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AI-Empowered College English Listening and Speaking Teaching: An Action Research on Constructing a Low-Technology-Threshold Blended Online-Offline Teaching Model

Zhai Runmei

School of English Studies, Beijing International Studies University, Beijing, China
runmayzhai@163.com

Abstract: *This study aims to explore how to help teachers achieve seamless collaboration between "AI and teachers" quickly by using low-cost, low-threshold, and free AI tools through action research. Based on Kurt Lewin's spiral cyclic action research model of "planning-action-observation-reflection", a blended online-offline teaching model of "pre-class online AI preview, in-class offline interaction, and post-class AI consolidation" is initially constructed. Teaching practice is carried out by relying on smart teaching platforms such as Rain Classroom and Welearn, as well as free applications including Keke English, Daily English Listening, Doubao, and English Fun Dubbing. Through data collected from classroom observations, student feedback, and teacher's journal, this study analyzes the feasibility and existing problems of the teaching model, proposes optimization directions for the second round of action research, and provides practical support for the iterative improvement of the low-threshold AI-supported blended online-offline teaching model.*

Keywords: *AI-Empowered Teaching; College English Listening and Speaking; Low-Technology Threshold; Blended Teaching Model; Action Research*

1. Introduction

With the rapid development of artificial intelligence (AI) technology, many links in the education field have been profoundly affected. Currently, the application of AI in English listening and speaking teaching has been widely explored at home and abroad, and relevant studies have confirmed that AI-empowered college English listening and speaking teaching has achieved significant results. However, there are still several problems in practice: some platforms recommend personalized learning paths through AI algorithms, but most studies focus on user behavior data and lack integration with classroom teaching; AI systems have limited ability to understand complex contexts; some students over-rely on AI, leading to insufficient improvement in autonomous learning ability; teachers' AI literacy varies; the quality of AI resources is uneven; and there are risks of student information security and privacy leakage.

Existing research has insufficient integration with classroom teaching, and most AI tools have high technical literacy requirements for teachers, who need time to familiarize themselves with technology before effectively applying it to teaching. To address these issues, this study closely combines college English listening and speaking classroom practice to explore how to use low-cost, low-threshold, free AI tools to help teachers quickly achieve seamless collaboration between "AI and teachers" and construct a classroom-adapted blended online-offline teaching model.

This study adopts the action research method, with the cycle of "planning-action-observation-reflection" as its core, emphasizing problem-solving in practice and dynamic optimization of plans. Given that the research focuses on the integration of low-technology-threshold AI tools with English listening and speaking teaching, it is necessary to gradually construct a blended model based on classroom practice. The "grounded in teaching practice" characteristic of action research is well-suited to the need to adjust tool application strategies based on student feedback. This paper focuses on the first round of action research, tests the feasibility of the model framework, identifies problems through classroom observations and student feedback, and lays the foundation for the construction of a mature blended teaching model in the future.

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2. Design of the First Round of Action Research (Planning Stage)

2.1 Theoretical Basis

2.1.1 Action Research Theory

Kurt Lewin (1946) [1], a pioneer of action research, proposed that action research is a method that combines the wisdom and abilities of scientific researchers and practical workers to solve a practical problem. Its core spiral cyclic model includes four links: planning, action, observation, and reflection, forming a continuous iterative cycle. After completing one round of "planning-action-observation-reflection", the plan is revised based on reflection results, and the next cycle is initiated to promote subsequent research and practical improvement. This study is in the stage of educational practice exploration where teachers need to formulate plans based on teaching problems, implement teaching, observe effects, reflect on optimization, and adjust practices. Therefore, the action research method is naturally suitable.

2.1.2 Blended Learning Theory

The concept of blended learning was first clearly proposed by Orey (2002) [2] and later formally defined and promoted by the U.S. Department of Education (2003) [3]. Li Kedong and Zhao Jianhua (2004) [4] pointed out that the core of this theory revolves around "integration and optimization", emphasizing the systematic integration of the advantages of traditional face-to-face teaching and online learning to make up for the deficiencies of a single model and improve learning effect, efficiency, and experience. Its core is not a simple superposition of "offline classroom + online platform", but a structured reorganization of teaching activities, resources, interactions, evaluations, and other elements according to learning goals, content characteristics, and learner needs, forming a synergistic effect of "1+1>2."

Blended learning theory emphasizes learner-centeredness, taking learner characteristics (such as learning style, rhythm, and foundation) as the core basis for integration design; clearly opposes "technological determinism", advocating that online technology is a means rather than an end to achieve learning goals; believes that blended learning is a dynamic adaptation process, which requires continuously collecting learner feedback (such as participation, grades, satisfaction) to adjust the proportion of online-offline integration and content design, which is highly consistent with the "planning-action-observation-reflection" cycle of action research; and advocates building a multi-dimensional evaluation system, combining online data tracking (such as login times, resource browsing duration) and offline in-depth evaluation (such as classroom performance, practical results) to comprehensively reflect learning effects. The core value of this theory lies in the integration and optimization logic, which is a theoretical framework formed in the integration of educational technology and teaching practice in the early 21st century.

2.1.3 Technology Acceptance Model (TAM)

The Technology Acceptance Model was proposed by Fred D. Davis in his doctoral dissertation in 1989 [5], predicting users' "willingness to use" and "actual usage behavior" through two key variables:

Perceived Usefulness (PU): The degree to which users believe that using a technology can improve work performance;

Perceived Ease of Use (PEU): The degree to which users believe that using a technology requires little effort.

The logic of the Technology Acceptance Model is: Perceived Ease of Use → Perceived Usefulness → Willingness to Use → Actual Usage Behavior. Its core view is that users' acceptance of technology is determined by both "perceived usefulness" and "perceived ease of use", and perceived ease of use affects perceived usefulness. The "usefulness" of technology is the core driving force for acceptance (solving problems and improving efficiency), and "ease of use" is the basic premise (reducing thresholds and enhancing the perception of usefulness). This model focuses on users' psychological cognition and is suitable for explaining acceptance behaviors of various information technologies.

This study focuses on low technology thresholds, that is, AI tools with simple operation (high ease of use) are more likely to be accepted by teachers and students, thereby improving willingness to use and teaching effects. The lower the technology threshold, the higher the user acceptance, and the simplification of technology is positively correlated with efficiency and effectiveness. This provides a theoretical basis for the correlation between the acceptance of simple AI tools and the effectiveness of

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model implementation.

2.2 Preliminary Design of Action Research (Planning Stage)

The subjects of this round of action research are two freshmen classes of a non-language major (29 students in Class 1 and 22 students in Class 2). All students scored above 90 in the college entrance examination English test, and generally believed that their listening and speaking abilities were weaker than their reading ability.

The low-threshold technical tools used in the research include teaching platforms such as Rain Classroom and Welearn, as well as free English learning apps such as Keke English, Daily English Listening, English Fun Dubbing, and Doubao.

Based on the core logic of constructing the model in practice and improving it in iteration, adhering to the principle of adjusting teaching content and strategies based on classroom practice and gradually expanding the promotion scope in the later stage, the first round of action research is promoted through phased and dynamic optimization. The preliminary design process is as follows:

Planning stage: Construct a blended teaching model framework of "pre-class online AI preview, in-class offline interaction, and post-class AI consolidation";

Action stage: Implement auxiliary teaching using low-threshold technical tools;

Observation stage: Collect student feedback, learning data, and classroom performance through questionnaires, interviews, and grade analysis;

Reflection stage: Summarize model problems and optimize the model based on student feedback

This spiral ascending design adapts to the needs from the first round of practice to subsequent promotion. Each cycle can adjust the plan based on the reflection of the previous round, providing directions for subsequent research.

2.3 Research Questions and Goals of This Round

Research questions: In the first-round model, what is the operational feasibility of low-technology tools? What is students' acceptance of "online AI + offline classroom"? What links need optimization?

Research goals: Verify the operability of the basic framework of the first-round action research model, collect improvement clues, enable each subsequent cycle to adjust the plan based on the reflection of the previous round, and finally achieve the practical goal of constructing a promotable model which is rooted in the classroom and gradually improved.

3. Implementation of the First Round of Action Research (Action and Observation Stages)

3.1 Action Process

The first-round implementation cycle was 4 weeks (short-term focus to facilitate rapid iteration). The specific process is as follows:

Pre-class: Teachers posted listening materials (such as graded audio from Keke English) through Rain Classroom or Welearn. Students completed online exercises and took AI vocabulary tests generated by Doubao, and turned to teachers for help online with any problems.

In-class: Teachers organized themed listening and speaking activities, encouraging students to express listening content through role-playing and group interactions to simultaneously practice listening and speaking abilities; adminstered real-time quizzes on Rain Classroom to check students' learning outcomes and urge efficient classroom learning.

Post-class: Students completed intensive listening (such as dictation) through Daily English Listening or Keke English; oral practice included three forms: a. independent practice with topics generated by Doubao; b. AI oral situational dialogue practice on Daily English Listening (10 minutes of free use per day); c. group practice through "English Fun Dubbing" with AI real-time pronunciation correction.

Before the action, teachers trained students on AI tools and provided detailed explanations of the difficulty levels and function usage of each app section. For example:

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Keke English: The “Intensive Practice” at the bottom includes intensive listening, nine-grid, dictation, and shadow-reading functions. The difficulty levels from low to high are intensive listening, nine-grid, and dictation, while the shadow-reading function requires VIP activation;

Daily English Listening: The “Reading Mode” at the bottom allows access to “Quiz Practice”, supporting fill-in-the-blank, word selection, and blind listening modes. The "shadow Reading" function supports full-text follow-reading and pronunciation scoring without VIP.

Students could feedback problems through the teaching platform or WeChat during use, and teachers answered in real-time and made immediate adjustments.

3.2 Observation and Data Collection

The first-round research collected and analyzed information through questionnaires, interviews, teaching platform data and teacher’s journal. The specific findings are as follows:

Classroom observation: Pre-class listening and vocabulary exercises improved students’ familiarity with classroom content, and classroom interaction enthusiasm significantly increased; students paid the highest attention to real-time quizzes on Rain Classroom, reflecting their emphasis on usual grades; high-achieving students adapted more easily to autonomous learning with tools, while low-achieving students needed teachers to strengthen tool use guidance (such as demonstrating Keke English’s intensive listening function).

Questionnaire survey: A survey was conducted among 51 students through Wenjuanxing (a Chinese online tool for designing and conducting questionnaires), and 48 valid questionnaires were returned. Results showed that 96% of students believed the “online AI + offline classroom” model was helpful for improving English listening and speaking abilities, while 4% were uncertain; students rated the advantages of AI-assisted learning from high to low as: personalized learning, learning anytime and anywhere, strong interactivity, improved learning efficiency, and detailed explanations for difficult problems; in terms of AI usage frequency, 14.58% used it almost daily, 58.33% used it more than 3 times a week, and 27.08% used it 1to 2 times a week; main problems while using AI included: occasional unreliable AI answers, inaccurate content, poor adaptability, lack of real-person interaction, and technical failures.

Case tracking: Five students with high interest were tracked for four weeks with semi-structured interviews, and detailed usage plans were formulated (they were required to submit weekly learning duration, content, and usage experience): using Keke English in the first week, Daily English Listening in the second and third weeks, and English Fun Dubbing in the fourth week, requiring at least three-to-five practice sessions per week (30 minutes each). Students’ usage experience of the apps is shown in the table 1 below:

Table 1: Students’ usage experience of apps

App Name	Advantages	Disadvantages
Keke English	Rich resources, clear classification, updated current news; reasonable design of intensive listening, dictation, and interesting dubbing modules with scoring.	Shadow reading and AI oral functions require VIP restrictions.
Daily English Listening	Complete resources (including past CET exam papers), diverse quiz modes (fill-in-the-blank, blind listening); free shadow reading function with pronunciation scoring; free AI dialogue for the first 10 minutes every day.	Intensive listening module requires VIP; course interface text is small.
English Fun Dubbing	Innovative and efficient vocabulary memorization through situational videos; dubbing function suitable for group oral practice, supporting AI real-time pronunciation correction.	Some resources are outdated; some listening content has no subtitles (both Chinese and English); insufficient adaptation to teaching scenarios; technical issues such as inaccessible dubbing game.

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4. Reflection on the First Round of Action Research (Reflection Stage)

4.1 Preliminary Results

The first round of action research verified the feasibility of the model: low-technology tools have low operation thresholds and high acceptance among teachers and students; data from Welearn platform showed that 80% of students could independently complete pre-class online tasks; classroom participation increased, and after-class intensive listening and AI oral practice strengthened learning effects. Student feedback indicated that AI tools enriched learning forms, and fragmented practice (such as 10-minute after-class dubbing) increased speaking frequency; hierarchical exercises (such as nine-grid and dictation) adapted to the needs of students at different levels, realizing personalized learning. Through reflection, teachers clarified the advantages of tools: Daily English Listening is suitable for pre-class extensive listening and follow-reading, Keke English for after-class intensive listening, and English Fun Dubbing for auxiliary group oral practice.

4.2 Existing Problems

Insufficient tool synergy: The learning platforms and apps do not share data with one another, and therefore teachers must manually count learning progress, duration, and scores from various tools, resulting in their heavy workload and low efficiency.

Limited representativeness of cases: The long-term effects on low-level students need observation, and small-scale samples cannot reflect differences among students of different majors.

Significant differences in autonomous learning: Some students have low participation in after-class AI consolidation due to lack of planning, with tasks unfinished or only basic assignments completed, requiring strengthened autonomous learning guidance.

4.3 Optimization Directions for the Second Round of Action Research

Tool integration: Attempt to use Rain Classroom AI teaching platform (requiring school procurement support) to replace some functions, reduce tool switching frequency, and improve synergy efficiency. He Chunying, Wang Yu, and Guo Jing (2025) [6] have proposed an excellent intelligent teaching paradigm of "teaching-learning-management-evaluation-assessment" for the construction of an AI-empowered digital and intelligent teaching platform, which can be used as a reference to learn from.

Hierarchical task design: Based on feedback from low-level students, add "AI-generated basic exercises" (such as simple dialogue scripts from Doubao) to reduce entry difficulty.

Optimization of autonomous learning strategies: Conduct autonomous learning strategy training, add an "AI learning plan generation" link, and guide students to customize personalized daily/weekly learning plans through Doubao to improve the standardization of autonomous learning.

5. Conclusion and Outlook

Through the four stages of "planning-action-observation-reflection", the first round of action research has verified that the low-technology-threshold AI-empowered blended online-offline teaching model for college English listening and speaking is feasible to be carried out and has achieved preliminary results. However, optimization is still needed in tool synergy, hierarchical task design, and guidance for students' autonomous learning. Subsequent research will focus on tool integration and strategy adjustment in the second round, verify effects with expanded samples in the third round, and finally form a mature and promotable teaching model to better adapt to actual teaching needs.

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