

Research on the Integrated Education Model of Nursing Major Based on “On-the-Job Training, Coursework, Competition, and Certification” under the 1 + X Certificate System

Yang Liu

Deyang People's Hospital, Deyang 618000, Sichuan, China

**Author to whom correspondence should be addressed.*

Copyright: © 2026 Author(s). This is an open-access article distributed under the terms of the Creative Commons Attribution License (CC BY 4.0), permitting distribution and reproduction in any medium, provided the original work is cited.

Abstract: *Objective:* To explore the current status and existing problems of the “on-the-job training, skills competition, and certification” integrated education model for nursing majors under the 1+X certificate system, and to propose optimization strategies. *Methods:* A convenience sampling method was used to include 206 nursing students from S College from September 2025 to June 2026 as the questionnaire survey subjects. Simultaneously, 8 nursing teachers were included in the survey for semi-structured interviews to analyze the current status and problems of the model implementation. *Results:* The survey showed that the scores of each dimension of the questionnaire, from lowest to highest, were as follows: certificate certification (12.43 ± 2.91), skills competition (12.83 ± 2.82), teaching implementation (17.22 ± 3.01), education goals (18.61 ± 3.14), and curriculum system (19.52 ± 3.42). Semi-structured interviews revealed that 87.50% (7/8) of teachers believed there was a lack of a mechanism for integrating curriculum and certification, 75.00% (6/8) pointed out a disconnect between competitions and teaching, and 62.50% (5/8) reflected that course content lagged behind clinical job requirements. *Conclusion:* The current integrated education model of “job-oriented, course-competition-certification” in nursing professions scores low in the dimensions of certification, skills competitions, and teaching implementation, mainly due to problems such as poor integration of curriculum and certification, separation of competition and teaching, and a disconnect between teaching and job requirements. Recommendations include restructuring the curriculum system, deepening the integration mechanism of “job-oriented, course-competition-certification,” and strengthening the teaching staff to improve the quality of nursing talent training.

Keywords: 1 + X certificate system; Job-based learning; Course-based learning; Competition-based certification; Nursing profession; Comprehensive education; Talent cultivation

Online publication: May 26, 2026

1. Introduction

The professional skills level certificate certifies the professional qualities and professional abilities of skilled personnel.

After the launch of the “1 + X” certificate system pilot, the value of the certificate has been further recognized, enabling more students and practitioners to receive more authoritative and fair assessment and certification^[1]. The implementation and popularization of the “1 + X” certificate system will inevitably put forward new requirements for the talent training of higher vocational colleges^[2]. However, the traditional nursing teaching model is mainly based on classroom lectures, and there is a “two-skin” phenomenon between practical teaching and clinical job requirements, resulting in insufficient cultivation of students’ comprehensive professional abilities^[3]. The “job-course-competition-certificate” comprehensive education model provides a new path for nursing education reform by connecting with job standards, reconstructing the curriculum system, introducing skills competitions, and integrating 1 + X certificates^[4]. However, the implementation of this model in the nursing profession is still in the exploratory stage, lacking a systematic survey of the current situation and analysis of problems^[5]. This study aims to investigate the implementation status of the “job-course-competition-certificate” comprehensive education model in the nursing profession under the background of the 1 + X certificate system, analyze the existing problems, and propose targeted optimization strategies in order to provide a reference for the reform of nursing vocational education.

2. Materials and methods

2.1. Research subjects

A convenience sampling method was used to include 206 nursing students from College S from September 2025 to June 2026 as the questionnaire survey subjects. Among them, there were 18 males and 188 females. Their ages ranged from 19 to 21 years, with a mean age of (20.14 ± 0.28) years. The students were divided into four grades: 72 freshmen, 84 sophomores, and 50 juniors.

2.1.1. Inclusion criteria

- (1) Full-time nursing students;
- (2) Voluntary participation in this study.

2.1.2. Exclusion criteria

- (1) Those on sick leave during the survey period;
- (2) Those who were unable to adjust the questionnaire properly.

2.1.3. Research subject

Meanwhile, 8 nursing teachers were included in a semi-structured interview, including 2 male teachers and 6 female teachers, aged 32–43 years, with an average age of (38.59 ± 1.02) years.

2.1.4. Inclusion criteria

- (1) ≥ 3 years of teaching experience in nursing;
- (2) Intermediate or higher professional title;
- (3) Informed consent and voluntary participation.

2.1.5. Exclusion criteria

- (1) Those who were away for further study during the survey period;
- (2) Part-time teachers without a nursing background;
- (3) Those on maternity leave or long-term leave.

2.2. Research methods

This study investigates and analyzes the current status of the “on-the-job, course-competition, and certificate-based” integrated education model in the nursing profession under the 1 + X certificate system. It then analyzes the main existing problems and their causes, summarizes the achievements and experiences of this model, and analyzes the problems and causes arising during its implementation. Finally, it provides targeted guidance and optimization strategies for optimizing the “on-the-job, course-competition, and certificate-based” integrated education model in this profession.

2.3. Observation indicators

(1) Questionnaire survey

A self-developed questionnaire, “Comprehensive Survey on the Current Status of Nursing Professional Education through ‘On-the-Job Training, Coursework, Competition, and Certification’,” was compiled, containing 24 items across 5 dimensions: educational goals (5 questions), curriculum system (6 questions), teaching implementation (5 questions), skills competitions (4 questions), and certification (4 questions). A 5-point Likert scale was used, with a Cronbach’s α coefficient of 0.894 and a content validity index of 0.912. The questionnaire was distributed and collected through the Wenjuanxing platform.

(2) Semi-structured interviews

One-on-one interviews were conducted with teachers and clinical instructors, focusing on core issues such as difficulties in the implementation of the “job–course–competition–certification” system, the matching degree between courses and jobs, the integration of competition and certification, and the evaluation mechanism. Each interview lasted 30 to 40 minutes. The interviews were recorded and transcribed into text. Thematic analysis was used to extract key issues.

2.4. Statistical methods

Descriptive statistical analysis was performed using SPSS 26.0 software. Quantitative data were expressed as mean $\pm$ standard deviation ($\bar{x} \pm s$), and categorical data were expressed as frequency and percentage.

3. Results

3.1. Analysis of questionnaire survey results

The survey results show that the scores for each dimension of the questionnaire, from lowest to highest, are as follows: certification (12.43 ± 2.91), skills competition (12.83 ± 2.82), teaching implementation (17.22 ± 3.01), educational goals (18.61 ± 3.14), and curriculum system (19.52 ± 3.42). The results are shown in **Table 1**.

Table 1. Analysis of questionnaire survey results

Questionnaire evaluation dimensions	Questionnaire items	Questionnaire scores
Educational goals	5	18.61 ± 3.14
Curriculum system	6	19.52 ± 3.42
Teaching implementation	5	17.22 ± 3.01
Skills competition	4	12.83 ± 2.82
Certificate authentication	4	12.43 ± 2.91

3.2. Analysis of semi-structured interview results

Semi-structured interviews revealed that 87.50% (7/8) of the teachers believed there was a lack of a mechanism for integrating courses and certifications, 75.00% (6/8) pointed out a disconnect between competitions and teaching, and 62.50% (5/8) reflected that course content lagged behind the needs of clinical positions. The results are shown in **Table 2**.

Table 2. Analysis of semi-structured interview results

Interview questions	Teacher	Proportion
A course-certificate integration mechanism	7	87.50
Disconnect between competition and teaching	6	75.00
The course content lags behind the needs of clinical positions.	5	62.50

4. Discussion

The results of this study show that the scores of each dimension of the questionnaire from low to high are as follows: certificate certification (12.4 ± 2.9) points, skills competition (12.8 ± 2.8) points, teaching implementation (17.2 ± 3.0) points, education goals (18.6 ± 3.1) points, and curriculum system (19.5 ± 3.4) points. From the score ranking, it can be seen that the certificate certification dimension has the most prominent problems, followed by skills competition. Although the curriculum system has a high absolute score, it is due to the full score. The analysis suggests that the 1 + X certificate system is still in the pilot stage in the nursing profession. The course-certificate integration mechanism has not yet been established, resulting in a disconnect between certificate training and course learning. Skills competitions mostly adopt an elite training model, which fails to benefit all students. The course content updates lag behind the clinical job requirements, resulting in a low score rate for the curriculum system^[6]. The education goals dimension has the highest score, indicating that students have a certain understanding and recognition of the “job-course-competition-certificate” model, but there is still a gap in the actual education effect^[7].

The semi-structured interview results showed that 87.50% (7/8) of the teachers mentioned the lack of a course-certificate integration mechanism. This was mainly manifested in the fact that 1 + X certificate training was independent of the curriculum system, requiring students to prepare for exams in their spare time, and that course credits and certificates were not mutually recognized, increasing the burden on students. 75.00% (6/8) of the teachers pointed out the disconnect between competitions and teaching. Competition training consumed a large amount of teaching resources, but the integration of competition content with regular courses was low, benefiting only a few students. 62.50% (5/8) of the teachers reported that course content lagged behind clinical job requirements, with long textbook update cycles (average 3–5 years), preventing new clinical technologies and standards from being introduced into the classroom in a timely manner. Furthermore, 50.00% (4/8) of the teachers mentioned a single teaching evaluation method, mainly based on final theoretical exams and single-skill operations, lacking assessment of comprehensive qualities such as job competence, teamwork, and humanistic care. Analysis suggests that the root cause of the above problems lies in the fact that the integration mechanism among the various elements of “job training, course competition, and certificate” is not yet sound: schools and hospitals lack in-depth cooperation mechanisms, and course development lacks industry participation; competitions and certificates are treated as “add-ons” rather than teaching components; evaluation reform lags behind teaching model reform, affecting the overall educational effect^[8].

In summary, the current integrated education model of “on-the-job training, curriculum, competition, and certification” in the nursing profession scores low in the dimensions of certificate certification, skills competition, and teaching implementation. The main problems include poor integration of curriculum and certification, separation of competition and teaching, and a disconnect between teaching and the workplace. It is recommended to restructure the curriculum system, deepen the integration mechanism of “on-the-job training, curriculum, competition, and certification,” and strengthen the faculty to improve the quality of nursing talent training. This study also has certain limitations, such as selecting only one vocational college as the survey subject, resulting in limited sample representativeness; and the data are all cross-sectional surveys, failing to track the long-term effects of model optimization. Future research could include multi-center, pre- and post-control intervention studies to verify the effectiveness of the optimization strategies further.

Funding

Project Title: Research on the Comprehensive Education Model of Nursing Major “On-the-Job, Course, Competition and Certificate” under the Background of the 1 + X Certificate System, Chengdu University of Traditional Chinese Medicine, 2024 Education and Teaching Reform Project (Project No.: JGJD202420)

Disclosure statement

The author declares no conflict of interest.

References

- [1] Pan G, 2021, The “1 + X” Course-Certificate Integration Path in Nursing Major: Taking the Elderly Care Project as an Example. *Modern Vocational Education*, 2021(44): 204–205.
- [2] Chen Y, Liu Z, Jiang N, et al., 2024, Exploration of the Integrated Training Curriculum System of “Job, Course, Competition and Certificate” for Nursing Major Based on “1 + X” Certificate. *Journal of Higher Education*, 10(12): 87–90 + 95.
- [3] Peng Q, Feng M, Wang M, 2022, Analysis of the Current Situation and Existing Problems of Talent Training Programs for Logistics Management Majors in Higher Vocational Colleges Under the 1 + X Certificate System. *Logistics Engineering and Management*, 44(5): 193–195 + 185.
- [4] Zeng T, 2021, A Practical Exploration of Cultivating Highly Skilled Talents Through the Integration of Job Training, Coursework, Competition and Certification. *China Vocational and Technical Education*, 2021(8): 5–10.
- [5] Pan S, Zhang A, Chen L, 2023, Research on the Comprehensive Education Reform of “Job Training, Course Competition, Certification Training and Innovation” in Higher Vocational Colleges. *Journal of Jiangsu Vocational College of Economics and Trade*, 2023(2): 89–92.
- [6] Zhang H, Wang H, Liu X, 2021, Real Problems and Practical Paths of the Integrated Education Model of “Job Training, Course Competition and Certificate” in Higher Vocational Colleges. *Education and Vocation*, 2021(21): 27–34.
- [7] Rao S, Chen L, 2022, Exploration of Professional Teaching Reform Based on “Competition-Teaching Integration”: Taking Modern Logistics Management as an Example. *Journal of Taiyuan City Vocational and Technical College*, 2022(11): 102–104.
- [8] Chen T, 2023, Construction and Practice of High-Quality Online Courses in Vocational Education Under the Background of Integration of Job, Course, Competition and Certificate. *Journal of Wuhan Shipbuilding Vocational College*, 22(3): 66–71.

Publisher’s note

Whioce Publishing remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.