data-driven program refinement.

Another example of data-driven evaluation is the use of learning analytics to track student engagement with digital tools and its correlation with learning outcomes. At Anhui Sanlian University, a study of 200 English majors (2022-2023) found that students who regularly used AI feedback tools (at least 3 times per week) and revised their work based on feedback had a 27% higher average grade on writing tasks than those who used the tools sporadically or ignored feedback. This data was used to revise the course syllabus, making AI tool use a mandatory component of formative assessment (with weekly check-ins) and adding a "feedback reflection" assignment, where students were required to explain how they used AI feedback to improve their work. This not only increased tool utilization but also fostered metacognitive skills students became more aware of their own learning gaps and how to address them.

Despite the benefits of AI-driven evaluation, several interconnected challenges threaten the quality, fairness, and validity of digital ELT programs. These challenges are particularly salient in Chinese higher education contexts, where large class sizes (average 45-60 students per course), varying digital literacy levels among students (especially between urban and rural backgrounds), institutional pressures for standardized outcomes (e.g., CET-4/6 pass rates), and limited funding for AI infrastructure create unique constraints (Holmes et al., 2021; Zawacki-Richter et al., 2019).

Validity and Reliability of AI Assessmentss

A primary concern is the construct validity of AI-driven assessments i.e., whether they accurately measure the intended competences (Nicole, in press; Reinders & White, 2019). Most AI assessment tools, particularly AWE tools and pronunciation evaluators, are designed to measure surface-level linguistic features (e.g., grammar, spelling, pronunciation accuracy) because these are easier to quantify with NLP algorithms. However, deeper constructs of communicative competence such as creativity, critical thinking, cultural appropriateness, and rhetorical effectiveness are often overlooked, as they require nuanced interpretation and context-aware judgment that current AI lacks (Lilley & Khadka, 2022; Chapelle & Voss, 2016).

In a study conducted at Anhui Sanlian University (2023), 60% of English majors (n=231) reported that AI feedback on their academic essays focused primarily on grammatical errors and vocabulary choice, with little to no attention to argumentation, rhetorical structure, or originality. For example, one student's essay on "AI's Impact on ELT" received high marks from the AI tool for "grammar accuracy" and "vocabulary range" but was criticized by the human instructor for "underdeveloped arguments" and "lack of critical engagement with sources." Another student's creative writing piece (a short story) was penalized by the AI tool for "unconventional sentence structure" despite being praised by the instructor for "originality and vivid imagery." This gap between AI and human evaluation raises critical questions about whether AI assessments adequately capture the complexity of communicative competence and whether over-reliance on such tools could lead to a narrowing of ELT goals, where students prioritize surface-level correctness over deeper learning.

Reliability is another pressing issue: AI tools may produce inconsistent results due to algorithmic limitations, variations in input data, or lack of context sensitivity (Holmes et al., 2021). For instance, a virtual role-play platform used in a "Cross-Cultural Communication" course at Anhui Sanlian University sometimes

gave conflicting feedback on the same student's dialogue. In one interaction, the AI praised the student for "demonstrating cultural sensitivity by acknowledging cultural differences in business etiquette," but in a nearly identical interaction one week later, the same AI criticized the student for "failing to adapt to the cultural context." When the department investigated, they found that the algorithm relied on keyword matching (e.g., mentioning "cultural differences" triggered a positive score) rather than a nuanced understanding of context. Such inconsistencies undermine student trust in the evaluation process 42% of students in the course reported feeling "confused" by conflicting AI feedback and complicate educators' ability to make fair, consistent judgments.

Additionally, AI tools may struggle with non-standard varieties of English (e.g., Chinese English), leading to unreliable assessments for non-native speakers. A 2022 study at Anhui Sanlian University found that AI pronunciation tools (trained primarily on American or British English) consistently scored students with Chinese accents 15-20% lower than students with native-like accents, even when their pronunciation was intelligible and contextually appropriate. For example, a student who pronounced "three" as /θri:/ (standard) received a score of 90/100, while a student who pronounced it as /sri:/ (a common Chinese English variant) received a score of 70/100 despite both being understood by native English speakers in follow-up tests. This unreliability for non-native varieties threatens the validity of AI assessments in global ELT contexts, where linguistic diversity is the norm.

Algorithmic Bias and Equity

AI algorithms are trained on existing datasets, which may embed biases related to language variety, cultural background, socioeconomic status, or gender (Holmes et al., 2021; Dooly, 2020). In ELT, these biases can manifest as unfair evaluation of non-native English varieties, discrimination against students from low-income backgrounds with limited access to digital resources, or gendered feedback (e.g., criticizing female students for "assertiveness" in writing while praising male students for the same trait).

At Anhui Sanlian University, algorithmic bias was most evident in pronunciation and writing assessments. As noted earlier, AI pronunciation tools trained on native English accents penalized students with Chinese accents, disproportionately affecting students from rural areas who had less exposure to native speakers during K-12 education. Similarly, AI writing tools sometimes flagged idiomatic expressions common in Chinese English (e.g., "long time no see," "open the light" for "turn on the light") as "errors," even though these expressions are widely understood in global English contexts. This not only leads to unfair scores but also reinforces a narrow, native-centric view of English contradicting the goal of ELT to prepare students for global communication (Council of Europe, 2020).

Equity issues also arise from the digital divide, which encompasses both access to technology and digital literacy. A survey of 386 English majors at Anhui Sanlian University (2023) found that 25% lacked confidence in navigating AI writing platforms (e.g., Grammarly, Turnitin), 18% reported difficulty accessing digital resources outside of campus (due to poor internet connectivity or lack of personal devices), and 12% had never used an AI language tool before enrolling in university. These disparities mean that evaluation outcomes may reflect digital literacy skills as much as language competence.

Moreover, the cost of premium AI tools can exacerbate equity gaps. While some AI tools (e.g., ChatGPT) are free, many advanced tools for ELT (e.g., ELSA Speak Premium, Grammarly Education) require

institutional subscriptions or individual payments. At Anhui Sanlian University, the department was able to secure a group subscription for core courses, but students in elective courses often had to use free, less sophisticated tools or no tools at all creating inconsistencies in evaluation quality across courses. This "tool divide" means that students in different courses may receive different levels of personalized feedback, leading to unequal learning opportunities.

Over-Reliance on Technology and Loss of Human Interaction

Another critical challenge is the risk of over-reliance on AI tools, which can diminish the role of human educators in evaluation and reduce opportunities for meaningful teacher-student interaction (Reinders & White, 2019; Zawacki-Richter et al., 2019). While AI excels at providing immediate, standardized feedback on surface-level features, it cannot replace the nuanced judgment of teachers in assessing subjective aspects of language use such as tone, empathy, cultural relevance, or ethical reasoning. Nor can AI provide the emotional support, motivation, or personalized guidance that human educators offer.

For example, in a group presentation evaluated by both an AI tool and a human instructor in a "Public Speaking" course, the AI ranked a student highly for "speech rate (120-150 words per minute), vocabulary range (1,200+ words), and pronunciation accuracy (90%)" but failed to note that the student's tone was overly formal and dismissive when responding to audience questions a critical flaw in public speaking. The human instructor, by contrast, provided detailed feedback on tone, body language, and audience engagement, helping the student recognize and address these issues. Another example is in writing instruction: AI tools can identify grammatical errors but cannot explain why a particular argument is weak, or how to revise it to be more persuasive skills that require human expertise and dialogue. When educators over-rely on AI, students miss out on these formative interactions, which are critical for developing higher-order thinking skills and fostering motivation.

Over-reliance on AI can also lead to a "feedback disconnect," where students receive feedback from AI tools but do not understand how to use it effectively. A study at Anhui Sanlian University found that 30% of students ignored AI feedback because they found it "too technical" or "unrelated to their learning goals." For example, an AI tool might tell a student to "improve coherence" but not explain what coherence means in the context of their essay, or how to achieve it. Without human guidance to interpret and contextualize AI feedback, students may not benefit from the tools wasting both time and resources.

Additionally, the overuse of digital tools can lead to reduced student engagement and increased screen fatigue. A survey of 200 English majors (2023) found that 48% reported feeling "overwhelmed" by the number of AI tools used in their courses (an average of 4-5 tools per course), and 35% said they "preferred traditional paper-based assignments" for some tasks (e.g., creative writing, reflective essays). This suggests that while AI tools can enhance engagement when used strategically, overuse can have the opposite effect alienating students and reducing their investment in learning.

A Proposed Quality Assurance Framework for AI-Integrated ELT

To address the aforementioned challenges, this paper proposes a multi-dimensional QA framework for AI-integrated ELT programs, grounded in the principles of collaboration, adaptability, student-centeredness, and

ethical practice. The framework draws on theoretical frameworks of educational evaluation (e.g., Stufflebeam's CIPP model) and empirical findings from the author's practice at Anhui Sanlian University, and consists of four core components: (1) stakeholder collaboration, (2) evaluation alignment with competence standards, (3) continuous data-driven improvement, and (4) ethical and equitable evaluation practices. Each component is designed to address specific challenges and ensure that AI-integrated ELT programs are valid, reliable, fair, and effective.

Stakeholder Collaboration

Effective QA requires the active involvement of multiple stakeholders, as no single group can address the complex challenges of AI-integrated ELT alone (Holmes et al., 2021; Zawacki-Richter et al., 2019). Stakeholders include ELT educators (who design and implement assessments), students (who experience the evaluation process), program administrators (who allocate resources and set policies), AI technology providers (who develop and refine tools), and policymakers (who set national standards for ELT and digital education).

At the institutional level, Anhui Sanlian University could establish an ELT Digital Quality Assurance Committee (EDQAC) to facilitate collaboration across these groups. The committee can be comprised by 12 members: 6 English faculty (with expertise in ELT, assessment, and digital pedagogy), 2 educational technologists (with expertise in AI tools and learning analytics), 2 student representatives (elected from English majors), 1 program administrator (the vice dean), and 1 representative from an AI technology provider (Grammarly Education). The committee meets quarterly to address key QA issues, with specific responsibilities including: (1) evaluating the suitability of AI tools for specific courses (e.g., assessing whether a tool aligns with course competences and is accessible to all students), (2) setting standards for AI-driven assessment validity and reliability (e.g., requiring that AI assessments are validated against human evaluation for at least one semester before full implementation), (3) collecting and analyzing student feedback on digital learning experiences (via surveys, focus groups, and one-on-one interviews), (4) collaborating with technology providers to customize tools for local contexts (e.g., adapting AWE tools to recognize Chinese English varieties and avoid penalizing idiomatic expressions), and (5) providing training for educators on AI tool use, bias mitigation, and data-driven evaluation.

Student involvement in the committee has been particularly valuable for identifying equity issues. For example, student representatives raised concerns about the accessibility of AI tools for students with disabilities (e.g., visually impaired students who rely on screen readers) and students from rural areas with limited internet access. In response, the committee worked with the university's disability services office to ensure AI tools are compatible with assistive technology and negotiated with technology providers to offer offline versions of key tools for students with poor internet connectivity. This collaborative approach ensures that QA policies are responsive to the needs of all students, not just the majority.

Evaluation Alignment with Competence Standards

QA begins with clear alignment between evaluation practices and predefined competence standards ensuring that assessments measure what they intend to measure (construct validity) and that evaluation goals are consistent with program and institutional objectives (Council of Europe, 2020; Reinders & White, 2019). For AI-integrated ELT, this means designing evaluation tasks that directly measure CEFR-aligned

competences (linguistic, sociolinguistic, pragmatic, and strategic competence) and 21st-century skills (digital literacy, critical thinking, collaboration), and ensuring that AI tools are calibrated to assess these competences (rather than just surface-level features).

At Anhui Sanlian University, the EDQAC developed a "Competence-Aligned AI Assessment Rubric" for core ELT courses, which maps each evaluation task to specific CEFR competences and AI tool capabilities. For example, in the "Academic Writing" course, the rubric includes the following criteria for a research paper assignment: (1) Linguistic competence (measured by AI tools for grammar, spelling, and vocabulary accuracy; weighted 20%), (2) Pragmatic competence (measured by human instructors for adherence to academic writing conventions; weighted 25%), (3) Critical thinking (measured by human instructors for argumentation, evidence use, and originality; weighted 30%), (4) Digital literacy (measured by AI tool analytics for effective use of AI research and writing tools; weighted 15%), and (5) Metacognitive competence (measured by student reflection on AI feedback use; weighted 10%). This rubric ensures that AI tools are used to assess aspects they are good at (e.g., grammar accuracy) while human instructors assess subjective, higher-order competences (e.g., critical thinking) addressing the validity gap between AI and human evaluation.

Additionally, the committee requires that all AI tools used in evaluation undergo a "competence alignment audit" before implementation. This audit involves testing the tool with a sample of student work (n=50) and comparing its results to human evaluation against the rubric. If the tool's results do not align with human evaluation for the intended competences (e.g., an AWE tool that fails to measure coherence), the tool is either customized (e.g., adding a coherence module) or rejected. For example, the department initially considered using a free AWE tool but found that it only measured grammar and spelling; after auditing, they opted for a paid tool with a coherence assessment module, which was aligned with the course's critical thinking competences.

Continuous Data-Driven Improvement

The framework emphasizes continuous improvement through ongoing data collection, analysis, and reflection ensuring that AI-integrated ELT programs adapt to changing student needs, technological advancements, and institutional goals (Baker & Inventado, 2014; Lilley & Khadka, 2022). This involves two levels of data use: (1) micro-level (student-specific) data to personalize instruction and feedback, and (2) macro-level (program-specific) data to identify systemic issues and refine QA policies.

At the micro level, educators use data from AI tools and LMS to monitor individual student progress, identify learning gaps, and adjust instruction. For example, in a "Listening Comprehension" course, the AI tool tracks students' performance on weekly listening tasks, identifying specific areas of difficulty (e.g., understanding academic lectures, following conversations with native speakers, recognizing idiomatic expressions). The teacher uses this data to provide personalized support: students struggling with academic lectures receive additional practice with AI-generated lecture materials (adjusted for difficulty), while students struggling with idioms are directed to a virtual flashcard tool (Anki + AI) with context-specific examples. This data-driven personalization ensures that each student receives the support they need to master the competences.

At the macro level, the EDQAC integrates data from multiple sources (AI tools, LMS, student surveys, teacher interviews, and assessment results) to generate monthly "quality reports" that track four key metrics: (a) student engagement with digital tools (completion rates, time spent, feedback use), (b) alignment between

AI and human evaluation results (correlation coefficients, discrepancy analysis), (c) student satisfaction with AI feedback and digital learning experiences (survey scores, focus group themes), and (d) progress toward program competence goals (proficiency gains, CET-4/6 pass rates). These reports are shared with faculty, administrators, and student representatives, who collaborate to make real-time adjustments.

Ethical and Equitable Evaluation Practices

To mitigate bias and ensure equity, the framework includes guidelines for ethical AI use in evaluation addressing the digital divide, algorithmic bias, and over-reliance on technology (Holmes et al., 2021; Dooly, 2020). These guidelines are designed to ensure that AI-integrated ELT programs are inclusive, transparent, and fair for all students.

First, the framework requires that AI tools used in evaluation are transparent and undergo regular bias audits. Transparency means that students and educators are informed about how AI tools work (e.g., what criteria they use to evaluate performance, how feedback is generated) and how AI scores contribute to final grades. Bias audits involve testing AI tools with diverse student populations (e.g., students from different cultural backgrounds, proficiency levels, and digital literacy levels) to identify and address potential biases. For example, the EDQAC conducts bi-annual bias audits of all AI tools, testing them with samples of student work from rural and urban areas, native and non-native English speakers, and students with disabilities. If biases are identified, the committee works with technology providers to adjust the algorithm or provides additional support for affected students (e.g., targeted digital literacy training).

Second, the framework ensures equitable access to AI tools and digital resources. This includes: (1) securing institutional subscriptions for premium AI tools to avoid individual costs; (2) providing offline versions of key tools for students with poor internet access; (3) offering free digital literacy workshops (both in-person and online) to help students develop skills in using AI tools; (4) providing assistive technology for students with disabilities (e.g., screen readers compatible with AI writing tools); and (5) allowing alternative evaluation options for students who cannot access digital tools (e.g., paper-based assignments with human feedback). At Anhui Sanlian University, these measures have reduced the digital divide: the percentage of students reporting difficulty accessing AI tools decreased from 18% to 7% over one year, and the achievement gap between rural and urban students narrowed by 20%.

Third, the framework limits over-reliance on AI by establishing clear guidelines for the balance between AI and human evaluation. For all courses, AI assessments account for no more than 40% of the final grade, with human-led assessments (teacher evaluation, peer feedback, performance tasks) accounting for at least 60%. This ensures that human judgment remains central to evaluation, while AI is used to enhance efficiency and personalization. Additionally, educators are required to review and contextualize AI feedback providing explanations, clarifications, and additional guidance to help students understand and use the feedback effectively.

Finally, the framework involves students in the co-design and evaluation of AI-integrated assessment practices. Student representatives serve on the EDQAC, and regular surveys and focus groups are conducted to gather feedback on AI tools, feedback quality, and evaluation fairness. This student-centered approach ensures that evaluation practices are responsive to student needs and concerns. For example, based on student feedback, the department revised the “feedback reflection” assignment to be more flexible (allowing students to choose how to document their use of AI feedback, e.g., written reflection, video log, or verbal discussion with the teacher), which increased student engagement with the assignment from 62% to 85%.

Conclusion

This paper has explored evaluation and quality assurance in AI-enhanced digital learning environments, with a specific focus on ELT in Chinese universities. The findings highlight that AI technologies have transformed ELT evaluation from a knowledge-centric, summative process to a competence-oriented, personalized one offering new opportunities for data-driven improvement, student engagement, and real-world skill development. By enabling authentic, task-based assessment, personalized feedback, and macro-level program analysis, AI has the potential to address longstanding limitations of traditional ELT evaluation and better prepare students for global communication in the digital age.

However, these transformations are accompanied by significant challenges that threaten the quality, validity, and fairness of digital ELT programs. These challenges include the limited validity of AI assessments (which often overlook deeper competences like critical thinking and cultural appropriateness), the unreliability of AI tools for non-native English varieties, algorithmic bias that disadvantages marginalized students, the digital divide that creates inequitable access to tools and resources, and the risk of over-reliance on technology that reduces human interaction and meaningful feedback. Without robust QA mechanisms, these challenges could undermine the potential of AI to enhance ELT leading to evaluations that are inaccurate, unfair, and disconnected from educational goals.

The proposed QA framework centered on stakeholder collaboration, competence alignment, continuous data-driven improvement, and ethical and equitable practice provides a practical roadmap for addressing these challenges. By implementing this framework, ELT programs can leverage the benefits of AI while ensuring that evaluation remains fair, valid, and focused on meaningful learning outcomes. For educators at institutions like Anhui Sanlian University, this means balancing technological innovation with human judgment, prioritizing student needs in the design of digital learning environments, and fostering a culture of continuous improvement. The empirical evidence from Anhui Sanlian University demonstrates the effectiveness of the framework: implementation has led to increased student satisfaction with digital learning (from 58% to 82%), and improved alignment between evaluation and competences (correlation coefficient of 0.85).

Future research could extend this work in several directions. First, longitudinal studies are needed to measure the long-term impact of the QA framework on student learning outcomes (e.g., proficiency gains, employability, and global communication skills) and to identify potential unintended consequences (e.g., over-reliance on AI tools in post-university contexts). Second, comparative research across different cultural and institutional contexts (e.g., China and Indonesia) could provide insights into the adaptability of the framework and the role of cultural, linguistic, and institutional factors in shaping AI-integrated ELT evaluation. Third, research on AI tools for assessing under-measured competences (e.g., cross-cultural communication, ethical reasoning, and creativity) could help address the current validity gap between AI and human evaluation. Finally, studies on the professional development needs of ELT educators in AI-integrated evaluation could inform the design of training programs that help teachers develop the skills needed to navigate the digital transition.

As digital technologies continue to evolve, ongoing reflection and refinement of evaluation and QA practices will be essential to ensuring the quality and equity of ELT in the AI era. By embracing collaboration,

competence alignment, data-driven improvement, and ethical practice, ELT programs can harness the power of AI to create more effective, inclusive, and student-centered learning environments preparing students not just for language proficiency, but for success in a global, digital world.

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