

Construction and Implementation of a Modular Curriculum System for Maritime English in Higher Vocational Colleges

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Abstract

This study focuses on the reform of Maritime English courses in higher vocational colleges. To address the issue of "disconnection between learning and application" in traditional courses, it constructs a three-level modular curriculum system of "Basic - Core - Extended". The module content is determined by anchoring job competency maps, scenario-based teaching is adopted to strengthen application training, and multiple evaluations are used to align with industry standards. Empirical results show that this system significantly improves students' Maritime English application ability and competitiveness in competitions and certifications, providing a promotable practical example for the teaching reform of Maritime English in higher vocational colleges.

Keywords

Higher Vocational Colleges; Maritime English; Modular Curriculum System.

1. Introduction

With the vigorous development of the global shipping industry, international maritime exchanges have become increasingly frequent, placing higher demands on the comprehensive English application ability of maritime talents. The Manila Amendments to the STCW Convention issued by the International Maritime Organization (IMO) attach great importance to the cultivation of students' practical abilities [1] and further emphasize the accuracy and fluency of seafarers' English communication in complex maritime scenarios. [2] As an important base for cultivating maritime talents, the quality of Maritime English courses in higher vocational colleges directly affects whether graduates can quickly adapt to job requirements. However, traditional Maritime English courses have problems such as outdated content, disconnection between teaching and actual jobs, and a single evaluation method, making it difficult to meet the industry's demand for compound maritime talents. Constructing a scientific and reasonable modular curriculum system has become a key path to improve the quality of Maritime English teaching and cultivate high-quality maritime talents.

2. Analysis of the Current Situation of Maritime English Courses

2.1. Disadvantages of Traditional Curriculum Models

Traditional Maritime English courses mostly adopt a linear model of "Basic English + Professional English". The basic English stage focuses on grammar and vocabulary teaching, with low relevance to maritime professional scenarios; although the professional English stage involves maritime terminology and texts, the teaching method is mainly theoretical lectures, and students lack practical application opportunities. Taking a higher vocational college as an example, in previous Maritime English courses, general higher vocational English textbooks were used for basic English, lacking maritime characteristics; professional English teaching focused on textbook text translation and knowledge point explanation. As a result, students have insufficient English expression ability in real maritime scenarios (such as VHF communication and ship emergency response), leading to graduate interns being unable to

communicate accurately and fluently in English when facing work scenarios such as communication with foreign crew members and port inspections. [3]

2.2. Gap Between Industry Demand and Talent Cultivation

The shipping industry's requirements for maritime talents' English ability show a trend of diversification and scenarioization. Crew members not only need to master maritime professional terminology but also be able to communicate effectively in English and solve problems in complex job scenarios such as ship navigation, cargo loading and unloading, and emergency rescue. The "2024 China Crew Development Report" released by the Maritime Safety Administration of the People's Republic of China points out that communication barriers caused by insufficient English application ability of Chinese crew members in the international shipping market have affected ship operation efficiency and safety (Maritime Safety Administration of the People's Republic of China, 2024). [4] Compared with industry needs, there is a large gap in the practical English application ability of graduates from maritime majors in higher vocational colleges. For example, in the link of ship emergency English communication, most graduates cannot accurately report accident information within the specified time, and the omission rate of key information is high.

3. Ideas for Constructing a Modular Curriculum System

3.1. Modular Design Concept

This curriculum system takes "competency-based" as the core design concept, breaks the constraints of the traditional subject knowledge system, and divides the curriculum content into three modules: basic, job core, and extended improvement, according to the maritime job workflow and English application needs. Each module is relatively independent yet organically connected, progressively cultivating students' comprehensive application ability of Maritime English. The basic module focuses on consolidating language foundations and cultivating students' basic maritime terminology cognition and daily communication ability; the job core module focuses on typical work scenarios of various maritime positions, strengthening students' English practical ability in navigation, emergency response, freight transportation and other positions; the extended improvement module focuses on industry frontiers and students' personalized development, cultivating students' innovative application ability in intelligent shipping, interpretation of international shipping rules, etc. [5]

3.2. Module Structure Construction

Basic Module: It sets two sub-modules: "Basic Maritime Vocabulary and Grammar" and "Daily Maritime Communication English". By systematically explaining 500 high-frequency basic maritime vocabulary, special grammatical structures (such as professional term collocations in Maritime English and fixed sentence patterns in ship documents), and conducting simulation training of ship life scenarios (such as daily communication between crew members and dialogues in restaurant dining), students can master basic Maritime English expressions and have preliminary English listening, speaking, reading and writing skills.

Job Core Module: According to maritime job categories, it is subdivided into sub-modules such as "Ship Navigation English", "Ship Emergency Response English", "Cargo Transportation English", "Deck Operation Terms", and "Port Duty and Inspection English". Taking "Ship Navigation English" as an example, it covers content such as "VHF Communication English", "Maritime Instrument Operation English", "Ship Collision Avoidance Interpretation", and "Route Planning and Reporting". Through real maritime simulator scenario training and practical drills on the ship's bridge, students can master the full-process English application skills for navigation positions.

Extended Improvement Module: It sets up sub-modules such as "Intelligent Shipping English", "Interpretation of International Shipping Rules in English", and "Maritime English Competition and Innovation Practice". It introduces cutting-edge English knowledge such as intelligent ship remote control and unmanned port operations, organizes students to participate in case analysis of international shipping rules and Maritime English skills competitions, cultivates students' innovative thinking and cross-cultural communication ability, and enhances their competitiveness in the international shipping field.

4. Implementation Strategies of the Modular Curriculum System

4.1. Integration of Teaching Content

Based on the goals of each module, the teaching content is deeply integrated and optimized. The basic module selects core vocabulary and grammar content from classic maritime textbooks (such as "Basic Course of Maritime English") and conducts teaching in combination with self-compiled daily communication English scenario manuals (including dialogues in 20 common maritime life scenarios); the job core module cooperates deeply with shipping enterprises to jointly develop teaching case sets based on real job tasks (no less than 15 typical cases), such as "Ship Navigation Post: VHF Communication Cases for Pilotage in Complex Waterways"; the extended improvement module tracks industry dynamics, updates intelligent shipping English materials in a timely manner (such as English interpretation of the 2024 newly launched intelligent ship operation manual), and invites industry experts to give lectures on international shipping rules regularly (no less than 2 times per semester).

4.2. Innovation of Teaching Methods

A teaching method combining "scenario-based teaching + project-based learning" is adopted. In terms of scenario-based teaching, more than 30 highly simulated maritime scenarios are constructed using maritime simulators, such as "Emergency Communication in Severe Weather Navigation" and "English Communication in Port Berthing Operations", allowing students to experience job English application immersively; project-based learning is driven by actual maritime tasks, such as organizing students to complete "Intelligent Bridge Equipment Manual Translation Project" and "English Scheme Design Project for Ship Emergency Drills". Students work in groups to improve their comprehensive application ability in the process of completing projects. For example, in the "English Scheme Design Project for Ship Emergency Drills", students need to use knowledge from multiple modules to design emergency English communication schemes covering different scenarios such as fires and collisions, and conduct simulation drills and scheme optimization.

4.3. Construction of Teaching Staff

A "dual-teacher" team consisting of "in-school teachers + enterprise mentors" is built. In-school teachers participate in maritime industry training regularly (no less than 40 class hours per year) to improve their professional practical ability and obtain relevant maritime vocational qualification certificates (such as senior crew competency certificates); enterprise mentors are selected from captains, chief engineers, etc. with rich maritime experience and good English ability, who come to the school to assist in teaching regularly (no less than 16 class hours per semester) and share actual work cases and the latest industry developments.

4.4. Improvement of Evaluation System

4.4.1. Diversified Evaluation Subjects

An evaluation subject system involving schools, enterprises, and students is constructed. In-school teachers are responsible for evaluating classroom teaching and in-school training; enterprise mentors evaluate students' internship performance and job operation ability;

students conduct self-evaluation (such as learning reflection logs) and mutual evaluation (group project mutual evaluation) to enhance self-awareness and team cooperation awareness. In the evaluation of Maritime English courses, in-school teachers' evaluation accounts for 40% (based on classroom performance and homework completion), enterprise mentors' evaluation accounts for 30% (English operation assessment of bridge positions during internships), and students' self-evaluation and mutual evaluation account for 30% (mutual evaluation of group project completion effects and reflection on personal learning gains).

4.4.2. Evaluation Content and Methods

The evaluation content needs to cover the three dimensions of "knowledge - skills - literacy". The basic module takes the mastery of maritime terminology (such as the passing rate of 300 core terminology tests) and basic communication ability (completion of daily scenario dialogues) as the core evaluation points; the job core module focuses on assessing scenario simulation operation ability (such as the standardization of VHF communication processes for navigation positions and the accuracy of English responses in emergency scenarios) and the quality of job task completion (referring to the actual operation standards of shipping enterprises); the extended improvement module is evaluated based on competition and certification results (such as scores in the English section of maritime skills competitions and English assessment results of intelligent ship operations) and innovative application cases (such as English interpretation reports of international shipping rules).

The evaluation method adopts a combination of "process evaluation (60%) + summative evaluation (40%)". Process evaluation includes classroom scenario training performance (30%), module Phased Testing (20%), and enterprise mentor internship evaluation (10%); summative evaluation includes comprehensive post simulation assessment (25%) and competition and certification related ability compliance tests (15%). For example, in the summative evaluation of the core module of navigation positions, a composite scenario of "VHF Communication in Narrow Channel Navigation + Emergency Response to Sudden Collision" is set up through the maritime simulator, and the scores are given jointly by in-school teachers and enterprise captains, with the scoring standards referring to the requirements of the STCW Convention for navigation communication (see Table 1).

Table 1 Evaluation Quantification Table

Evaluation Dimension	Scoring Standards (referring to STCW Convention)	Score Proportion
VHF Communication Standardization	Calling process complies with international collision avoidance rules, and instructions are expressed accurately without ambiguity	40%
Emergency English Response Speed	Complete emergency situation report within 30 seconds with complete key information	30%
Teamwork Adaptability	English communication efficiency with simulated crew members, in line with ship operation cooperation norms	30%

5. Implementation Effect and Verification of the Modular Curriculum System

5.1. Implementation Objects and Processes

Four parallel classes (45 students each) of the 2022-level Maritime Technology major in a higher vocational college were selected as the research objects, among which 2 classes were the experimental group (implementing the modular curriculum) and the other 2 classes were the control group (using the traditional curriculum). The implementation period was the 2022-2023 academic year (2 semesters in total), strictly following the progressive rhythm of "Basic Module (first 8 weeks of the first semester) → Job Core Module (last 10 weeks of the first semester to first 6 weeks of the second semester) → Extended Improvement Module (last 8 weeks of the second semester)". After the end of each module, the experimental group received an additional 8 class hours of scenario-based training from enterprise mentors (such as inviting ocean-going captains to guide VHF communication practice), while the control group conducted after-class exercises in the traditional mode.

5.2. Comparison of Effect Data

5.2.1. Ability Indicators

The "Maritime English Scenario Application Ability Test" (including 6 typical job scenarios) showed that the average passing rate of the experimental group reached 89%, significantly higher than 56% of the control group. In the "Ship Emergency English Communication" special test, students in the experimental group could complete standard reports within 28 seconds (the control group averaged 51 seconds), and the integrity rate of key information reached 92% (63% in the control group), which is directly related to the special training of the "Emergency Response English" sub-module in the modular curriculum (see Figure 2: Bar Chart of Ability Indicator Comparison between Experimental Group and Control Group).

5.2.2 Competition and Certification Results

The one-time passing rate of the experimental group in the "Seafarer Competency Certificate English Exam" was 82%, 21 percentage points higher than that of the control group (61%); in the "National Maritime Vocational Skills Competition", 12 students in the experimental group won English-related awards (0 in the control group). The human resources department of a shipping enterprise reported that the interns in the experimental class performed "meeting the requirements of junior crew positions" in English in scenarios such as "foreign pilot docking" and "PSC inspection response", while the interns in the control group "needed 3 on-the-job trainings to basically adapt".

5.2.2. Industry Feedback

A questionnaire survey of 10 cooperating shipping enterprises showed that the average score of "job English adaptability" of students in the experimental group was 4.2/5, while that of the control group was 2.8/5. An international shipping company mentioned in the internship appraisal: "Students in the experimental class can independently complete daily VHF communication, which is rare among previous fresh graduates."

5.3. Implementation Reflections and Optimization Directions

5.3.1. Existing Problems

The content update of the extended module lags behind the development speed of intelligent shipping. For example, the cases of the "Intelligent Ship Remote Control English" module are still based on 2022 models, and do not include terminology of intelligent navigation systems newly launched in 2023; the scenario interactivity of the virtual training platform is insufficient,

with only 3 types of emergency scenario branch options (ideally more than 8 types), which is difficult to cover complex sea conditions.

5.3.2. Optimization Directions

An "industry expert advisory group" consisting of 5 ocean-going captains and 2 maritime college professors will be established to update module content once a quarter (focusing on supplementing intelligent shipping-related terminology and cases); cooperate with maritime simulator enterprises to upgrade the training platform, add complex scenarios such as "typhoon weather navigation communication" and "unmanned port cargo handover", so that the number of interactive branches reaches more than 10 types.

6. Conclusions and Prospects

6.1. Research Conclusions

The three-level modular curriculum system of "Basic - Core - Extended" constructed in this study anchors module content through job competency maps, strengthens application training through scenario-based teaching, and connects with industry standards through multiple evaluations, effectively solving the problem of "disconnection between learning and application" in traditional courses. Empirical data show that this system can significantly improve students' Maritime English application ability (the passing rate of job scenarios in the experimental group increased by 33 percentage points) and competitiveness in competitions and certifications (the passing rate of competency certificate exams increased by 21 percentage points), providing a replicable practical paradigm for the reform of English courses for maritime majors in higher vocational colleges.

6.2. Research Limitations

The samples are only from one higher vocational college, and long-term tracking data of positions such as marine engineering and freight transportation are not included. The design of the module in cultivating "cross-job collaboration ability" (such as emergency English cooperation between navigation positions and marine engineering positions) needs to be further improved. In addition, the depth of industry experts' participation in curriculum development is insufficient (currently mainly in the form of consultation), and the connection between module content and the latest international shipping rules (such as the "Intelligent Ship Operation Guidelines" issued by IMO in 2024) can be further strengthened.

6.3. Future Prospects

First, expand the coverage of modules, develop new modules such as "Unmanned Ship Remote Communication English" and "Green Shipping Compliance English", and compile supporting micro-course resources simultaneously; second, join hands with multiple provincial demonstration higher vocational colleges to build a "Maritime English Modular Curriculum Resource Sharing Platform" to realize cross-school sharing of virtual training scenarios and industry case databases; third, establish a "school-enterprise dual-element" curriculum development mechanism, invite shipping enterprises to deeply participate in module content design (such as jointly compiling the "Intelligent Ship English Operation Manual"), and promote the accurate connection between the curriculum system and international maritime talent standards.

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