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Optimization Strategies of AI Empowering the Teaching of Logistics Professional English in China

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Abstract: *Under the background of the vigorous development of international logistics industry, the importance of English as the main communication language in the industry is becoming more and more prominent. At present, in China, there are some problems in the teaching of Logistics English, such as the teaching goal is out of line with the needs of the industry, and the teaching method is single. This paper puts forward optimization strategies from several dimensions, such as defining diversified teaching objectives, constructing modular curriculum system, implementing mixed teaching mode, enhancing teaching experience by using emerging technologies, and developing school-based teaching materials, aiming at improving teaching quality and cultivating high-quality talents with solid professional English ability and meeting the actual needs of logistics industry in the "AI+era".*

Keywords: *Logistics English, Optimization Strategy, Training System, Practice Teaching*

1. Introduction

Since the concept of "English for Specific Purposes (ESP)" was put forward by the first International Conference on Special Purpose Languages in 1969, this teaching concept has gradually become the focus of language education reform in non-English speaking countries [1]. As an important branch of ESP, logistics English has become the core content of talent ability training in the international logistics industry because of its unique vocabulary system, grammatical structure and pragmatic scenarios.

However, at present, logistics English teaching in applied undergraduate colleges and universities in China still faces multiple challenges: the disconnection between teaching objectives and industry needs makes it difficult for graduates to perform practical tasks, such as unclear teaching objectives, lack of practical teaching links, lack of scenario simulation teaching and one-sided assessment model, which are common problems in the teaching of Logistics English in application-oriented undergraduate universities in China[2]. The practice teaching link is weak, the traditional classroom relies on one-way knowledge indoctrination, the lack of scenario simulation and the combination of virtual and real training scene. The assessment mode relies on the written test unilaterally and neglects the assessment of cross-cultural communication and emergency problem solving ability. Taking the survey of 2023 graduates of a university as an example, only 45% of students can independently complete the drafting of English logistics contracts, and 62% have obvious terminology misuse in the negotiation of simulated international freight disputes, reflecting a significant gap between teaching effectiveness and industry standards.

At the same time, the rapid development of AI (Artificial Intelligence) technology provides a new path for teaching reform - intelligent diagnosis system can accurately locate students' language shortcomings, and blockchain technology realizes trusted certification of learning results. Based on the ESP theoretical framework, this paper explores the optimization strategy for the deep integration of logistics English courses and AI from the dimensions of objective reconstruction, technology enablement and resource integration, aiming to build a training system of "language competency-professional skills-professional quality" and provide a replicable solution for the cultivation of global logistics talents.

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2. Clarify diversified teaching objectives

Logistics English, as a professional language with special purposes, has formed a perfect language system with its own language features and stylistic features. In order to meet the demand of logistics industry for talents, the teaching of logistics English should build a diversified teaching target system with equal emphasis on knowledge, ability and accomplishment [3].

In terms of knowledge objectives, students need to master the core vocabulary of logistics English systematically. This includes not only common basic words, such as "transportation" and "distribution", but also new words emerging with the development of the industry, such as "blockchain in logistics" and "smart logistics".

At the same time, students should be familiar with the grammar and sentence characteristics of logistics English, such as complex long sentences commonly found in logistics contracts and professional expressions in transportation documents.

In addition, understanding the basic business processes of the logistics industry, including English expressions and related knowledge of procurement, warehousing, transportation, distribution and supply chain management, is also an important part of the knowledge goal.

The ability goal requires students to have fluent oral expression ability, and to accurately and fluently express their views in English in international logistics business negotiation, customer communication, conference exchange and other scenarios, so as to realize efficient information transmission, communication and negotiation. For example, in international logistics business negotiations, students can clearly explain the advantages of logistics services, prices, transportation time and other key information, and reach cooperation intentions with customers.

In writing, students should be able to write standardized and accurate logistics-related English documents, such as business emails, contracts, reports, documents, etc., to ensure that the language expression conforms to industry norms and professional requirements.

Reading comprehension ability is also crucial. Students should be able to quickly and accurately understand English logistics professional documents, industry reports, technical materials, etc., and extract key information from them to grasp the development trend of the industry.

In terms of translation ability, students need to achieve accurate translation between English and Chinese for logistics majors, especially when dealing with technical terms, contract terms and technical documents, so as to ensure the accuracy and professionalism of translation.

Literacy goal emphasizes cultivating students' cross-cultural communication literacy, making them understand the cultural background, business etiquette and communication habits of different countries and regions, and avoiding misunderstandings and conflicts caused by cultural differences in international logistics business. For example, when communicating with customers in Europe and America, students should know their business etiquette and communication style, and respect each other's cultural habits in order to establish a good cooperative relationship.

At the same time, it is also the key content of literacy goal to cultivate students' rigorous, responsible and honest professional attitude, teamwork spirit and innovative consciousness, so as to adapt to the work requirements of logistics industry.

3. Build a modular curriculum system

Constructing modular curriculum system is an important measure to improve the quality of English teaching for logistics majors. The course "Logistics English" has a dual identity in the logistics management major. The goal of this course is to cultivate logistics internationalization talents with solid professional knowledge and rich practical experience, and it is also a professional course to help students improve their English level [4]. It mainly consists of three modules, namely, basic English module, professional English module and practical application module.

The basic English module mainly focuses on students' English language foundation, including English grammar, vocabulary, listening, speaking, reading and writing. Specialized English module is the core part of the curriculum system, which mainly covers the English expression and application of logistics professional knowledge.

The English teaching of logistics business process introduces relevant English expressions and

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business knowledge according to all aspects of logistics business, such as transportation, warehousing, supply chain management, international freight forwarding, etc., so that students can understand the English operation process of each link and the writing of relevant documents.

The practical application module focuses on cultivating students' English application ability in actual logistics business scenarios. This module includes logistics English training course. By simulating real logistics business scenarios, such as international logistics business negotiation, logistics contract signing, cargo transportation arrangement, customer service, etc., students can use their knowledge of logistics English in practice to improve their practical operation ability and problem-solving ability.

Enterprise practice is also an important part of practical application module. Students can learn about the actual operation of the logistics industry by practicing in logistics enterprises, participating in the actual logistics business, communicating with employees and customers in English, and combining what they have learned in class with practical work to improve their professional quality and comprehensive ability.

In addition, school and enterprises should strengthen communication and cooperation to jointly optimize the teaching content and practice arrangement of practical application modules. The school can adjust the simulation scenarios and training projects of logistics English training courses according to the actual needs of enterprises and the development trend of the industry; Enterprises should arrange experienced staff to guide internship students, help students better understand and apply the knowledge learned in class, improve practical ability, truly realize the effective transformation from theory to practice, and comprehensively improve students' logistics professional English literacy.

4. Implement online and offline mixed teaching mode

Under the background of "AI+era", the online and offline hybrid teaching mode has brought new opportunities and changes to the teaching of logistics English. Through the combination of online and offline, students can use online resources to preview before class to understand the key points and difficulties of the course. In the classroom, through offline interactive teaching activities, in-depth study and understanding of knowledge, students can improve practical application ability. After class, students can use the online platform to review and consolidate, complete their homework and expand their study.

This teaching mode can give full play to students' main role and improve students' learning effect. Online teaching resources are rich and diverse, providing students with a broad learning space. Online course platforms, such as Xuetang Online and China University MOOC, have gathered many excellent courses of logistics English in famous universities. These courses are taught by experienced teachers, covering all aspects of logistics English, including explanation of logistics terms, analysis of logistics business processes and reading of English logistics documents. Students can study these courses online at any time and place according to their own learning progress and needs, and realize autonomous learning. The online learning platform also provides a wealth of learning materials, such as electronic textbooks, teaching videos, exercises and case studies, through which students can preview, review and consolidate their knowledge.

Offline classroom teaching pays attention to interaction and practicality. In class, teachers can stimulate students' learning interest and enthusiasm through interactive teaching activities such as group discussion, role-playing and case analysis.

In the group discussion, the teacher can give a topic related to logistics English, such as "the choice of transportation mode in international logistics", so that students can discuss it in groups.

In the process of discussion, students need to use their English knowledge to express their views and ideas, and at the same time listen to others' opinions, exchange and debate. Through group discussion, students can not only deepen their understanding of knowledge, but also improve their oral English expression ability and teamwork ability.

The following figure（Figure 1）is the Blended Teaching Model Implementation Diagram to show the pre-class, in-class and after-class activities with the help of AI background.

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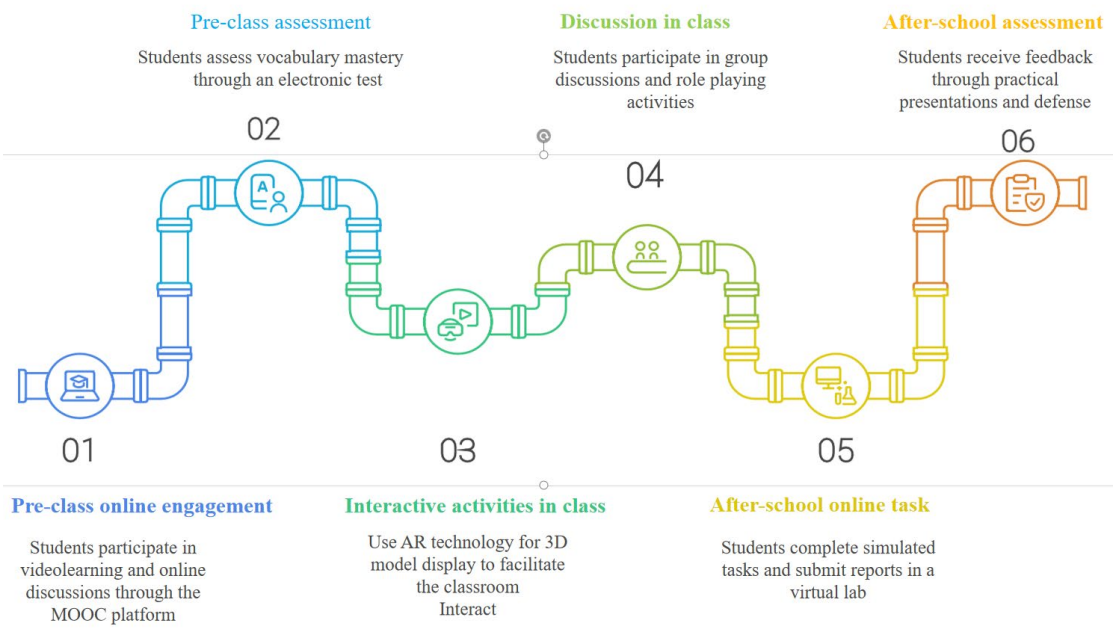

Figure 1: Blended Teaching Model Implementation Diagram.

Within the "AI+Logistics" framework, the blended learning model strategically integrates intelligent technologies to establish a comprehensive "diagnosis-training-certification" ecosystem. The implementation phase features AI-curated MOOC modules and extended reality environments for pre-class terminology immersion. Classroom sessions employ augmented port operations simulations and multicultural negotiation drills with accent variations to develop operational competencies. Post-class engagements utilize metaverse-based crisis management exercises (e.g., customs clearance disruptions) coupled with blockchain-endorsed certifications to address industry demands. This framework prioritizes three pillars: AI-driven competency analysis, immersive virtual-physical training integration, and global resource orchestration, effectively bridging linguistic proficiency with technical expertise. It delivers standardized, globally-aligned digital protocols for cultivating next-generation logistics specialists.

Role playing is also an effective interactive teaching method. Teachers can set up some logistics business scenes, such as international logistics business negotiation, customer reception, etc., so that students can play different roles and have English conversations and exchanges. In role-playing, students need to use appropriate English expressions and business etiquette to complete the task according to the characteristics and situations of the role.

Case analysis is to analyze the actual logistics business cases, so that students can use the professional English knowledge and skills they have learned to solve the problems in the cases. In the process of case analysis, teachers can guide students to think and discuss, and cultivate their ability to analyze and solve problems.

5. Enhance the teaching experience by using virtual reality and other technologies

The emergence of emerging technologies such as virtual reality (VR) and augmented reality (AR) has brought new vitality and innovation to the teaching of logistics English. These technologies can simulate the real logistics scenes, and let students feel the operation process of logistics business in an immersive way, thus enhancing students' learning interest and learning effect.

By creating a highly simulated virtual environment, VR technology enables students to conduct logistics operations in the virtual world. In international logistics teaching, students can enter virtual logistics scenes such as ports, airports and warehouses by wearing VR equipment.

In the virtual port, students can see huge container ships docked at the dock, and the loading and unloading workers are loading and unloading goods in an orderly way. Students can observe the loading and unloading process of goods at close range, understand the operation methods of the equipment; meanwhile, they can hear the noisy working sounds around them and feel the busy working

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atmosphere. In this process, students can communicate with the staff in the virtual environment in English, such as asking about the loading and unloading progress of goods, transportation arrangements and other information, so as to improve the practical application ability of English.

In the teaching of logistics warehouse management, students can use VR technology to simulate the layout of warehouses and the management of goods storage. Students can freely shuttle in the virtual warehouse, observe the storage methods and shelf layout of different goods, and learn how to carry out operations such as warehousing and inventory.

In the process of operation, the system will give various prompts and tasks, and students need to complete relevant operations and records in English according to the prompts, such as filling in the receipt and delivery documents. In this way, students can more intuitively understand the process and English expression of logistics and warehousing management, and improve their enthusiasm and initiative in learning.

AR technology combines virtual information with the real world to provide students with a richer learning experience. In the teaching of logistics equipment, students can scan the model or picture of logistics equipment through mobile phones or tablet computers, and AR technology will present a three-dimensional image of the equipment, and display relevant English introduction and operation instructions.

AR technology can integrate maps with virtual information, helping students simulate the actual effects of transportation routes. For example, students can adjust the route parameters through devices, observe their impacts on transportation efficiency, and analyze the optimization plans in English.

The application of VR and AR technology can also stimulate students' innovative thinking and exploration spirit. Students can try different logistics schemes and operation methods in the virtual environment, observe their effects and put forward their own suggestions for improvement.

In the virtual logistics distribution center, students can try to optimize the sorting and distribution process of goods, improve the distribution efficiency, and communicate and share with classmates and teachers through English. This process of innovation and exploration can cultivate students' innovative ability and teamwork spirit, and lay a solid foundation for their future career development.

6. Develop school-based teaching materials

Developing school-based textbooks is a key measure to improve the quality of English teaching for logistics majors, which can better meet the characteristics of schools and the needs of students. In the process of development, we should fully consider the professional orientation and talent training objectives of the school.

For schools that focus on cultivating applied logistics talents, school-based textbooks should focus on the compilation of practical content, increase the proportion of actual logistics business cases. The design content of the teaching material has the following requirements:

(1) Increasing the proportion of practical cases. In the chapter of international logistics and transportation, the English operation interface and information feedback process of the cargo tracking system are introduced in detail, and the English communication skills and solutions when the goods are lost or delayed are analyzed through practical cases. In the section of cross-border e-commerce logistics, the specific business process is used as a clue to explain the English document filling and declaration techniques in customs declaration and clearance procedures, so that students can master the application of English in practical operation.

(2) Enriching the content of the textbook. In addition to traditional texts and vocabulary explanations, add situational dialogues, business reports, contract samples and other contents. Set up dialogues such as international logistics business negotiation and customer complaint handling, and let students practice oral expression. Provide examples of logistics project reports and market research reports to guide students to learn writing structure and language expression. Show real documents such as logistics contracts and transportation documents, explain key terms and professional vocabulary, and improve students' reading and translation skills.

(3) Integration of cross-cultural communication. Cultural differences and business etiquette knowledge of logistics industries in different countries are interspersed in the teaching materials. For example, the business negotiation styles and communication habits of logistics enterprises in European

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and American countries are introduced, and cultural taboos of logistics industry in Asian countries are introduced, so as to cultivate students' intercultural communication awareness and avoid cultural conflicts in business communication.

At the same time in the compilation of teaching materials, establishing a writing-team composed of logistics teachers, English teachers and enterprise experts is an important guarantee to ensure the quality of school-based teaching materials. Logistics teachers are familiar with the actual business and professional knowledge of the logistics industry and can provide professional content support for teaching materials. English teachers, on the other hand, have advantages in language expression and grammatical norms, which can ensure the language accuracy and standardization of teaching materials. Enterprise experts have rich practical experience and can integrate practical cases and the latest industry trends into the teaching materials, making the teaching materials more practical and timely. In the process of compiling, the members of the compiling team should cooperate closely, give full play to their respective advantages and jointly complete the compilation of teaching materials.

7. Integrate high-quality teaching resources

The establishment of teaching resource database is an important means to integrate high-quality teaching resources, which can provide rich teaching materials for logistics English teaching.

The teaching resource database should cover various types of resources, including electronic teaching materials, teaching courseware, teaching videos, case databases, test question banks, etc. Electronic teaching materials can provide students with convenient learning materials, and students can study through electronic devices anytime and anywhere. Teaching courseware should be carefully designed, rich in content and illustrated, which can help students better understand the teaching content. Teaching videos can include logistics business process demonstration videos, expert lecture videos, English teaching videos, etc. Through video teaching, students can understand logistics business and English knowledge more intuitively.

The case base should collect a large number of actual logistics business cases, covering international logistics, domestic logistics, warehousing logistics, transportation logistics and other fields. These cases should be representative and typical, and can reflect the actual problems and development trends of the logistics industry. In the case of international logistics, it can include cases of cargo transportation disputes in international shipping and cases of cargo declaration in international air transport. Through the analysis and discussion of these cases, students can improve their ability to solve practical problems and apply logistics English.

In addition to the construction of teaching resource database, we should also fully integrate network resources to provide more abundant learning channels for students. Using the Internet platform, we collect the official websites of well-known logistics enterprises at home and abroad, websites of logistics industry associations, academic websites of logistics majors and other resources. These websites contain a lot of information about the latest trends, policies and regulations, academic research results and so on in the logistics industry. Students can learn about the latest development trends of the industry and broaden their horizons by browsing these websites.

Enterprise case is an indispensable teaching resource in logistics English teaching, which can help students better understand the actual operation of logistics industry. These cases can include international logistics projects, logistics cost control cases, logistics service innovation cases and so on. When analyzing the cases of international logistics projects, teachers can guide students to discuss the English communication skills, the English expression of contract terms, the writing of logistics documents and other issues, so that students can learn and apply logistics professional English knowledge in actual cases and improve their practical application ability and problem-solving ability.

8. Reshape Teacher Roles and Build Competency Systems

We should pay attention to the paradigm shifts in educational philosophy. Teachers need to construct a "Smart Education Ecology Reconstruction" to achieve dual teaching changes.

On the goal dimension, the focus of teaching shifts from imparting knowledge to constructing a capability matrix, and through the intelligent learning situation analysis system, the English capability radar map is generated, focusing on cultivating composite skills such as cross-cultural business communication and precise application of industry terms.

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On the form dimension, the teaching mode upgraded from one-way teaching to collaborative innovation, and the AI situation simulation laboratory is used to create a virtual scenario of international logistics negotiations, guiding students to use intelligent translation, terminology retrieval and other tools to complete the full process of business operations, and the teacher's role is transformed into a cognitive strategy mentor.

The intelligent reconstruction of teaching methods is also very important. Technology injects three-dimensional innovative power into professional English teaching. On the diagnostic level, the intelligent voice evaluation system is deployed to analyze the acoustic characteristics of the speech in real time and the semantic network analysis locates the nodes of the wrong use of professional terms. On the content level, the intelligent textbook generation system is developed. On the interactive level, the intelligent system undertakes mechanical tasks such as grammar proofreading and homework marking, while teachers focus on the cultivation of communication ability and critical thinking training in cross-cultural contexts.

The construction of a capability system is crucial. Teachers can carry out "AI professional teaching" action research. One is to develop industry-specific tools, such as intelligent writing assistance systems based on logistics corpora, which specifically solve problems such as standardization of professional document format and standardization terminology. The other is to explore the "Intelligent Diagnosis-Micro-Lesson Customization-Community Collaboration" mixed teaching mode, and optimize the efficiency of each teaching through data mining. The third is to establish a teaching ethics framework, including learning data classification protection mechanism, etc. This three-dimensional capability building path emphasizes the deep coupling of technology empowerment and subject teaching, and highlights the initiative teachers as the main body of educational innovation, providing an operational implementation path for the professional development of teachers in the smart era.

9. Conclusion

In “AI+era”, optimizing the teaching system of English course for logistics majors is an important measure to improve the training quality of logistics professionals. By defining the teaching objectives that meet the needs of the industry, adopting diversified teaching methods, strengthening practical teaching links, optimizing teaching materials and other strategies, the teaching effect can be effectively improved, and high-quality talents with solid English foundation and professional skills can be cultivated to meet the needs of the international logistics market, thus providing strong talent support for the development of the logistics industry. In the future teaching process, we should continue to pay attention to the development trends of the industry and the trend of teaching reform, and continue to optimize teaching strategies to promote the continuous improvement of the teaching quality of logistics English.

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