English Translation Teaching of the Textile Industry Oriented to Sustainable Development - Terminology Standardization and Teaching Application

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ABSTRACT Driven by the dual impetus of the global sustainable development strategy and the international transformation of the textile industry, English translation in the textile industry has become a core link in technical exchanges and trade cooperation. However, the confusion in terminology translation and the lack of standardization have seriously restricted the quality of teaching and industrial adaptability. Taking terminology standardization as the core starting point, this paper systematically explores the optimization path of English translation teaching in the textile industry from the perspective of sustainable development through methods of literature research, industrial investigation, case analysis, and teaching action research. The study defines the scope of core terminology in sustainable textiles based on the Environmental, Social, and Governance (ESG) dimensions, analyzes the existing problems and their causes such as chaotic terminology translation and the disconnect between teaching and industrial practice; constructs a terminology standardization system with industrial adaptability, semantic accuracy, teaching applicability, and dynamism, and designs a terminology database with cross-classification (ESG content dimension + functional type dimension) and a dynamic update mechanism; proposes a teaching application framework of "goal reconstruction - content optimization - method innovation", and verifies its effectiveness through teaching experiments in universities. The research shows that standardized terminology teaching can significantly improve students' accuracy in terminology translation and their ability to apply terminology in scenarios, providing theoretical support and a practical paradigm for constructing a textile professional English teaching system adapted to industrial needs.

INDEX TERMS sustainable textiles, terminology standardization, English translation teaching, industrial adaptability, teaching practice

I. INTRODUCTION

A. RESEARCH BACKGROUND

1) Sustainable Transformation and Internationalization Demand of the Textile Industry

WITH the rapid advancement of globalization and the vigorous development of international trade, the textile industry, as an important field of global trade, has experienced significant changes in its pattern. The global textile industry is transforming from "scale expansion" to "green quality improvement", and green trade and sustainable development have become new trends [1]. Enterprises need to respond to the international market's attention to environmentally friendly products and focus on resource utilization and waste reduction in production [2]. Consumers' demand for environmentally friendly products is increasing, and enterprises must adopt green processes and eco-friendly materials to produce textiles to meet the market's requirements for sustainable goods. Green production helps enterprises improve market competitiveness, especially in European and American markets with strong environmental awareness [3].

This transformation has spawned a sustainable terminology system covering the entire industrial chain, from "recycled fiber (rPET)" at the raw material end to "GOTS certification" at the certification end, all of which have become core vocabulary in international exchanges. Professional English is an indispensable linguistic tool in the international development of the textile industry. Strengthening the cultivation of professional textile English skills is an important prerequisite for promoting the further development of the textile foreign trade economy. As a universal language, the accurate translation of its professional terminology has

become the key to communication [4,5].

B. PRACTICAL DILEMMAS IN TEXTILE ENGLISH TRANSLATION TEACHING

Due to the professionalism and complexity of the textile industry itself, coupled with differences in linguistic and cultural backgrounds among countries, achieving accurate translation is not easy [6-8]. At present, textile professional English translation teaching is faced with multiple problems:

(1) Communication barriers caused by inaccurate terminology translation in the industrial sector: For example, "Circular Textiles" is simply translated as "循环纺织品", failing to reflect the core of "全生命周期闭环管理";

(2) Terminology in teaching materials is outdated and scattered: Technology in the textile industry is changing with each passing day, and new materials and processes are constantly emerging. However, the content of teaching materials often fails to keep up with the pace of industrial development, leading to a disconnect between the knowledge students learn and actual needs [9];

(3) Disconnect between teaching and industry: Teachers often adopt a "lecture-based" teaching method, where teachers are the main lecturers and students passively accept knowledge, ignoring the application rules of terminology in real scenarios such as green certification and low-carbon trade.

C. CORE VALUE OF TERMINOLOGY STANDARDIZATION HIGHLIGHTED

Terminology standardization is the key to solving the above problems [10]. At the industrial level, the more than 4,300 standardized terminology systems of the German Textile Machinery Association (VDMA) have improved the efficiency of cross-border circulation of technical documents; at the educational level, students who receive standardized terminology teaching have a more than 30% higher accuracy rate in translating technical documents compared with the traditional teaching model. For the field of sustainable textiles, terminology standardization is even a core bridge connecting teaching with industrial needs.

D. RESEARCH SIGNIFICANCE

1) Theoretical Significance

This study constructs a three-dimensional theoretical framework of "industrial demand - terminology standards - teaching practice", breaking through the limitations of traditional translation teaching that "emphasizes language over industry"; at the level of terminology science, it systematically sorts out the terminology pedigree of sustainable textiles for the first time, supplementing the research gap of professional terminology standardization in emerging interdisciplinary fields; at the level of teaching theory, it applies the functional equivalence theory to the scenario of sustainable textiles and proposes a "scenario-adaptive" translation teaching concept.

2) Practical Significance

This study provides practical guidance for university teaching, solving problems such as lagging teaching materials and single teaching methods; helps cultivate industrial talents, alleviating the talent dilemma of enterprises where "those who understand textiles do not understand translation, and those who understand translation do not understand sustainability"; promotes the standardized development of the industry and reduces the cost of international trade communication.

E. RESEARCH IDEAS AND METHODS

1) Research Ideas

Following a closed-loop logic of "problem-oriented - system construction - practical verification - optimization and prospect": first, clarify the existing problems of terminology translation through research, then construct a terminology standardization system, design teaching application paths, verify effectiveness through teaching experiments, and finally summarize conclusions and prospect the future.

2) Research Methods

Adopt literature research method (combing relevant domestic and foreign literature and international standards), industrial investigation method (interviewing 12 textile enterprises and 8 industry associations), case analysis method (analyzing cases such as the VDMA terminology system), and teaching action research method (carrying out a 16-week teaching experiment) to ensure the scientificity and practicality of the research.

II. ANALYSIS OF THE CURRENT SITUATION OF ENGLISH TERMINOLOGY TRANSLATION IN THE TEXTILE INDUSTRY FROM THE PERSPECTIVE OF SUSTAINABLE DEVELOPMENT

A. DEFINITION OF CORE CATEGORIES AND KEY TERMINOLOGY IN SUSTAINABLE DEVELOPMENT OF THE TEXTILE INDUSTRY

1) Core Dimensions of Sustainable Textiles

According to the definitions of the International Organization for Standardization (ISO) and the Global Sustainable Development Framework (GRI, UNSDGs) [11], the sustainable textile industry covers three core dimensions: environment, society, and governance [12]:

Environmental sustainability dimension [13]: Focuses on efficient resource utilization and minimization of environmental impact, including four fields: greenization of raw materials, cleaner production, circularization of products, and reduction of emissions.

Social sustainability dimension [14]: Focuses on the fulfillment of social responsibilities in the industrial chain, including three fields: protection of labor rights and interests, supply chain transparency, and fair trade.

Governance sustainability dimension [15]: Focuses on the sustainable transformation of enterprise management

systems, including three fields: standard compliance, green governance, and innovation-driven development.

2) Semantic Boundaries and Scenario Classification of Core Terminology

Based on industrial investigations and literature analysis, 326 core terminologies of sustainable textiles are screened out. The classification adopts a cross-dimensional framework: the "content dimension" is based on ESG core dimensions (environmental, social, governance), and the "functional type dimension" is divided into three categories according to semantic attributes and application scenarios (basic general, process, certification and standard) [7,16,17]. This dual classification is justified by two key considerations: first, the ESG content dimension ensures coverage of the essential scope of sustainable textiles, while the functional type dimension is more compatible with teaching practice (facilitating step-by-step teaching from basic concepts to practical application); second, the two dimensions are mutually complementary and cross-referenced, avoiding one-sidedness of a single classification.

Basic general terminology: Covers cross-cutting concepts applicable to all ESG dimensions, such as "Sustainable Textile" (environmental + social + governance), "Circular Economy" (environmental + governance), and "Life Cycle Assessment (LCA)" (environmental + social). Such terminology has stable semantics and a wide range of applications, serving as the foundation for constructing the terminology system.

Process terminology: Mainly corresponds to the environmental dimension (e.g., "Waterless Dyeing", "Mechanical Recycling") and partial governance dimension (e.g., "Low-carbon Spinning"), focusing on technical links of sustainable production with strong practicality.

Certification and standard terminology: Covers all three ESG dimensions, such as "GOTS" (environmental), "Fair Trade Certification" (social), and "Extended Producer Responsibility (EPR)" (governance), with legal nature and authority.

B. EXISTING PROBLEMS IN ENGLISH TERMINOLOGY TRANSLATION OF THE TEXTILE INDUSTRY

1) Chaotic Terminology Translation and Distorted Semantic Transmission

The most prominent problem is the inconsistency in terminology translation, which is specifically manifested in three forms:

(1) Multiple translations for the same term: The same English term has multiple translations in different contexts, and there is no clear selection standard [18]. For example, "Biobased Materials" is translated as both "生物基材料" and "生物质材料".

(2) Same translation for different terms: Different English terms are translated into the same Chinese expression, concealing conceptual differences. For example, "Recycled Fiber" and "Regenerated Fiber" are both translated as "再生纤维".

(3) Semantic deviation: The translation fails to accurately convey the professional connotation of the terminology or is divorced from the industrial context [19]. For example, "Greenwashing" is literally translated as "绿色清洗", failing to reflect the core meaning of enterprises' "false sustainable publicity", and the correct translation should be "漂绿".

2) Lack of Terminology System in Teaching and Insufficient Supporting Capacity

Colleges and universities have obvious shortcomings in terminology resources and teaching implementation of textile professional English:

(1) As mentioned in 1.1.2, terminology in teaching materials is outdated and scattered, with insufficient coverage of emerging terms.

(2) Teaching standards are inconsistent. Different teachers have significant differences in explaining the same terminology, making it difficult to guarantee teaching quality.

(3) Lack of teaching resources, such as exercise materials adapted to sustainable scenarios.

3) Disconnect Between Terminology Application and Industrial Practice

The misalignment between translation teaching and industrial needs leads to insufficient ability of students to apply terminology:

(1) Weak scenario adaptation ability. For example, when translating GOTS certification materials, "Input Materials" is translated as "输入材料" instead of "原料投入" adapted to the certification context;

(2) Lack of familiarity with the definition of terminology in international standards. For example, "Substances of Very High Concern (SVHC)" in the EU's Sustainable Textiles Strategy should be translated as "高度关注物质", but students often mistranslate it as "高危物质", which may trigger trade compliance risks;

(3) Lack of dynamic update ability of terminology. For example, the connotation of "Circular Fashion" has expanded from "回收利用" to "慢时尚" and "产品租赁", but students still use traditional translations, leading to a disconnect between translation content and industrial reality.

C. ANALYSIS OF THE CAUSES OF PROBLEMS

(1) Information barriers between industry and education lead to mismatched update rhythms of terminology (the industrial update cycle is 3-6 months, while the textbook revision cycle is 2-3 years). In addition, there is no regular information sharing mechanism between enterprises and universities;

(2) There is a lack of targeted sustainable textile terminology standardization systems in China, and existing standards have limited coverage and do not take translation needs into account;

(3) Translation teaching has a guiding deviation of "emphasizing language over profession, memory over applica-

tion, and individual over collaboration", which is the core cause of the problems.

III. CONSTRUCTION OF AN ENGLISH TERMINOLOGY STANDARDIZATION SYSTEM FOR THE TEXTILE INDUSTRY ORIENTED TO SUSTAINABLE DEVELOPMENT

A. BASIC PRINCIPLES FOR THE CONSTRUCTION OF TERMINOLOGY STANDARDIZATION

The four principles of the terminology standardization system have a clear logical mapping with the three-dimensional theoretical framework of "industrial demand - terminology standards - teaching practice", and the "Principle of Dynamism" is supplemented with theoretical support:

Principle of Industrial Adaptability: Directly corresponds to the "industrial demand" dimension of the theoretical framework, ensuring that terminology translation conforms to industrial technical characteristics and practical habits, and solving the problem of disconnection between teaching and industry.

Principle of Semantic Accuracy: Core of the "terminology standards" dimension, ensuring the scientificity and uniformity of terminology, which is the foundation of standardization.

Principle of Teaching Applicability: Corresponding to the "teaching practice" dimension, adapting to the law of teaching and learning, and facilitating students' mastery and application.

Principle of Dynamism: Derived from the inherent requirement of sustainable development—terminology in the textile industry evolves with technological innovation and standard updates (e.g., the emergence of "Digital Product Passport" with the EU's Sustainable Textiles Act). This principle is supported by the "dynamic terminology theory" in terminology science, which emphasizes that terminology systems must maintain flexibility to adapt to changes in the subject field. It complements the three-dimensional framework by ensuring the long-term validity of terminology standards, forming a complete logical chain of "demand - standard - practice - dynamic optimization".

1) Principle of Industrial Adaptability

Translations must conform to the technical characteristics and application habits of sustainable textiles, with specific requirements including:

(1) Conforming to the technical essence: For example, "Waterless Dyeing" is translated as "无水染色" instead of "干态染色";

(2) Adapting to standard specifications: Terminology translations must be consistent with international standards (such as GOTS, OEKO-TEX) and domestic regulations (such as "Green Supply Chain Management" (GB/T 36902);

(3) Considering industry practices: Translations that have formed industry consensus, such as " 漂绿(Greenwashing)", should be retained instead of recreated.

2) Principle of Semantic Accuracy

Semantic accuracy requires achieving precise correspondence of "one term, one meaning; one meaning, one term". The implementation paths include:

(1) Clarifying semantic boundaries and defining the connotation of terminology through the genus-differentia method;

(2) Eliminating ambiguity and accurately positioning polysemous terms through scenario labeling;

(3) Supplementing semantic elements, and translations of terminology containing technical parameters should reflect key indicators.

3) Principle of Teaching Applicability

(1) Classification of terminology by difficulty levels: Divided into "basic - intermediate - advanced" to adapt to teaching needs of different semesters;

(2) Popular expression: For example, "Life Cycle Assessment" is translated as "生命周期评价" instead of "全生命周期环境评估";

(3) Clear structure: Terminology translations must conform to Chinese expression habits. For example, "Merino-Kaschmir-Mischstoffe" is translated as "美利奴羊毛/羊绒混纺材料", with component composition clearly presented through hyphens.

4) Principle of Dynamism

The terminology standardization system must establish a flexible mechanism, with requirements including:

(1) Reserving expansion space: Setting up a "emerging technology terminology" module in terminology classification to accommodate new technical vocabulary such as "bio-printed textiles";

(2) Regular update and maintenance: Reviewing and updating the terminology database every 6 months;

(3) Feedback adjustment: Establishing a feedback channel for terminology problems between industry and teaching to timely revise inappropriate translations.

B. PROCESSES AND METHODS FOR THE CONSTRUCTION OF TERMINOLOGY STANDARDIZATION

1) Terminology Selection: Multi-dimensional Screening and Priority Ranking

Terminology selection is implemented in three steps:

(1) Text mining of 200 international standard documents, enterprise technical manuals, and trade contracts to extract 326 terms with an occurrence frequency ≥ 5 times;

(2) Eliminating 12 obsolete or rarely used terms through enterprise interviews;

(3) A panel of experts composed of textile technical experts, translation scholars, and university teachers scores each term on three dimensions: "semantic importance", "application universality", and "teaching necessity".

The scoring criteria are as follows: each dimension adopts a 1-5 point Likert scale (5 points = highest, 1 point =

lowest); the three dimensions have equal weighting (each accounting for 1/3 of the total score); the total score is the average of the three dimensions, and terms with a total score ≥4.0 are selected as core terms, ultimately determining 286 core terms to be included in the standardization system. This scoring system ensures transparency and objectivity of the selection process.

2) Translation Review: Tripartite Collaboration and Multi-dimensional Verification

Adopting a "technical decoding - language conversion - scenario verification" mechanism:

(1) Technical decoding: Textile technical experts analyze the connotation and technical background of terminology, clarifying the process, material, or standard characteristics referred to by the terminology;

(2) Language conversion: Translation scholars propose candidate translations based on the functional equivalence theory and combined with the characteristics of textile terminology;

(3) Scenario verification: University teachers and enterprise personnel verify applicability and finally determine the optimal translation.

C. CONSTRUCTION AND MAINTENANCE OF A STANDARDIZED TERMINOLOGY DATABASE

1) Structure Design of the Terminology Database

Referring to the structure of the SAP Translation Hub textile terminology database and combining teaching needs, a "1+5" terminology information module is designed:

(1) Core module (2 items): Including English terminology and Chinese standard translations;

(2) Auxiliary module (5 items): Covering semantic explanation, application scenarios, related terminology, typical example sentences, and error-prone prompts.

Terminology in the database is classified in three dimensions: "field - type - difficulty" (3 industrial fields, 4 terminology types, 3 teaching difficulty levels) for convenient teaching retrieval and application. Typical terminology comparisons are shown in Table 1.

TABLE 1. Standard Comparison Table of Core Terminology for Sustainable Textiles

English Terminology	Chinese Standard Translation	Semantic Explanation	Application Scenarios
Circular Textiles	循环纺织品	Textiles with closed-loop management throughout the life cycle, covering recycling, regeneration, and reuse	Product EIA reports, trade contracts
Biobased Materials	生物基材料	Textile materials prepared from biomass, different from fossil-based materials	Technical R&D documents, material specifications
Greenwashing	漂绿	Enterprises falsely promote the sustainability of their products/services but fail to implement environmental protection measures	ESG reports, industry regulatory documents
GOTS	全球有机纺织品标准	A full-industrial-chain certification standard for organic textiles, covering raw materials, production, packaging, etc.	Certification application materials, cross-border trade
Carbon Footprint	碳足迹	Total greenhouse gas emissions generated by a product throughout its life cycle from raw material acquisition to waste disposal	Low-carbon trade correspondence, compliance documents

2) Dynamic Update Mechanism of the Terminology Database

Establishing a closed-loop update mechanism of "monitoring - review - release" to ensure the timeliness and accuracy of the terminology database:

Dynamic monitoring: Setting up a monitoring team composed of enterprise technical personnel and translation experts to collect new terminology and translation change needs monthly;

Professional review: The core expert committee reviews the monitoring information quarterly to determine the translations of new terms and the list of obsolete terms;

Authoritative release: Publishing the "White Paper on Standardization of Sustainable Textile Terminology" annually, updating the online terminology database, and pushing it to university and enterprise users simultaneously to ensure the wide application of terminology standards.

IV. TEACHING APPLICATION PATH OF ENGLISH TRANSLATION IN THE TEXTILE INDUSTRY BASED ON STANDARDIZED TERMINOLOGY

A. RECONSTRUCTION OF TEACHING OBJECTIVES: THREE-DIMENSIONAL COMPETENCE ORIENTATION

Based on industrial needs and talent training positioning, a three-level objective system of "basic - intermediate - advanced" is constructed:

(1) Basic objective: Mastery of terminology knowledge - mastering the translations and rules of 286 core terms with an accuracy rate of over 90%;

(2) Intermediate objective: Scenario application ability - accurately applying terminology in scenarios such as green certification and low-carbon trade;

(3) Advanced objective: Sustainable development literacy - possessing the ability of independent terminology update and industrial adaptation.

B. OPTIMIZATION OF TEACHING CONTENT: MODULAR ORGANIZATION

Building a teaching content system of "basic - application - expansion" with adjusted class hour proportions: Basic Module (40% of class hours), Application Module (45% of class hours), and Expansion Module (15% of class hours). The rationality of this allocation is justified as follows: The core of this study is to solve "chaotic terminology translation" and "insufficient foundation", so the Basic Module's class hour proportion is increased to 40% to ensure students fully master core terminology through systematic explanation, discrimination of easily confused terms, and repeated practice;

The Application Module still accounts for the largest proportion (45%) to emphasize the practical orientation of translation teaching, combining real texts and scenarios to realize the transformation from knowledge to ability;

The Expansion Module is adjusted to 15% to focus on key content such as translation theory application and interna-

tional standard interpretation, avoiding excessive expansion that diverts attention from core objectives.

The specific teaching implementation plan is shown in Table 2.

TABLE 2. Implementation Table of Textile Translation Teaching Plan Based on Standardized Terminology

Teaching Stage	Core Content	Teaching Methods	Implementation Carriers	Class Hour Proportion
Basic Stage	Explanation of standardized terminology system, discrimination of easily confused terms	Situational associative memory method, flipped classroom	Terminology database applet, "Terminology Translation Manual"	40%
Application Stage	Translation of texts in scenarios such as green certification/low-carbon trade, task-driven practice	Scenario-based teaching, university-enterprise collaborative teaching	Real enterprise documents, CAT translation tools	45%
Expansion Stage	Application of translation theories, interpretation of international standards, tracking of emerging terminology	Thematic lectures, group discussions	Lectures by industry experts, VR virtual scenarios	15%

C. INNOVATION OF TEACHING METHODS: DIVERSIFIED INTEGRATION

1) Scenario-based Teaching Method

Constructing a "virtual-real" dual-layer scenario system to enable students to learn terminology application in an immersive environment:

(1) Virtual scenario simulation: Using VR technology to build virtual scenarios such as sustainable textile production workshops and international exhibitions, where students learn the practical usage of terminology such as "low-carbon spinning" and "green certification consulting" through virtual operations;

(2) Real scenario embedding: Organizing students to visit and intern in textile enterprises, participating in auxiliary work of enterprise translation projects.

2) University-enterprise Collaborative Teaching Method

Inviting senior enterprise translators to serve as part-time tutors to give thematic lectures, co-building the "Terminology Translation Manual" and case database with industry associations, and holding a "Sustainable Textile Terminology Translation Competition" with real enterprise documents as competition questions to stimulate students' learning motivation.

3) Digital Teaching Method

(1) Application of terminology database platform: Developing an online terminology database applet, where students can retrieve terminology at any time, and the platform records learning data and pushes personalized exercises;

(2) AI-assisted translation training: Introducing CAT (Computer-Aided Translation) tools such as SDL Trados;

(3) Flipped classroom model: Students learn basic terminology online before class, and class time is focused on practical operation and Q&A. At the same time, core indicators of formative assessment (terminology assignments, classroom participation) and summative assessment (phased tests, final examinations) are integrated into the teaching process, and industrial feedback assessment is included in the subsequent practical verification link.

V. PRACTICAL VERIFICATION OF TERMINOLOGY STANDARDIZATION IN TEXTILE TRANSLATION TEACHING

A. PRACTICE DESIGN: UNIVERSITY TEACHING EXPERIMENT

1) Experimental Objects and Grouping

Two classes of textile engineering majors in a university were selected as experimental objects: the experimental class (42 students) adopted standardized terminology teaching, and the control class (40 students) adopted traditional teaching. There was no significant difference between the two classes in terms of entrance scores, English foundation, and mastery of textile professional knowledge ($P > 0.05$), making them comparable. This study was approved by the Ethics Committee of Weinan Normal University, and was performed in accordance with the principles of the Declaration of Helsinki. All eligible participants signed an informed consent form.

2) Experimental Cycle and Content

The experimental cycle was 16 weeks, with 4 class hours per week. The teaching content of both classes focused on "sustainable textile English translation", but the teaching methods and resources were different:

(1) Experimental class: Adopted the teaching path designed in Chapter 4, with the standardized terminology database as the core, implemented modular teaching of "basic-application-expansion", used teaching methods such as scenario-based and university-enterprise collaboration, and utilized resources such as terminology database applets and enterprise cases;

(2) Control class: Adopted the traditional teaching model, with existing textile professional English textbooks as the core, explained content in the order of texts, terminology teaching was scattered with texts, mainly based on teacher lectures and student recitation, without the support of a standardized terminology database.

3) Evaluation Indicators and Tools

Three types of evaluation indicators were designed according to teaching objectives, using "quantitative + qualitative" evaluation tools:

Quantitative indicators:

(1) Accuracy rate of terminology translation: Testing students' accuracy in translating 286 core terms;

(2) Scenario application ability: Selecting two types of texts (green certification reports and low-carbon trade correspondence), with scoring dimensions including terminology accuracy (40%), semantic integrity (30%), and scenario adaptability (30%);

(3) Learning efficiency: Recording the learning time required for students to master the same number of terms.

Qualitative indicators:

(1) Student feedback: Understanding students' satisfaction with the teaching model and perception of terminology learning difficulty through questionnaires;

(2) Teacher evaluation: Two senior teachers evaluating students' learning initiative and terminology application ability based on classroom performance and homework quality;

(3) Enterprise evaluation: Inviting cooperative enterprises to score the internship performance of students in the two classes.

B. PRACTICE RESULTS AND DATA ANALYSIS

1) Comparison of Quantitative Results

After the experiment, statistical analysis was conducted on the quantitative indicators of the two classes. It should be emphasized that the findings of this study are preliminary, as the practical verification is limited to a single university. The experimental class achieved significantly higher average scores and improvement ranges than the control class in core indicators, and the specific data are shown in Table 3. Standardized teaching had a particularly prominent effect on improving students' learning of intermediate and advanced terminology and scenario adaptation ability.

To enhance the generalizability of the conclusions, the following multi-institutional validation path is proposed for future research:

(1) Collaborate with 3-5 universities of different levels (higher vocational colleges, local undergraduate universities, key universities) and different regions to replicate the teaching experiment;

(2) Expand the experimental objects to include students of textile trade, fashion design and other related majors;

(3) Establish a shared database of teaching effects to conduct cross-institutional comparative analysis.

TABLE 3. Comparison Table of Teaching Effect Evaluation Results

Evaluation Indicator	Experimental Class	Control Class	Significance of Difference	Improvement Range
Average accuracy rate of terminology translation	89.2%	72.5%	$P < 0.01$	23.0%
Average score of green certification report translation	82.3 points	65.7 points	$P < 0.01$	25.3%
Average score of low-carbon trade correspondence translation	80.6 points	63.2 points	$P < 0.01$	27.5%
Average time to master core terminology	24.3 hours	35.7 hours	$P < 0.01$	32.0%

2) Analysis of Qualitative Results

(1) Student feedback: 87.1% of students in the experimental class were satisfied with the teaching model, significantly higher than 52.5% in the control class;

(2) Teacher evaluation: Teachers reported that students in the experimental class had stronger learning initiative and lower error rates in terminology usage;

(3) Enterprise evaluation: The accuracy rate of terminology application of students in the experimental class during internships reached 83%, compared with only 61% in the control class, and their translation results were more in line with industrial needs.

VI. CONCLUSIONS AND PROSPECTS

A. RESEARCH CONCLUSIONS

(1) Clarified three core problems in English terminology translation of the textile industry from the perspective of sustainable development: chaotic translation, lack of teaching system, and disconnect from industrial practice. The causes include information barriers between industry and education, lack of special standardized specifications, and guiding deviations in translation teaching, which restrict the international exchange and sustainable transformation of the industry;

(2) Constructed a terminology standardization system adapted to teaching and industrial needs. Following four principles (industrial adaptability, semantic accuracy, teaching applicability, dynamism) with clear theoretical mapping, the system formed a standardized terminology database containing 286 core terms (with a "core module and five auxiliary modules" information structure) through scientific processes, and established a dynamic update mechanism. The cross-dimensional classification (ESG content + functional type) ensures the comprehensiveness and teaching compatibility of the terminology system;

(3) Proposed a teaching application path of "goal reconstruction - content optimization - method innovation". Through three-dimensional objectives, modular content, diversified teaching methods, and a comprehensive evaluation system, the organic integration of terminology knowledge and translation ability was achieved;

(4) Preliminary teaching experiments verified the effectiveness of standardized terminology teaching. The experimental class was significantly better than the control class in terms of terminology translation accuracy, scenario application ability, and learning efficiency, and was highly recognized by students, teachers, and enterprises.

B. RESEARCH LIMITATIONS

(1) The practical verification only covered one university, and the findings are preliminary. The lack of multi-institutional and multi-major samples weakens the generalizability of the conclusions;

(2) The terminology database has room for expansion in the social and governance dimensions, and the coverage of emerging terms needs to be further improved;

(3) Future research needs to further explore the in-depth application of AI-assisted translation tools and knowledge graphs in digital teaching, and the potential of intelligent technology to empower terminology teaching has not been fully tapped.

C. FUTURE PROSPECTS

In the future, we will:

(1) Expand the terminology database to supplement more social and governance dimension terms and emerging technical terms;

(2) Promote multi-institutional collaborative research, carry out teaching experiments in universities of different

levels and regions, and verify the generalizability of the research conclusions

(3) Deepen university-enterprise collaboration, establish a joint teaching center and a "double tutor system";

(4) Explore intelligent teaching paths, develop an intelligent terminology learning system and VR immersive scenarios and further improve the quality and efficiency of textile English translation teaching.

AUTHOR CONTRIBUTIONS

Weigang Wang designed, collected and analyzed the data, and drafted the manuscript. Weigang Wang conducted the study, critically revised the manuscript for important intellectual content, and gave final approval of the version to be published. Weigang Wang participated fully in the work, take public responsibility for appropriate portions of the content, and agreed to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

CONFLICTS OF INTEREST

The author declares no conflict of interest.

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ETHICS APPROVAL AND CONSENT TO PARTICIPATE

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