Exploring College English Teachers' Self-Perceptions and Their Students' Perceptions of Digital Literacy in the AI Era

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Abstract: This study investigates college English teachers' self-perceptions of digital literacy in the context of artificial intelligence (AI) integration and compares them with students' expectations. As AI increasingly shapes educational practices, teachers encounter challenges in adopting digital tools to improve learning outcomes. Using a mixed-methods approach, data were gathered from focus group interviews with 10 teachers, surveys from 771 students, and in-depth student interviews. The findings highlight a gap between teachers' self-assessments and students' expectations, especially regarding the technical and pedagogical use of AI tools. Teachers felt confident in basic digital skills but identified challenges such as insufficient training and resource limitations. In contrast, students had higher expectations for the incorporation of AI-driven technologies and personalized learning tools to enhance engagement. This research emphasizes the importance of professional development programs that integrate both technical and pedagogical aspects of digital literacy, ensuring that educators' skills align with students' expectations and the transformative potential of AI in education.
Keywords: digital literacy, AI in education, teachers' self-perception, students' expectations, college English teaching

Introduction

The rapid evolution of artificial intelligence (AI) is transforming education, altering the roles of educators and the competencies needed for effective teaching. In this digital era, digital literacy has become a critical skill not only for students but also for teachers. Educators must navigate AI-driven tools and technologies to remain relevant and effective. AI tools such as adaptive learning systems, automated grading software, and personalized learning platforms are reshaping how knowledge is delivered, assessed, and personalized. These developments demand that educators possess technical proficiency as well as critical and ethical competencies, especially in higher education.

For English language instructors, these technological advancements introduce both challenges and opportunities. Language teaching increasingly integrates digital media and AI-based applications to provide feedback, evaluate performance, and enhance interactivity. Tools like Grammarly and Turnitin, which offer immediate feedback, are reshaping traditional teaching and assessment methods. However, effectively utilizing these technologies requires more than technical skills—it demands critical thinking, ethical awareness, and an understanding of how these tools can be integrated to improve learning outcomes.

Previous studies emphasize the significance of teachers' self-perceptions of digital literacy in the adoption of AI technologies. Teachers who rate their digital competencies highly are more likely to adopt new technologies in their teaching practices, while those with lower digital self-efficacy may be reluctant to use such tools. This resistance can limit AI's potential to enhance teaching effectiveness and student engagement. Meanwhile, students also have high expectations

for their teachers' digital literacy, particularly in higher education where students, often considered digital natives, expect their instructors to be proficient with digital tools.

This study aims to bridge the gap in understanding the digital literacy perceptions of college English teachers and their students, focusing on AI integration. By comparing both perspectives, this research provides a comprehensive view of digital literacy in the AI-enhanced learning environment and aims to offer insights for designing professional development programs that align teachers' competencies with students' expectations.

1. Literature review

The concept of "digital literacy" has evolved significantly with the rapid integration of AI and digital tools in education. Traditionally, it referred to the ability to locate, evaluate, and use digital information effectively[2]. However, the advent of AI tools has necessitated a broader definition that incorporates not only technical skills but also critical, ethical, and pedagogical competencies[8]. As AI tools become increasingly embedded in instructional design and assessment, digital literacy has gained prominence as a critical component of educational effectiveness, fostering both engagement and ethical practices[5].

In the digital era, digital literacy for educators extends beyond basic computer skills. Ng (2012) defines it as comprising "technical, cognitive, and social-emotional" dimensions, all essential for navigating the complex digital landscape.[9] Technical competencies involve using AI-based platforms, cognitive competencies relate to critically evaluating information, and social-emotional aspects cover the ethical use of AI, including issues like privacy and data security[8]. AI tools in education, such as intelligent tutoring systems, adaptive assessments, and automated grading software, have redefined teacher-student interactions and classroom dynamics[3]. These tools allow for "personalized learning", adapting to students' needs, but their effectiveness depends on educators' ability to interpret and respond to the data they generate[7].

Research suggests that "educators' self-perceptions" of digital literacy influence their adoption and use of AI tools. Teachers confident in their digital skills are more likely to integrate advanced tools in their classrooms, which can enhance engagement and improve learning outcomes[6]. Scherer et al. (2019) highlighted that teachers' self-efficacy with AI tools is a key factor in determining their willingness to use these technologies.[10] Those with higher confidence are more likely to experiment with and incorporate AI into their pedagogy. Conversely, teachers with lower digital self-efficacy may avoid these tools, fearing disruption or lack of control over the learning process (Kimmons & Veletsianos, 2018).

However, many educators still feel unprepared to incorporate AI technologies. Kessler (2018) found that language teachers, in particular, struggle with AI integration due to a lack of formal training in digital literacy.[6] The rapid development of AI tools has outpaced teacher training, resulting in a mismatch between educators' self-perceived digital competence and the demands of AI-driven education[1].

Students' perceptions of their teachers' digital literacy are also critical for technology-enhanced learning. Studies show that students engage more with digital tools when they perceive their instructors as digitally competent[12]. In contrast, a perceived gap in digital competence can hinder the effectiveness of AI tools in the classroom[11]. Language students, in particular, expect teachers to use AI tools like automated feedback systems to enhance their learning experience. However, many teachers struggle to integrate these tools effectively, leading to frustration among students who are already familiar with such technologies[4].

Although digital literacy in education is widely studied, there is limited research on the intersection of "teacher and student perceptions"within AI-driven contexts. Most existing studies focus either on teacher self-assessments or student evaluations separately. Few have examined how these perceptions align or diverge, particularly in the context of higher education, where students' high expectations for digital proficiency often contrast with teachers' self-assessed skills. Additionally, the specific impact of AI tools on perceptions of digital literacy among language teachers and students remains underexplored. This study aims to fill this gap by examining how both teachers and students perceive digital literacy in AI-enhanced learning environments, focusing on college English education.

2. Methodology

This study uses a mixed-methods approach to compare college English teachers' self-perceptions of digital literacy with their students' perceptions. Data were collected through focus group interviews with 10 teachers, a questionnaire completed by 771 students, and in-depth interviews with 14 students. The qualitative data were analyzed using thematic analysis, while the quantitative data were analyzed using descriptive statistics.

The teachers were purposively selected to represent a range of experiences, and the students were chosen from courses taught by these educators. The focus group interviews explored teachers' digital literacy, AI tool adoption, and challenges faced in integrating technology. The student surveys assessed perceptions of their teachers' digital competencies, while student interviews provided deeper insights into their experiences with AI tools in the classroom.

3. Results

3.1 Thematic analysis of focus group interviews with 10 college English teachers

The focus group interviews with 10 college English teachers revealed key insights into their self-perceptions of digital literacy and the challenges they face in the AI era. Teachers generally acknowledged the importance of digital literacy and expressed positive attitudes toward incorporating digital and AI tools into their pedagogical practices. However, significant barriers hindered their ability to fully utilize these technologies. These included insufficient formal training, resource limitations, and the lack of tools specifically designed for English language teaching. Teachers also emphasized the critical role of institutional support, advocating for personalized training programs tailored to their specific needs.

Despite these obstacles, teachers selectively adopted digital tools, incorporating resources such as MOOCs and AI-based applications like Pigai (a writing enhancement tool in China) to support their teaching. The impact on student engagement was notable, with interactive digital tools helping to increase student participation and motivation. However, uneven student preparedness posed challenges, highlighting the need for an inclusive approach to digital literacy development.

3.2 Students' perceptions of teachers' digital literacy

A survey of 771 students provided valuable insights into how they perceive their English teachers' digital literacy. The responses were predominantly positive, with many students viewing their teachers as proficient in using digital technologies, including educational platforms such as MOOCs, Xuexitong, and WeChat for communication and quizzes. Additionally, students appreciated how teachers used digital tools to create blended learning experiences that combined online and offline instruction. Some students also reported that teachers guided them in utilizing digital resources to express aspects of Chinese culture in English.

Despite the generally favorable perception, some students expressed the belief that there was room for improvement, particularly in expanding the use of digital tools and resources. While university English teachers were seen as digitally literate, there remained opportunities for further enhancement in specific areas.

3.3 Analysis of student interviews on teachers' digital literacy

Interviews with 14 students provided a more nuanced understanding of their perceptions of teachers' digital literacy. Most students associated digital literacy with the ability to use digital tools effectively and responsibly. Key aspects of digital literacy included competency in navigating digital platforms, using digital tools innovatively, and maintaining awareness of digital security and ethics. Many students believed that a digitally literate teacher should not only use digital tools effectively but also guide students in becoming responsible digital citizens.

Students observed that teachers frequently used multimedia presentations, educational platforms, and AI-based tools like Pigai in class. These tools were generally seen as enhancing the learning environment. Some students mentioned the use of AI to assist in tasks like thesis topic selection, which they found useful. However, a few students noted that older teachers struggled with advanced digital tools, particularly AI-based systems, which sometimes disrupted the flow of the class.

Overall, students reported that the use of interactive digital tools, such as real-time quizzes and random selection apps,

significantly increased their engagement and understanding. They also expressed high expectations for teachers to keep pace with technological advancements, particularly AI tools that could offer personalized feedback and enhance learning experiences.

3.4 Comparison and contrast of teachers' and students' perceptions

A comparative analysis revealed both alignment and divergence between teachers' self-perceptions and students' evaluations of digital literacy.

3.4.1 Technical competence

Teachers generally rated their technical competence as adequate or advanced, particularly with basic tools like presentation software and online learning platforms. However, students perceived a significant gap in teachers' proficiency with more complex AI tools designed for personalized learning. While teachers were confident in using standard tools, approximately 73.28% of students felt that teachers lacked advanced skills in AI-based technologies, such as adaptive learning and real-time feedback systems. This discrepancy likely reflects the generational divide, with digital-native students expecting more seamless integration of advanced technologies in the classroom.

3.4.2 Pedagogical application

Teachers were confident in integrating digital tools into traditional teaching methods, but they were more cautious about applying AI tools pedagogically. Many reported using AI selectively and were hesitant to fully incorporate these tools into their teaching without thorough testing. In contrast, 71.73% of students preferred AI tools that offered personalized learning and engagement, such as real-time quizzes and adaptive feedback. The gap between teachers' cautious approach and students' expectations highlights the need for professional development that encourages teachers to expand their digital literacy to include pedagogical applications of advanced technologies.

3.4.3 Ethical awareness

Both teachers and students demonstrated awareness of ethical concerns, particularly regarding data privacy and responsible use of AI in assessments. However, students expressed additional concerns about fairness and transparency in AI-driven assessments, indicating that ethical digital literacy must extend beyond basic privacy issues to address equity, fairness, and accountability.

3.4.4 Experience-related perceptions

Teachers with fewer years of experience generally reported higher levels of digital literacy compared to their more experienced counterparts. This aligns with prior research indicating that younger teachers are more adaptable to new technologies. Older teachers, however, expressed concerns about adapting to the rapid pace of technological change without adequate support. This experience-based difference in digital literacy perceptions also aligned with students' observations, where younger teachers were seen as more innovative in using digital technologies.

4. Discussion

This study reveals a divergence between teachers' self-assessments and students' perceptions of digital literacy, particularly in relation to AI tools. While teachers expressed confidence in basic digital tools, students expected more sophisticated use of AI for personalized learning and engagement. The gap between functional digital literacy and pedagogical digital literacy highlights the need for professional development programs that equip educators with the skills to integrate AI tools effectively in teaching.

Teachers with fewer years of experience were more confident in adopting new technologies, while more experienced teachers expressed reservations due to a lack of training and the rapid pace of technological change. Students, on the other hand, expected teachers to stay current with new technologies and integrate them in meaningful ways to enhance learning.

Both teachers and students emphasized the importance of ethical considerations, such as data privacy and fairness in AI-driven assessments. However, students also expressed concerns about the transparency and accountability of AI applications, suggesting a need for further attention to ethical issues in teacher training.

5. Conclusion

This study underscores the importance of aligning teachers' digital literacy with students' expectations, particularly in the AI era. Teachers need targeted professional development programs that address both technical skills and pedagogical applications of digital tools. This alignment will help foster more engaging, personalized, and inclusive learning environments. Furthermore, ethical considerations must be integrated into digital literacy training to ensure responsible use of AI in education.

While teachers generally possess functional digital literacy, the gap between their self-assessments and students' expectations highlights the need for ongoing professional development to bridge this divide. As AI continues to shape the educational landscape, institutions must support teachers in adopting AI tools that not only enhance learning outcomes but also foster ethical and transparent practices.

Conflicts of interest

The author declares no conflicts of interest regarding the publication of this paper.

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