

Research on the Development and Evaluation System of English Listening Training Platform

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Abstract: With the rapid development of information technology, English education, especially listening teaching, is facing numerous challenges under traditional models. As a crucial part of English education, listening teaching plays a key role in improving students' listening abilities and cultivating their comprehensive language application abilities. This paper aims to construct a data-driven English listening training platform and its corresponding evaluation system, explore a new teaching model and evaluation method, evaluate students' listening levels more accurately, provide personalized teaching suggestions for teachers, and promote the reform of English listening teaching.

Keywords: English Listening; Listening Training Platform; Evaluation System; Adaptive Learning; Personalized Teaching; Data-Driven

1. Introduction

With the continuous and vigorous development of information technology and educational technology, the field of education is undergoing profound changes. The traditional English listening teaching model has gradually revealed its limitations in this wave and is difficult to fully meet the diverse needs of modern education. In the past traditional model, English listening teaching has long been mired in many difficulties. [1] Its teaching content is often limited to specific textbooks or a limited amount of audio materials, with a single form, making it hard to arouse students' learning enthusiasm and curiosity. The learning method is also rather rigid. Mostly, teachers play listening materials, and students listen passively and complete simple exercises, lacking interactivity and autonomy. Moreover, the inconsistent evaluation standards make the

measurement of students' listening levels lack accuracy and comprehensiveness, and it is difficult to accurately identify students' strengths and weaknesses. These problems are intertwined, directly resulting in a slow improvement process of students' listening levels and unsatisfactory overall learning effects, which are far from the high efficiency and high quality expected by modern education. [2]

In recent years, the data-driven teaching method has begun to emerge and has received increasing attention. This innovative teaching concept relies on advanced information technology means to deeply mine and analyze various types of data generated by students in the learning process, such as learning duration, answer accuracy rate, error type distribution, etc. Based on these rich data information, personalized feedback reports and learning guidance strategies can be customized for each student. [3] Whether it is providing basic knowledge consolidation practice suggestions for students with weak listening foundations or recommending more challenging extended learning resources for students with spare learning capacity, they can all be accurately matched, thus truly realizing personalized learning in a real sense, fully meeting the diverse learning needs of different students and greatly improving learning efficiency and quality.

In view of the difficulties of the traditional teaching model and the significant advantages of the data-driven teaching method, our research team has innovatively proposed a plan to build a specialized English listening training platform. [4] This platform will integrate a rich variety of listening resources, covering different themes, genres and difficulty levels to meet the personalized selection needs of students. At the same time, with the help of a data-driven evaluation system, it will

comprehensively and accurately record and analyze each learning behavior and achievement data of students on the platform. Through in-depth analysis of these data, it can not only provide students with detailed and targeted learning feedback, help them clearly understand their own learning status and progress space, and adjust learning strategies in a timely manner, but also provide valuable teaching references for teachers, enabling them to more accurately grasp students' learning situations, further optimize teaching content and methods, and finally effectively improve the overall effect of English listening teaching, vigorously promote the in-depth development and wide application of personalized learning in the field of English listening teaching, and inject new vitality and impetus into the reform of English education and teaching. [5]

2. Analysis of the Current Situation and Problems of English Listening Teaching

With the rise of Internet education, its influence in the field of education has been continuously expanding, prompting many colleges and universities to pay increasing attention to the application of information technology in English teaching, especially in listening teaching. Colleges and universities have actively explored the integration paths of information technology and English listening teaching. For example, they have introduced tools such as online listening course platforms and intelligent listening training software, aiming to break through the limitations of traditional teaching and improve teaching quality. Although some progress has been made in the reform of English listening teaching, many challenges still remain.

The traditional English listening teaching model shows the characteristic of over-reliance on teacher instruction. In this model, students are mostly in a passive position of receiving knowledge, lacking opportunities for autonomous learning. Classroom teaching often follows a fixed process led by teachers, and students have difficulty flexibly adjusting learning content and rhythm according to their own needs, and the exertion of their subjective initiative is significantly restricted. At the same time, the current listening evaluation system has the drawback of singularity. The evaluation method mainly relying on final examinations or classroom quizzes makes it

difficult to comprehensively and accurately measure students' listening levels. This evaluation method can only reflect students' performance in specific test scenarios and cannot cover their comprehensive abilities and progress in the listening comprehension process, the application of listening skills and the long-term learning process. In addition, the existing listening resources have not been fully diversified and expanded with the help of information technology. [6] Although there are some basic textbook audios and simple online listening materials, the overall richness and diversity of resources are insufficient, lacking a stratified and personalized learning material library and training system constructed according to the individual differences of different students, which limits students' learning selection range and learning effect improvement space.

To tackle the problems existing in current English listening teaching, it is urgent to enhance teaching effects through the innovation of teaching models and evaluation systems. With the continuous development of information technology, the data-driven personalized learning and multi-dimensional evaluation systems show significant advantages. [7] The data-driven personalized learning model can endow students with more autonomous decision-making rights, enabling them to independently select listening materials, plan learning processes and optimize learning strategies according to their own interests, ability levels and learning goals. The multi-dimensional evaluation system can deeply analyze students' learning situations from multiple aspects, and provide students with detailed and accurate learning feedback covering various knowledge points and listening skill dimensions through comprehensive analysis of learning data. This helps students to timely detect their own weak links and make targeted improvements, and then gradually improve their English listening levels, promoting a qualitative leap and continuous development of English listening teaching quality.

3. Design and Development of the Listening Training Platform

The core of this study is to develop an English listening training platform integrating extensive listening, intensive listening, and

evaluation functions, aiming to provide students with an online autonomous learning environment, help them conduct personalized listening training after class, and understand their learning progress through real-time data feedback, so as to achieve a two-way improvement in students' autonomous learning and teachers' precise guidance. The technical architecture of the platform mainly consists of a front-end display layer, a back-end data processing layer, and a database storage layer. The front-end display layer is responsible for the design of the user interface and the implementation of interactive functions, ensuring that students can operate the platform conveniently, conduct listening training, and obtain personalized learning feedback in real time. By adopting responsive design technology, the platform can be adapted to multiple devices, enabling it to run smoothly on computers, tablets, and mobile phones, providing convenience for students to learn anytime and anywhere. The back-end data processing layer is responsible for collecting and analyzing students' learning data, supporting the generation of personalized learning reports and the dynamic recommendation of training resources. The database storage layer undertakes the tasks of storing students' learning records, evaluation data, and learning resources, and ensures data privacy through security encryption technology to ensure the stability of platform operation and the integrity of data.

In terms of functional design, the platform combines three major modules: extensive listening training, intensive listening training, and listening evaluation. The extensive listening training module aims to improve students' ability to process a large amount of information over a long period. By providing diversified listening materials, such as news, interviews, and film and television clips, covering multiple themes and fields, it helps students train their ability to obtain global information. Students can freely choose practice content according to their personal interests and needs and adjust the playback speed to adapt to their own learning rhythms. The intensive listening training module focuses on sentence-by-sentence and word-by-word practice. Through concise listening materials and dictation functions, it helps students improve their ability to capture language

details. The platform supports students to repeatedly dictate words or sentences, records the types and frequencies of errors, and generates personalized error analysis reports after training to help students clarify the direction of improvement.

The listening evaluation module is an important part of the platform. Its core is to provide a comprehensive assessment of learning performance by analyzing students' training data in real time. The evaluation content includes multiple dimensions such as listening duration, training frequency, vocabulary coverage, correct rate, and error types, which can comprehensively reflect students' listening abilities. Through big data technology and artificial intelligence algorithms, this module can dynamically adjust training resources and difficulty according to students' weak links and provide students with precise improvement suggestions. Meanwhile, the evaluation results are presented in a visual form, allowing students to intuitively understand their learning progress through line charts, pie charts, etc., enhancing their sense of achievement and goal in learning.

The development process of the platform is divided into stages such as requirement analysis, functional design, technical implementation, testing, and optimization. During the requirement analysis stage, through questionnaire surveys and interviews with students and teachers, the main pain points and requirements in listening training were identified. The survey found that students hoped to obtain more flexible and diverse listening resources, while teachers expected to efficiently master students' performance data through the system. Based on the survey results, the platform designed three core modules, and combined with current educational information technology, used front-end frameworks such as Bootstrap and Layui to build the interface, utilized PHP + Apache to build the back-end service, and combined Python's machine learning algorithms to complete the data analysis function. After the completion of platform development, the research team invited students and teachers to participate in the trial use, and further optimized the system through feedback to ensure its complete functions and convenient operation.

The unique features of this platform lie in its

student-centered design concept and data-driven personalized learning support. Students can conduct extensive and intensive listening training anytime and anywhere after class, obtain real-time feedback, clarify their own strengths and weaknesses, and adjust their learning strategies according to improvement suggestions. Diversified listening resources cover real-life and academic scenes, which not only improve students' language abilities but also broaden their knowledge. In addition, teachers can obtain students' training data through the platform, precisely adjust classroom teaching content, and design more targeted teaching activities. This teaching model supported by technology not only improves the efficiency and effectiveness of English listening teaching but also promotes data-based educational innovation.

4. Construction of the Evaluation System for English Listening Ability

Traditional English listening evaluation methods usually rely on classroom quizzes or final exams. This approach only focuses on students' performance in a single test and has difficulty reflecting their learning process and the long-term development of listening abilities. The limitations of this evaluation method are obvious: Firstly, it ignores students' learning trajectories and progress, making it difficult to discover potential problems and give timely feedback. Secondly, the evaluation indicators are relatively single, simply measuring listening levels by scores, while there may be multiple complex factors behind the scores, such as unfamiliarity with certain words or sentence patterns and differences in adaptability to speech rates. In addition, a single test often has great contingency and may not comprehensively reflect students' real abilities due to fluctuations in their states.

To address the deficiencies of traditional evaluation methods, this study has designed a data-driven multi-dimensional evaluation system. This system comprehensively analyzes students' listening abilities by integrating diversified evaluation indicators and provides detailed and intuitive feedback for students and teachers. [8] Compared with traditional methods, the biggest advantage of this evaluation system is that it not only focuses on the final listening scores but also takes into

account various performances in the learning process, comprehensively evaluating students' listening abilities and learning habits. Through this system, students' learning situations can be presented in a more three-dimensional manner, and teachers can also obtain more targeted teaching guidance data.

In the application of the platform, the setting of evaluation indicators for listening ability is crucial. Firstly, the extensive listening duration is an important dimension, which can reflect students' persistence and comprehension ability in processing listening materials over a long period. Extensive listening training usually involves long and multi-themed materials, such as news broadcasts, speeches, and interviews. By recording the duration of students' listening materials and analyzing their adaptability to language input, this indicator can help students master the skills of extracting macro information and improve their language sense and cultural awareness. Secondly, the number of words in intensive listening is an important indicator for measuring students' ability to grasp the details of listening materials. Through sentence-by-sentence dictation or intensive reading, students not only need to accurately identify words but also understand the logic between sentences, which puts high requirements on their ability to deeply process language input.

Another core indicator is the listening accuracy rate, which directly reflects students' comprehension of listening content. In the platform, the calculation of the accuracy rate includes the correct rate of word spelling, the ability to capture key information, etc. Through the change trend of the accuracy rate, students can clearly see their own progress or bottlenecks and adjust their training strategies. In addition, the training frequency is also included in the evaluation range. This indicator focuses on students' learning habits and autonomy. High-frequency listening training not only helps with long-term language memory but also enhances students' learning perseverance and stability. Through this dimension, teachers can intuitively understand students' learning input and further optimize teaching plans.

In addition to the above indicators, the analysis of error types is a highlight of this evaluation system. The classification of error types includes word spelling errors, misjudgment of

pronunciation, and deviation in grammatical understanding. After these data are analyzed by the back-end, specific weak links can be pointed out for students. For example, if a student frequently makes spelling errors in dictation training, it may indicate that his or her familiarity with vocabulary spelling is insufficient. In this case, the platform can recommend special training resources to help him or her strengthen spelling ability. Similarly, if a student frequently makes mistakes in misjudging pronunciation, it may be related to his or her insufficient sensitivity to pronunciation phenomena such as liaison, weakening, or stress. The platform can then recommend special voice training materials to improve his or her ability to identify pronunciation details. [9]

In the presentation of evaluation reports, the platform adopts a visual form, combining line charts, bar charts, and pie charts to clearly display students' performances in various dimensions. For example, students can clearly understand the proportion of their input in extensive and intensive listening at a glance, compare the change trends of accuracy rates in different training stages, and identify fluctuations in training frequency. Such reports not only help students clarify the direction of improvement but also provide a scientific basis for teachers' classroom guidance. With data support, teachers can design more targeted teaching activities, such as focusing on the common weak links of a certain class for in-depth explanation or setting differentiated training tasks for students at different levels.

This evaluation system not only focuses on the collection and analysis of data but also pays attention to the active guidance of students' learning behaviors. Driven by data, students can more intuitively understand their own strengths and weaknesses, thereby enhancing their learning autonomy and sense of purpose. Meanwhile, the evaluation system emphasizes the combination of process assessment and proficiency assessment, paying attention to both students' scores in a single test and their performance in long-term learning trajectories. For example, in the final grade evaluation, the weight of process assessment can reach 50%, encouraging students to attach importance to ordinary listening training rather than just cramming for exams in a short period before the exam. [10]

The data-driven multi-dimensional evaluation system breaks through the limitations of traditional listening evaluation methods. Through multiple indicators such as extensive listening duration, the number of words in intensive listening, accuracy rate, training frequency, and error type analysis, it constructs a three-dimensional, scientific, and personalized English listening assessment framework. This system not only helps students comprehensively understand the current situation of their listening abilities but also provides detailed teaching feedback data for teachers, thus realizing the student-centered educational concept. Through the implementation of this system, students' learning effects will be significantly improved, and the scientificity and effectiveness of English listening teaching will reach a new level.

5. Conclusions and Prospects

Although this study has achieved preliminary results in the development of the English listening training platform and the construction of the evaluation system, there is still room for further improvement and in-depth research. Future research can be expanded in the following directions:

Expansion and optimization of platform functions: With the progress of technology and changes in educational needs, platform functions need to be continuously upgraded and optimized. For example, artificial intelligence technology can be introduced to analyze students' learning progress in real time and automatically adjust learning content and difficulty according to their performance.

Multi-dimensional improvement of the evaluation system: Although the current evaluation system already covers multiple dimensions such as extensive listening duration and the number of words in intensive listening, the evaluation of students' listening abilities can be further refined. For example, how to better evaluate students' depth of listening comprehension and the application of listening strategies can provide new directions for subsequent research. In addition, non-cognitive factors such as students' emotional attitudes and learning motives should also be included in the evaluation system to achieve a more comprehensive assessment.

Further integration of big data and

personalized learning: With the continuous maturity of big data technology, how to use massive data to formulate more personalized learning paths for each student will be an important direction for future research. Based on students' learning history, learning behaviors, and learning data, the platform can predict students' learning trends and provide customized listening training programs for them to achieve the best learning effects.

Widespread promotion and application of the platform: Although the platform design and evaluation system in this study have achieved certain success in our school, there is still great potential for their promotion and application in other colleges and universities and among different English learner groups. Future research can explore how to promote the platform to more institutions and even learners in different language environments to verify its universality and application value.

This study has explored a new English listening teaching model by constructing an English listening training platform and its data-driven multi-dimensional evaluation system. The platform provides students with rich listening training resources and, through refined data analysis, gives real-time feedback on their learning situations, helping them continuously improve their listening abilities in the process of autonomous learning. Meanwhile, the multi-dimensional evaluation system adopted by the platform can comprehensively evaluate students' listening levels and provide targeted teaching suggestions for teachers, thus improving the effect of English listening teaching. Through the construction and application of this platform, personalized learning has been promoted, and the teaching reform of listening education has also been driven. In the future, with the continuous progress of technology and the continuous renewal of educational concepts, this platform will play an important role in a wider range of educational fields.

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