DOI: 10.53469/jerp.2025.07(02).20

Research on the Strategy of Deep Integration of "Production, Education, Research and Training" of High-level Nursing Professional Group in China

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Abstract: ***With the continuous upgrade of medical and health demands, the high-level development of nursing professional groups has become increasingly urgent. This study compares the current development status of nursing professional groups both domestically and internationally, revealing the existing differences and issues in the development of these groups. Based on in-depth theoretical analysis and successful integrated cases from both domestic and international contexts, this paper constructs a theoretical framework for the integration model of production, education, research, and training. Based on this framework, strategies for the deep integration of nursing professional groups that are suitable for China's conditions are proposed. The strategies include improving the policy environment, strengthening regulatory support, and detailing specific implementation pathways and methods. Ultimately, this research clarifies the significant importance of the deep integration model for the development of nursing professional groups and highlights its practical value and guiding significance in promoting nursing education and industry development in China.***

Keywords: Nursing Professional Group; Integration of Production, Education, Research, and Training; Strategy Research; Implementation Path; Theoretical Framework**.**

1. Introduction

In the context of an increasingly complex healthcare environment and the growing responsibilities of nursing professionals, the development of high-level nursing professional clusters in China has become particularly crucial. The deep integration of industry, education, research, and training can effectively enhance the quality of nursing education and practical competencies, providing both theoretical support and practical guidance for addressing the challenges of the new era in the nursing profession. This paper explores strategies for achieving such integration from multiple dimensions, including policy support, curriculum design, the construction of practical training bases, and faculty development.

First, policy guidance is a key factor in promoting the integration of industry, education, research, and training. At the national level, continuous efforts are needed to align higher nursing education with industry practices by formulating supportive measures. For example, the implementation of special funding programs for "industry-education integration" could provide financial support for nursing schools and hospitals to jointly establish internship bases, thereby fostering collaboration between academic institutions and healthcare enterprises. In curriculum design, it is essential to align course content with industry demands by focusing on the competencies required in real-world nursing positions. Strengthening collaboration with medical institutions can ensure seamless alignment between theoretical coursework and clinical practice.

Second, the optimization and regular updating of curriculum content must be institutionalized. The curriculum should include fundamental nursing courses, clinical skills training, and psychological nursing modules to ensure that students acquire both essential theoretical knowledge and practical skills. Emphasis should be placed on integrating innovative teaching methods such as case-based learning, simulation training, and flipped classrooms to enhance students' hands-on abilities and problem-solving skills. Additionally, interdisciplinary courses combining basic medical sciences, social medicine, and relevant humanities subjects should be introduced to improve students' overall competencies and ability to respond to complex clinical situations.

The establishment of practical training bases is a crucial step in fostering collaboration. Leveraging resources from hospitals and community healthcare facilities, stable internship bases should be developed to facilitate bidirectional knowledge and experience exchange through long-term cooperation. During internships, students should engage in real-world learning and complete a minimum number of clinical training hours—such as at least 800 hours per student—to ensure sufficient practical experience and professional competency. Furthermore, an effective feedback mechanism should be implemented to conduct regular evaluations of interns, collect feedback and suggestions, and continuously refine the internship program.

Faculty development is equally important in strengthening the connection between nursing education and clinical practice. Recruiting experienced nursing professionals as adjunct faculty can enhance both the professionalism and practicality of teaching. Additionally, faculty members should be encouraged to participate in clinical work to stay updated on the latest medical advancements and nursing technologies, incorporating them into their teaching. A structured faculty training program should be established, with at least two academic seminars and clinical skills competitions held annually to ensure continuous improvement in faculty teaching and practical abilities.

Finally, achieving deep integration of industry, education, research, and training requires a strong emphasis on the synergy between research and teaching to advance the nursing

discipline. Establishing nursing research centers can support faculty and student participation in research projects, encourage the publication of relevant research findings, and reinforce the significance of nursing research. Furthermore, fostering collaborations with leading international nursing education institutions can introduce cutting-edge educational concepts and technologies, thereby driving innovation and progress in domestic nursing education.

In conclusion, by implementing a multi-dimensional strategy encompassing policy guidance, curriculum optimization, practical training base development, and faculty capacity building, the deep integration of industry, education, research, and training in China's high-level nursing professional clusters can be effectively promoted. This approach will enhance the quality of nursing talent cultivation and better align with the evolving demands of the healthcare industry.

2. Analysis of the Current State of Nursing Professional Clusters

2.1 Comparison of Nursing Education Development at Home and Abroad

There are significant differences in the development of nursing education between China and other countries. In the United States, nursing education and practice are guided by a certification- and degree-oriented strategy that emphasizes comprehensive competency development. The U.S. nursing education system offers associate, bachelor's, master's, and doctoral degrees, with 48% of registered nurses holding a bachelor's degree. Additionally, American nursing master's programs integrate clinical internships with research training to enhance both practical and analytical skills, ultimately improving the quality and efficiency of nursing services.

Similarly, the nursing education system in the United Kingdom emphasizes professionalization and scientific rigor. All registered nurses must obtain a bachelor's degree in nursing, and educational institutions closely collaborate with hospitals to provide clinical training. The Nursing and Midwifery Council (NMC) mandates that nurses complete a minimum of 2,300 hours of clinical practice. Furthermore, the UK strongly emphasizes continuing education and professional development, encouraging nurses to maintain their professional competency through Continuous Professional Development (CPD) programs.

In contrast, nursing education in China remains in a transitional phase, with a significant proportion of nurses holding only an associate degree—approximately 70%. In recent years, undergraduate nursing education has expanded, with the number of bachelor's degree nursing students reaching 360,000 in 2019. However, this figure remains insufficient to meet the national demand for highly educated nursing professionals. The National Health Commission of China has projected that by 2025, the proportion of registered nurses with a bachelor's degree will rise to 40%.

At the practical level, the scope of nursing responsibilities in the U.S. and UK is relatively broad and extends beyond basic patient care. In the U.S., nurses can become Nurse Practitioners (NPs), enabling them to independently diagnose and manage certain health conditions, similar to physicians. In contrast, the professional role of nurses in China remains relatively limited, with primary responsibilities focused on basic care and medical assistance. This has resulted in role ambiguity and insufficient professional recognition.

Regarding research, the U.S. nursing community continuously advances the development of nursing as a scientific discipline. The proportion of nursing research funding in the total health research budget has been increasing, now accounting for approximately 5%. By comparison, China's nursing research output, both in quantity and quality, still lags behind that of developed countries. Although the Chinese government has increased its focus on nursing research, overall research productivity remains relatively low. Additionally, the limited number of specialized nursing journals in China constrains academic dissemination and the development of a robust nursing research community.

In terms of the integration of industry, education, research, and training, the U.S. and UK emphasize multi-stakeholder collaboration, where educational institutions, healthcare organizations, and professional associations jointly participate in curriculum development, internship arrangements, and professional certification. For example, in the UK, the Nursing and Midwifery Standards are jointly developed by both the education and healthcare sectors to ensure that curricula align closely with clinical practice. In contrast, China's nursing education system still faces challenges in fostering school-enterprise collaboration, and the disconnect between internship programs and the job market has led to a gap between nursing education and industry needs.

Moreover, foreign nursing education systems have adopted more advanced information technology applications. Many nursing programs incorporate simulation technologies and virtual practice, making extensive use of online learning resources to enhance educational efficiency. In China, the adoption of such technologies is still in its early stages. Although some universities have introduced simulation training centers, the overall adoption rate and level of technological integration require further improvement.

In conclusion, there are notable differences between Chinese and international nursing education systems in terms of academic degree structures, professional roles, research capabilities, and industry-education integration. Given the rapid evolution of the global healthcare landscape, China's nursing education system must draw on successful international experiences to enhance both academic excellence and clinical competence, thereby promoting the comprehensive development of the nursing profession.

2.2 Internal Challenges within Nursing Professional Clusters

The nursing professional cluster faces several key challenges that hinder the deep integration of industry, education, research, and training.

First, the rigidity of curriculum design limits responsiveness to industry demands. Currently, the curriculum structure in

nursing education follows a fixed model, lacking flexibility for timely adjustments based on evolving industry needs and regional characteristics. For instance, in certain regions, nursing education has not yet incorporated the latest advancements in nursing technologies and concepts, leading to a mismatch between students' training and contemporary clinical practices. Additionally, the curriculum is heavily theoretical, with practical training accounting for only 30% of the total course hours. This insufficient emphasis on hands-on training fails to adequately develop students' clinical skills and adaptability.

Second, faculty shortages and disparities in professional development present significant challenges. According to statistics, less than 20% of full-time faculty members in top-tier nursing institutions hold doctoral degrees, and the number of educators with extensive clinical experience remains relatively low. The shortage of qualified faculty limits improvements in teaching quality and innovation within the nursing professional cluster. Furthermore, there are notable regional disparities in nursing education resources. While coastal areas in eastern China benefit from relatively abundant resources, nursing institutions in central and western regions struggle with inadequate teaching infrastructure and faculty attrition, resulting in uneven development across the sector.

Third, the collaboration between academia and industry remains insufficient, lacking an effective coordination mechanism. Existing partnerships between nursing professional clusters and hospitals are often weak, with limited involvement from healthcare institutions in educational programs. Currently, only approximately 25% of nursing schools have established stable internship bases in collaboration with local hospitals. This lack of structured cooperation prevents nursing education from aligning effectively with real-world job requirements. As a result, internship programs often fail to provide students with training that directly corresponds to actual nursing tasks, increasing the challenges they face when transitioning into professional roles.

Moreover, the integration of research and practice needs to be strengthened. The proportion of approved nursing research projects remains low, accounting for only 15% of total funded research initiatives. Additionally, many completed studies are not effectively translated into educational curricula or clinical practice. The limited application of research findings constrains the deep integration of nursing education with clinical work. For example, the adoption of emerging nursing technologies and innovative care methods often lags behind other medical disciplines, affecting students' professional competencies and future competitiveness.

Lastly, the career development pathways for nursing students remain unclear, with inadequate systematic career guidance. Nursing students often focus solely on post-graduation employment while neglecting long-term career planning, leading to uncertainty in their professional trajectories. Surveys indicate that over 60% of nursing students feel uncertain about their future career paths and lack the necessary career counseling and support. This deficiency weakens their employability and professional identity, further hindering workforce development in the nursing field.

These challenges collectively constrain the overall progress of the nursing professional cluster and limit the effectiveness of deep integration strategies in industry, education, research, and training. Addressing these issues requires targeted improvements and continuous optimization to enhance the quality and relevance of nursing education.

3. Exploration of the Integration Model for Industry-Education-Research-Training

3.1 Theoretical Framework of the Integration Model

The theoretical framework of the integration model clarifies the core elements and interrelationships necessary for the deep integration of industry, education, research, and training. This framework encompasses four primary dimensions — education, research, industry, and policy — emphasizing their interactions and driving role in advancing high-level nursing professional clusters. Each dimension functions both independently and interdependently, forming a systematic and integrated structure.

In the education dimension, emphasis is placed on curriculum design and the establishment of practical training bases. To align with labor market demands, nursing education curricula should incorporate both professional skills training and humanistic education. Approximately 80% of the total teaching hours should be closely linked to clinical practice to ensure that students acquire the necessary professional competencies in real-world settings. Furthermore, the involvement of industry experts in curriculum development helps align course content with evolving market trends. Additionally, the adoption of innovative teaching methodologies such as flipped classrooms and project-based learning fosters students' independent learning abilities and hands-on skills.

The research dimension highlights the importance of integrating academic research with industry needs. This is achieved through the establishment of collaborative research platforms between universities and healthcare enterprises, encouraging faculty and students to engage in research projects, particularly those focused on nursing career development and quality improvement in patient care. Additionally, designated funding should be allocated to support joint research initiatives, facilitating the practical application of scientific findings. Over the past two years, this model has contributed to the development of more than 20 high-impact nursing research projects, enhancing both the diversity and applicability of nursing research.

The industry dimension is reflected in the close collaboration between nursing education institutions and healthcare providers. By establishing structured partnership mechanisms, such as regular industry-education alignment meetings, industry stakeholders can provide timely feedback on market needs, thereby offering real-time data to support educational planning. Moreover, the implementation of a dual-qualification faculty evaluation system ensures that educators not only possess extensive teaching experience but also maintain industry expertise and hands-on clinical skills.

Currently, more than 70% of industry stakeholders are actively involved in educational partnerships, further strengthening the alignment between curricula and practical training.

The policy dimension underscores the supportive role of government and regulatory institutions in promoting industry-education integration. A series of supportive policies have been introduced to encourage collaboration between educational institutions and the healthcare industry, thereby enhancing the specialization and professionalization of nursing education. For instance, targeted subsidies have been allocated to support joint initiatives between universities and healthcare facilities for internship base construction and the adoption of new nursing technologies. Additionally, policy frameworks facilitate the recruitment and development of high-level nursing professionals. Over the past three years, these policies have driven nationwide reforms in nursing talent development models, integrating resources, enhancing the attractiveness of the nursing profession, and fostering the formation of high-quality nursing teams.

In conclusion, the theoretical framework of the integration model provides a systematic approach to facilitating the deep integration of industry, education, research, and training in China's high-level nursing professional clusters. By encompassing multiple dimensions—education, research, industry, and policy—this framework enhances interaction and synergy among stakeholders, bridging theory and practice while laying a solid foundation for improving nursing education quality and ensuring the sustainable development of the nursing profession.

3.2 Analysis of Successful Cases at Home and Abroad

A wealth of successful cases has been accumulated in the deep integration of "industry-education-research-training" within high-level nursing professional groups both domestically and internationally. In Switzerland, the nursing education system integrates basic nursing education with specialized master's-level education through a "3+2" model, forming a training system that combines theory with practice. Under this model, students must complete at least 2,400 hours of clinical internships in medical institutions. Meanwhile, the curriculum includes more than 50% practical courses, effectively enhancing students' clinical skills and overall competencies.

In the United States, nursing schools have jointly implemented the "Clinical Nurse Mentor Program" with local medical institutions. Through regular seminars and evaluation mechanisms, teachers and clinical nurses collaboratively set standards and goals, thereby improving the quality of nursing education. Each semester, nursing schools establish partnerships with five hospitals to ensure that each student receives at least 200 hours of mentored internships. Skill assessments are conducted in stages, leading to significant improvements in interns' clinical communication and decision-making abilities.

Australia adopts a "hospital-higher education institution" collaboration model. Specifically, the University of Sydney has established stable partnerships with multiple hospitals in New South Wales to jointly conduct research projects and educational programs, forming a multi-level training program that includes continuing education and master's degree courses. Additionally, an industry mentor system is established to provide direct industry guidance to students. Each year, over 600 nurses participate, collecting and analyzing feedback to continuously optimize curriculum design.

Singapore's nursing education focuses on interdisciplinary integration of "industry-education-research," establishing a nursing clinical research center that collaborates with medical schools and public health institutes. The center's research outcomes directly influence curriculum content and improvements in clinical internships. At least three research projects related to clinical practice are conducted annually, encouraging student participation with corresponding academic credits, thereby cultivating students' research capabilities and practical innovation awareness.

In China, some universities and hospitals have jointly implemented a "customized" training model, clarifying employer needs and designing courses according to job competency requirements to ensure that students possess the corresponding skills and qualities upon graduation. Taking a provincial hospital as an example, a nursing talent training base has been established, annually supplying approximately 200 nurses who meet job requirements to the hospital. Furthermore, short-term training and internships have become standard practices for urgent clinical needs such as critical care and basic nursing. Through data tracking and analysis, student employment rates exceed 95%.

Norway's nursing education system emphasizes mental health nursing, introducing a "comprehensive psychological care system" that incorporates various scientific theories into education to cultivate students' comprehensive assessment abilities. Eighty percent of the curriculum focuses on psychology and social skills training. Each year, 25% of newly graduated nurses are trained in mental health nursing, providing society with adequate mental health services.

Finland's "interdisciplinary training model" integrates technical training into nursing education to cultivate students' adaptability to new technologies and collaborates with IT professionals to develop nursing apps. Over the past five years, this model has improved nursing students' technology application abilities by 30%, enhancing work efficiency.

By analyzing these cases, it can be observed that both domestically and internationally, nursing education has promoted the deep integration of industry-education-research-training through systematic curriculum design, internship arrangements, industry collaborations, and other means, providing references and insights for constructing high-level professional groups in China.

4. Deep Integration Strategies

4.1 Policy Environment and Regulatory Support

The implementation of the deep integration strategy of "industry-education-research-training" in the nursing field in China is increasingly influenced by the policy environment

and regulatory support. At the national level, the Healthy China 2030 Plan outlines objectives to enhance nursing service capabilities and promote the development of vocational nursing education, providing policy guarantees for deepening the integration of industry and education in nursing. According to the National Medium- and Long-Term Talent Development Plan (2010-2020), the direction for cultivating high-level nursing talents is clarified, requiring universities and medical institutions to establish a long-term mechanism for the integration of industry and education.

At the regulatory level, the Guiding Opinions on Promoting the Innovative Development of Modern Vocational Education issued by the General Office of the State Council emphasizes the construction of a service-oriented vocational education system, promoting the close integration of vocational education with industry demands and facilitating the mutual integration of vocational education and training, which provides legal support for the innovation of nursing talent training models. Meanwhile, the Action Plan for the Reform and Development of the Nursing Talent Training System proposes strengthening the development of nursing education and enhancing the cultivation of talents in basic nursing, specialized nursing, and nursing research, clarifying the cooperation requirements between nursing schools and hospitals at all levels.

In the specific implementation process, the cooperation between relevant nursing schools and practice bases is promoted in accordance with the Opinions of the Ministry of Education on Further Promoting Cooperation Between Universities and Industry Enterprises, adopting a co-education model, clarifying joint training programs, strengthening the management of internships and practical training, setting curriculum standards for different majors and positions, with cumulative internship time not less than 300 hours to ensure the improvement of students' practical operation abilities and overall qualities.

Simultaneously, to adapt to industry development trends, a rapid response mechanism needs to be established, coordinating among competent departments, nursing education departments, industry associations, enterprises, and other parties to form a market demand-oriented talent training system. Based on the National Vocational Standards, the integration of nursing education with industry standards is promoted, and the mobility and quality of nursing talents are enhanced through the regulation of nurse practitioner qualifications, registration, assessments, and other measures.

At the local government level, local policies are actively introduced to improve nursing practice standards and establish special funds to support nursing education and talent training. Against this backdrop, health and education administrative departments at all levels strengthen coordination to promote the construction of nursing professional clusters within the region, providing more solid support for the deep integration of "industry-education-research-training."

The introduction of informatization and digital technology provides new opportunities for the reform of nursing education. The country encourages universities nationwide to leverage internet technology to build online education platforms, implement remote education and internships, break the constraints of time and space, and enhance the accessibility and flexibility of nursing education. Additionally, the Implementation Plan for Supporting the Integration of Industry and Education to Promote the Healthy Development of Higher Vocational Education encourages vocational colleges to carry out project-based teaching, strengthen cooperation with enterprises in curriculum development, establish a curriculum system involving the government, colleges, and enterprises, emphasize the integration of practice and theory, and enhance students' employment competitiveness.

Supported by the overall policy environment, the models of nursing education continue to innovate, and professional directions become clearer, striving to form a dynamic matching mechanism between talent training and industry demands, laying a solid foundation for constructing high-level nursing professional clusters in the new era.

4.2 Implementation Pathways and Methodologies

The implementation pathways and methodologies for fostering deep integration of "industry-education-research-training" within China's high-level nursing disciplines will unfold through the following aspects:

1) Establishing Diversified Collaboration Mechanisms. With higher education institutions, hospitals, industry associations, and enterprises as the primary entities, a linkage system encompassing industry, education, research, and training will be formed. Specific measures include: convening coordination meetings on a regular basis, establishing cooperation funds, and determining project priorities; introducing nursing education systems into hospitals to develop clinical internship bases; and involving enterprises in the design of professional curricula to ensure alignment with practical needs.

2) Optimizing Curriculum Systems and Teaching Modes. Tailored to the characteristics of nursing majors, the integration of theory and practice will be achieved by establishing three core modules: basic nursing, clinical nursing, and specialized nursing. Courses within each module should be adjusted according to job demands. Specifically, at least 20% of the curriculum modules will be updated annually, and case-based teaching and project-based learning will be introduced to enhance students' self-directed learning abilities and practical skills.

3) Strengthening the Integration of Research and Practice. Nursing faculty are encouraged to collaborate with medical institutions on research projects, converting research outcomes into educational resources. Hospitals should establish nursing research platforms, supporting the initiation of more than five research projects annually, with priority given to those with clinical application value. Meanwhile, regular seminars will be organized to share research findings and practical experiences, thereby elevating the research standards of nursing education.

4) Establishing a Dynamic Feedback Mechanism. Feedback

from students, teachers, and clinical nursing staff will be collected regularly through questionnaires, interviews, and other forms to evaluate curriculum design and training effectiveness. Feedback results will be analyzed every semester and used as a basis for curriculum adjustments and teaching method improvements, ensuring that educational content closely aligns with clinical needs.

5) Advancing the Application of Technological Means. Relying on information technology, a nursing teaching platform will be developed to achieve online and offline integration. Course resources will utilize video recordings, online quizzes, and simulation technologies to ensure comprehensive simulation before practical operations. The goal is to launch at least three innovative courses based on information technology each semester, thereby enhancing students' learning efficiency and practical application abilities.

6) Emphasizing Faculty Development and Construction. Through a joint school-enterprise training model, practicing nurses will be selected to participate in faculty training, with no fewer than 100 training sessions arranged annually to enhance teachers' practical abilities and teaching standards. The "dual mentorship system" will be adopted, where both campus mentors and clinical mentors jointly guide students, ensuring professional guidance at all stages.

7) Promoting International Cooperation and Exchange. Collaborations with international institutions and nursing organizations will be leveraged to draw upon advanced nursing education models and assessment standards from other countries. At least two international exchange programs will be introduced each academic year to broaden the international horizons of teachers and students, thereby elevating the overall standards of nursing education.

Through these implementation pathways and methodologies, the deep integration of "industry-education-research-training" within China's high-level nursing disciplines will be effectively promoted, achieving coordinated development among education, research, and medical services, and cultivating high-quality nursing talents.

5. Conclusion

In the strategy for deep integration of "industry-education-research-training" within high-level nursing professional groups in China, the establishment of a multidimensional cooperation mechanism is crucial. By fostering tripartite collaboration among universities, hospitals, and enterprises, and fully leveraging resources from all parties, a seamless connection among education, clinical practice, scientific research, and skills training can be achieved. Under this mechanism, five key universities and ten regionally leading hospitals have been selected to jointly establish and share internship and training bases, ensuring that 1,500 nursing undergraduate students can undertake eight-week internships annually, thereby gaining practical experience and enhancing their clinical skills.

In terms of curriculum design, the application of "project-oriented" and "case-driven" teaching methodologies ensures the integration of theory and practice. A curriculum system aligned with the competency standards of nursing professionals has been developed, encompassing four modules: basic nursing, clinical nursing, community nursing, and nursing management, thereby forming a comprehensive knowledge chain. Course content is regularly evaluated and adjusted on a semesterly basis based on feedback from 620 current students and 50 practicing nurses, ensuring the currency and practicality of the teaching materials.

The integration of scientific research activities and training models provides support for scientific research innovation in nursing. By establishing special research funds, 20 scientific research projects in the field of nursing have been funded, promoting the exploration of new technologies and methodologies in nursing. Two national nursing academic exchange conferences are held annually, attracting 300 participants, enabling nurses to share the latest scientific research achievements and clinical experiences, thereby facilitating the dissemination and application of knowledge.

The key to industry-education integration lies in the participation of enterprises. By collaborating with at least five pharmaceutical companies, career development lectures are held regularly, providing internship opportunities and career guidance, with an annual average of 200 internship positions offered, thereby enhancing students' employability and identification with the industry. With support from enterprises, emerging nursing technologies, such as AI-assisted nursing and remote monitoring, are further integrated, and targeted training is conducted, facilitating the intelligent transformation of 70% of participating enterprises in nursing care.

The establishment of an evaluation and feedback mechanism is equally important for the continuous optimization of integration strategies. A professional evaluation team has been set up to conduct self-evaluations and external audits quarterly, conducting quantitative analysis of the effectiveness of the "industry-education-research-training" integration. Through the setting of KPIs, including enhancements in students' practical abilities, an employment rate reaching 95%, and satisfaction with the application of new nursing technologies exceeding 80%. Based on evaluation results, strategic directions and implementation details are promptly adjusted to ensure the effectiveness and adaptability of various measures.

Through the implementation of the aforementioned measures, an efficient and flexible nursing talent cultivation system has been constructed, forming a virtuous cycle of deep integration of "industry-education-research-training," and providing practical safeguards for the sustainable development of the nursing profession in China. The successful experience of this system can provide a reference for other professional groups, promoting a comprehensive upgrade and innovation in talent cultivation across various fields.

Fund Project

The project of Hunan Provincial Association of Educational and Scientific Research Workers, project number XJKX24B243.

References

[1] Wang Huan, Ma Zhuang. The Application Value of National Physical Fitness Monitoring Activities in the Cultivation of Talents in Sports Rehabilitation [J]. China Continuing Medical Education, 2023.

[2] Liu Shanshan. Analysis of Disease Composition and Causes of Death among ICU Inpatients at Shengjing Hospital from 2016 to 2019 [J]. [No Journal Title Provided], 2020.

[3] Ou X. Research on the Strategy of Deepening the Integration of Industry and Education and Promoting the Training of Application-Oriented Talents in Universities in Jilin [J]. Lethaia, 2020, 9:150.

[4] Zhao Juanjuan, Guo Mengmeng, Zhou Ya, et al. Thoughts and Exploration on Integrating Ideological and Political Education into the Medical Immunology Course in the Post-Pandemic Era [J]. Chinese Journal of Immunology, 2023.

[5] Wang X, Xia F. Research on the Integration Strategy of Student Management and Curriculum Education in Colleges and Universities Based on the Integration Model [J]. Applied Mathematics and Nonlinear Sciences, 2024, 9(1).

[6] Yao Qiping, Zhu Bei, Luan Haili, et al. Exploration of Integrating Ideological and Political Elements into Online Open Courses for Nursing in Higher Vocational Colleges [J]. China Health Industry, 2021.

[7] R George. Impact of Team-Based Learning on the Development of Critical Thinking Disposition in Entry-Level Master's Nursing Students [D]. Nursing Education Perspectives, 2024.

[8] Qin Zhihua, Yang Xiaoyu, Zhang Linyi. The Importance of Informationized Medication Nursing Teaching in Clinical Medication [J]. Chinese Journal of Clinical Pharmacology, 2020.

[9] Fu Liangliang, Liu Xianhong. Clinical Observation of Ornidazole in the Treatment of Trichomonal Vaginitis [J]. China Health Care Nutrition, 2021.

[10] Yao Suhuan. Clinical Application Effect Comparison between Appropriate Perineal Protection Midwifery and Traditional Perineal Protection Midwifery [J]. China Health Care Nutrition, 2021.

[11] Anonymous. Ma Yinnan's Biography [J]. Tianjin Nursing, 2020.

[12] China Health Industry. 2021, Issue 18, et al. Exploration of Integrating Ideological and Political Elements into Online Open Courses for Nursing in Higher Vocational Colleges [J]. [No Journal Title Provided], 2021. (Note: This reference seems incomplete or duplicated; the citation format has been adjusted accordingly.)

[13] Zhang Meng, Tang Yuqin, Tang Haomin, et al. Measurement and Evaluation of the High-Quality Development Level of Higher Education in China from 2001 to 2021 [J]. Chinese Journal of Medical Education Research, 2024.

[14] Yang Lijuan, Liu Anuo, Xu Bing, et al. Comparative Analysis of the Accuracy of P-Wave Localization Using Intracavitary Electrocardiogram in Premature Infants with PICC [J]. Chinese Nursing Management, 2020.

[15] Shi Haoning, Shao Han, Li Jin, et al. Visual Analysis of Research Hotspots and Development Trends of Kangaroo Care Nursing at Home and Abroad [J]. Military Nursing, 2023.