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Innovation of Faculty Development Mechanism for Cruise Catering Management Courses Under the Context of Industry-Education Integration

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Abstract: ***Under the industry-education integration context, faculty development for cruise catering management courses faces challenges in aligning educational supply with industry demand. This study, grounded in dynamic capability theory, systematically analyzes three key issues: insufficient industry practice experience among instructors, inadequate industry-academia collaboration mechanisms, and weak digital teaching competencies. Through constructing an integrated innovation mechanism combining "dual-mentor system, digital empowerment and dynamic evaluation," and validated by the case of Qingdao Ocean Shipping Mariners College, the effectiveness of industry-academia co-built platforms, competition-certificate integration, and job competency evaluation pathways is demonstrated. Findings show a 40% increase in faculty industry practice participation, 35% improvement in digital resource utilization, and 85% student industry certification pass rate. This study provides a replicable faculty development paradigm for vocational education under industry-education integration.***

Keywords: Industry-Education Integration, Cruise Catering Management, Faculty Development Mechanism, Dual-Mentor System, Digital Empowerment**.**

1. Introduction

The rapid expansion of the global cruise tourism market has significantly elevated China's demand for compound catering management talents equipped with cross-cultural service competencies and digital management skills. However, vocational institutions face structural challenges in developing instructors for cruise catering courses: most educators lack frontline international cruise service experience, industry-academia collaboration mechanisms remain underdeveloped, and the application of digital teaching resources requires enhancement. This supply-demand mismatch results in prolonged talent-job alignment lag, with students' campus-to-workplace transition periods exceeding industry expectations.

Existing research predominantly focuses on curriculum optimization, with limited systematic exploration of faculty capability development mechanisms. This study transcends the traditional "unidirectional knowledge transmission" model by constructing a "demand-driven capability reconstruction-dynamic feedback" closed-loop mechanism. Through analysis of practical cases from representative institutions, it reveals the synergistic effects of industry-academia collaboration platforms, digital teaching tool matrices, and dynamic competency evaluation models, providing actionable empirical references to address superficial industry-education integration challenges.

2. Theoretical Basis of Faculty Development for Cruise Catering Management Courses Under the Context of Industry-Education Integration

2.1 Connotation and Policy Orientation of Industry-Education Integration

Industry-education integration, as the core principle of vocational education reform, fundamentally aims to achieve dynamic alignment between talent supply and industrial demand through deep coupling of education and industry chains. This model transcends traditional "school-centric" or "enterprise-led" unilateral approaches, emphasizing systemic collaboration in talent cultivation, technological R&D, and resource co-construction. Policy frameworks such as the National Vocational Education Reform Implementation Plan explicitly advocate "industry-education dual-element cultivation" and require vocational institutions to establish a "community of shared future" with enterprises. The Action Plan for Quality Improvement and Excellence in Vocational Education further specifies standards for "dual-qualified" teacher teams, promoting two-way mobility between enterprise engineers/technicians and institutional faculty [1]. In the cruise catering sector, integration must focus on industry-specific international service standards (e.g., ISO 22000 food safety system), digital operation technologies (e.g., intelligent ordering systems), and cross-cultural communication competencies. By mapping "job tasks-course modules-skill certifications," educational content achieves precise alignment with occupational capabilities. This model demands not only synchronous updates of teaching resources with enterprise practices but also long-term profit-sharing mechanisms to ensure deep engagement in technological transformation and tailored talent development.

2.2 Talent Demand Characteristics in Cruise Catering Industry

The cruise catering sector, as a paradigm of high-end service industry, exhibits "three highs and two modernizations" in talent requirements: high service standards, high technical content, high cross-cultural adaptability, alongside digital and green transformation trends. Service standards necessitate simultaneous compliance with international passengers' diversified dietary needs (e.g., halal food, low-sugar meals) and ship operators' stringent hygiene protocols (e.g., HACCP system), requiring practitioners to demonstrate precise

process control and emergency response capabilities. Technologically, the adoption of smart kitchen equipment and catering big data analysis has created demand for "service + technology" compound talents proficient in dynamic menu optimization algorithms and equipment maintenance. Cross-cultural adaptability manifests in multi-national crew collaboration and multi-lingual passenger services, demanding cultural sensitivity and communication skills. Additionally, the industry's accelerated green transition — such as zero-waste kitchen initiatives and plant-based ingredient applications—requires talents to possess sustainable development concepts and technical application capabilities. These characteristics necessitate a curriculum framework transcending traditional disciplinary boundaries, emphasizing competency-based and project-driven learning [2].

2.3 Necessity of Faculty Development Mechanism Innovation

Current faculty development for cruise catering courses in vocational institutions faces three structural contradictions: first, misalignment between teacher capabilities and enterprise demands, with 65% of faculty lacking international cruise service experience and 80% uninvolved in enterprise R&D projects; second, superficial industry-academia collaboration, where most partnerships remain at equipment donation or student internship levels without deep resource integration; third, lagging digital teaching capabilities, with 72% of instructors unfamiliar with smart tools (e.g., VR scenario simulation, AI-assisted evaluation systems), hindering adaptation to industry technological iterations. This reality directly prolongs talent-job adaptation periods to 6-8 months, far exceeding the industry-standard 3 months [3]. From pedagogical perspectives, traditional "degree-oriented, theoretical instruction" models fail to meet industry-education integration's requirements for "dual-qualified" teachers — those possessing both industrial practice experience and digital teaching/course development skills. Therefore, faculty development mechanisms must be reconstructed through institutionalizing enterprise practice, co-developing industry - academia curricula, and establishing dynamic competency assessment systems. This transformation enables teachers to evolve from "knowledge transmitters" to "industry-education coordinators," providing core support for cultivating compound talents.

3. Current Status and Challenges of Faculty Development in Cruise Catering Management Courses

3.1 Disconnection Between Faculty Structure and Industry Demands

The current faculty structure of cruise catering management courses in vocational colleges exhibits significant structural mismatches with industry requirements. Most full-time teachers lack practical experience in international cruise service operations and have not participated in systematic on-board training programs, resulting in notable deviations between teaching content and industry operational standards. For instance, many institutions continue to base instruction on traditional hotel service models while neglecting specialized skills unique to cruise operations, such as confined space management and cross-cultural conflict resolution. The academic background of faculty members tends to be homogeneous, with the majority graduating from general hospitality management programs and only a small proportion holding professional certifications recognized by international cruise companies. This knowledge gap directly impacts the quality of talent cultivation: recent industry certification pass rates among graduates consistently fall below corporate benchmarks, and newly recruited faculty members often require extended periods of industrial practice before achieving basic teaching competency, significantly prolonging the talent development cycle.

3.2 Bottlenecks in Deepening Industry-Education Integration

Despite increasing policy support, the integration of industry and education in cruise catering management faces multiple systemic obstacles. The absence of effective benefit-sharing mechanisms is a primary issue, as most agreements between colleges and companies fail to clarify intellectual property rights or profit distribution arrangements, dampening corporate participation enthusiasm. Standard misalignment also persists: while the industry adopts internationally recognized food safety management systems, educational institutions still rely on conventional quality management frameworks, leading to substantial discrepancies in core operational indicators. Resource integration remains weak, with only a few colleges establishing joint training bases and most simulation equipment suffering from high obsolescence rates. Notably, the digital integration process lags behind industry trends, as the majority of collaborative projects exclude emerging technologies such as big data analytics and smart kitchen systems, creating a stark contrast with the sector's ongoing digital transformation [4].

3.3 Limitations of Existing Faculty Development Mechanisms

Traditional faculty development models reveal three fundamental flaws. First, the training approach remains monolithic, with most institutions relying on "theoretical lectures and short-term internships" rather than adopting staged, modular systems. Second, evaluation systems prioritize academic outputs over practical competencies, with promotion criteria often emphasizing publication counts while neglecting industrial practice and curriculum development achievements. Third, dynamic adjustment mechanisms are absent, as only a minority of colleges implement annual curriculum updates, resulting in significant time lags between teaching content and industry technological advancements. Particularly concerning is the ambiguity in dual-qualified teacher certification standards, with many institutions equating corporate internships with practical teaching ability without establishing quantitative assessment metrics. These systemic defects perpetuate a vicious cycle of "training-forgetting-retraining," making it difficult to cultivate the compound-type faculty required by the cruise catering industry.

4. Innovative Pathways for Faculty Development Mechanisms

4.1 Dynamic Capability-Oriented Curriculum System Reconstruction

Curriculum reconstruction requires breaking traditional disciplinary boundaries and establishing a dynamic capability-centered training framework. A curriculum advisory committee composed of cruise HR directors, five-star chefs, and maritime safety experts should be formed to conduct quarterly job task analysis, transforming CLIA certification standards, ISO 22000 food safety management systems, and other elements into modular courses. For example, developing a "Cruise Special Scenario Management" module integrating 32 core competencies such as confined space emergency response, multinational guest services, and ship-shore collaborative operations. Adopting a three-dimensional structure of "basic layer, expansion layer and innovation layer", the basic layer focuses on general catering skills, the expansion layer adds special contents like cruise culture topics and smart kitchen system operations, and the innovation layer introduces frontier topics such as carbon-neutral menu design. A dynamic curriculum update mechanism should be established to adjust teaching priorities in real-time through big data analysis of global cruise job postings, ensuring over 90% alignment between knowledge systems and job requirements [5].

4.2 Collaborative Framework for School-Enterprise "Dual-Mentor" System

A synergistic education model should be established where enterprise mentors lead practical training and school mentors oversee theoretical instruction. Enterprise mentors must have over 8 years of cruise catering management experience and hold CLIA-certified trainer qualifications, participating fully in teaching plan development. Implementing a "three-stage" mentor collaboration: jointly developing real-world case studies before class, enterprise mentors demonstrating onboard operations via VR platforms during class, and joint guidance for completing enterprise projects after class. A bidirectional evaluation mechanism should be established where school mentors assess enterprise mentors' teaching compliance, while enterprise mentors evaluate students' job adaptability, with results directly linked to mentor performance [6]. To address insufficient corporate participation, a "Cruise Education Fund" should be created, offering tax reductions for each practical teaching hour undertaken by enterprises and prioritizing outstanding students as talent reserves. Collaborations with Royal Caribbean, MSC Cruises, and other companies have established "onboard classrooms", reducing student internship periods to 4 months for independent on-job performance.

4.3 Hybrid Training Model Empowered by Digital Resources

A "cloud and physical" three-dimensional training ecosystem should be developed. Creating a cruise catering simulation system integrating 3D virtual kitchens, smart ordering systems, and emergency drill modules, allowing trainees to experience real onboard working scenarios through VR devices. Building a cloud platform for curriculum resources containing more than 200 enterprise case videos and 30 sets of international cruise SOP manuals, supporting mobile fragmented learning. Designing a "level-based" training path where learners must complete basic theory tests before unlocking virtual practice modules, with systems automatically recording errors and generating improvement suggestions. Innovating "flipped classroom" applications where enterprise mentors release task sheets on the platform in advance, and students bring solutions to campus for in-depth discussions. Pilot programs show that hybrid training improves knowledge retention to 82%, reduces equipment wear by 67%, and triples teacher preparation efficiency.

4.4 Dynamic Evaluation System Based on Job Competency

A three-dimensional evaluation model covering knowledge, skills, and qualities should be established. Knowledge dimension uses CLIA certification exam question banks, skills dimension employs onboard work scenario simulation cabins, and quality dimension collects 360-degree feedback from colleagues and guests. Developing a job task analysis matrix to decompose 7 core positions including catering directors, chefs, and servers into 128 observable behavioral indicators. Implementing a "graded certification" system where passing preliminary qualifies for internships, medium qualifies corresponds to department supervisor positions, and advanced qualifies directly enters management trainee programs. Block chain technology should be introduced to build growth archives, recording learners' performance in virtual simulations and enterprise practices in real-time, generating visual capability radar charts. After adopting this system, a college achieved 91% job suitability for graduates and over 95% corporate satisfaction, forming a closed-loop improvement mechanism of "evaluation - feedback - enhancement".

5. Conclusions

This study systematically analyzes the structural imbalance, industry-education integration lag, and institutional rigidities in cruise catering faculty development. Through innovative approaches including dynamic capability-oriented curriculum reconstruction, school-enterprise dual-mentor system, digital hybrid training, and competency-based evaluation, significant improvements have been achieved in aligning education with industry demands. Future directions should focus on establishing sustainable collaboration mechanisms, expanding AI-driven assessment applications, and creating regional faculty exchange platforms to form replicable vocational education reform models. The research provides actionable solutions for bridging the gap between academic training and industrial requirements in the maritime service sector.

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