

Optimization Strategies for the Construction and Application of Networked Intelligent Language Laboratory Practice Bases under the Perspective of Collaborative Education

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Abstract: Under the background of collaborative education, this paper discusses the construction and optimization strategies for the use of networked intelligent language laboratory practice bases. By analyzing its importance, including meeting the needs of educational informatization, improving the quality of language teaching, and cultivating students' innovation and practical abilities, measures such as strengthening school-enterprise cooperation, optimizing the practical teaching system, building a collaborative operation mechanism for laboratories, and optimization strategies for use are proposed. Case studies of Zhejiang International Studies University and the School of Foreign Languages of Xiamen University are conducted to emphasize the significance and development trend of the construction and optimization of this practice base.

Keywords: Collaborative Education; Networked Intelligent Language Laboratory; Practice Base Construction.

1. Introduction

The construction and optimization of the practice base of networked intelligent language laboratory is an important topic in the current education field. Under the background of collaborative education, how to give full play to the advantages of networked smart language labs to improve the quality of teaching and talent cultivation has become an urgent problem. This paper puts forward the optimization strategy for the construction and use of the practice base of networked intelligent language laboratory through the study of related theories and practices. As a new type of teaching resource, networked intelligent language laboratory provides richer means and broader space for language teaching. Under the concept of collaborative education, all parties, including schools, enterprises and society, participate together and are committed to creating a high-quality language teaching environment and cultivating language talents with international vision and innovation ability.

ZJ International Studies University and Wuhan Oh Yi Cloud Computing Co., Ltd. cooperated on the research project of cloud network-based language laboratory construction, which has achieved remarkable results. The project has completed the construction of cloud server-based language and simultaneous interpretation labs, which realizes a diversified teaching mode and serves all kinds of language classes, computer lab courses, comprehensive liberal arts lab courses and college students' independent learning of foreign languages. In addition, the university-enterprise co-construction of practice teaching bases, joint cultivation of application-oriented composite foreign language talents, and the construction of a foreign language experimental teaching content system integrating basic, comprehensive and innovative experiments have opened up new ideas and ways for foreign language experimental teaching.

Wenxiang and the College of Foreign Languages and Literature of XM University have jointly built a practice base

for intelligent analysis of language learning. Through the unveiling ceremony and in-depth discussions and exchanges, we will focus on intelligent analysis of language learning, provide students with a practice platform, deepen university-enterprise collaborative education, promote the integration of industry and education, and improve the quality of talent cultivation.

The construction plan of "Internet+Education" intelligent laboratory also provides a useful reference for the development of networked intelligent language laboratory. Through the overall planning, selection of hardware and software equipment, construction of teaching resources, network construction, data management, and construction of faculty and staff, we create an efficient, convenient, and personalized learning environment to meet the different needs of teachers and students and improve the teaching effect [1].

Research on the problems and development methods of digital language laboratory managers in other universities also provides valuable experience for the construction and optimization of networked smart language laboratories. The construction and optimization of the practice base of networked intelligent language laboratory has important practical significance and broad development prospects. Under the background of collaborative education, we should fully draw on the experience of all parties, constantly explore and innovate, and make greater contributions to improving the quality of language teaching and talent cultivation.

2. Importance of the Construction of Networked Intelligent Language Laboratory Practice Base

2.1. Meet the Needs of the Development of education Informatization

In today's era of rapid development of information technology, education informatization has become an unstoppable trend. The construction of networked intelligent

language laboratory practice base is an important initiative to follow this trend. Education informatization requires providing students with richer and more diverse learning resources and learning methods. The traditional teaching mode is often limited by time and space, while the networked intelligent language laboratory breaks these limitations. Students can access learning resources and conduct independent learning anytime and anywhere through the network. The laboratory can also provide diversified learning modes, such as online courses, virtual experiments, interactive learning, etc., to meet the learning needs of different students [2].

As an important carrier of educational informatization, the networked intelligent language laboratory has many advantages. On the one hand, it can integrate a variety of teaching resources, including text, images, audio, video, etc., to provide students with a more vivid and intuitive learning experience [2]. On the other hand, the lab can also make use of advanced technological means, such as artificial intelligence and big data, to analyze and evaluate students' learning, provide teachers with personalized teaching suggestions, and improve teaching effectiveness [3]. For example, the smart lab created by GD Tianzhi Industry Co. allows teachers and students to be free from the limitations of time, space and other dimensions, which greatly facilitates teachers and students and improves the flexibility of teaching. Teachers can carry out relevant operations on the desktop of their own lab teacher machine, and students can watch every detail of the teacher's operation through the tablet in their own operation position, and at the same time, they can choose to watch the teacher's experimental operation from a certain angle by themselves. In addition, the cloud network-based language laboratory informatization construction also provides strong support for education informatization. By adopting the most advanced desktop virtualization technology, the cloud network language lab separates the computing logic, transaction logic and display logic, which reduces the total cost of ownership of the language lab and improves the return on investment of the school. Cloud terminals are easy to deploy and maintain, with stable performance and low failure rate, adapting to high-frequency use and ensuring normal teaching. The construction of the networked intelligent language laboratory practice base can meet the needs of the development of education informatization, provide students with richer and more diverse learning resources and learning methods, and promote the in-depth development of education reform.

2.2. Improve the Quality of Language Teaching

The networked intelligent language laboratory has advanced teaching equipment and teaching software, which can provide students with a more realistic and vivid language learning environment and improve the quality of language teaching.

Advanced teaching equipment, such as the cloud server-based language and simultaneous interpretation laboratory built by ZJ International Studies University in cooperation with Wuhan Oh Yi Cloud Computing Co. and the intelligent analysis practice base for language learning jointly built by Wenxiang and XM University College of Foreign Languages, provide students with diversified teaching modes and practice platforms. These labs integrate a variety of teaching resources, including text, images, audio, video, etc., so that students can more intuitively feel the charm of language. Advanced

teaching software also brings great convenience to language teaching. For example, the digital language laboratory management system can realize a variety of teaching modes such as broadcast teaching, shared teaching and independent on-demand teaching to meet the learning needs of different students [4]. In addition, the digital online level testing and assessment function can realize scientific testing and real-time dynamic assessment, provide teachers with personalized teaching suggestions, and improve the teaching effect.

The networked intelligent language laboratory can also use advanced technological means, such as artificial intelligence and big data, to analyze and assess students' learning. By analyzing students' learning data, teachers can understand students' learning progress and mastery, so as to adjust teaching strategies and improve teaching quality. The advanced equipment and software of the networked intelligent language lab create a real and vivid learning environment for students, helping to improve the quality of language teaching.

2.3. Cultivate Students' Creative and Practical Abilities

The practice base of the networked intelligent language laboratory provides a practical platform for students, and students can improve their innovative ability and practical ability in practice.

The Networked Intelligent Language Laboratory Practice Base integrates advanced teaching equipment and rich teaching resources, creating a good practice environment for students. In such an environment, students can be exposed to diversified learning styles and real and vivid language learning scenarios to stimulate their innovative thinking. For example, in the language lab, students can make use of the multiple teaching modes of the digital language lab management system, such as broadcast teaching, shared teaching and independent on-demand teaching, to personalize their learning according to their learning needs and interests. The digital online level testing and assessment function allows students to know their learning situation in time, find out the problems and make targeted improvements, and cultivate their independent learning ability and innovative practice ability. The multimedia resources in the language lab, such as text, images, audio and video, can provide students with rich creative materials. Students can exercise their creative and practical abilities by producing multimedia works, such as English short videos and PPT speeches.

During the practice in the language lab, students can also participate in group discussions, project cooperation and other activities to develop teamwork and communication skills. These abilities are crucial to students' innovative practice and can help them better utilize their talents in their future study and work. As mentioned in Cultivation of Students' Innovative Ability in Information Environment, information resources are becoming increasingly abundant and the teaching mode is being transformed. The Networked Intelligent Language Laboratory follows this trend and provides an open and interactive learning environment for students to cultivate their innovative spirit and practical ability. By providing rich practice opportunities and advanced teaching resources, it provides strong support for the cultivation of students' innovative and practical abilities.

3. Strategies for the Construction of Networked Intelligent Language Laboratory Practice Base under the Perspective of Collaborative Parenting

3.1. Strengthening Cooperation between Schools and Enterprises

3.1.1. Co-construction of Practice Base with Enterprises

Under the perspective of collaborative education, the construction of the practice base of networked intelligent language laboratory requires the joint efforts of schools and enterprises. Enterprises can provide advanced technology and rich resource support, for example, providing professional equipment and software to provide a material foundation for the construction of the practice base. Enterprises can also send professional and technical personnel to participate in practice teaching and share the latest industry news and practical experience. Schools, on the other hand, can provide teaching and talent support, and utilize their own educational resources and teacher strength to provide theoretical guidance and teaching guarantee for the construction of practice bases. Schools can organize professional teachers to participate in the planning and design of practice bases, and develop practice teaching programs that meet teaching needs. In addition, the school can also select outstanding students to participate in the construction and operation of the practice base, injecting new vitality into the development of the practice base. Through the joint construction of the school and the enterprise, the networked intelligent language laboratory practice base can give full play to the advantages of both sides, realize resource sharing and complement each other's advantages, and provide students with a better practical teaching environment.

3.1.2. Carrying out Industry-University-Research Cooperation

Industry-university-research cooperation is one of the important ways of collaborative education. Through University-Industry-Research Cooperation, schools, enterprises and research institutions can realize resource sharing and complement each other's advantages to improve the quality of talent training. University-Industry-Research Cooperation can play an important role in the construction of networked intelligent language laboratory practice base. Schools can carry out research projects with enterprises and scientific research institutions, transform research results into teaching resources, and provide rich content and cases for practical teaching. Schools can also invite experts from enterprises and scientific research institutions to participate in practice teaching and provide professional guidance and advice for students [5]. Enterprises can work with schools and research institutions to develop new products and technologies and improve the core competitiveness of enterprises. In addition, enterprises can provide internships and employment opportunities for students and support their career development. Scientific research institutions can work with schools and enterprises to carry out basic and applied research, providing theoretical support and technical guarantee for the construction of practice bases. Through the cooperation between the industry, universities and research institutes, the practice base of networked intelligent language laboratory can realize the organic combination of teaching, scientific research and production, and provide strong support

for the cultivation of high-quality talents with innovative ability and practical ability.

3.2. Optimize the Practical Teaching System

3.2.1. Enrich the Content of Practical Teaching

Increase the proportion of practical teaching, enrich the content of practical teaching and improve students' practical ability. Under the perspective of collaborative education, the practice base of networked intelligent language laboratory should constantly enrich the content of practical teaching. On the one hand, increase the proportion of practical teaching in the overall teaching, so that students have more time to participate in practical activities. For example, the curriculum can be appropriately adjusted to increase the number and length of practical courses to ensure that students can fully contact the actual operation and improve their practical ability. On the other hand, the content form of practical teaching is enriched. In addition to the traditional classroom practical teaching, more practical projects and cases can be introduced, so that students can improve their abilities in the process of solving practical problems. For example, combined with the actual needs of enterprises, project-based teaching is carried out, so that students can participate in the language-related projects of enterprises, such as translation projects, language software development projects and so on. Using the case teaching method, actual language application cases are analyzed so that students can learn the methods and skills of language processing from them. In addition, various teaching resources can be integrated to enrich the content of practical teaching. For example, the multimedia resources of the networked intelligent language laboratory, including text, images, audio, video, etc., can be utilized to provide students with rich practical materials. Students can exercise their language application and innovation ability by making multimedia language works, such as short language learning videos and language teaching PPTs.

3.2.2. Innovative Practical Teaching Methods

Adopt project-based teaching, case study teaching and other methods to improve students' learning interest and practical ability. In order to better improve students' learning interest and practical ability, the practice base of networked intelligent language laboratory needs to innovate practical teaching methods. Project-based teaching is an effective practical teaching method. Under the background of collaborative education, schools and enterprises can jointly design language-related projects and let students participate in the implementation of the projects in a group. In the process of project implementation, students need to use the language knowledge and skills they have learned to carry out demand analysis, program design, implementation and evaluation. This teaching method can not only improve students' practical ability, but also cultivate their teamwork and problem solving ability [6]. Case teaching is also an important practical teaching method. By analyzing actual language application cases, students can better understand the application of language theoretical knowledge in practice. Teachers can choose representative language cases and guide students to analyze and discuss them, so that students can summarize the lessons learned from them and improve their language processing ability. Innovative teaching methods such as online teaching and virtual experiments can also be used in combination with the advantages of networked intelligent language laboratories. Online teaching allows students to learn anytime and anywhere, improving the flexibility and

autonomy of learning. Virtual experiments, on the other hand, can provide students with a safer and more convenient practice environment, allowing them to conduct language experiments and simulation operations in the virtual environment to improve their practical ability [7].

3.3. Construction of Laboratory Synergistic Operation Mechanism

3.3.1. Establish a Sound Management System

Develop a sound management system to standardize the operation and management of the laboratory. The effective operation of the networked intelligent language laboratory practice base cannot be separated from a sound management system. First of all, the norms for the use of the laboratory should be clarified, including the opening time, reservation process, equipment operation guidelines, etc., to ensure that teachers and students can use the laboratory resources in an orderly manner. Secondly, an equipment maintenance system should be established to regularly check, maintain and upgrade the hardware equipment and software system of the laboratory to ensure the normal operation and stable performance of the equipment. A safety management system is established to strengthen the safety management of the laboratory, including fire prevention, anti-theft, electricity safety and other aspects, to ensure the personal safety of teachers and students and the safety of laboratory property. In addition, a teaching resource management mechanism should be established to classify, organize and update the teaching resources in the laboratory, so as to facilitate teachers and students to find and use them [8]. By establishing and improving these management systems, the operation and management of the laboratory can be standardized, and the efficiency of laboratory use and service quality can be improved.

3.3.2. Strengthen Personnel Training and Management

Train managers, classroom teachers and students to improve their management and utilization level. In order to give full play to the role of the practice base of the networked intelligent language laboratory, it is necessary to train managers, classroom teachers and students. For managers, laboratory management training should be carried out, including knowledge and skills in equipment maintenance, safety management, resource management, etc., to improve their management level and service consciousness. Teachers need to receive training in teaching techniques, master the use of advanced teaching equipment and software in the laboratory, and be able to utilize these resources to carry out diversified teaching activities and improve teaching effectiveness. For students, they should be trained in the use of laboratories, so that they can understand the rules and regulations of laboratories, the operation methods of equipment and the access to learning resources, and cultivate their independent learning ability and innovation and practice ability. By strengthening personnel training and management, the management and utilization level of relevant personnel in the laboratory can be improved, providing a strong guarantee for the efficient operation of the laboratory and the improvement of teaching quality [9].

4. Optimization Strategy for the Use of Networked Intelligent Language Laboratory Practice Base

4.1. Hardware Management and Maintenance

4.1.1. Regular Inspection of Equipment

The networked intelligent language laboratory practice base should establish a mechanism for regular inspection of equipment. The inspectors need to carry out a comprehensive and detailed inspection of the operation of the equipment, including but not limited to computers, terminals, headphones, card holders, amplifier speakers and other hardware equipment, as well as the operation status of the software system. Through regular inspection, the potential problems of the equipment can be found in a timely manner, such as hardware failure, software jamming, etc., and take corresponding measures to ensure the normal operation of the equipment. For example, check the heat dissipation of the computer to prevent damage to the equipment due to overheating; check whether the sound quality of the headset is clear, and replace it in time if there is any problem. Regular inspection can also be maintenance and maintenance of equipment, to extend the service life of the equipment. For example, clean the dust inside the equipment and check whether the wiring is loose.

4.1.2. Instruct Students to Use the Equipment Correctly

In the networked intelligent language laboratory practice base, it is vital for students to use the equipment correctly. Schools should arrange specialized teachers or managers to train students in the use of equipment. For the use of headphones, students should be taught to wear them correctly and avoid pulling the headphone cable to prevent damage to the headphones. Students should be reminded to keep the headphones clean to avoid affecting the sound quality due to dirt. For terminal equipment, students should be introduced in detail to the operation methods and precautions. For example, the steps for switching the machine on and off correctly to avoid illegal operation leading to system malfunction. When using the terminal equipment, students should abide by the rules and regulations of the laboratory and should not install software or change the system settings at will. By instructing students to use the equipment correctly, the damage to the equipment caused by improper operation can be reduced, the service life of the equipment can be prolonged, and the smooth running of teaching activities can be guaranteed [9].

4.2. Software Management and Maintenance

4.2.1. Install Genuine Antivirus Software

Install genuine antivirus software to prevent the invasion of computer viruses. It is crucial to install genuine antivirus software in the networked intelligent language laboratory practice base. Since teachers often use external storage devices such as USB flash drives when using the digital language learning system, this increases the risk of computer virus infection [10]. Therefore, in order to ensure the safe and stable operation of the system, genuine antivirus software must be installed. Genuine antivirus software can detect and remove various computer viruses in a timely manner, and protect the computer system from malware attacks. For example, you can choose the well-known antivirus software brands on the market, such as Kaspersky, Norton, etc. These software have a strong virus detection and killing ability and real-time monitoring function, which can effectively prevent

the invasion of computer viruses. Genuine antivirus software will also constantly update the virus database to cope with the constant emergence of new viruses and malware, providing continuous security for the networked intelligent language laboratory practice base.

4.2.2. Real-time Monitoring of Computers

Monitor computers in real time to detect and deal with anomalies in a timely manner. Real-time monitoring of computers is an important part of software management and maintenance of networked intelligent language laboratory. Through real-time monitoring, abnormalities in the computer system, such as virus infection, software conflicts, system vulnerabilities, etc., can be discovered in time and appropriate measures can be taken [11]. For example, monitoring software can be used to monitor the running status of the computer in real time, including CPU utilization, memory occupation, network traffic and so on. Once an abnormal situation is found, the monitoring software will issue an alarm in time to remind the management personnel to deal with it. In addition, real-time monitoring can also monitor the computer's software installation and uninstallation to prevent unauthorized software installation and malware invasion. Through real-time monitoring of computers, it can effectively guarantee the safe and stable operation of the software system of the networked intelligent language laboratory practice base, and provide powerful support for the smooth implementation of teaching activities.

4.3. Establishment of Laboratory Information Interaction Portal

4.3.1. Create an Information Interaction Platform

Use the Internet to create a laboratory information interaction portal to realize information sharing and exchange. In the construction of the networked intelligent language laboratory, it is crucial to create an information interaction platform. Through Internet technology, a specialized laboratory information interaction portal is built to provide teachers and students with a convenient place for information sharing and exchange []. This platform can integrate various resources of the laboratory, including teaching materials, equipment information, practical projects, etc., so that teachers and students can obtain the required information anytime and anywhere. The information interaction platform can adopt advanced technology architecture to ensure the stability and security of the platform. For example, cloud computing technology can be used to achieve efficient storage and management of resources; big data analysis technology can be used to understand the needs and usage habits of teachers and students, providing a basis for the optimization of the platform. The platform should also have a good user interface design, which is simple, clear and easy to operate to improve the user experience. Through the information interaction platform, teachers can release teaching notices, homework requirements, learning materials, etc., and students can submit homework, ask questions, and share learning experiences. The platform can also set up discussion forums for teachers and students to communicate and discuss around specific topics to promote knowledge dissemination and innovation.

4.3.2. Encourage Students to Participate in Interaction

Encourage students to share their learning experiences and insights on the information interaction portal to improve learning effectiveness. In order to give full play to the role of

the Information Interaction Portal, students should be encouraged to actively participate in the interaction. Schools can stimulate students' enthusiasm for participation in various ways, such as organizing learning experience sharing activities and setting up reward mechanisms. By sharing their learning experiences and insights on the information interaction portal, students can not only help themselves consolidate their knowledge, but also provide reference and inspiration for other students. Through communication and interaction, students can view problems from different perspectives, broaden their thinking horizons, and improve their learning effects [12,13]. Teachers can also understand the learning situation and needs of students through the information interaction portal, adjust teaching strategies in time and provide more targeted teaching services. In addition, the information interaction portal can also promote cooperation and communication among students, and cultivate students' teamwork and communication skills. For example, a student work display area can be set up on the information interaction portal for students to display their learning outcomes in the language lab, such as English short videos, PPT presentations, and so on. Other students can evaluate and praise the works to stimulate students' enthusiasm for creation and sense of competition. Encouraging students to participate in interactions on the information interaction portal can improve students' learning enthusiasm and initiative, promote knowledge sharing and innovation, and inject new vitality into the construction and development of the networked intelligent language lab.

5. Case Study

5.1. Case of ZJ International Studies University

5.1.1. Project Construction Achievements

ZJ International Studies University and Wuhan Oh Yi Cloud Computing Co., Ltd. have achieved fruitful results in the research project of cloud network-based language laboratory construction. The project completed the construction of cloud server-based language and simultaneous interpretation laboratory, realizing the diversified teaching mode of "relying on network teaching platform, student-centered, teacher-led, and organic combination of teachers' classroom lectures and students' independent learning" [14]. It mainly serves all kinds of language classes, computer experimental courses, comprehensive liberal arts experimental courses and independent learning of foreign languages for college students. Schools and enterprises jointly build practice teaching bases and jointly cultivate applied composite foreign language talents. The university has initially constructed a modularized, functionalized, whole-process, omni-directional foreign language experimental teaching content system that integrates basic, comprehensive and innovative experiments. Focusing on the cultivation objectives of students' language application ability, international vision and innovative spirit, the school has built five practical training teaching platforms, including "basic literacy module, basic skills module, professional practical training module, scientific research and innovation module and independent learning module", covering 21 experimental programs, such as voice intonation training, foreign culture experience, film and television dubbing, simultaneous interpretation, etc. The school has also built a comprehensive experimental teaching

system, which is modularized, functionalized, full-process and all-rounded. Programs.

ZJ International Studies University has achieved remarkable results in the construction of cloud-based language laboratory. In terms of hardware facilities, it is equipped with high-performance server clusters, which can stably support large-scale students' online use of various language learning software and resources at the same time. The laboratory has built a perfect cloud desktop system, students can access their own exclusive learning desktops anytime and anywhere through the campus network, and the desktop environment integrates rich language learning tools, such as professional voice evaluation software, multilingual translation software, and a huge amount of e-books, audio and video learning materials and so on.

In terms of teaching mode innovation, a hybrid teaching mode of online and offline is implemented. In the online part, teachers use the lab platform to release pre-study tasks, teaching courseware and videos in advance, and students can arrange their own time to study and complete the corresponding tests and assignments, with the system automatically recording the learning trajectory and results, providing data support for teachers to teach accurately. The offline classroom focuses more on interactive communication and practical application. Teachers organize group discussions, role-playing, oral presentations and other activities according to the online learning data, fully mobilizing students' learning enthusiasm and initiative.

As for the curriculum system, a curriculum system centered on the resources and functions of the language laboratory has been constructed with language skills training as the core and multidimensional courses such as cross-cultural communication and language and cultural studies as the auxiliary. For example, the course "Business English Negotiation Skills Based on the Internet Platform" has been set up, which allows students to improve their business English application skills and negotiation strategies through simulating real business negotiation scenarios. The course "Appreciation and Translation of Internet Literature" guides students to study and translate classic works of Internet literature from different countries, so as to improve their literary appreciation and translation level.

5.1.2. Achievements in Teaching and Educational Development

The construction of language laboratories in ZJ International Studies University has had a positive impact on teaching and educating people. Taking the hardware and software foundation of the project as a carrier, foreign language teachers were organized to successfully complete the construction of 7 exemplary virtual simulation experimental teaching projects approved by ZJ Province in the "13th Five-Year Plan", which opened up new ideas and ways for foreign language experimental teaching. Foreign language teachers involved in experimental teaching have undertaken more than 20 research projects and published more than 40 papers in connection with the reform of foreign language teaching; two teachers won the special prize and the first prize in the national semifinals of "Teaching Star" National Competition of Foreign Research Institute in 2021 [15].

The program has achieved remarkable results in educating people, and the results of various foreign language examinations are encouraging, such as the pass rate of English IV reached 96.88% in 2020, and the pass rate of Spanish and

French IV both reached 100%. 2020, the quality and quantity of foreign language competitions have been greatly improved, and the students have won a number of awards in the competitions. The program has become an important base for students to study, enriching their practical activities and improving their basic skills in "listening, reading, writing and translating". The students set up a multilingual volunteer union to provide translation services in major international conferences and activities, and in 2021, the university will set up a multilingual lecture group to cultivate high-quality cross-cultural communication talents [15].

The project has become an excellent case of foreign language laboratory construction and school-enterprise cooperation in training students, with remarkable utilization performance. It has completed more than 50 professional exams and social exams in various languages, and has also undertaken a number of student research bases for teachers' scientific research projects [15]. The approval of the provincial key experimental teaching demonstration center construction project is the result of in-depth cooperation between school and enterprise cooperation in collaborative education. The project has been promoted with good results, and many colleges and universities have come to the university to research and study the construction program of the network laboratory.

In terms of teaching results, students' comprehensive language application ability has been significantly improved. In all kinds of language level exams, the passing rate is significantly higher than before the construction. Taking the English major grade 4 examination as an example, the pass rate has been improved by about 15% [15]. In disciplinary competitions such as the National College Students' English Competition and Interpretation Competition, participating students have won many awards, and the number of awards has increased year by year.

In terms of human development, it has cultivated students' independent learning ability and teamwork spirit. Through online independent learning and offline interaction and cooperation, students gradually develop the good habits of self-planning learning and self-monitoring learning progress. In group projects and team activities, students learn how to effectively communicate, rationally divide labor, and collaborate to complete tasks, improving teamwork and leadership. In addition, the construction of the laboratory also promotes the improvement of students' cross-cultural communication awareness and ability. Through the network interactive communication courses with foreign institutions and international cultural exchange activities, students have gained a deeper understanding and awareness of the cultural customs and values of different countries, which lays a solid foundation for the cultivation of high-caliber linguistic talents with an international outlook.

5.2. Cases of College of Foreign Languages of XM University

5.2.1. Background and Significance of Cooperation

Under the wave of informatization and intelligence in education, it is of great significance for XM University College of Foreign Languages to cooperate with Wenxiang Technology, which, as a university department with profound academic background and rich teaching resources, has always been committed to cultivating high-quality foreign language talents. As a national high-tech enterprise, Wenxiang Technology has been continuously investing and innovating

in the field of education technology, with advanced technology and rich product lines. The cooperation between the two parties aims to create a practice base for intelligent analysis of language learning by integrating their respective advantageous resources, promoting the development of language learning technology and bringing new vitality and innovation to the field of education. The arrival of the intelligent era has created an increasingly urgent demand for composite language talents. The traditional language teaching mode has been difficult to meet the learning needs of students and the talent demand of the society. XM University College of Foreign Languages and Literature actively seeks cooperation with enterprises in order to explore new teaching methods and technologies and improve the quality of talent cultivation. Wenxiang Technology also hopes to apply its advanced technology in the field of education through cooperation with universities and provide talent support and technological innovation for the development of enterprises.

The cooperation between XM University College of Foreign Languages and Wenxiang Technology stems from the common pursuit of improving the quality of language teaching and innovating the talent cultivation mode. The traditional language teaching method can no longer meet the needs of students for practical language application and cross-cultural communication skills. With advanced technology and rich experience in the field of intelligent education technology, Wenxiang Technology is able to provide innovative solutions for language teaching, while the College of Foreign Languages and Literatures of XM University has strong teachers and high quality students, as well as a good foundation for teaching practice and scientific research and innovation ability. The cooperation between the two sides is aimed at integrating resources, integrating advanced intelligent analysis technology into the process of language teaching, creating an exemplary and leading practice base for intelligent analysis of language learning, and exploring new paths for language education reform.

5.2.2. Practice Base Construction and Achievements

The Intelligent Analysis Practice Base for Language Learning jointly built by the School of Foreign Languages of XM University and Wenxiang Technology has achieved remarkable results. Focusing on intelligent analysis of language learning, the base provides a practice platform for students through Wenxiang's technological advantages and XM University's academic resources.

In terms of construction, the two sides held an unveiling ceremony on November 6, 2024 at the Foundation Building of XM University. Huang Yanyan, Director of the Experimental Center of the College of Foreign Languages and Literature of XM University, and Xi Jianwei, Senior Vice President of Wenxiang Technology, unveiled the plaque as representatives of the two sides, and Mr. Zheng Hezhou from the Experimental Center of Foreign Language Teaching of XM University, Zhang Zheng, General Manager of Wenxiang's HN region, and Chen Lihang, Regional Manager of FJ, were present at this ceremony. After the ceremony, the participants together visited the Ministry of Education's Industry-University Cooperation Collaborative Education Language Learning Intelligent Analysis Practice Base jointly built by the two sides, and conducted discussions and exchanges based on the teaching application and foreign language talent cultivation needs. Through the multimodal acquisition of recording and broadcasting terminals, the base conducts in-depth research on the cognitive mechanism of

students in the process of language learning in order to optimize teaching methods and improve learning efficiency. Wenxiang Technology is not only able to provide teaching equipment such as intelligent recording and broadcasting, intelligent blackboard and intelligent analysis, but also able to build an intelligent and efficient teaching and learning application system, which provides technical support for the construction of the base.

In terms of results, the base provides students with practical opportunities so that they can apply their theoretical knowledge to practical problems, which improves their practical and innovative abilities. The base also delivers talents with practical experience to enterprises and promotes the integration of industry and education. In addition, the cooperation between the two sides brings new perspectives and solutions to the field of language learning and injects new momentum into the development of the education industry.

In terms of the construction of the practice base, the two sides jointly built an intelligent analysis platform for language learning that integrates intelligent teaching, learning analysis and resource sharing. The platform introduces advanced speech recognition and analysis technology, which can accurately assess students' oral pronunciation and provide personalized pronunciation correction suggestions. Through the collection and analysis of students' learning behavior data, such as study time, study frequency, homework completion, test scores, etc., it builds up students' learning portraits, which enable teachers to deeply understand students' learning status and learning needs, and realize accurate teaching.

In terms of teaching results, students' oral expression ability has made a qualitative leap. Through intelligent pronunciation assessment and targeted training, students' pronunciation accuracy and naturalness of intonation have been significantly improved. In the international exchange program, students were able to communicate and interact with foreign teachers and students more confidently and fluently. In terms of scientific research achievements, the two partners have jointly conducted a number of research projects on intelligent analysis of language learning and published a series of high-level academic papers, which have promoted the development of theoretical research and practical application in the field of language education technology. In addition, the practice base also provides opportunities for other institutions to visit and study, play a good role of demonstration and radiation, and promote the sharing and collaborative development of language education resources in the region.

5.3. The Case of Universities in GD Province

5.3.1. Construction and Utilization of Language Laboratory in HN Polytechnic University

HN University of Technology, as a comprehensive key university, aims to cultivate innovative talents with international competitiveness. Facing the high demand for language competence, especially multilingual communication and cross-cultural communication skills in the context of globalization, the university decided to build an advanced networked intelligent language laboratory. Its goal is to integrate high-quality language teaching resources, create an immersive language learning environment, promote the integration of language teaching and professional disciplines, and enhance students' language application ability in various aspects such as academic communication and international cooperation.

(1) Construction Achievements

The hardware facilities are optimized and upgraded with high-fidelity audio transmission system, high-definition video interactive equipment and intelligent terminals to ensure that students can receive and feedback information clearly and accurately in the process of language learning. For example, in the Simultaneous Interpretation Training Room, advanced sound insulation equipment and multi-channel audio processing system can simulate real international conference scenes, allowing students to practice high-quality simultaneous interpretation.

Integrating software resources, a resource library covering multilingual courses has been constructed, including rich electronic versions of original textbooks, film and television materials, and videos of academic lectures [1]. Intelligent language learning software is introduced, such as personalized learning path planning system, which customizes the learning plan and practice content for students according to their initial language level test results.

The teaching mode is innovative and “flipped classroom + project-driven” teaching mode is implemented. In the flipped classroom, students pre-study the course content through the lab platform in advance and complete the learning of basic knowledge and initial practice; in the classroom, students focus on group discussion, scenario simulation, and language practice project demonstration and other activities. For example, in the Business English course, students work in groups to complete multinational business project planning, and present and defend their projects in English, which greatly improves students' comprehensive language application ability and teamwork ability.

(2) Teaching and Educational Achievements

Language proficiency has been significantly improved, and students' performance in various language examinations has been significantly improved. For example, the pass rate of English majors' professional grade 8 has been improved after the laboratory was put into use, and the excellent rate of non-English majors' university English grade 4 or 6 oral examination has also increased significantly.

Cross-cultural communication ability has been enhanced. Through distance language exchange programs with foreign partner institutions and international cultural week activities, students have more opportunities to communicate and interact with people of different cultural backgrounds. In the international volunteer activities organized by the university, students are able to skillfully apply their knowledge of language and cross-cultural communication to provide services and assistance to participants from all over the world, which has been widely praised.

For the cultivation of innovative thinking and practical ability, under the project-driven teaching mode, students actively participate in various language practice projects, such as the creation and operation of the campus multilingual radio station and the localized language service project. These projects exercise students' innovative thinking and practical ability, and many of them have successfully entered internationally famous enterprises or language service organizations after graduation by virtue of the experience and ability they have accumulated in the laboratory.

5.3.2. Collaborative Nurturing Practices of Language Laboratory of GD University of Foreign Studies

(1) Cooperation Mode and Mechanism

GD University of Foreign Languages and Trade actively explores the collaborative nurturing mode with enterprises

and research institutions. It has established long-term and stable cooperative relationships with many famous language training institutions, translation companies and language technology research and development enterprises. A collaborative education council has been set up, consisting of representatives from the university, enterprises and research institutions, responsible for formulating cooperation strategies, coordinating resource allocation and supervising project implementation. A “dual tutor system” has been established, in which school teachers and enterprise tutors jointly guide students' learning and practice [16]. For example, in the practical teaching of translation majors, the enterprise mentors bring real translation project cases, and together with the school teachers, they guide the students to complete the whole process from the assignment of translation tasks, translation of the first draft, proofreading and delivery, so that the students can master the professional skills and industry norms in practice.

(2) Features of Practice Base Construction

It builds an integrated platform for industry, academia and research, integrates resources from all sides, and creates a language laboratory practice base integrating teaching, scientific research, practice and industrial services. The base is equipped with multiple functional areas such as the Language Data Processing Center, Translation Technology R&D Laboratory, and Language Training Practice Center. For example, the Language Data Processing Center cooperates with enterprises to carry out large-scale corpus construction projects, providing data support for language research and intelligent language technology development; the Translation Technology Research and Development Laboratory is dedicated to exploring the fusion mode of machine translation and human translation, researching and developing new types of translation aids to improve translation efficiency and quality.

Expanding international exchanges and cooperation, with the help of the university's international cooperation network, the practice base actively carries out international exchange and cooperation projects. It has established exchange student programs, joint cultivation programs and international internship programs with a number of well-known foreign language institutions. For example, every year, outstanding students are sent to foreign partner institutions for one semester or one year of study and exchange. Students not only study language courses abroad, but also participate in the language practice activities of local enterprises or organizations, which broaden their international horizons and improve their cross-cultural communication skills.

(3) Achievements in Teaching and Cultivation

Improving the quality of talent cultivation, graduates have strong competitiveness in the job market and are highly recognized by employers. According to the statistics, the employment rate of the graduates of translation majors has remained above 95% for many years, and most of them have joined famous translation companies, multinational enterprises and foreign affairs organizations at home and abroad. In terms of graduate school and study abroad, more and more students have been admitted to top institutions at home and abroad. For example, in recent years, dozens of students have been admitted to Cambridge University, the Chinese University of Hong Kong and other famous universities to study for postgraduate degrees in language-related majors.

Under the model of collaborative education, the school's

teachers have worked with personnel from enterprises and research institutions on research projects, and have achieved a series of important results. A large number of high-level academic papers have been published in the fields of language intelligence technology research and development, language education theory innovation, translation practice research, etc., and a number of academic monographs and teaching materials have been published. For example, the “Intelligent Assisted Translation System” developed by the teachers of the university in cooperation with a language technology enterprise has won the national invention patent, and has been widely used in actual translation production, effectively improving the productivity and quality of the translation industry.

Enhancing social service capacity, the practice base actively provides language service support for local economic and social development. For example, it undertakes language service work for large-scale international conferences, including tasks such as simultaneous interpretation and document translation; it provides business negotiation translation, market research translation and other services for the internationalization development of local enterprises; and it carries out public welfare activities for language training, providing free language learning courses for community residents, migrant workers and others, which enhances the school's popularity and influence in the society.

6. Conclusion

The construction and optimization of the practice base of networked intelligent language laboratory is a long-term and arduous task. Under the perspective of collaborative education, we should strengthen the cooperation between schools and enterprises, optimize the practical teaching system, build the collaborative operation mechanism of the laboratory, and constantly explore and innovate to improve the use efficiency and management level of the practice base.

The construction and optimization of the practice base of networked intelligent language laboratory is of great significance. Under the demand of the development of education informatization, it breaks the time and space limitations of traditional teaching and provides students with rich and diverse learning resources and methods, such as the smart laboratory built by GD Tianzhi Industry Co. Ltd, which makes the teaching of teachers and students more flexible, as well as the informatization of the language laboratory based on the cloud network, which reduces the total cost of ownership, improves the rate of return on investment and adapts to the high-frequency use. In terms of improving the quality of language teaching, advanced teaching equipment and software create a real and vivid learning environment for students, such as the laboratory built by ZJ International Studies University in cooperation with Wuhan Oh Yi Cloud Computing Co. and the practice base jointly built by Wenxiang and XM University College of Foreign Languages. In terms of cultivating students' innovative and practical abilities, the practice base of networked intelligent language labs provides students with a practical platform to stimulate their innovative thinking, such as students' use of the digital language lab management system to conduct personalized learning, produce multimedia works, and participate in group discussions and other activities.

A series of strategies have been adopted to better build the networked intelligent language laboratory practice base. Under the perspective of collaborative education,

strengthening school-enterprise cooperation is the key. On the one hand, building practice bases with enterprises, enterprises provide technical and resource support, and schools provide teaching and talent support, so as to realize resource sharing and complementary advantages. On the other hand, to carry out industry-university-research cooperation, schools, enterprises and scientific research institutions jointly carry out scientific research projects, transform scientific research results into teaching resources, and improve the quality of talent training. Optimizing the practical teaching system is also crucial. Enrich the content of practical teaching, increase the proportion of practical teaching, introduce actual projects and cases, and integrate teaching resources. Innovative practical teaching methods are adopted, such as project-based teaching, case teaching, etc. Combined with the advantages of networked intelligent language laboratories, online teaching, virtual experiments and other innovative teaching methods are adopted. In addition, it is indispensable to build a synergistic operation mechanism of the laboratory. Establish a sound management system, develop a perfect management system, and standardize the operation and management of the laboratory. Strengthen personnel training and management, train managers, teachers and students, and improve their management and utilization level.

In terms of optimizing the use of the networked intelligent language laboratory practice base, strategies such as hardware management and maintenance, software management and maintenance, and the establishment of a laboratory information interaction portal have been adopted. Regularly check the equipment, instruct students on the correct use of the equipment, install genuine anti-virus software, monitor computers in real time, create an interactive platform for information and encourage students to participate in the interaction to improve the learning effect.

Through the case study, it can be seen that ZJ International Studies University and XM University College of Foreign Languages have achieved remarkable results in the construction of networked intelligent language laboratory practice bases. ZJ International Studies University cooperates with enterprises to build cloud network-based language laboratories, which constructs the content system of experimental teaching of foreign languages and opens up a new idea and way of experimental teaching of foreign languages. XM University College of Foreign Languages cooperates with Wenxiang Science and Technology to build a Intelligent Analysis Practice Base for Language Learning, focusing on the intelligent analysis of language learning, providing students with a practical platform and promoting the integration of industry and education.

In conclusion, the construction and optimization of the practice base of networked intelligent language laboratory is an inevitable trend of educational development. It is necessary to continuously strengthen the cooperation between schools and enterprises, optimize the practical teaching system, build a collaborative laboratory operation mechanism, improve the efficiency of the use of the practice base and the management level, and make a greater contribution to the cultivation of high-quality talents with innovation and practical ability.

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