

Research on Curriculum-Content Restructuring of Maritime English in Higher Vocational Colleges from the Perspective of Integration of Posts, Courses, Competitions and Certificate

Xiang Huang

Jiangsu Maritime Institute, Nanjing, Jiangsu 211170, China

Abstract: Implementing the integrated talent-development requirement of “Posts, Courses, Competitions and Certificates” and complying with the Manila Amendments to the STCW Convention constitute realistic propositions for the curriculum reform of Maritime English in higher vocational colleges. Aiming at problems such as over-reliance on general linguistic knowledge points, fragmented job-related communicative contexts, and insufficient integration among on-the-job performance, classroom teaching, competency-certificate assessment and vocational-skill competitions, this paper takes the post of seagoing-ship deck officers in Maritime-Technology programs as the research object. Adopting job-task analysis, semi-structured enterprise interviews and textual-analysis methods, and drawing on Seafarers’ Training Syllabus (2021 Edition) and IMO Model Course 3.17 Maritime English, this study constructs a job-competency map for Maritime English. Following the principles of job-orientation, integration of certificates-and-competitions, and ESP-centered communication, it restructures curriculum content based on the competency map and develops five teaching modules corresponding to typical job-related communicative tasks. Supporting teaching resources including a de-identified job-case library and scenario-based SMCP corpora are developed. Guarantee pathways are proposed from four dimensions: teacher-team building, classroom implementation, multi-agent evaluation, and school-enterprise collaboration. This research provides referable practical solutions for higher-vocational Maritime English to realize “Posts-Courses-Competitions-Certificates” integration and foster seafarers’ maritime communicative competence.

Keywords: Integration of Posts, Courses, Competitions and Certificates, job-competency map, Maritime English, STCW Convention, curriculum-content restructuring.

1. Introduction

Maritime English is a typical Maritime-oriented English for Specific Purposes (ESP) and a core course for higher-vocational Maritime-Technology programs. It directly serves deck officers’ on-board duties, seafarers’ competency-certificate examinations and maritime vocational-skill competitions. *Vocational-Education Law of the People’s Republic of China* explicitly promotes integration of industry-education and science-education, and advocates alignment between vocational education and occupational-post demands②. Relevant documents issued by the Ministry of Education further identify the integrated talent-development model of “Posts, Courses, Competitions and Certificates” as a vital pathway for vocational-education curriculum reform①. The Manila Amendments to the STCW Convention stress that the focus of seafarers’ English competence development should be placed on communication in real-ship operational contexts instead of mere rote learning of vocabulary and grammar.

In teaching practice, many higher-vocational Maritime-English courses still follow the organizational logic of traditional textbooks, with teaching units arranged around linguistic knowledge points. High-frequency on-board communicative scenarios such as VHF radiotelephony communication, Port-State Control (PSC) inspections and maritime emergency responses are fragmented. Training of Standard Marine Communication Phrases (SMCP) is poorly connected with authentic job-related tasks. Classroom

teaching tends to be examination-oriented, producing a phenomenon that “students can score high in certificate examinations yet lack practical communicative competence aboard ships”. Posts, courses, certificates and competitions are largely isolated from one another.

Existing studies on Maritime-English reform mostly focus on teaching-model innovation and evaluation-system optimization. Empirical research on backward development of teaching content - i.e. “what to teach” - remains relatively scarce, lacking implementable, visual job-competency analytical tools for curriculum restructuring. Against this background, this paper introduces the job-competency-map tool, deconstructs job-related English-competency elements starting from deck officers’ on-board tasks, and conducts research on curriculum-content restructuring. Two core research questions are addressed: (1) How can the English-competency elements for seagoing-ship deck-officer posts be systematically deconstructed and presented in a mapped format? (2) How to restructure Maritime-English curriculum content based on the job-competency map and guarantee its implementation?

2. Core Concepts and Research Foundations

2.1. Definition of Core Concepts

In the integrated-education model of “Posts, Courses, Competitions and Certificates”, “posts” denotes actual job requirements for second officers and third officers serving on

unlimited-tonnage seagoing ships; “courses” refers to Maritime-English instruction; “certificates” covers listening-speaking, reading-writing assessment requirements for seafarers’ competency certificates; “competitions” represents Maritime-English events in maritime vocational-skill competitions. The fundamental logic of integration is to transform job tasks, certificate examination points and competition scenarios into classroom teaching projects, realizing post-driven curriculum design, certificate-promoted teaching and competition-driven learning[1].

A job-competency map is a structured analytical tool for vocational-education curriculum development. Centered on typical job tasks, it breaks down job scenarios, communicative assignments, linguistic skills, maritime professional knowledge and professional literacy, forming a visual competency framework and itemized inventory of job-competency elements. It offers objective grounds for setting curriculum objectives and selecting teaching content[2]. As a maritime ESP course, Maritime English differs from general English: its core objective is to accomplish diverse maritime communicative assignments aboard vessels via English, emphasizing task-fulfillment effects and standardization of maritime expressions rather than memorization of grammatical rules[3].

2.2. Review of Domestic Relevant Research

Considerable research has been carried out on domestic Maritime-English teaching reform. Wu Xuehong points out that Maritime-English teaching in China generally suffers from over-emphasis on knowledge memorization while neglecting job-oriented communicative training, resulting in disconnection between teaching content and real-ship practice[4]. Xue Hailong et al. argue that Maritime-English teaching under the STCW-Convention framework should strengthen situational communicative training and align teaching content with seafarer-post requirements; nevertheless, they have not conducted systematic research on backward curriculum-content restructuring starting from job-side analysis[5]. Jiang Huifang et al. explore the construction of formative-assessment systems for Maritime English, concentrating on evaluation links with limited discussion on curriculum-content development[6].

The job-competency-map tool has been applied in curriculum reform for engineering majors such as intelligent manufacturing and new-energy-vehicle technology. Researchers extract job-competency elements via enterprise investigations to drive reconstruction of curriculum modules and realize integration of posts, courses, competitions and certificates[2]. Yet its application in maritime ESP courses

remains rare. Most Maritime-English reforms rely merely on teachers’ pedagogical experience for content adjustment without support from post-investigation data. IMO Model Course 3.17 clarifies that Maritime-English teaching should center on job-related communicative tasks, providing international reference standards for domestic higher-vocational Maritime-English curriculum development ①. To sum up, existing studies lay a theoretical foundation but reveal two research gaps: first, the job-competency map has not been systematically adopted for Maritime-English curriculum-content development; second, the integration of “Posts, Courses, Competitions and Certificates” mostly stays at conceptual level without operable curriculum-module schemes.

3. Construction of the Job-Competency Map for Higher-Vocational Maritime English

3.1. Research Methods

Three complementary approaches are adopted. First, job-task analysis: sort out full-cycle duties of deck officers including navigational watch-keeping, port operations and emergency response; extract job-related English-use scenarios with reference to *Seafarers’ Training Syllabus (2021 Edition)*[7]. Second, semi-structured enterprise interviews: interview five front-line captains and chief officers from shipping enterprises to explore high-frequency English communicative assignments and real-world communication difficulties aboard ships. Third, textual analysis: analyze seafarers’ competency-certificate syllabi and maritime vocational-skill-competition test items to incorporate certificate- and-competition competency requirements into the competency-map framework. Mutual validation is achieved among the three methods: job-task analysis ensures full coverage of job duties; enterprise interviews verify the authenticity and frequency of scenarios; textual analysis guarantees complete integration of certificate-and-competition elements.

3.2. Job-Competency Map for Seagoing-Ship Deck-Officer Maritime English

Based on deck-officer on-board workflows, five core scenarios are identified: navigational-watch VHF communication, berthing-unberthing port operations, Port-State-Control inspections, maritime-incident emergency response, and maritime-document-related cross-border communication. The resulting job-competency map is shown in Table 1.

Table 1. Job-Competency Map for Seagoing-Ship Deck-Officer Maritime English

Module No.	Module Name	Core Teaching Assignments	Class Hours	Integration Explanation for Posts-Courses-Competitions-Certificates
Module 1	Foundations of Maritime English and SMCP Standard Phrases	Core maritime vocabulary; basic SMCP communication phrases; oral-expression drills for ship-board-post personnel	24	Lay foundational knowledge; cover certificate-examination vocabulary points; underpin all job-scenario communication
Module 2	Navigational-Watch-Keeping and VHF-Communication Competence	Drills for routine VHF calls; listening practice for navigational-warning and meteorological bulletins; oral bridge-hand-over-of-watch reports	32	Align with navigational-watch-keeping posts; cover key listening-speaking competency-test contents; realize competition-based simulated VHF-call assignments
Module 3	Port-Operation and PSC-Inspection-Oriented Maritime-English Competence	Pilot-embarkation situational dialogues; tugboat-operation communication; simulated PSC-inspection role-play drills	28	Target port-site-work scenarios; correspond to certificate-speaking-test items; undertake competition-based PSC-simulation tasks
Module 4	Maritime-Emergency-Response-Oriented English Competence	Distress-urgency-safety communications; oral maritime-incident reports; dialogues for fire-fighting and abandon-ship drills	24	Correspond to maritime-emergency-response duties; cover emergency-communication examination items; implement competition-based emergency-communication assignments
Module 5	Maritime-Written-Communication and Cross-Border-Document-Handling Competence	Completion of English deck logs; composition of brief maritime-incident reports; reading drills for ship-equipment English documentation	20	Align with maritime-documentation-keeping duties; cover certificate reading-writing assessment; fulfill competition-based maritime-documentation assignments

The map adopts a three-tier structure: the bottom tier covers foundational Maritime-English and SMCP competence; the middle tier denotes task-accomplishment competence for maritime-scenario communication; the top tier represents maritime professional literacy. Competency points for on-board duties, classroom instruction, competency-certificate examinations and vocational-skill competitions are cross-referenced, serving as the direct foundation for curriculum-content restructuring.

4. Modular Restructuring of Curriculum Content Based on the Job-Competency Map

4.1. Principles for Curriculum-Content Restructuring

First, STCW-compliance and job-competency-orientation principle: benchmark the Manila Amendments to the STCW Convention and IMO Model Course 3.17 ①, taking the job-competency map as the core basis for curriculum development.

Second, integrated-Posts-Courses-Competitions-Certificates principle: transform typical job-related communicative assignments, competency-certificate test points and competition scenarios uniformly into classroom teaching projects. Third, ESP-communication-centered principle: break the textbook-based arrangement organized around vocabulary-grammar units and adopt authentic maritime communicative tasks to organize teaching[3]. Fourth, progressive-difficulty principle: progress from simple watch-keeping dialogues to complex PSC-inspection and maritime-emergency communication, matching the weak English foundation of higher-vocational students.

4.2. Prominent Drawbacks of Existing Curriculum Content

Examining current curricula against the competency map

reveals four major deficiencies. First, textbooks are organized around linguistic-knowledge units, dispersing job-related communicative assignments; high-frequency scenarios including VHF communication, PSC inspections and maritime emergencies lack systematic teaching units. Second, teaching content exhibits examination-driven tendencies: excessive drill for certificate-examination questions while neglecting real-job communicative-strategy training, blurring boundaries between certificate test items and actual on-board requirements. Third, comprehensive situational tasks from vocational-skill competitions are seldom incorporated into regular classes; competition training is confined to short-term pre-competition coaching. Fourth, authentic de-identified enterprise case resources are insufficient, widening the gap between classroom materials and real-ship contexts.

4.3. Modular Curriculum-Content Design

Following higher-vocational Maritime-English curriculum standards with a total of 128 class hours, the original textbook-based unit structure is dismantled and five teaching modules are reconstructed (see Table 2). Each module contains multiple sub-communicative assignments; grammar and vocabulary knowledge are embedded within communicative assignments and taught on an as-needed basis, without independent grammar chapters.

The five modules total 128 class hours. Hour allocation corresponds to the practical importance of each job scenario; VHF communication represents deck officers' most-frequent English-use scenario and is allocated the maximum of 32 hours. Classroom activities within each module integrate situational simulation, SMCP-phrase reinforcement, synchronous training for certificate-examination points and competition-oriented situational drills to embed Posts-Courses-Competitions-Certificates elements within every teaching unit.

Table 2. Restructured Teaching Modules for Maritime-English Courses

Module No.	Module Name	Core Teaching Assignments	Class Hours	Integration Explanation for Posts-Courses-Competitions-Certificates
Module 1	Foundations of Maritime English and SMCP Standard Phrases	Core maritime vocabulary; basic SMCP communication phrases; oral-expression drills for ship-board-post personnel	24	Lay foundational knowledge; cover certificate-examination vocabulary points; underpin all job-scenario communication
Module 2	Navigational-Watch-Keeping and VHF-Communication Competence	Drills for routine VHF calls; listening practice for navigational-warning and meteorological bulletins; oral bridge-hand-over-of-watch reports	32	Align with navigational-watch-keeping posts; cover key listening-speaking competency-test contents; realize competition-based simulated VHF-call assignments
Module 3	Port-Operation and PSC-Inspection-Oriented Maritime-English Competence	Pilot-embarkation situational dialogues; tugboat-operation communication; simulated PSC-inspection role-play drills	28	Target port-site-work scenarios; correspond to certificate-speaking-test items; undertake competition-based PSC-simulation tasks
Module 4	Maritime-Emergency-Response-Oriented English Competence	Distress-urgency-safety communications; oral maritime-incident reports; dialogues for fire-fighting and abandon-ship drills	24	Correspond to maritime-emergency-response duties; cover emergency-communication examination items; implement competition-based emergency-communication assignments
Module 5	Maritime-Written-Communication and Cross-Border-Document-Handling Competence	Completion of English deck logs; composition of brief maritime-incident reports; reading drills for ship-equipment English documentation	20	Align with maritime-documentation-keeping duties; cover certificate reading-writing assessment; fulfill competition-based maritime-documentation assignments

4.4. Restructuring of Supporting Teaching Resources

Teaching resources are updated synchronously drawing on the job-competency map. First, build a de-identified job-case library: collect authentic enterprise VHF audio clips, PSC-inspection cases and maritime-incident reports, remove sensitive identifying information and adopt them as classroom-training materials. Second, construct scenario-classified SMCP corpus resources, sorting standard maritime-communication phrases for navigation, port-operations and emergency contexts. Third, develop integrated certificate-and-competition exercise resources, adapting seafarers' competency-examination real-test questions and vocational-skill-competition assignments into regular classroom-training tasks. Fourth, expand digital resources: generative-AI tools can be deployed to simulate maritime dialogues for regular oral-practice opportunities, forming a "teaching-assessment" closed-loop with previous human-AI collaborative formative-assessment research outcomes[8].

5. Guarantee Pathways for Curriculum Implementation

5.1. Enhancing Teachers' Comprehensive Teaching Competence

Maritime-English teachers should possess both foreign-language-teaching expertise and hands-on maritime-post experience. Colleges should encourage teachers to undertake on-board follow-up practice and organize thematic teaching-research activities covering the STCW Convention and IMO Model Course 3.17 to ensure thorough mastery of job-related English-competency standards①. Meanwhile, digital-competence training shall be delivered to improve teachers' proficiency with generative-AI tools, enabling appropriate deployment of AI for situational simulation and learning-situation diagnosis while mitigating AI misjudgments within maritime-professional contexts[8].

5.2. Optimizing Classroom-Teaching Organization

Adopt task-driven classroom teaching, extensively applying role-play and situational simulation combined with maritime-simulator-assisted practical training. Embed certificate-examination points and competition-related scenarios into each lesson's task design to avoid cramming for final examinations. Curriculum assessment should not rely exclusively on final written tests. Drawing on assessment-for-learning concepts[9], implement the human-AI collaborative formative-assessment closed-loop of "pre-class diagnosis - in-class dynamic monitoring - post-class iterative feedback", realizing coordinated implementation of curriculum-content restructuring and assessment-reform measures.

5.3. Constructing Multi-Agent Evaluation Oriented toward Integration of Posts-Courses-Competitions-Certificates

Establish multi-agent evaluation mechanisms. Include performance in simulated job-communicative assignments, iteratively-revised homework and competition-training outcomes in formative grades and reduce weighting for summative final written examinations. Appropriately involve senior seafarers from shipping enterprises in practical-training-task evaluation to judge students' maritime-communicative-task completion quality from an occupational perspective and align curriculum assessment with real-world post requirements[9].

5.4. Perfecting School-Enterprise Collaborative-Development Mechanisms

Invite captains and serving deck officers from shipping enterprises to review and validate the job-competency map and curriculum modules to guarantee teaching-content authenticity for ocean-going-ship posts and prevent curriculum development from relying solely on

internal-college teachers' subjective experience. Promote joint school-enterprise development of case libraries and continuously update situational teaching materials reflecting real-ship practice.

6. Conclusion

Curriculum reform for Maritime-English under the perspective of Posts-Courses-Competitions-Certificates integration should go beyond teaching-method adjustments and address the core issue of “what to teach” based on occupational-post requirements. Starting from deck-officer job assignments and combining enterprise interviews, STCW-compliance documents, certificate-and-competition requirements, this study constructs a Maritime-English job-competency map and completes modular curriculum-content restructuring, breaking down barriers separating posts, courses, certificates and competitions.

Limitations remain in this research: enterprise-interview sample size is limited, and the competency-map requires further validation by more maritime-enterprise experts. The curriculum modules have not yet undergone a full-cycle teaching-action-research, calling for iterative optimization in real-world instruction. Future work may partner with multiple maritime higher-vocational colleges and shipping enterprises to expand investigation samples, refine the competency map and supporting teaching resources, and steadily advance the practical implementation of Posts-Courses-Competitions-Certificates integration within higher-vocational Maritime-English instruction.

Footnotes: ① IMO. Model Course 3.17 Maritime English[M]. London: International Maritime Organization, 2015.

② General-Office of the CPC Central Committee, General-Office of the State Council. Opinions on Promoting the High-Quality Development of Modern Vocational

Education[Z]. 2021.

References

- [1] Zeng, Q. H., & Zhou, Q. C. (2025). Teaching-reform and practice of integrated-posts-courses-competitions-certificates curriculum under “1+X” certificate system: A case study of cruise-ship-specialty English. *Journal of Wuhan Shipbuilding Polytechnic*, 24(5), 81–85.
- [2] Han, Y., Xu, H., & Zhao, C. (2024). Digitalization of vocational-education specialty-competency standards: Competency-map development and its application scenarios. *Research in Educational Development*, (5), 88–94.
- [3] Shu, D. F. (2023). Core concepts and practical pathways for ESP teaching. *Foreign Language World*, (2), 2–10.
- [4] Wu, X. H. (2018). Current-situation and countermeasures for maritime-English-teaching research in China. *Journal of Maritime Education Research*, 35(1), 69–75.
- [5] Xue, H. L., & Qiao, H. Y. (2019). Curriculum reconstruction of marine-engineering-English based on localization of IMO Model Course. *Journal of Maritime Education Research*, 36(4), 106–109.
- [6] Jiang, H. F., & Zeng, W. J. (2025). Generative-AI-driven transformation of educational assessment. *Journal of China Education*, (8), 41–48.
- [7] Ministry of Transport of the People's Republic of China. (2021). *Seafarers' training syllabus (2021 edition)*. Ministry of Transport.
- [8] Lu, G. Q., Yang, Q., & He, X. M. (2024). Value, challenges and paths of generative-AI empowering formative assessment in higher education. *E-education Research*, 45(11), 84–91. <https://doi.org/10.13811/j.cnki.eer.2024.11.012>
- [9] Xu, P. (2021). Design and practice of assessment-for-learning model for sea-related-specialty English practical courses. *Journal of Maritime Education Research*, 38(1), 62–68.