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Construction and Application of a Dual-qualified Faculty Training Content System Based on the COMET Competency Model under the Background of "New Medical Education"

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Abstract: *Objective*: To explore the construction of a "double-qualified" clinical nursing faculty training system based on the COMET (Competence Measurement) model under the "New Medical Science" background, and to evaluate its application effects on enhancing core teaching competence. *Methods*: Literature analysis and semi-structured interviews were conducted to identify preliminary training needs. A training system was subsequently developed using two rounds of Delphi expert consultations involving 15 experts. From January to December 2025, a specialized training program based on the COMET model was implemented among 110 clinical teaching supervisors and assistant supervisors in our hospital. The effects were evaluated using the Clinical Nursing Teacher Core Competence Scale and the Learning Satisfaction Scale. *Results*: After training, the total core teaching competence score of the faculty increased significantly from (60.84 ± 5.12) to (88.56 ± 3.45) ($p < 0.001$) The total learning satisfaction score of the participants rose from (85.56 ± 7.23) to (95.31 ± 5.64) ($p < 0.001$). Differences in scores across all dimensions were statistically significant (all $p < 0.05$). *Conclusion*: The "double-qualified" faculty training content system based on the COMET model is scientific and effective. It significantly enhances the core competence of clinical nursing teachers and learner satisfaction, providing a standardized and practical reference for faculty development under the "New Medical Science" paradigm.

Keywords: New medical science; COMET model; "Double-qualified" teachers; Faculty training; Nursing education

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1. Introduction

In the context of the deepening construction of "new medicine", medical education is undergoing a

comprehensive transformation from concept to model. New medicine emphasizes the integration of multiple disciplines, technological innovation and clinical practice, and puts forward higher requirements for the cultivation of medical talents [1]. As an important part of medical education, nursing education urgently needs to build a "dual-qualified" teaching staff that is proficient in both clinical practice and teaching innovation [2–4]. However, at present, clinical nursing teachers in China still have problems such as insufficient systematic training and imperfect evaluation mechanisms in terms of educational and teaching abilities, which restrict the quality of cultivation of high-quality nursing talents. COMET Vocational competency model, as a systematic and multi-dimensional competency assessment tool, has been widely applied in the field of vocational education in many countries. The model constructs a progressive competency development path from "nominal competency", "functional competency" to "process competency" and "overall design competency", providing a scientific basis for the development and evaluation of teachers' professional competence [5–8]. Therefore, based on the development needs of new medicine and in combination with the COMET competency model, this study aims to construct a "dual-qualified" teacher training content system for clinical nursing teachers and verify its application effect through empirical research, with the aim of providing theoretical support and practical paths for improving the overall teaching ability of the clinical nursing teaching staff and promoting the high-quality development of nursing education.

2. Objects and methods

2.1. Research object

During the period from January 2025 to December 2025, the nursing Department of our hospital organized the selection of 1–2 nurses who met the criteria from all clinical departments of the hospital as training subjects, totaling 110.

2.1.1. Inclusion criteria

(1) On-the-job nurses who have obtained nurse practice registration qualifications;
(2) Firm professional ideology, love for nursing education work, and good communication skills;
(3) Those with an associate degree should have more than 5 years of clinical experience, and those with a bachelor's degree should have more than 3 years of clinical experience;
(4) Have at least 2 years of clinical nursing teaching experience;
(5) Voluntary participation in this study.

2.1.2. Exclusion criteria

Those who are unable to complete the entire training due to leave, further education, etc.

2.2. Methods

2.2.1. Construction of training system

First, through literature analysis and semi-structured interviews with vocational college nursing teachers, clinical nursing experts, interns and newly recruited nurses in Sichuan Province, the demand for the training of "dual-qualified" teachers were initially understood. Based on this, a preliminary framework of the training content system was drawn up. Then, using the Delphi expert consultation method, two rounds of inquiries were conducted with 15 experts who had more than 10 years of experience in clinical nursing, nursing

education and management, ultimately establishing a dual-qualified teacher training content system based on the COMET competency model in the context of "new medicine".

2.2.2. Implementation of the training

Apply the constructed training system to the research subjects. The training was conducted in two phases:

(1) During the theoretical training period, full-time intensive training was adopted, and the trainees were divided into five groups according to the departments they were in: internal medicine, surgery, gynecology and pediatrics, critical care, and special departments. The training focused on nursing education theory and teaching methods, using a combination of theoretical lectures, group discussions, case studies, and teaching demonstrations and counter-demonstrations.

(2) During the practical training period, on-the-job teaching practice is adopted, and trainees carry out clinical teaching work for newly recruited nurses and interns. The training team conducts monthly quality supervision and feedback guidance on teaching.

2.3. Observe indicators

Evaluate the following indicators before and after the training:

(1) Instructor core competence

The instructor core competence evaluation form (22 items, Likert 5-level score) compiled by Pan Jingjing was used for assessment. The higher the score, the stronger the core competence.

(2) Learning satisfaction

The learning satisfaction scale revised by Wang Pengju (23 items, Likert 5-level score) was used for assessment. The higher the score, the more satisfied the students were with the teaching quality of their instructors.

2.4. Statistical methods

Data analysis was performed using SPSS 25.0 software. Measurement data were described as mean ± standard deviation, and paired *t*-tests were used to compare core competence scores before and after training; Count data were described in terms of frequency and percentage. $p < 0.05$ was considered statistically significant.

3. Fruiting

3.1. Comparison before and after core competence training for instructors

Compared with before the training, the total score of core competence and the scores of each dimension of the instructors after the training were higher than before the training, and the difference was statistically significant ($p < 0.05$). The specific data are shown in **Table 1**.

Table 1. Comparison of core competence scores of instructors before and after training (n = 110)

Dimensions/Entries	Before training	After the training	*t*	*p*
Total score of core competencies in teaching	60.84 ± 5.12	88.56 ± 3.45	-43.215	< 0.001
Guide the analysis of cases/handling of emergencies	4.12 ± 0.78	4.95 ± 0.22	-10.152	< 0.001
Use case/scenario simulation teaching	4.05 ± 0.82	4.88 ± 0.35	-9.214	< 0.001
Systematically explain your expertise	4.32 ± 0.65	4.92 ± 0.28	-8.432	< 0.001

3.2. Comparison of learning satisfaction before and after training

After the training, the total score and the scores of each dimension of the trainees' learning satisfaction with the teaching of the instructors were higher than before the training, and the difference was statistically significant ($p < 0.05$). The specific data are shown in **Table 2**.

Table 2. Comparison of trainees' learning satisfaction scores before and after training (n = 110)

Time	Total score	Teaching attitude	Teaching content	Teaching methods	Teaching effectiveness	Interaction between teachers and students
Before training	85.56 ± 7.23	18.21 ± 1.95	17.05 ± 2.11	16.78 ± 2.20	16.92 ± 2.35	16.60 ± 2.15
After training	95.31 ± 5.64	19.85 ± 1.42	18.76 ± 1.58	18.45 ± 1.63	18.90 ± 1.52	19.35 ± 1.49
t value	-7.215	-4.562	-4.123	-4.008	-4.789	-6.987
p value	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001

4. Discussion

4.1. COMET model-oriented training system breaks the "island effect" in the transformation of "dual-qualified" teachers' capabilities

The results of this study show that the total score of core competence in teaching and the scores of each dimension have significantly increased after training ($p < 0.001$). This indicates that the training system based on the COMET model has significant efficacy in promoting the transformation of clinical nurses to "dual-qualified" talents. "New medicine" demands that nursing teachers shift from "single skill imparting" to "comprehensive professional quality cultivation", while traditional training often falls into the "island effect" of disconnection between theory and practice [9–11]. The core value of the COMET model lies in its "professional mobility" orientation. By systematically deconstructing dimensions such as "environment, task, professional identity," the system leads teaching group leaders to focus not only on the standardization of operational steps, but also on the clinical thinking and humanistic care behind the operations [12]. This paradigm shift from "mechanical teaching" to "contextualized guidance" precisely addresses the pain points in the capacity building of dual-qualified teachers and achieves a deep logical integration of clinical specialty capabilities and medical teaching capabilities.

4.2. Precisely empower teaching implementation and evaluation capabilities to drive the connotative development of clinical nursing teaching

In this study, the score improvement in the dimension of teaching implementation and evaluation ability was the most significant. This is due to the deep application of "behavior-oriented teaching" in the training content system. In critical care Settings, there is a high degree of uncertainty in the teaching context [13–16]. This system, in the form of workshops, introduces the "open-ended task design" in COMET assessment to encourage teachers to exercise their ability to guide students to independently identify and solve problems in complex case analyses. In addition, the improvement in evaluation ability marks a leap for teachers from the concept of "outcome assessment" to "formative assessment". Through the COMET assessment program, teachers can more acutely perceive subtle changes in students' professional identity and professional

responsibility. This "evaluation-driven teaching, teaching and evaluation integrated" mechanism not only standardizes the clinical teaching process, but also enhances the rigor and scientific nature of clinical teaching in terms of connotation, providing a solid faculty guarantee for cultivating high-quality nursing talents that meet the standards of new medicine.

4.3. The deepening of professional identity is the core path to enhancing the intrinsic motivation of "dual-qualified" teachers

The results of the satisfaction survey show that teachers have a qualitative leap in their sense of professional belonging and satisfaction with their teaching work after training. In previous clinical practice, teaching group leaders often faced "role conflicts" between clinical tasks and teaching responsibilities. This training system helps to reconstruct professional identity by clarifying the professional competence profile of "dual-qualified" teachers. When teachers realize that mentoring is not just an administrative task but an advanced manifestation of their specialized professional competence, their initiative for professional development is effectively activated. This shift from being driven by external systems to being driven by internal values is key to building a sustainable clinical teaching echelon [17]. The training system constructed in this study not only provides methodological support, but also offers a replicable practical model for the standardization and professionalization of the clinical teaching staff in regional medical centers in the context of "new medicine".

5. Conclusion

This study also has certain limitations. First, the subjects were all from the same hospital, and the sample size was limited. Future multi-center, large-sample studies are needed to further verify the universality of the training system. Secondly, the long-term follow-up assessment of the training effect is still insufficient, and its long-term impact on the quality of clinical nursing teaching and patient outcomes needs to be further explored. Follow-up studies could extend the follow-up period and attempt to incorporate patient health indicators into the comprehensive evaluation system, thereby more comprehensively assessing the long-term benefits and deep value of the training system.

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Disclosure statement

The authors declare no conflict of interest.

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