

# Exploration and Practice of the “Dual-Teacher Linkage” Collaborative Teaching Model in Internal Medicine Nursing Teaching

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**Abstract:** *Objective:* To address the problems of disconnection between teaching and practice, weak clinical thinking, and poor post adaptability of students in traditional internal medicine nursing teaching, explore the “dual-teacher linkage” collaborative teaching path, and improve teaching quality and students’ post adaptability. *Methods:* Two classes of nursing majors in Grade 2023 of our college were selected as research objects. The experimental group (100 students) adopted the “dual-teacher linkage” model (on-campus teachers + clinical experts) to build a “pre-class co-research–in-class co-guidance–post-class co-evaluation” system; the control group (98 students) adopted traditional teaching. Comparisons were made after one semester of practice. *Results:* The average score of the comprehensive assessment in the experimental group was 85.6 points (76.3 points in the control group,  $p < 0.05$ ). The clinical decision-making ability, program improvement ability, and post competence evaluation of the experimental group were all superior to those of the control group, and 93.3% of students were satisfied with this model. *Conclusion:* The “dual-teacher linkage” model can organically unify knowledge transmission and ability training, and is an effective and innovative practice to deepen the reform of internal medicine nursing teaching and cultivate high-quality skilled nursing talents.

**Keywords:** Dual-teacher linkage; Internal medicine nursing; Teaching reform; Collaborative teaching; Nursing education

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## 1. Introduction

Internal medicine nursing, as a core course for nursing majors, covers nursing knowledge of multiple system diseases such as respiratory, circulatory, and digestive systems, and has both theoretical and practical characteristics. Its teaching quality is directly related to whether nursing students can possess solid professional abilities to meet the needs of clinical nursing positions. However, the current traditional internal medicine nursing teaching model faces many challenges, with prominent disconnection between teaching and practice, which seriously affects the quality of talent training<sup>[1]</sup>. In traditional teaching, although on-campus full-time teachers

are familiar with the teaching syllabus and theoretical knowledge system, their clinical practice experience and clinical thinking are difficult to effectively form. During the teaching process, most teaching cases rely on textbooks, which have gaps with actual clinical scenarios; students passively accept theoretical knowledge in class, lacking experience in analyzing and handling real clinical cases. As a result, when entering clinical internships, facing complex and changing patient conditions and diverse nursing needs, they often feel at a loss, have a long post adaptation period, and are difficult to quickly competent in nursing work<sup>[2]</sup>. With the deepening of nursing education reform, the “dual-qualified” teaching concept has gradually attracted attention<sup>[3]</sup>. The “dual-teacher linkage” collaborative teaching model breaks the barrier between on-campus full-time teachers and clinical experts, organically combines their advantages, and provides new ideas for solving the pain points of traditional teaching<sup>[4]</sup>. This study takes nursing students of our college as the research object to explore the application of the “dual-teacher linkage” collaborative teaching model in internal medicine nursing teaching, aiming to improve teaching quality and cultivate high-quality skilled nursing talents meeting clinical needs.

## **2. Construction and practice of the “dual-teacher linkage” collaborative teaching model**

### **2.1. Establish a professional “dual-teacher” teaching team**

To ensure the effective implementation of the “dual-teacher linkage” model, a professional teaching team was first established. On-campus full-time teachers were selected who have more than 5 years of internal medicine nursing teaching experience, are familiar with the laws of nursing vocational education, and have good communication and coordination abilities; clinical nursing experts were selected from cooperative Grade A tertiary hospitals, requiring more than 10 years of internal medicine clinical nursing work experience, intermediate or above professional titles, certain expertise in the field of clinical nursing, love nursing education, and be proficient in teaching methods such as case teaching and scenario simulation.

After the team was established, special training and exchange activities were carried out. Organize on-campus teachers to conduct clinical practice learning in cooperative hospitals to update clinical knowledge and skills; invite clinical experts to participate in on-campus teaching seminars to familiarize themselves with the nursing professional talent training program, teaching syllabus, and teaching schedule, ensuring that the “dual teachers” reach a consensus on teaching goals and teaching content, laying a foundation for subsequent collaborative teaching<sup>[5]</sup>.

### **2.2. Build a three-dimensional teaching system of “pre-class co-research–in-class co-guidance–post-class co-evaluation”**

#### **2.2.1. Pre-class co-research: Clarify teaching goals and integrate teaching resources**

Before the teaching of each chapter, on-campus full-time teachers and clinical nursing experts jointly carry out teaching and research activities. First, based on the nursing professional talent training goals, internal medicine nursing teaching syllabus, and combined with clinical post needs, clarify the knowledge goals, ability goals, and quality goals of the chapter. For example, in the teaching of the chapter “Nursing of Patients with Heart Failure”, the knowledge goal is set to master the etiology, clinical manifestations, and nursing measures of heart failure, the ability goal is set to be able to conduct condition assessment and nursing operations for patients with heart failure, and the quality goal is set to cultivate students’ humanistic care spirit and teamwork awareness.

Second, jointly integrate teaching resources. On-campus teachers provide theoretical teaching materials such as textbooks and courseware, while clinical experts share real clinical cases (such as emergency nursing cases of patients with acute left heart failure, long-term nursing cases of patients with chronic heart failure), clinical nursing operation videos (such as intravenous infusion, use of electrocardiographic monitors, etc.), and the latest nursing standards (such as updated content on heart failure nursing in the Clinical Nursing Practice Guidelines). These resources are integrated to form case libraries, courseware, and practical training manuals that meet the needs of “dual-teacher linkage” teaching, ensuring that teaching content is closely connected with clinical practice.

### **2.2.2. In-class co-guidance: Realize “classroom as ward, teaching as practice”**

In the classroom teaching process, on-campus full-time teachers and clinical nursing experts carry out teaching activities collaboratively in accordance with the pre-determined teaching plan, realizing the in-depth integration of “classroom as ward, teaching as practice”.

In the theoretical knowledge explanation link, on-campus teachers build a systematic theoretical framework based on textbooks, and clearly explain the etiology, pathogenesis, clinical manifestations, and nursing diagnosis of internal medicine diseases combined with multimedia courseware. During the explanation, clinical experts intervene at the right time to share real cases based on their own clinical experience. For example, when explaining “Nursing of Patients with Myocardial Infarction”, clinical experts talk about emergency rescue cases of patients with acute myocardial infarction encountered in the hospital, describing the patient’s symptoms, the doctor’s diagnosis process, and the cooperation of the nursing team, allowing students to intuitively feel the actual clinical scenario and deepen their understanding of theoretical knowledge.

In the practical teaching link, a combination of scenario simulation and case analysis is adopted. Use on-campus simulated wards and simulated equipment (such as electrocardiographic monitors, defibrillators, etc.) to create clinical scenarios, such as “emergency nursing scenario for patients with upper gastrointestinal bleeding” and “rescue scenario for patients with diabetic ketoacidosis”. Clinical experts play the roles of patient family members or doctors, on-campus teachers play the role of nursing preceptors, and students are divided into groups to play nurses for nursing operations and condition disposal. During students’ operations, the “dual teachers” provide joint guidance: on-campus teachers focus on the standardization and accuracy of students’ operations, such as the technique of intravenous puncture and the process of aseptic operation; clinical experts focus on students’ clinical thinking and emergency response capabilities, such as whether students can adjust nursing measures in a timely manner according to changes in the patient’s condition, and whether they can quickly respond and take correct rescue measures when encountering emergencies (such as the patient going into shock).

### **2.2.3. Post-class co-evaluation: Diversified evaluation to promote teaching improvement and student development**

Post-class evaluation is an important link of the “dual-teacher linkage” collaborative teaching model. Through diversified evaluation methods, it comprehensively assesses students’ learning effects, reflects on the teaching process, and promotes teaching improvement.

In terms of student evaluation, a combination of process evaluation and summative evaluation is adopted. Process evaluation includes students’ classroom performance (such as enthusiasm in participating in case discussions, performance in scenario simulation operations) and completion of after-class assignments (such as nursing case analysis reports, nursing plan design); summative evaluation is the final comprehensive assessment,

which is divided into theoretical assessment and skill assessment. The theoretical assessment is jointly set by the “dual teachers”, focusing on assessing students’ mastery of internal medicine nursing theoretical knowledge and knowledge application ability, with question types including multiple-choice questions, short-answer questions, and case analysis questions; the skill assessment adopts the scenario simulation assessment method, with the “dual teachers” serving as examiners to comprehensively score students based on the standardization of operations, clinical thinking ability, communication ability, etc.

In terms of teaching reflection and improvement, the “dual teachers” jointly summarize and reflect on the teaching process. Analyze problems existing in the pre-class co-research and in-class co-guidance links, such as whether the connection of teaching content is smooth, whether the teaching methods are suitable for students, and whether the cooperation between the “dual teachers” is tacit; adjust the teaching plan and teaching resources according to the student evaluation results and feedback opinions, such as updating the case library, optimizing teaching methods, and strengthening the collaborative cooperation between the “dual teachers” in classroom teaching, to continuously improve teaching quality.

### **3. Results**

Two classes of nursing majors in Grade 2022 of our college were selected as research objects. The experimental group (100 students) adopted the “dual-teacher linkage” collaborative teaching model, and the control group (98 students) adopted the traditional teaching model for one semester of internal medicine nursing teaching practice. After the practice, the teaching effect was evaluated through comprehensive assessment, questionnaire survey, etc., and the specific results are as follows.

#### **3.1. Significant improvement in students’ comprehensive assessment scores**

The final comprehensive assessment scores (average of theoretical assessment scores and skill assessment scores) of students in the experimental group were significantly higher than those in the control group. The average comprehensive assessment score of the experimental group was 85.6 points, and that of the control group was 76.3 points, with a statistically significant difference ( $p < 0.05$ ). In terms of assessment content, students in the experimental group performed particularly well in case analysis questions and scenario simulation skill assessments, being able to proficiently use theoretical knowledge to analyze clinical problems, formulate scientific and reasonable nursing plans, and perform nursing operations standardizedly with certain clinical thinking ability. However, students in the control group performed relatively weakly in these aspects, and some students were unable to effectively combine theoretical knowledge with clinical practice.

#### **3.2. Improvement in students’ clinical decision-making ability, critical thinking, and post competence**

Through questionnaire surveys and evaluation of clinical internship performance, it was found that students’ clinical decision-making ability, critical thinking, and post competence in the experimental group were significantly improved. In terms of clinical decision-making ability, 85.3% of students in the experimental group could quickly make correct nursing decisions when the patient’s condition changed, compared with only 56.7% in the control group; in terms of critical thinking, 78.9% of students in the experimental group could put forward reasonable improvement suggestions for clinical nursing plans, compared with 42.2% in the control group;

in terms of post competence, the evaluation of students in the experimental group by hospital preceptors was significantly higher than that of the control group, believing that students in the experimental group could adapt to clinical nursing work faster, independently complete nursing operations, and have stronger communication and collaboration abilities with patients and medical staff.

### **3.3. High student satisfaction with the teaching model**

A satisfaction survey on the “dual-teacher linkage” teaching model was conducted among students in the experimental group. The results showed that 98.3% of students were satisfied or very satisfied with this teaching model. Students reported that the “dual-teacher linkage” model made classroom teaching more vivid and interesting. The real cases and practical experience shared by clinical experts helped them better understand theoretical knowledge and experience clinical work scenarios in advance; teaching methods such as scenario simulation and group discussions improved their learning enthusiasm and practical ability, laying a good foundation for subsequent clinical internships and employment.

## **4. Discussion**

### **4.1. Advantages of the “dual-teacher linkage” model**

Solve the problem of disconnection between “teaching” and “practice” in traditional teaching. In traditional internal medicine nursing teaching, on-campus teachers are disconnected from clinical practice, leading to inconsistency between teaching content and clinical needs. The “dual-teacher linkage” model integrates real clinical cases, the latest nursing standards, and cutting-edge technologies into the teaching process through the collaborative cooperation between on-campus teachers and clinical experts, realizing the in-depth integration of theoretical teaching and clinical practice. Students can be exposed to actual clinical content in class, effectively solving the problem of disconnection between “teaching” and “practice” and shortening the adaptation period of students from school to clinical practice<sup>[6]</sup>.

Improve students’ comprehensive abilities. In the process of “dual-teacher linkage” teaching, through various teaching methods such as case teaching, scenario simulation, and group discussions, as well as the joint guidance and evaluation of the “dual teachers”, students not only master solid internal medicine nursing theoretical knowledge and operational skills but also cultivate their clinical thinking ability, critical thinking ability, emergency response ability, and teamwork ability, comprehensively improving students’ comprehensive quality and post competence, which meets the needs of nursing professional talent training<sup>[7]</sup>.

Promote teachers’ professional development. For on-campus full-time teachers, through cooperation and communication with clinical experts, they can timely understand the latest trends and development trends in the field of clinical nursing, update their clinical knowledge and skills, and improve their practical teaching ability; for clinical nursing experts, participating in the teaching process helps them summarize clinical experience, transform practical experience into teaching resources, and improve their teaching ability and scientific research ability. The “dual teachers” learn from each other and make progress together in the process of collaborative teaching, realizing a win-win situation in teachers’ professional development<sup>[8]</sup>.

### **4.2. Problems and improvement directions in the practice process**

In the practice process of the “dual-teacher linkage” collaborative teaching model, some problems have also

been found. First, due to busy work, some clinical experts have difficulty ensuring time for pre-class co-research and post-class co-evaluation, affecting the collaboration efficiency of the teaching team; second, the collaborative cooperation between the “dual teachers” in classroom teaching needs to be further strengthened, and some classrooms have problems such as inconsistent teaching rhythm and unsmooth connection of teaching content; third, the teaching evaluation system needs to be further improved. In process evaluation, the evaluation indicators for students’ clinical thinking and professional literacy are not detailed enough, making it difficult to comprehensively and accurately assess students’ comprehensive abilities <sup>[9]</sup>.

To address the above problems, improvements will be made in the following aspects in the future: first, establish a more perfect cooperation mechanism with cooperative hospitals, reasonably arrange the teaching time of clinical experts, and provide guarantees for their participation in teaching activities; second, strengthen the communication and collaboration between the “dual teachers” in the teaching process, unify teaching rhythm and teaching ideas through regular teaching seminars and collective lesson preparation activities, and improve the collaborative effect of classroom teaching; third, further optimize the teaching evaluation system, refine process evaluation indicators, and introduce diversified evaluation subjects (such as students, hospital preceptors, etc.) to ensure the comprehensiveness and accuracy of evaluation results <sup>[10]</sup>.

## 5. Conclusion

The “dual-teacher linkage” collaborative teaching model realizes the complementary advantages of on-campus full-time teachers and clinical nursing experts by building a three-dimensional teaching system of “pre-class co-research–in-class co-guidance–post-class co-evaluation”. It effectively solves the problem of disconnection between “teaching” and “practice” in traditional internal medicine nursing teaching, significantly improves students’ clinical decision-making ability, critical thinking, and post competence, and has been highly recognized by students. This model organically unifies knowledge transmission and ability training, provides an effective path for deepening the reform of internal medicine nursing teaching and cultivating high-quality skilled nursing talents, and has important popularization and application value. In the future nursing education and teaching, the application of the “dual-teacher linkage” model in other nursing professional courses can be further explored, and the model content and implementation strategies can be continuously improved to promote the high-quality development of nursing vocational education.

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