

Research on Strategies to Improve Listening Performance in CET-4 Using the Intelligent Laboratory

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Abstract: For non-English major college students, the listening section of the College English Test Band 4 (CET-4) is both a critical and challenging component of exam preparation. Many students struggle with various difficulties during their listening practice. To address these challenges, open intelligent laboratories equipped with digital technology provide effective solutions. These laboratories offer a diverse range of listening resources, exposing students to various accents and topics, which helps them adapt to different listening styles and improve comprehension. Additionally, they provide simulated tests and interactive exercises that replicate exam conditions, allowing students to practice time management and develop effective test-taking strategies. Furthermore, artificial intelligence algorithms integrated into these labs analyze students' strengths and weaknesses, offering personalized feedback and targeted recommendations for improvement. By leveraging smart technology in education, intelligent laboratories can significantly enhance students' listening skills and CET-4 performance, facilitating more effective learning and advancing educational practices. This paper examines the primary challenges students face in CET-4 listening preparation and explores how digital tools in open intelligent laboratories can be utilized to develop effective preparation strategies.

Keywords: College English Test Band 4 (CET-4); Listening performance; Open intelligent laboratory; Digitization means; Preparation strategies

Online publication: March 28, 2025

1. Introduction

College English is a common foundational course for non-English majors in universities. The College English Test Band 4 (CET-4) is an important English examination compulsory for non-English major students during their university studies. The CET-4 exam comprehensively assesses students' skills in listening, speaking, reading, writing, and translation. The written part of the CET-4 exam mainly tests students' listening comprehension, reading comprehension, writing, and translation abilities. The oral part of the CET-4 exam mainly assesses students' oral expression skills. The importance of the CET-4 exam for non-English major

students is self-evident. Among them, the listening section accounts for 35% of the CET-4 exam. It is obvious that the listening comprehension section holds a vital position in the CET-4 exam.

Currently, online assessment has become an inevitable trend in paperless examinations and the development of educational information technology ^[1]. It is an important innovative exploration in implementing reforms in college English teaching and examinations. The *Thirteenth Five-Year Plan for Educational Informatization* issued by the Ministry of Education in 2016 emphasizes the need to promote the deep integration of management informatization and educational teaching innovation. It aims to achieve scientific decision support, refined management processes, and real-time teaching analysis while improving the efficiency of educational management ^[2]. The exploration of information technology in educational testing and evaluation is a transition from traditional paper-based exams to online paperless exams. It can not only help schools improve the efficiency of exam management but also comprehensively collect and analyze big data from students' various dimensions of examinations ^[3]. Through scientific comparison and analysis, it can provide timely and efficient feedback for teaching. In April 2018, the Ministry of Education issued the *Action Plan for Educational Informatization 2.0*, emphasizing the need to actively promote the development of "Internet + Education" relying on various intelligent devices and networks. It aims to promote the development of educational informatization in the new era, drive the transformation of education models, and restructure the educational ecosystem supported by new technologies. In March 2021, the Ministry of Education released the *Construction Specification for Digital Campus in Higher Education Institutions (Trial Implementation)* which pointed out that in the development of educational informatization 2.0, the business applications in digital campuses should "support teaching activities such as lesson preparation, teaching, homework correction, testing, and evaluation by teachers," and "support teaching process and link management, such as curriculum design, examination scheduling, grading, and evaluation." Computers and information technology have had a significant impact on language testing and assessment, especially in areas such as test management, test design and writing, task presentation, scoring, and score analysis and reporting ^[4]. Computers and networks can greatly improve the efficiency of large-scale language testing ^[5]. The integration of intelligent devices in open laboratories provides a practical approach for the implementation of relevant teaching policies.

Therefore, it is of great significance to utilize digitization means in open laboratories and integrate these modern teaching tools into daily instruction to provide students with personalized learning experiences, enhance their learning motivation, improve teaching efficiency, and ultimately improve their performance in the CET-4 listening exam.

2. Introduction of listening section in CET-4

The listening section of the CET-4 exam consists of three passages, and each question type carries different weights, with 7%, 8%, and 20%, respectively. The listening section accounts for 35% of the total exam score. The question type includes multiple-choice, and the recordings are either in standard British English or American English. The speed of the recordings is approximately 120 to 140 words per minute, with a duration of 15 seconds after each listening question.

The CET-4 listening test assesses students' ability to comprehend oral information, including understanding explicit information, understanding implicit information, using language features to understand the listening materials, and employing listening strategies. Specifically, understanding explicit information includes grasping the main idea of the listening passage, understanding important information or specific details in the listening

materials, and comprehending the expressed opinions and attitudes of the speakers in the listening materials. Understanding implicit information involves inferring the implied meanings in the listening passage, judging the speakers' communicative competence in the listening materials, and deducing their opinions and attitudes. Using language features to understand the listening materials mainly involves discerning phonetic features in the listening materials and understanding the relationships between sentences in the listening passage. Phonetic features include identifying phonetic elements in continuous speech and understanding intonation and stress in the listening materials. Understanding the relationships between sentences in the listening passage mainly includes recognizing conditional relationships, causal relationships, contrastive relationships, and comparative relationships. Using listening strategies naturally involves employing appropriate listening strategies to aid comprehension.

3. Challenges faced in the CET-4 section

This article focuses on the research conducted on students from the classes taught by the authors at the university during the second semester of their first year in college. The classes included students from Intelligent Management Class 2301, Finance and Accounting Class 2301, Accounting Class 2302, Accounting Class 2303, and Film Production Class 2303 (181 students in total). During regular university College English classes, questions were asked to gauge their performance in answering questions in class. Additionally, some students were randomly selected during breaks to carry out conversations and record the main problems they encountered while preparing for the CET-4 listening exam.

It was found that listening posed a challenge for students during their CET-4 exam preparation. More than half of the students found the listening section particularly difficult. The main issues they faced during their preparation for the CET-4 listening exam are as follows:

Limited vocabulary: Many students had a limited vocabulary and struggled with the accurate pronunciation of words. They lacked the ability to think from the perspective of synonyms and accumulate related English expressions. This hindered their understanding of college-level English. The correct options in the listening questions are not simple repetitions of the content in the listening passage but rather involve certain synonymous expressions. Students' lack of awareness and accumulation of synonymous expressions affected their listening comprehension and accuracy.

Inadequate prediction skills: Students did not emphasize the importance of making predictions before listening, which resulted in their inability to quickly grasp the key points during the listening process. Before the listening exercises, students were aware of the scope of the upcoming listening content. However, students often failed to make timely predictions about the relevant options for each question. They passively listened without actively predicting, such as the theme of the listening passage or the relationships between characters. They only looked at the options and answered the questions during the listening process. Naturally, they struggled with questions that were slightly more difficult, resulting in lower accuracy rates.

Poor short-term memory and note-taking skills: During the listening exercises, students failed to combine the options and effectively record keywords or important information from the passage. As the CET-4 listening section only plays once, failure to take notes in a timely manner and lack of conscious short-term memory training made it difficult for students to accurately remember important information. Thus, students' short-term memory and note-taking practices also affect their listening comprehension.

4. Preparation strategies for CET-4 listening section with the assistance of intelligent laboratory

In response to the problems of insufficient vocabulary, weak predictive awareness, and poor short-term memory that students encounter in actual preparation for the CET-4 listening section, the following listening preparation strategies are proposed in combination with the intelligent tools in the open intelligent laboratory.

At first, the intelligent lab system can automatically match learning resources. In the face of a massive amount of English learning resources, students need to spend a lot of time and effort searching for suitable learning resources for themselves. However, the intelligent resource matching technology in the intelligent open laboratory can solve this problem. Artificial intelligence technology can intelligently select suitable CET-4 listening learning resources based on students' personal characteristics and needs, such as English proficiency and learning preferences. This means that students can rely on the intelligent system to provide customized recommendations to improve learning efficiency. At the same time, this personalized resource matching ensures that every student can access listening materials related to the CET-4, increasing the interest in learning and integrating English learning with academic development, thus improving the practical application of learning. This helps students strengthen their personalized vocabulary accumulation and summarize synonymous expressions. For example, students weak in news listening can accumulate news vocabulary, especially focusing on environmental, political, and international relations-related vocabulary. Students weak in long conversation listening can accumulate vocabulary related to social life topics, including family, shopping, and transportation. Students weak in listening to passages can accumulate vocabulary related to personal stories and humanities studies, including occupations, interpersonal relationships, and social customs.

Additionally, the intelligent lab system can create a contextual learning mode. Firstly, the contextual learning mode allows students to scan surrounding objects and obtain relevant CET-4 English content using intelligent devices in the open laboratory. This immersive experience not only helps students integrate English learning into their lives but also makes it easier for them to understand and master new vocabulary and concepts. Secondly, the contextual learning mode emphasizes the students' initiative, allowing them to adjust the learning process independently and break away from the time constraints of traditional classrooms. At the same time, in this mode, the role of the teacher has also changed. They no longer need to engage in the heavy work of searching and filtering resources but can focus on analyzing students' listening situations and providing corresponding guidance and feedback. For example, before listening, students need to quickly enter the listening state within a limited time, efficiently read the options of each part of the listening, actively associate the accumulated listening theme vocabulary, and understand the theme and main idea of the predicted listening passage. The contextual mode set in the open laboratory can guide students to mark the keywords of the options and check them at the key points of listening. This can consciously cultivate and exercise their predictive awareness in each listening practice, gradually developing the habit of predicting while listening.

Lastly, the intelligent lab system can offer accompanied practice. As an emerging technology, educational robots create a simulated learning environment, thus creating a real learning atmosphere for students. During the dialogue process, educational robots use their powerful language understanding and expression capabilities to promptly capture and correct students' pronunciation and vocabulary errors. This timely feedback helps students better understand and improve their oral skills, effectively "training their ears" for the CET-4 listening section. In addition, the robot plays the role of a "teacher" in students' learning. Besides imparting relevant CET-4 listening knowledge and skills, it also assesses students' performance and provides verbal encouragement and advice, offering personalized guidance based on students' performance. It can effectively provide specific

instructions for CET-4 listening note-taking, avoiding ineffective practice.

5. Conclusion

To sum up, in the field of teaching college English, the National College English Test Band 4 (CET-4) is a critical test for evaluating the English proficiency of non-English major college students. Among them, the listening section not only has a high score weight but also often becomes a challenge and focus for students in the preparation process. This study focused on the core issues encountered by students at our university in the preparation for the CET-4 listening section. By utilizing the intelligent resources in the open laboratory, this article proposed a series of targeted teaching strategies aimed at optimizing listening teaching methods, improving students' listening abilities, and meeting the high-quality requirements of college English teaching in the new era. The implementation of these strategies is expected to help students overcome obstacles in listening preparation more effectively, thereby achieving better results in the CET-4 exam and comprehensively improving their English language proficiency.

Disclosure statement

The authors declare no conflict of interest.

References

- [1] Gong J, 2019, Application of Artificial Intelligence Technology in College English Teaching. *Information and Documentation Materials*, (20): 124–125.
- [2] Gan C, 2015, A Discussion on College English Teaching under the Background of Big Data. *Heilongjiang Science*, (13): 115–116.
- [3] Hua L, Chen L, Sun M, 2017, Research on the Promotion of English Learning Transformation by Artificial Intelligence. *Modern Distance Education*, (6): 27–31.
- [4] Zhang T, Gao W, 2015, Application Research of iTEST System in CET-4 Coaching in Independent Colleges. *Vocational Education Communication*, (9): 22–24.
- [5] Zhu Z, Peng H, 2020, The Practice Path of Technology-Enabled Smart Education. *Chinese Journal of Education*, (10): 1–8.

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