

## Article

# Research on the Construction of Practical Training Teaching System for Health Service and Management Major from the Perspective of Industry-Academia Integration

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**Abstract:** In the context of the "Healthy China 2030" strategy and the in-depth advancement of vocational education industry-academia integration innovation, the health service and management major serves as the core carrier for cultivating specialized talents in the rapidly expanding big health industry. Consequently, the quality of its practical training directly determines the overall effectiveness of applied talent cultivation. Currently, significant challenges persist in this major's practical training teaching, including shallow collaboration between academic institutions and enterprises, loose integration of specific job requirements with academic courses, weak practical training resources, and incomplete evaluation mechanisms. These deficiencies ultimately lead to insufficient job competence among graduates, making it difficult to meet the high-quality development needs of the modern healthcare sector. Based on the core concept of industry-academia integration and combined with rigorous industry job competency standards, this paper constructs a comprehensive, integrated practical training teaching system. This framework is developed across five critical dimensions: teaching objectives, course content, training platforms, faculty building, and evaluation mechanisms. Furthermore, the study proposes strategic implementation paths, such as collaborative education, the seamless integration of jobs, courses, competitions, and certifications, alongside a robust guarantee system encompassing institutions, resources, and faculty members. Ultimately, this research aims to resolve the critical pain point of professional practical training teaching being disconnected from industry reality, thereby improving the adaptability of talent cultivation and providing a valuable reference for the ongoing teaching innovation within the health service and management major.

**Keywords:** industry-academia integration; health management; practical training; teaching system; talent cultivation

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## 1. Introduction

The "Healthy China 2030" strategy has driven significant advancements in China's big health industry, fostering an increasing demand for professionals in areas such as health check-ups, chronic disease management, smart health care, and community health services [1, 2]. The health service and management major is designed to cultivate versatile talents equipped with a solid medical foundation, strong management skills, and high-quality service capabilities. The emphasis on practicality and application forms the core of its educational approach, with practical training serving as a crucial bridge between theoretical knowledge and professional practice. This ensures that graduates possess the necessary competencies to meet industry standards and excel in their careers.

The national vocational education implementation plan underscores the importance of deepening collaboration between industries and academic institutions, advocating for a precise alignment between educational programs and industry requirements. It emphasizes the central role of practical teaching in achieving these objectives. However, many colleges and universities offering health service and management programs face

challenges such as an excessive focus on theoretical instruction at the expense of practical application, and a tendency to prioritize superficial forms of training over substantive effectiveness. Additionally, partnerships between educational institutions and enterprises often remain limited to short-term internships and lack depth [3]. This disconnect is further exacerbated by the slow integration of emerging technologies and industry standards into training curricula, resulting in a gap between the skills of graduates and the evolving demands of the big health industry. Consequently, graduates often struggle with insufficient practical abilities and limited career competitiveness, hindering their ability to meet the specialized and refined requirements of the sector.

To address these challenges, this paper adopts an industry-academia integration perspective to analyze the existing shortcomings in professional practical training systems. By aligning educational practices with industry-specific job requirements, it proposes the development of a collaborative, integrated practical training framework. This approach aims to enhance the efficiency of implementation pathways and establish robust guarantee mechanisms, ultimately improving the quality of talent cultivation. Such efforts are intended to foster deeper integration between industry and education, ensuring a precise alignment between workforce supply and industry demand, and supporting the sustainable development of the big health industry.

## **2. Existing Problems of Practical Training Teaching in Health Service and Management Major**

### *2.1. Insufficient Depth of Industry-Academia Integration, and the Collaborative Education Model Is Merely a Formality*

Currently, the integration between industry and academia in the health service and management major lacks sufficient depth, and the collaborative education model often exists in name only. The mechanisms designed to foster cooperation remain underdeveloped, with most initiatives limited to basic agreements for internship placements and short-term student training. Enterprises, which should play a central role in the educational process, often adopt a passive stance, merely fulfilling training obligations without engaging in critical aspects such as curriculum design, content updates, or the evaluation of student performance. This disconnect prevents the incorporation of practical operational standards into the teaching framework, leaving students inadequately prepared for real-world professional demands. Simultaneously, the talent cultivation plans within colleges and universities are frequently outdated, failing to adapt dynamically to the evolving needs of the industry and the specific requirements of job roles [4]. This misalignment is further exacerbated by the lack of effective communication and resource sharing between academic institutions and enterprises. As a result, the intended integration of industry and academia becomes a superficial exercise, with a significant gap persisting between the skills students acquire during their education and the competencies required in the professional environment. Addressing these issues requires a more robust and dynamic collaboration model that aligns educational objectives with industry realities.

### *2.2. Delayed Practical Training Teaching Content, and Low Matching Degree of Job and Course*

The health service and management major is recognized for its interdisciplinary nature and practical orientation, requiring students to develop a high level of comprehensive practical ability. However, current practical training teaching content exhibits significant deficiencies. Firstly, the structure of courses is fragmented, with practical training sporadically integrated into theoretical courses. This lack of systematic organization hinders the development of students' ability to apply knowledge comprehensively in real-world scenarios. Secondly, the content of practical training is outdated, focusing primarily on basic verification exercises [5]. Advanced topics such as intelligent health monitoring, big data-driven health management, and personalized precision-based approaches are underrepresented, creating a disconnect with the evolving trends in industrial digitalization. Lastly, there is a notable mismatch between

training content and actual job requirements. The training fails to align with professional workflows and vocational skill standards, reducing its relevance and effectiveness in preparing students for their future careers. Addressing these issues is essential to ensure that graduates are equipped with the skills and knowledge required to meet the demands of the modern health service and management industry.

*2.3. The Allocation of Training Resources Is Uneven, and the Platform Construction Level Is Limited.*

The training platform serves as a fundamental pillar for practical teaching, yet its current state reveals significant limitations in resource allocation and infrastructure development. On-campus training facilities often exhibit a narrow scope, primarily equipped with basic medical training tools. These facilities lack advanced and specialized platforms tailored for areas such as intelligent health care and health big data analysis. Furthermore, the slow pace of equipment updates hinders the ability to meet the evolving demands of innovative and comprehensive training programs [6, 7]. Off-campus training bases face similar challenges, as they are predominantly limited to community health centers and standard medical examination institutions. This narrow focus restricts exposure to diverse and high-quality training environments, with minimal collaboration with leading health care enterprises or internet-based health platforms. Consequently, students are confined to limited training scenarios, which may not adequately prepare them for the complexities of modern health care systems. Additionally, the absence of an effective resource-sharing mechanism between educational institutions and enterprises exacerbates the issue. The inability to facilitate bidirectional circulation of teaching, research, technical, and scenario-based resources results in suboptimal utilization of available assets, further impeding the overall quality of training.

*2.4. The Structure of the Teaching Staff Is Single, and the Dual-Teacher Quality Needs to Be Improved.*

Dual-teacher-type staff plays a pivotal role in ensuring high-quality vocational training and education. At present, the composition of professional teaching staff remains overly homogeneous, which poses significant challenges to the effectiveness of training programs. On-campus full-time teachers often possess strong theoretical expertise; however, they generally lack direct, hands-on experience within the health management industry. This gap results in limited familiarity with operational standards and emerging technologies, thereby constraining their ability to provide practical, industry-relevant guidance [8]. Consequently, training sessions tend to emphasize theoretical concepts, while practical application and skill development remain underdeveloped. Furthermore, the number of part-time instructors from enterprises is insufficient, and these instructors frequently lack formal pedagogical training. Their limited teaching experience and classroom management skills hinder the integration of on-campus training with real-world enterprise operations. The deficiencies in both the structure and capabilities of the dual-teacher team significantly impede the advancement of training quality, underscoring the urgent need for systematic improvements in recruitment, training, and collaboration mechanisms.

*2.5. The Evaluation System Is Not Complete, and the Educational Orientation Has a Deviation.*

The current training assessment and evaluation system remains rooted in traditional methodologies, presenting several limitations that hinder its effectiveness. These include a reliance on a single evaluation subject, narrow assessment dimensions, and a predominant focus on outcomes rather than the processes leading to those outcomes [9]. At present, the evaluation process is heavily dependent on on-campus teachers, with core components such as attendance, training reports, and final practical operation assessments forming the basis of evaluation. However, this approach neglects the inclusion of evaluation standards that align with actual enterprise positions, thereby failing to accurately measure students' adaptability to real-world job roles. Furthermore, the evaluation content is primarily centered on basic skills, with insufficient emphasis on

assessing broader vocational qualities, innovative thinking, and teamwork capabilities. The absence of a dynamic tracking and feedback correction mechanism further exacerbates these issues, limiting the diagnostic and motivational potential of the evaluation system. This inadequacy ultimately impedes the holistic development of students' comprehensive vocational competencies.

### **3. Overall Construction of the Training Teaching System from the Perspective of Industry-Education Integration**

This article explores the development of a comprehensive training teaching system rooted in the principles of industry-education integration, emphasizing collaborative education, alignment between job roles and courses, and the efficient sharing of resources. By adhering to the goals of cultivating professional talent and meeting industry-specific job requirements, the system is designed with practicality, systematic organization, and innovation as its core principles. The framework integrates five key components: target setting, curriculum design, platform development, teacher training, and evaluation mechanisms [2]. This holistic approach ensures precise synchronization between the education chain, talent cultivation processes, and the demands of the industry chain, thereby fostering a seamless connection between academic preparation and professional application.

#### *3.1. Precise Positioning and Progressive Training Goals*

Training goals are designed to align with students' cognitive development and the requirements of their future job roles, structured into a four-level hierarchy: basic ability, specialized skills, comprehensive quality, and innovation ability. These goals are implemented progressively throughout the four-year academic program. In the first year, emphasis is placed on developing foundational abilities, including health detection, data recording, and service etiquette training, which establish a strong base for professional growth [6]. The second year focuses on specialized skills, with training centered on core modules such as chronic disease management, risk assessment, and nutrition-related practices, ensuring alignment with the essential skill standards of the profession. During the third year, the focus shifts to comprehensive quality, where students engage in collaborative training with enterprises and internships to refine their operational capabilities and holistic service proficiency. In the final year, innovation ability is prioritized, integrating advancements from the intelligent health industry to foster creativity and entrepreneurial skills, enabling students to excel in career progression and innovative endeavors. This step-by-step hierarchical approach ensures adaptability to the diverse talent demands within the industry, providing a robust framework for professional development.

A modularized training course content system is developed to integrate job requirements with academic courses, leveraging the school-enterprise cooperation platform. This system is reconstructed to align with core job tasks and vocational skill standards in health management, achieving a seamless integration of position, course, standard, and task across four dimensions. The system is divided into four primary modules. The basic training module focuses on foundational abilities such as medical detection and health record management, ensuring students acquire essential skills. The core training module emphasizes specialized competencies, including risk evaluation, chronic condition management, and health care services, preparing students for critical job functions. The comprehensive training module utilizes real-world enterprise projects as practical training carriers, enabling students to gain hands-on experience in full-process job operations. The innovative enhancement module incorporates advanced topics such as big data health analytics and internet-based health services, equipping students with knowledge of emerging industry trends. Additionally, dynamic training materials are collaboratively developed with industry experts and updated regularly to reflect the latest technological advancements and industry standards. This ensures that the curriculum

remains relevant and responsive to the evolving needs of the health management sector [10].

### *3.2. Build a Three-Dimensional Shared Training Platform System for School-Enterprise Cooperation*

To establish a robust and comprehensive training platform for school-enterprise cooperation, it is essential to integrate resources from both educational institutions and industry partners. This can be achieved by constructing a three-dimensional training framework that includes a "school-based training base," an "off-campus training base," and an "industry sharing platform." Within the school, existing training facilities should be upgraded and modernized to include specialized spaces such as smart health management labs, big data analysis centers, and health care simulation rooms. These facilities should be equipped with advanced intelligent training equipment and digital systems to support both foundational and specialized training needs. Beyond the school environment, partnerships with external enterprises should be strengthened to develop high-quality training bases that cater to diverse professional scenarios, including high-end health care, advanced health management, and internet-based health services. Additionally, a collaborative school-enterprise resource sharing platform should be established to seamlessly connect teaching, technological advancements, and project resources. This approach ensures that training scenarios are closely aligned with real-world enterprise practices, while academic instruction is tailored to meet the demands of specific professional roles.

### *3.3. Build a Dual-Teacher and Dual-Capable Composite Teaching System*

To establish a robust dual-teacher system, it is essential to integrate the expertise of both full-time school teachers and part-time enterprise professionals, ensuring their roles complement each other effectively. Full-time teachers should be required to engage in regular placements within enterprises, where they can actively participate in frontline practical operations, contribute to industrial research, and assist in the development of industry standards. This hands-on experience will enable them to bridge the gap between theoretical knowledge and practical application, thereby enhancing their ability to deliver position-specific teaching that aligns with industry needs [5]. Simultaneously, enterprises should identify and appoint technical and industry experts as part-time educators. These professionals can provide specialized training in practical job skills and advanced industry knowledge, enriching the learning experience for students. Furthermore, fostering collaboration between schools and enterprises through joint research and teaching platforms is crucial. These platforms can facilitate regular refinement of course content, development of targeted training programs, and in-depth teaching discussions, ultimately elevating the overall quality and professionalism of vocational education.

### *3.4. Establish a Multi-Collaborative Whole-Process Evaluation System*

A comprehensive and multi-dimensional evaluation system should be established, incorporating dual-subject participation and covering the entire educational process. This system should involve diverse evaluators, including school teachers, enterprise mentors, and students themselves through self-assessment and peer evaluation. The evaluation framework should integrate both teaching and job-related standards to ensure a holistic assessment of student performance. Key areas of evaluation should include practical skills, professional qualities, teamwork, and innovation capabilities, ensuring a balanced focus on both technical and interpersonal competencies [11, 12]. The methodology should prioritize process evaluation, which should constitute more than 60% of the overall assessment, complemented by a final evaluation. This approach emphasizes continuous monitoring of students' progress and their incremental improvements throughout the training period. Additionally, a feedback-driven closed-loop mechanism should be implemented, where insights from the evaluation process are utilized to refine teaching methods and enhance the overall quality of training programs. This iterative process

ensures that the educational framework remains dynamic and responsive to identified challenges, fostering an environment of continuous improvement.

#### **4. Implementation Path of the Integrated Training Teaching System for Industry-Academia Cooperation**

##### *4.1. Deepen the Deep Collaboration between Schools and Enterprises, and Improve the Joint Education Mechanism*

Establishing a robust and regular collaborative education platform between schools and enterprises is essential for fostering effective industry-academia cooperation. This platform should include a professional construction guidance committee, which comprises professional educators, enterprise experts, and representatives from relevant industries. Such a committee would actively participate in the design and implementation of training systems, curriculum development, and comprehensive assessment processes. To ensure practical alignment with industry needs, order-based training models and work-study alternation approaches should be adopted. These methods integrate enterprise-specific pre-job training and real-world projects into the educational framework, enabling a seamless transition from academic training to workplace application. Furthermore, it is crucial to develop a well-defined cooperation mechanism that clearly delineates the rights, responsibilities, and shared benefits of both schools and enterprises. By leveraging the academic and research strengths of universities alongside the technological and operational expertise of enterprises, this partnership can create a mutually beneficial ecosystem. Such collaboration not only enhances the quality of talent cultivation but also drives innovation and sustainable development in both academia and industry.

##### *4.2. Promote the Integration of Job, Course, Competition, and Certificate, and Enhance the Educational Effectiveness*

The integration of job roles, academic courses, professional competitions, and certification processes is a critical strategy for enhancing the effectiveness of vocational education [13]. This approach involves aligning vocational skill standards, certification assessment criteria, and competition projects with the training curriculum to create a cohesive learning framework. By breaking down the assessment components of certifications, such as those for health management specialists and health care service specialists, the training process becomes more targeted and practical. This ensures that students not only acquire theoretical knowledge but also develop the practical skills required for certification and employment. School-based skills competitions and industry-level vocational contests serve as effective platforms for fostering hands-on expertise, enabling students to learn and improve through competitive practice. Furthermore, by incorporating real-world enterprise project competitions, students are exposed to authentic job scenarios, which refine their practical abilities, facilitate certification attainment, and enhance their employability in specific industries.

##### *4.3. Leveraging Digital Empowerment, Innovate Training Models*

In response to the growing integration of digital technologies within the smart health care sector, training models can be enhanced through the application of advanced information technology. Establishing a virtual simulation training platform allows for the development of immersive projects focused on areas such as comprehensive health assessments, management of chronic conditions, and delivery of health care services. These initiatives address the limitations inherent in traditional offline training environments by providing dynamic and adaptable learning scenarios. Furthermore, the use of big data technology enables the systematic recording of trainees' performance metrics, facilitating precise monitoring of their progress and accurate evaluation of their skillsets. Online resource platforms can further enrich the training experience by offering access to industry case studies and detailed operational tutorials, effectively overcoming constraints related to time and location while diversifying instructional methodologies.

## 5. Guarantee Mechanism for Training Teaching System

### 5.1. Institutional Guarantee

To ensure the effective implementation of the training teaching system, it is essential to establish comprehensive management frameworks that support school-enterprise collaboration, teacher oversight, and assessment protocols. These frameworks should clearly define the roles, responsibilities, and operational standards for both schools and enterprises involved in the partnership. Additionally, a robust evaluation mechanism must be developed to monitor and assess the quality of training programs. Regular inspections and research into the outcomes of school-enterprise cooperation are necessary to identify and address any deficiencies in teaching practices. By promptly rectifying shortcomings and maintaining adherence to established standards, the training system can achieve consistent and regulated implementation, fostering long-term effectiveness and reliability.

### 5.2. Resource Guarantee

To ensure the effective implementation of training programs, it is essential to increase investment in dedicated training funds. This includes upgrading training venues to meet modern standards, renewing outdated equipment, and constructing advanced digital platforms to support diverse learning needs. Additionally, the development of high-quality teaching materials and comprehensive teacher training programs should be prioritized. Efforts must also focus on optimizing the distribution and accessibility of off-campus training bases, ensuring a variety of training scenarios are available to meet diverse educational objectives. Establishing a robust resource-sharing mechanism between educational institutions and enterprises is crucial [2, 5]. Such collaboration can integrate teaching, research, technological advancements, and practical scenarios, thereby maximizing the utility and educational value of available resources. This holistic approach ensures that resources are utilized efficiently and effectively to enhance the overall quality of training and education.

### 5.3. Teacher Guarantee

Enhancing the mechanisms for teacher training and incentives is essential to fostering a more effective educational environment. This includes integrating enterprise placements, industrial practice, and advancements in teaching methodologies into the evaluation criteria for professional development and title promotions [8]. Such measures aim to inspire educators to improve their practical skills and operational expertise. Additionally, it is crucial to establish a standardized system for selecting, training, and assessing part-time teachers from enterprises, ensuring their teaching capabilities align with institutional standards. A collaborative teacher pairing mechanism between schools and enterprises should also be developed to leverage complementary strengths, thereby cultivating a robust and high-quality dual-teacher training team capable of addressing diverse educational needs.

## 6. Conclusion

The integration of industry and education constitutes a central pathway for the health service and management major to address the disconnect between academic training and professional practice and to enhance the overall quality of talent cultivation. This study has developed an integrated teaching and training system characterized by layered objectives, alignment between job requirements and course content, collaborative platform support, dual-teacher capacity enhancement, and multidimensional evaluation. On this basis, it has further established an implementation pathway and a three-dimensional support mechanism centered on school-enterprise collaboration, the integration of job standards, curriculum, competition, and certification, as well as digital empowerment. These arrangements have contributed to resolving problems such as superficial collaboration, homogeneous training models, and insufficient practical orientation, while significantly improving the occupational adaptability and professional

competence of students. Overall, the proposed system provides a structured and operable framework for cultivating application-oriented talent in this field. In the future, universities should continue to deepen industry-education integration, dynamically respond to technological iteration and evolving job requirements, and continuously optimize the teaching and training system. Through sustained improvement in curriculum design, practical teaching, collaborative governance, and quality assurance, higher education institutions can provide stronger support for the cultivation of high-quality applied professionals in health service and management and promote the sustainable development of the broader health industry.

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