

Application of PBL Combined with Role-Play in Group Cooperative Teaching Mode in Nursing Education

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Abstract: *Objective:* To explore the application effect of a group cooperative teaching mode combining PBL and role-play in the teaching of “Fundamentals of Nursing”. *Methods:* A controlled experimental design was adopted. Two nursing classes from the same university were selected. The experimental group adopted the PBL combined with role-play group cooperative teaching mode, while the control group used traditional teaching. After teaching, theoretical exam scores, operational skills scores, and teaching effects were compared. *Results:* The experimental group’s theoretical scores, operational skills scores, and teaching effects were significantly higher than those of the control group, with statistically significant differences ($p < 0.05$). *Conclusion:* The group cooperative teaching mode combining PBL and role-play aligns with the characteristics of “Fundamentals of Nursing” teaching, effectively compensates for the shortcomings of traditional teaching, and optimizes teaching outcomes.

Keywords: PBL; Role-play; Group cooperation; Fundamentals of nursing; Teaching application

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1. Background

“Fundamentals of Nursing” is a core course for nursing majors, focusing on cultivating clinical thinking and comprehensive professional literacy^[1]. Problem-Based Learning (PBL) is an interactive teaching approach centered on course content, effectively stimulating students’ initiative, guiding autonomous inquiry, analysis, and problem-solving^[2]. Role-play, also known as scenario simulation, is a virtual practical teaching method in which teachers create realistic clinical scenarios and students perform role-playing. It features strong theory-practice integration and intensive teacher-student interaction^[3]. Group cooperative teaching emphasizes student-centered learning. Under teacher guidance, students complete learning tasks collaboratively, focusing on teamwork awareness and communication skills^[4]. Currently, traditional teaching models cannot meet the needs of modern nursing practice, and integrating multiple teaching methods has become an important trend in nursing education reform. This study combines PBL, role-play, and group

cooperative teaching, applying them in the “Fundamentals of Nursing” course to explore multi-modal teaching model construction and student learning outcomes under the new mode [5].

2. Subjects and methods

2.1. Subjects

Two nursing classes from the same university were selected and divided into experimental and control groups. The experimental group had an average age of (20.10 ± 0.85) years, and the control group had an average age of (20.30 ± 0.98) years. All students had systematically studied basic and clinical nursing theory courses and passed assessment tests. Comparisons of assessment scores, age, and gender between groups showed no statistically significant differences ($p > 0.05$), indicating comparability.

2.2. Methods

Both groups were taught by the same teacher. Teaching aimed to enhance students’ comprehensive abilities. Based on the college’s student skill training requirements, a training plan was formulated, focusing on specialized nursing technical operations and emergency response plans for critical conditions.

2.2.1. Control group

The control group received traditional teaching. Curriculum was implemented through lectures, demonstrations, practical exercises, and assessments. The teacher used PPT or videos for theoretical learning, nursing skills explanations, and key points, supplemented by on-site demonstrations and reinforced learning during and after class.

2.2.2. Experimental group

The experimental group adopted a PBL combined with role-play group cooperative teaching mode. The teaching process was divided into three stages.

(1) Stage 1

Before class, the teacher clarified knowledge, skill, and literacy objectives according to the syllabus, designed moderately difficult PBL problems aligned with clinical practice, prepared role-play scenarios and teaching aids, divided students into balanced groups of 4–6, assigned group leaders and members, ensuring full participation.

(2) Stage 2

During class, the teacher introduced PBL problems, each group conducted literature review, discussion, and analysis, while the teacher guided them. Groups then conducted role-play based on inquiry plans, with role-players performing operations and communication, while the teacher observed, focusing on operation standardization and emergency handling.

(3) Stage 3

Groups presented results, with peer evaluation and intra-group self-evaluation to summarize issues.

2.3. Teaching evaluation

2.3.1. Theoretical knowledge and skills assessment

After class, teachers selected cases according to teaching objectives and designed questions related to nursing

knowledge for a standardized closed-book theoretical exam. Four basic skills (bed-making, aseptic technique, vital signs monitoring, etc.) were randomly selected for assessment. Two or more teachers scored the students. The average of the four skill scores was used as the skill assessment score. Both groups followed the same timing, skill items, content, and scoring standards.

2.3.2. Questionnaire survey

A self-made questionnaire was used to evaluate teaching effects, covering six aspects: learning interest, innovation ability, clinical practice ability, cooperation ability, language communication ability, and comprehensive ability. Total score was 10 points; responses were collected anonymously and analyzed.

2.4. Statistical methods

Data were analyzed using SPSS 26.0. Measurement data were expressed as mean \pm standard deviation ($\bar{x} \pm s$). $p < 0.05$ was considered statistically significant.

3. Results

3.1. Theoretical and skills assessment scores

The experimental group's average theoretical score was (86.75 ± 8.34), significantly higher than the control group's (76.60 ± 9.78) ($p < 0.05$); the average operational skills score was (89.05 ± 4.35), significantly higher than the control group's (80.90 ± 4.78) ($p < 0.05$). This indicates that the PBL combined with role-play group cooperative teaching mode helps students understand and master fundamental nursing knowledge and practice skills, significantly enhancing theoretical knowledge and operational skill levels.

3.2. Questionnaire score comparison

Regarding learning interest, innovation ability, clinical practice ability, cooperation ability, language communication ability, and comprehensive ability, the experimental group's teaching effect score was (9.40 ± 0.754), significantly higher than the control group's (8.45 ± 1.36) ($p < 0.05$).

4. Discussion

4.1. New teaching mode improves theoretical and operational abilities

The results show that the experimental group's theoretical and operational skills scores were significantly higher than the control groups, indicating that scenario simulation teaching can stimulate active participation and effectively enhance students' comprehensive abilities^[6]. PBL combined with group cooperative teaching guides students to analyze and solve problems through discussion, self-directed inquiry, and collaborative division of labor, reinforcing teamwork awareness. This combination can address the shortcomings of traditional fundamental nursing teaching that focuses on theory while lacking clinical relevance^[7,8].

4.2. New teaching mode enhances comprehensive innovation ability

The experimental group's teaching effect scores were significantly higher than the control groups, indicating that PBL combined with role-play group cooperative teaching effectively enhances learning interest and stimulates curiosity^[9]. Additionally, it emphasizes professional knowledge application and practical skills, cultivating communication, critical thinking, and innovation, thereby comprehensively improving student

competencies and aligning with the modern high-quality applied nursing talent training requirements^[10].

5. Conclusion

Although the PBL combined with role-play group cooperative teaching mode is conceptually mature, practical application in Fundamentals of Nursing still faces challenges, such as insufficient student participation and insufficient alignment of problem design with clinical practice. However, this mode effectively compensates for the shortcomings of traditional teaching. The three teaching methods complement each other: PBL drives inquiry, role-play reinforces practice, and group cooperation cultivates collaboration literacy, providing a new approach and platform for fundamental nursing teaching reform, and is significant for training high-quality nursing talents needed in clinical practice.

Disclosure statement

The author declares no conflict of interest.

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