iEducation, 2026, 2(2), 17-28
https://doi.org/10.71204/nhmc2b90

Opportunities in Change-Challenges and Responses of AI-Enabled English Listening and Speaking Instruction in Primary and Secondary Schools

Shi Tang [1, 2, *], Li Li [2], Xiaomei Liu[1]

[1] College of Education, Capital Normal University, Beijing 110000, China

[2] Beijing No.101 Middle School, Beijing 110000, China

*** Correspondence:**

Shi Tang

635512688@qq.com

Received: 6 May 2026 /Accepted: 29 June 2026 / Published online: 30 June 2026

Abstract

Against the backdrop of globalization, the objectives, conceptual frameworks, and assessment systems of English education have been undergoing continuous transformation. Leveraging information technology to enhance the quality of English instruction in primary and secondary schools has become an inevitable trend. The use of artificial intelligence (AI) platforms is increasingly emerging as a new norm in listening and speaking instruction. In teaching practice, educators have achieved encouraging outcomes with AI platforms, yet they also face certain difficulties and challenges. Issues such as teachers' excessive laissez-faire toward or over-intervention in students' use of AI, a lack of reflective practice, and insufficient digital literacy have considerably weakened the effectiveness of AI in empowering instruction. To address these challenges, teachers should strive to strike an appropriate balance, strengthen reflective practice, improve digital literacy, leverage AI for professional development, and capitalize on the unique "human touch" of human educators. By doing so, they can identify the optimal points for human-AI integration and better harness AI technology to empower English listening and speaking instruction, thereby improving students' core competencies in English.

Keywords: English Listening and Speaking Instruction; Primary and Secondary Schools; AI Platform; Challenges and Responses; Human-Machine Collaborative Teaching

1. Introduction

In the context of 21st-century global economic integration, language education holds profound strategic significance for individuals and nations. English education is no longer confined to the delivery of linguistic knowledge. Its core goal is to equip learners with competencies to adapt to

informatization and globalization, foster innovative thinking, and broaden personal development space (Ministry of Education, 2025).

The Compulsory Education English Curriculum Standards (2025 Edition) (hereinafter referred to as the 2025 Standards) clearly advocates the in-depth integration of information technology and English teaching. It requires teachers to apply digital tools and online platforms innovatively to meet students'personalized learning demands and advance balanced development of compulsory education (Ministry of Education, 2025). Accordingly, the application of information technology in primary and secondary English teaching has become an inevitable trend and a new requirement for in-service teachers.

Along with global changes and updated talent cultivation goals, educational assessment systems have also undergone profound reforms. In recent years, listening and speaking assessments for secondary English have been greatly adjusted. In Beijing, oral tests have been officially included in both the high school entrance examination and college entrance examination. Adopting a human-computer dialogue model in dedicated computer laboratories, the assessments are scored jointly by AI systems and professional examiners to ensure fairness, accuracy, objectivity and authority.

The nationwide reform of English listening and speaking tests has made human-computer interaction and AI scoring popular topics in education. A growing number of English teachers have begun to apply AI teaching platforms to revitalize listening and speaking classes. Such platforms provide diverse and vivid learning resources to boost students' learning motivation and improve teaching efficiency. This teaching mode realizes the integration of teaching, learning and assessment, breaks the time and space limitations of traditional classrooms, and supports ubiquitous learning. In addition, intelligent teaching assistance can relieve students'language learning anxiety and offer solid support for English learning.

Despite the widespread application of AI platforms in English teaching, it is necessary to reflect on practical issues. Driven by the reform of assessment systems, what difficulties do primary and secondary English teachers face when using AI platforms? What effective solutions can be adopted?

2. Literature Review

With the deep integration of artificial intelligence and basic education, AI-assisted language teaching has gradually become a research hotspot in the field of foreign language education. This section sorts out relevant literature from three core dimensions as follows.

First, research on AI-assisted English listening and speaking teaching. Current domestic and international studies have widely confirmed the advantages of AI platforms in enriching listening and speaking learning resources, realizing human-computer interactive practice and optimizing assessment modes. Most existing papers focus on the application effects, functional advantages and popularization paths of such intelligent tools (Liu and He, 2025). However, less attention has

been paid to the practical challenges and operational problems encountered by frontline teachers in daily listening and speaking instruction.

Second, research on teacher roles and behaviors in AI-enabled educational applications. The arrival of intelligent education has broken the traditional teacher-centered teaching mode, and teachers are facing continuous role reconstruction. Relevant studies have discussed the transformation from knowledge imparters to learning guides and curriculum designers (Huang et al., 2025). Nevertheless, empirical research on teachers' specific teaching behaviors, interactive modes and role adaptation problems when operating AI platforms is still inadequate.

Third, research on teacher digital literacy and professional development. Digital literacy is regarded as a core competency for teachers in the digital era. A large body of literature clarifies the connotation, composition and training paths of teachers' digital literacy(Wang, 2026). Even so, few studies further explore the connection between teachers' digital literacy level and their ability to apply AI teaching tools, as well as the targeted professional development demands arising from the use of intelligent education technology.

In general, the above three research strands are relatively independent, and comprehensive empirical research combining them is scarce. In addition, most existing studies are simple experiential summaries lacking solid theoretical support. Empirical evidence and rigorous research methodologies are also rarely adopted in relevant investigations. Against this research gap, this study carries out in-depth empirical exploration to analyze the practical difficulties of teachers using AI platforms and propose feasible coping strategies.

3. Methodology

Against this background, this paper mainly addresses two core research questions:

(1) What practical problems and challenges do primary and secondary English teachers encounter when using AI platforms to assist listening and speaking instruction?

(2) What strategies can help teachers resolve the above challenges?

This study adopted a qualitative research method to answer the proposed research questions. The research participants included 18 primary and secondary school English teachers with different teaching years and professional titles（Table 1）. Questionnaires were distributed to the students of these teachers in the meantime.

Table 1. Demographic Information of Participating Teachers

No.	Gender	School Section	Teaching Years	Professional Title
1	Female	Primary School	3	Level 2 Teacher
2	Female	Primary School	5	Level 2 Teacher
3	Male	Primary School	8	Level 1 Teacher

No.	Gender	School Section	Teaching Years	Professional Title
4	Female	Primary School	10	Level 1 Teacher
5	Female	Primary School	12	Senior Teacher
6	Male	Primary School	15	Senior Teacher
7	Female	Junior High School	2	Probationary Teacher
8	Female	Junior High School	4	Level 2 Teacher
9	Male	Junior High School	6	Level 2 Teacher
10	Female	Junior High School	9	Level 1 Teacher
11	Female	Junior High School	11	Level 1 Teacher
12	Male	Junior High School	14	Senior Teacher
13	Female	Senior High School	3	Level 2 Teacher
14	Male	Senior High School	7	Level 2 Teacher
15	Female	Senior High School	10	Level 1 Teacher
16	Female	Senior High School	13	Level 1 Teacher
17	Male	Senior High School	16	Senior Teacher
18	Female	Senior High School	18	Senior Teacher

Through purposive sampling, 10 students with good communication willingness and different oral English proficiency levels were selected to participate in one-on-one in-depth interviews. Each interview lasted about 40 minutes. The interview questions include questions like:

What do you think are the biggest challenges of applying AI in classroom teaching nowadays?

In your opinion, how can these problems be addressed?

Do you believe AI can completely replace human teachers?

The total volume of transcribed interview data reached 218,740 words. All interview materials were archived with a unified naming rule: JS/XS (Teacher/Student)-A/B/C/D (interview sequence)-Age-Date of Interview.

For data analysis, NVIVO software was used to conduct detailed coding on interview transcripts, so as to identify the practical problems in the application of AI platforms in English

listening and speaking teaching and explore targeted solutions. Relevant coding examples are presented in Table 2. The research findings are expected to provide practical references for frontline primary and secondary English teachers.

Table 2. Coding Examples

Selective Coding	Axial Coding	Open Coding
Challenges for Teachers	Excessive Laissez-faire	Lack of targeted feedback (6) Inadequate supervision (4) Inadequate guidance (3)
	Excessive Intervention	Reluctance to let students work independently (3) Excessive workload in assigned tasks (4)
	Heavy Workload (caused by grading)	Heavy workload (4)
	Lack of Reflection	No time for reflection (3) Lack of in-depth thinking (2)
	Need to Improve Information Literacy	Unfamiliar with operational techniques (3) Insufficient theoretical literacy (1)

4. Problems and Challenges in Using AI Platforms to Empower Teaching

Although AI platforms offer numerous significant advantages in teaching assistance, teachers do not always succeed in their practical application. Through interviews, teachers reported a range of problems and challenges encountered when using AI platforms. These issues indicate that the full empowerment and deep integration of technology in education remains a long and challenging path.

4.1. Teacher Laissez-Faire: Abandoning Students to AI

The use of AI platforms greatly facilitates teachers' work: teachers can conduct lessons in computer laboratories, allowing students to fully utilize AI platforms for listening and speaking practice. However, this does not mean that teachers can be laissez-faire and completely abandon students to AI. "*Some teachers over-rely on the platform. After placing students in the computer lab, they do nothing else. At the end of the course, they only obtain student data but provide no*

targeted feedback based on that data. That is unacceptable" (JS-A-45-0529). Furthermore, while students using the platform are monitored by an "AI teacher," the level of supervision is far inferior to that of a human teacher. Therefore, human teacher supervision and management remain essential. As one student noted, "*My self-discipline is a big problem. At first, I liked to slack off when I went to the computer lab. So, teacher supervision is still necessary. It's not that teachers can simply relax while students practice in the lab"* (XS-E-17-0718).

4.2. Teacher Over-Intervention: Squeezing Personalized Space for Students

In contrast to laissez-faire, over-intervention means that teachers are unwilling to let go, rigidly assigning students the content prescribed by the platform without providing any free time in class for students to practice their weak areas. One student reported, "*Most of the time now, teachers assign fixed content, and there is no time to address our weak points. Teachers should let go more, free up some time, and let everyone choose content to practice independently"* (XS-C-18-0719). Additionally, the abundance of materials provided by platforms can easily lead to overuse by teachers—that is, assigning so much content that students feel overwhelmed. Another student noted, *"When teachers assign too many tasks, we just lose the motivation to do them. Seeing a long list of assignments feels stressful just by looking at it"* (XS-D-18-0706).

4.3. Absence of Teacher Reflection: Too Busy Moving Forward to Stop and Think

Teacher reflection refers to a process in which teachers, grounded in practical experience and exercising their own subjective initiative, engage in "displaced" thinking, analysis, and careful revision to improve their competence and to further plan and guide their professional growth. It is an important means of promoting teacher development and a significant driver of teacher professionalization (Wu and Li, 2015). Compared to traditional teaching forms, which have a long history and accumulated experience, AI platform-based teaching is still in an exploratory and adaptive phase. Consequently, teacher reflection and summarizing in this area are relatively insufficient, and some teachers struggle to reflect deeply on their use of platform-based teaching. For example, one teacher admitted, "*Looking back on my years of using the platform, most of the time I was busy teaching, familiarizing myself with the operating procedures, or explaining answers. I rarely had time to stop and reflect or study relevant theories. But that is also because there are few reference materials in this area—it is a new thing after all"* (JS-J-31-0808). Thus, teacher reflection in this domain remains lacking, and teachers have not fully recognized its importance.

4.4. Digital Literacy Needs Improvement: Weakness in Both Theory and Practice

"In the era of intelligence, mastering modern educational technology will become an important component of teachers' professional quality. Teachers must strengthen their abilities to acquire, process, filter, utilize, and innovate information, and continuously improve their skills in mastering information technology and applying new methods" (Liu, 2018). However, interview data indicate that teachers' theoretical and practical information literacy is suboptimal. Although most teachers can use AI platforms for teaching and training in computer laboratories or classrooms, theoretically they do not fully grasp why or how to use technology to empower teaching. Some teachers stated that they use platforms simply because "*the secondary and high*

school entrance exams have been reformed, the direction has changed, and teachers are pushed along" (JS-D-30-0704). This suggests that teachers have not theoretically recognized the necessity and importance of using information technology to empower teaching; instead, they passively accept technology while overlooking its great potential. On the other hand, in practice, teachers are only familiar with basic operations, remaining unskilled in more advanced functions. Lack of operational proficiency leads to *"some operational errors that waste time"* (XS-J-18-0801). For older teachers, some find the technology somewhat overwhelming, and a few even need assistance from younger teachers to complete teaching tasks. In the long run, whether theoretically or practically, insufficient teacher information literacy will inevitably hinder their professional growth. The lack of information literacy prevents teachers from making breakthroughs and innovations in teaching methods, curriculum design, and educational technology applications, thereby impairing the improvement of teaching effectiveness. In today's rapidly developing information age, possessing good information literacy has become a necessary condition for teacher professional development. Therefore, improving teacher information literacy is not only significant for individual career development but also a crucial factor in advancing the entire education enterprise.

4.5. Diminished AI Empowerment: Are Teachers Really "Burden-Reduced and Efficiency Enhanced"?

Although AI platforms have shown some effectiveness in addressing listening and speaking training issues and have reduced teachers' workload to some extent, achieving a certain "liberation" of teachers, their limitations must be acknowledged in practice. One teacher argued, *"Teachers' workload hasn't really decreased; we just no longer need to create test questions. But after students submit their work, teachers should actually listen to what students said, so the workload remains very large. Only by listening to the students' recordings can we understand why the AI gave them a particular score—whether it is too high, too low, or just right. After re-listening to the recordings, teachers can give precise explanations. Moreover, after each training session, students come asking why they got a particular score"* (JS-A-45-0529). Thus, the AI scoring system has not yet achieved the accuracy of human teachers, leading some students to doubt the scores assigned by AI and to seek re-evaluation from their teachers. As the demand for such re-evaluation increases, teachers' workloads not only fail to decrease further but tend to increase. Additionally, some current AI systems only provide final scores, lacking explanatory or feedback mechanisms that could directly reveal specific problems in student performance. This forces teachers to re-listen to student recordings during the re-evaluation process, identify shortcomings themselves, and provide targeted guidance. This process undoubtedly increases teachers' workload and undermines teaching efficiency.

5. Strategies for Addressing Challenges in AI-Enabled Teaching

In facing these challenges, teachers can adopt problem-oriented strategies, focusing on the root causes of the issues and addressing them one by one. In this process, teachers need to find the optimal balance point for human-AI collaboration, fully leveraging the advantages of artificial

intelligence while also capitalizing on the uniqueness and irreplaceability of human teachers. Through this approach, we can achieve collaborative human-AI development and make greater progress in education.

5.1. Striking the Right Balance

For teachers, the key lies in accurately striking the right balance. On one hand, excessive laissez-faire should be avoided, meaning complete reliance on AI without direct guidance and care for students. On the other hand, the extent and frequency of AI use should be carefully controlled (Lan et al., 2024). For example, when teaching with AI platforms, time should be reserved for teachers to provide immediate feedback. Teachers can focus on analyzing high-frequency errors revealed by backend data to deliver targeted instruction and use data insights to implement personalized teaching guidance. In the teaching process, teachers should also act as effective supervisors, carefully observing students' classroom performance to ensure their attention and focus on learning tasks, providing timely reminders and guidance when necessary. Given the abundance of AI resources, teachers must exercise wisdom and judgment in selecting materials, choosing content and assignments that are appropriate for students' needs and abilities, avoiding information overload, and preserving ample space for personalized learning.

Therefore, the essence of striking the right balance lies in teachers precisely identifying and maintaining the equilibrium point of human-AI integration in a collaborative teaching environment, making AI a useful tool to assist teaching while leveraging the unique wisdom and emotional advantages of human teachers to compensate for the current limitations and shortcomings of AI technology.

5.2. Enhancing Teacher Information Literacy

Information literacy refers to the practical skills for information processing and the ability to filter, identify, and use information that individuals should possess in a society characterized by high technological development and the cross-penetration of various information sources (Xie, 2005). The information literacy of primary and secondary school English teachers encompasses core elements such as information awareness, information knowledge, curriculum and information integration ability, and information ethics. First, teachers need to cultivate strong information awareness, actively embracing the innovative model of AI-assisted English teaching, proactively seeking, collecting, and effectively using information to continuously enrich their knowledge base. Information awareness is the foundation for teachers to deepen their understanding of information, improve information skills, form information pursuits, and perfect their information literacy. Second, teachers should strive to broaden their information knowledge, including understanding the operating principles of AI technology, mastering relevant hardware and software knowledge, clarifying the value of AI technology in education, and envisioning future trends in the integration of information technology and English teaching. This foundational information knowledge is an inevitable requirement for teachers to continuously learn and keep pace with the times. Third, the ability to deeply integrate curriculum and information technology is crucial for teachers. Teachers should be courageous in exploration, flexibly using AI platforms according to curriculum characteristics and teaching principles, designing teaching activities that

closely match the actual teaching context, efficiently completing teaching tasks, and improving teaching quality. Finally, the ethical dimension of teacher information literacy emphasizes that throughout the process of obtaining, using, processing, and disseminating information, teachers must adhere to ethical standards, ensuring their actions do not harm social interests or infringe upon the legal rights of others, thereby maintaining the purity and fairness of education.

5.3. Strengthening Teacher Reflective Practice

In the process of using AI platforms for teaching activities, teachers should maintain a reflective attitude. Given that this teaching model is still in its early stages of development and abundant practical cases have not yet emerged, it is particularly necessary for teachers directly involved in teaching applications to continuously engage in deep reflection and summarization to form a relatively mature and replicable operating model (Zhou and Wen, 2020). Once teachers establish a reflective mindset, they will more actively engage in deep thinking and exploration of practical teaching issues, such as investigating how to more effectively integrate specific teaching content with AI platforms, how to use platforms to stimulate student interest in learning, how to optimize platform-based teaching processes to improve efficiency, and evaluating changes in students after using platforms for learning. Teachers' reflective practice not only directly promotes current teaching effectiveness but also serves as an important pathway to advance their professional development and enhance information literacy.

5.4. Leveraging AI for Professional Development

In the current teaching environment, a phenomenon often overlooked by teachers is that they can also use various online platforms for their own professional growth and development. These platforms are not only designed to serve students by providing learning resources and practice opportunities but also offer teachers an excellent space for self-improvement (Cui and Li, 2023). For example, the speech training functions embedded in platforms can not only help students improve their pronunciation accuracy and language expression skills but also allow teachers to use these functions to strengthen their own pronunciation and further enhance their oral proficiency and teaching effectiveness. Additionally, the rich teaching materials provided by platforms, along with the latest educational news and resource pushes sent by platform assistants, can offer teachers valuable learning materials and teaching inspiration. These materials and information can help teachers understand the latest educational trends, master cutting-edge teaching methods and technologies, and thus improve their teaching quality and effectiveness. At the same time, platforms regularly host various teacher training programs, professional lectures, or seminars, all of which are important ways for teachers to enhance their professional competence and capabilities. These trainings and lectures typically invite industry experts and renowned educators to share and explain, providing teachers with a rare opportunity to understand the essence of education more deeply from both theoretical and practical perspectives.

Therefore, we believe that as long as teachers seize these learning and improvement opportunities and bravely face various challenges, they will be able to calmly address the issues that new technologies such as AI bring to teaching and achieve their own professional growth and development through continuous exploration and practice.

5.5. Leveraging the "Human Touch" of Human Teachers

Teachers' work can be divided into two categories: creative work represented by instructional design and emotional communication, and mechanical, repetitive work represented by grading assignments and providing feedback. The main source of teacher stress is the latter (Yu and Wang, 2019). AI can help teachers complete repetitive, procedural tasks and quickly collect data, freeing teachers from tedious work. However, education is the education of the human soul, not merely the accumulation of intellectual knowledge and cognition (Jaspers, 1991). Education is about educating "people," a highly complex endeavor. Education aims to ultimately transform the soul through the transmission of knowledge. The educational process is not merely knowledge transmission, and teachers' work cannot be entirely predetermined; there is much uncertainty in the educational process. Therefore, compared to artificial intelligence, teachers possess innate abilities such as reflection, intuition, insight, and empathy. These enable them, while transmitting knowledge, to assume greater responsibility for nurturing students, serving as "spiritual guides" to help students complete the soul's transformation from the "visible world" to the "intelligible world" (Zheng and Zhao, 2010). Thus, the "human touch" of human teachers is incomparable to machines. In the process of improving students' listening and speaking abilities, teachers' attention and care play a vital role. Encouraged by the love of human teachers, students can gain greater confidence and courage to enhance their listening and speaking skills and improve their core competencies in English.

6. Conclusion

Currently, the field of artificial *intelligence* is developing at an unprecedented pace, with immense future potential and infinite possibilities (CCID Think Tank, 2024). In this process, the deep integration of AI and education offers teachers new opportunities for development. However, along with this come the challenges of achieving "seamless" human-AI integration, which also places higher demands on teachers. Regarding the use of AI platforms for instruction by primary and secondary school English teachers, the main challenges facing human intelligence center on how to find an appropriate balance between laissez-faire and intervention to achieve efficient collaboration between human and artificial intelligence, thereby achieving educational outcomes where "1+1 > 2." In this process, the unique strengths of human teachers must be fully utilized, highlighting their "core value" in teaching and ensuring that education remains student-centered, focusing on the growth of each unique individual. Although educational forms are constantly changing, the essence of education—cultivating and shaping people—remains constant (Dewey, 1916). Human teachers play an irreplaceable role in this process, with far-reaching and lasting influence. Therefore, we should explore how to more effectively use AI technology to serve education and maximize its educational value. For English teachers, mastering the art of balancing AI platform use, continuously reflecting and adjusting in practice, improving information literacy, using platforms to develop professional competence, and fully leveraging the "human touch" of human teachers will be key to using AI to improve teaching quality and enhance students' core English competencies. We believe that AI empowerment can provide

strong support for teachers in cultivating students' comprehensive English abilities, and thus listening and speaking instruction will usher in a new leap forward

Author Contributions:

Conceptualization, Shi Tang and Li Li; methodology, Shi Tang; software, Xiaomei Liu; validation, Shi Tang, Li Li and Xiaomei Liu; formal analysis, Shi Tang; investigation, Li Li; resources, Li Li; data curation, Xiaomei Liu; writing ─ original draft preparation, Shi Tang; writing ─ review and editing, Li Li; visualization, Xiaomei Liu; supervision, Shi Tang; project administration, Li Li; funding acquisition, Shi Tang. All authors have read and agreed to the published version of the manuscript.

Funding:

Not applicable.

Institutional Review Board Statement:

Not applicable.

Informed Consent Statement:

Written informed consent was obtained prior to the interview, and all participants were assured of anonymity and confidentiality.

Data Availability Statement:

The raw interview data generated and analyzed during this study are not publicly available due to privacy and confidentiality restrictions of the participants. De-identified qualitative analysis data are available from the corresponding author upon reasonable request.

Acknowledgments:

We are grateful to all interviewees for their generous participation and sincere sharing in this study. Special thanks go to our supervisor for valuable guidance and insightful suggestions during the research and manuscript writing. We also appreciate the support from our institution and peers.

Conflict of Interest:

The authors declare no conflict of interest.

Reference

CCID Think Tank Artificial Intelligence Industry Situation Analysis Group. (2024). Outlook for China's artificial intelligence industry in 2024. Software and Integrated Circuits, Z1, 17–21.

Cui, Y., & Li, Y. (2023). A study on teacher professional development paths in the context of smart education. Contemporary Educational Theory and Practice, 15(5), 130–136.

Dewey, J. (1916). Democracy and education. The Macmillan Company.

Huang, L. C., Wang, J. X., & Huang, H. T. (2025). Cultivation of learning emotions in human-machine collaborative classrooms: Teachers' role transformation and instructional design. Educational Research and Experiment, (6), 100–107.

Jaspers, K. (1991). What is education (J. Zou, Trans.). Life, Reading, and New Knowledge Sanlian Bookstore.

Lan, G., Du, S., Xiao, Q., et al. (2024). AI-enabled Education 4.0: Challenges, potentials, and cases—Key points and reflections on "Shaping future learning: The role of AI in Education 4.0". Open Education Research, 30(4), 37–45.

Liu, D. (2018). A strategic study on enhancing teacher information literacy based on core competencies. Science Consult (Educational Research), (3), 54.

Liu, Q., & He, A. J. (2025). A study on cultivating senior high school students' thinking quality assisted by English teaching agents. Journal of English Teaching and Research in Primary and Secondary Schools, (6), 39–44.

Ministry of Education of the People's Republic of China. (2025). English curriculum standards for senior high schools: 2017 edition, revised 2025. People's Education Press.

Ministry of Education. (2022). Compulsory education English curriculum standards: 2022 edition. People's Education Press.

Wang, X. Y. (2026). Research on the cultivation of English teachers' digital literacy under the background of educational informatization. Reference for Middle School Teaching, (9), 30–32, 37.

Wu, Q., & Li, G. (2015). On the focal points in promoting teacher reflection at present. Theory and Practice of Education, 35(32), 38–40.

Xie, X. (2005). On information literacy of English teachers in the E-era. Foreign Language World, (4), 9–12, 18.

Yu, S., & Wang, Q. (2019). Analysis of the collaborative path development of "AI + Teacher". E-Education Research, 40(4), 14–22, 29.

Zheng, B., & Zhao, Q. (2010). Education: The art of soul transformation—An interpretation of Plato's Republic. Contemporary Educational Science, (21), 11–13.

Zhou, Q., & Wen, X. (2020). The practical forms of "AI + Teacher" collaborative teaching in the intelligent age. Journal of Distance Education, 38(2), 37–45.