

Analysis on the Training Path of Compound Nursing Talents in Higher Vocational Colleges Empowered by Digital Technology

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Abstract: With the ongoing digital transformation of smart healthcare services, nursing service patterns and job obligations in local medical institutions have undergone great changes, imposing higher professional criteria on nursing staff regarding digital operational skills and overall service attainment. As key institutions for developing frontline nursing workforce, higher vocational colleges can no longer rely on the traditional training mode that only prioritizes basic skills for single skill nursing professionals. Such old approaches fail to meet new occupational demands including smart ward management, on-line homecare services and IT supported medical office operations. Given that higher vocational education highlights hands-on practice and job-oriented training, this study analyzes real-world obstacles in cultivating multi-competency nursing professionals within higher vocational settings. The challenges lie in curriculum design, practical training infrastructure, teaching staff proficiency and college-enterprise collaboration. This paper constructs a talent training framework compatible with digital healthcare progress through curriculum restructuring, improvement of digital training facilities, faculty capacity building, deeper integration of industry and education, as well as evaluation mechanism innovation. The outcomes can offer practical insights for instructional reforms of nursing programs and standardized training of frontline smartcare nursing personnel in higher vocational colleges.

Keywords: digital empowerment; higher vocational education; compound nursing talents; talent cultivation

1. Introduction

Alongside the development of digitally enabled medical and nursing services, the scope and content of nursing services keep expanding, which broadens the research field of nursing discipline in higher vocational colleges and pushes higher vocational nursing education toward digitalization. Cultivating compound competency talents has become an inevitable developmental trend. Digital environments, technologies and resources bring new insights to the reform of nursing talent training in higher vocational institutions.

Current recruitment criteria for nursing posts are no longer confined to basic clinical operational skills. Medical employers also require nurses to possess capacities including digital device manipulation, medical information processing, as well as doctor-patient communication and collaboration. Therefore, compound nursing talents have become the primary target of recruitment for medical institutions. Higher vocational colleges mainly foster frontline grassroots nursing skilled workers. Promoting digital teaching reform for nursing majors and cultivating compound talents matching new industrial demands constitutes a vital measure to adapt to the upgrading trend of medical posts, improve graduates' employment quality, and advance the Healthy China Initiative.

Considering real-world employment requirements and actual teaching conditions in higher vocational education, exploring training pathways for compound nursing talents under the digital context can effectively resolve bottlenecks in higher vocational nursing education and further refine the vocational nursing talent education system.

2. Core Connotations of Cultivating Compound Nursing Talents in Higher Vocational Education in the Digital Era

Compared with traditional single skill nursing professionals, compound nursing talents required in the digital age stress coordinated development of professional expertise, digital literacy and professional ethics. These three dimensions complement one another and form core competency requirements for modern nursing positions.

Solid clinical nursing expertise lays the foundation for professional practice, covering routine nursing operations, specialized nursing services, clinical emergency response and other core skills, which serves as the prerequisite for all nursing work.[1] Digital application capacity represents an indispensable vocational competency for present-day nurses. It includes proficient operation of intelligent monitoring equipment and automated nursing instruments, standardized entry and

administration of hospital information systems and electronic medical records, as well as sorting and practical application of basic nursing data. Sound professional literacy guarantees practitioners' longterm career growth, encompassing doctorpatient communication, risk prevention in digital medical scenarios, selfdirected learning, and teamwork competence to accommodate diverse smartnursing contexts.

The core objective of digital reform for nursing majors in higher vocational colleges is to break the limitations of conventional singleskilloriented training. Digital technologies shall be thoroughly embedded into the whole teaching process so as to cultivate highquality grassroots nursing talents who can rapidly adapt to smart clinical scenarios.

3. Practical Dilemmas in Cultivating Compound Nursing Talents in Higher Vocational Colleges

In daily teaching activities, digital equipment and online resources are merely treated as auxiliary tools, mostly applied for classroom presentation and homework assignment, instead of being deeply integrated into core teaching links such as handson nursing practice and clinical case seminars. As a result, students fail to acquire systematic knowledge concerning digital nursing and cannot build professional thinking compatible with smarthealthcare posts.

Nursing attaches great importance to handson practice. Mastery over digital competencies relies on specialized and immersive digital training scenarios. At present, many higher vocational colleges lag behind medical industry digital upgrading in updating practicaltraining equipment. Their training sites are still dominated by conventional simulation nursing apparatuses. Digital training facilities such as simulative smart ward systems, remote nursing training platforms and nursing information operating systems remain insufficiently equipped.[2].

The overall competence of teaching staff exerts a direct influence on the quality of compoundtalent cultivation. Nursing teachers in higher vocational colleges generally possess solid capabilities for traditional clinical instruction and rich teaching experience. Nevertheless, most of them are deficient in digital skills. A majority of teachers lack frontline practical experience of digital nursing in smart hospitals, hence holding limited understanding of newgeneration intelligent nursing devices, informationdriven nursing workflows and digital post specifications.

4. Innovative Pathways for Cultivating Compound Nursing Talents in Higher Vocational Colleges with Digital Empowerment

4.1 Optimize curriculum structure and build a modular and integrated curriculum system

Based on occupational standards of the industry, higher vocational colleges may establish a trinity curriculum framework consisting of "fundamental nursing skills + digital application competencies + comprehensive professional literacy" to make up for shortages in digitalrelated courses. Characteristic courses such as Smart Nursing Technology Application, Medical Information System Operation and Basics of Nursing Big Data shall be added.

Meanwhile, deep integration between digital skills and core major courses should be advanced. Digital operation specifications and intelligentdevice application knowhow are incorporated into key subjects including MedicalSurgical Nursing, enabling simultaneous cultivation of professional knowledge and digital capabilities. Leveraging online teaching resources, realworld clinical digital nursing cases are consolidated to help students accumulate postrelevant practical experience and construct a complete knowledge framework for digital nursing.

4.2 Increase investment in digital construction of practicaltraining bases and upgrade the practicaltraining system

Colleges are supposed to build standardized simulative smartnursing training centers fully equipped with intelligent nursing apparatuses, simulated medical information systems and remote nursing training platforms, so as to highly restore realworld working environments of clinical smart wards.

In accordance with students' learning progress and gradient requirements for post competencies, hierarchical and progressive practicaltraining contents should be formulated. Lowergrade students mainly receive basic training covering electronic medicalrecord entry and regular intelligentdevice operation. Uppergrade students focus on comprehensive training such as nursingdata analysis, basic operation and maintenance of intelligent devices, and remote nursing collaboration. In this way, oncampus practical training can realize seamless connection with clinical post practice.[3].

4.3 Improve faculty development mechanisms and construct a mixedtype compound teaching team

Colleges ought to establish regular mechanisms for teachers' competence enhancement. Nursing teachers shall participate in special training programs targeting smartnursing technologies and digital teaching methodologies on a periodic basis. Teachers are encouraged to take temporary posts in cooperative smart hospitals to keep up with cuttingedge industrial technologies, post workflows and employment standards.

In addition, frontline smartnursing backbones from hospitals and medicaldigitalization technicians can be recruited as parttime instructors. They will participate in course delivery, practicaltraining guidance and curriculum development, offsetting the deficiency of oncampus teachers in industrial practical experience and building a wellstructured teaching team with complementary strengths.

4.4 Further schoolenterprise collaborative education to precisely satisfy digitaloriented post demands of the industry

Higher vocational colleges may set up majorconstruction steering committees jointly with local medical institutions and medicaltech enterprises. In response to industrial digital transformation dynamics, talenttraining programs, course contents and practicaltraining projects shall be dynamically adjusted.

Colleges and enterprises codevelop digital practicaltraining bases, featured curriculum resources and clinical case libraries. An integrated talenttraining mode combining classroom instruction, digital practical training and clinical field practice is implemented. Students can get continuous exposure to authentic digitalnursing working scenarios during their campus study, which effectively shortens their post adaptation cycle and strengthens their employability[4].

5. Conclusion

Digital transformation in the healthcare industry drives continuous reforms in highervocational nursing education. Compound nursing talents equipped with solid professional expertise and sound digital literacy serve as critical support for highquality development of grassroots smartmedical services. Higher vocational colleges should proactively adapt to industrial trends and advance nursing education reforms empowered by digital technologies. Existing deficiencies in curriculum provision, practicaltraining facilities, faculty capacity and schoolenterprise cooperation should be properly addressed.

Through establishing integrated curriculum systems, upgrading digital practicaltraining platforms, fostering compound teaching teams, deepening schoolenterprise collaborative education and perfecting multidimensional evaluation mechanisms, highervocational nursing talenttraining modes can be comprehensively optimized. Students' digital handson capabilities and overall professional qualities will be substantially enhanced. Highquality compound nursing skilled talents can be delivered to medical institutions at various levels, facilitating the advancement of smart healthcare and the implementation of the Healthy China Strategy.

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