

Application Effect of Problem-Based Learning Combined with DOPS Evaluation Model in Standardized Nurse Training

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Abstract: With the continuous development of the nursing discipline, standardized nurse training has always been a crucial link in the development of nursing science and plays an irreplaceable role in talent cultivation. However, in the current standardized training for some nurses, there are problems such as the simplification of nursing skill evaluation models and insufficient post competence of nurses. Therefore, optimizing the training model for nursing talents has become an inevitable measure. The problem-based learning (PBL) method and the Direct Observation of Procedural Skills (DOPS) evaluation model provide new directions and guidance for the development of training. Against this background, this paper explores effective approaches for standardized nurse training, starting from basic concepts and gradually delving into specific practical paths, aiming to improve the quality of talent cultivation and provide valuable references for other researchers.

Keywords: Problem-oriented; DOPS evaluation model; Standardized nurse training

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1. Introduction

In the process of standardized nurse training, the PBL method can be based on clinical problems to stimulate students' learning motivation and deepen learning effects, thus becoming a commonly used teaching method in standardized nursing teaching. The DOPS model is mainly applied in the evaluation link: it can evaluate students' clinical operational skills through direct observation, realize teacher-student interaction, and is an evaluation model that emphasizes both teaching and assessment functions. Compared with the problem-oriented teaching model, the application of the DOPS model is still in the exploration stage. The combined application of the problem-oriented teaching method and the DOPS evaluation model further emphasizes the standardized application in standardized nurse training, improves the effectiveness of student training and the quality of nursing, and further promotes the construction of a modern and systematic standardized nurse training system^[1].

2. Exposition of relevant concepts

2.1. Problem-based learning (PBL)

PBL is an instructional method that emphasizes placing learning in specific problem scenarios. It fully respects students' dominant role in teaching activities, encourages them to acquire knowledge and improve abilities through solving practical problems, and stimulates students' awareness of independent learning. In the process of exploring, analyzing, and solving problems, students can construct a more comprehensive knowledge system and strengthen their problem-solving abilities^[2].

2.2. DOPS evaluation model

An overview of the DOPS evaluation model: DOPS, short for Direct Observation of Procedural Skills (Operational Skills Direct Observation Assessment), refers to the practice of conducting full-process and real-time evaluation and documentation of students' application of specific types of clinical skills using an assessment form in a genuine clinical work environment. It also involves providing timely feedback, review, and suggestions. The characteristics of this evaluation model lie in its emphasis on the integration of assessment and practical application. It can be applied in the process of students' standardized training: on one hand, it helps assessors understand the proficiency of students' technical operations; on the other hand, it assists students in enhancing their training. Thus, it serves as a form of formative assessment. Meanwhile, the DOPS evaluation model can also be used in phased examinations. After students complete their standardized training, a unified assessment is conducted, which functions as a summative assessment^[3].

3. Application effect of PBL combined with DOPS evaluation model in nurses' standardized training

3.1. Effective application of the DOPS evaluation model

Compared with the traditional evaluation model, the latter has relatively limited assessment criteria, which is not conducive to effectively reflecting nurses' comprehensive level of clinical practice. Meanwhile, the traditional evaluation model tends to be a one-way assessment, which easily leads to the separation of theory from practice. Moreover, the actual assessment content is not closely connected with clinical work, and the feedback method is relatively single, making it difficult to reflect the behaviors and capabilities of nurses, especially newly recruited ones^[4]. The advantage of using the DOPS evaluation model lies in its higher sensitivity in assessing newly recruited nurses. By building a bridge between theory and practice, it helps nurses transfer theoretical knowledge to clinical practice. In a real clinical environment, it can better assess nurses' operational capabilities and other aspects, effectively increase the number of operational skill training sessions for junior nurses, improve their hands-on ability, and better exert the value of standardized nurse training^[5]. The DOPS assessment form is an important part of the DOPS evaluation model. It can more scientifically evaluate the proficiency of medical staff in procedural operation skills, while taking into account the assessment of their clinical skills, patient communication ability, professional quality, and mastery of medical knowledge. Thus, it helps cultivate excellent nursing talents who possess both knowledge literacy and practical ability, as well as post competence. The structure of the DOPS assessment form includes basic information, scoring items, feedback comments, and satisfaction surveys.

Among them, the scoring items cover two parts: content such as medical knowledge, operational skills and more, and scoring standards; the feedback evaluation is a specific manifestation of two-way feedback between teachers and students, that is, teachers provide evaluations and suggestions based on the strengths and weaknesses of students in the assessment, and students can also express their own thoughts and opinions^[6]. For example, in the assessment of "closed intravenous infusion technology", the traditional evaluation model and the DOPS evaluation

model can be used respectively. Specifically, nurses are assessed on this nursing operation technology in the clinical skills center, where 2 teachers evaluate newly recruited nurses in accordance with the scoring standards for skill operation procedures. For nurses who have been employed for 2 months and 6 months respectively, their real operations are assessed in a real clinical environment at the bedside, and the DOPS evaluation is conducted. Later, it was found that in the traditional assessment method, the score of skill operation was rated as “exceeding the expected standard”, while the score of the DOPS assessment method, when converted to a 100-point scale (as shown in **Table 1**), was rated as “approaching or meeting the expected target” ^[7]. The DOPS evaluation system can more effectively identify problems in the behaviors and attitudes of new nurses, and is more in line with the assessment needs of the training model based on post capabilities.

Table 1. Evaluation and assessment results of dops for intravenous infusion technology among new employees in 2024

Serial No.	Pre-employment assessment	Pre-job training	2 months	2 months	6 months	6 months
Assessment method	Traditional assessment	Traditional assessment	DOPS (6-point scale)	Percentage system	DOPS (6-point scale)	Percentage system
Average score	89.2	91.3	3.87	64.56	4.14	68.92
1	90	91.5	3.93	65.50	4.31	71.82
2	89	91	3.69	61.50	4.25	70.83
3	89.5	90	3.87	64.50	4.25	70.83
4	88	90	3.88	64.67	4.15	69.17
5	88	92	3.9	65.00	4	66.67

3.2. Implementation strategies of problem-oriented teaching method

First, problem design. When designing problems, close alignment with clinical practice is essential. The goal of standardized nurse training is to address common and complex clinical nursing issues and improve service quality. Therefore, problem design can start with aspects such as patient condition assessment, emergency care, and complex wound management. Professional operation content should be integrated into problem scenarios to create a realistic clinical environment for nurses. This not only enhances their professional competence and problem-solving abilities but also helps them recognize the complexity and rigor of nursing work, thereby improving their professional ethics and achieving all-round development. Problems should also be designed in a progressive manner, from simple to complex, and from basic concepts to intricate scenarios. This guides nurses to conduct in-depth thinking and gradually cultivates their ability to independently analyze and solve problems ^[8].

In addition, interdisciplinary knowledge such as psychology can be incorporated into problem design to develop nurses' cross-professional analytical skills, enabling them to conduct comprehensive analysis when facing complex clinical environments. Second, teaching organization. In terms of teaching organization, a combination of group cooperation and individual inquiry is adopted. On one hand, nurses are divided into groups of 4–6 members. When forming groups, consideration should be given to complementary advantages such as different personalities and ability levels to facilitate mutual assistance and learning ^[9].

During group collaborative learning, teachers act as guides: they should strengthen guidance, provide timely feedback, and intervene appropriately when group discussions reach a deadlock or go in the wrong direction such as providing relevant materials, inspiring ideas, and correcting mistakes to prevent discussion deviations that may affect subsequent learning and evaluation. However, excessive intervention should be avoided to preserve nurses' initiative in learning. In the individual inquiry phase, teachers encourage nurses to think independently, search for information on their own, learn to analyze problems, extract key information, and find solutions. Nurses should

also record their insights and questions during the learning process to prepare for subsequent learning. Meanwhile, teachers should provide sufficient resources for nurses' learning, such as online databases, clinical case libraries, medical records of the hospital, and nursing records. These resources help nurses achieve a smooth transition between theoretical knowledge and practice, thereby better solving problems^[10].

The following is a comparison of the results of standardized nurse training using the problem-oriented method, which demonstrates the important role of the problem-oriented teaching model in improving training outcomes (as shown in **Table 2**).

Table 2. Score of PBL teaching model in standardized training for new nurses in the department of critical care medicine

Group	Research subjects/ Numbering Age: 25–35, Gender: Female	Training duration	Score assessment		Ability assessment	
			Theoretical Knowledge Score	Practical Operation Score	Self-directed Learning Ability Score	Problem- solving Ability
Observation Group	31	20 h	89.78 ± 1.56	88.68 ± 1.58	87.86 ± 1.42	88.65 ± 1.38
Control Group	31	20 h	71.63 ± 2.13	71.25 ± 2.06	70.68 ± 1.89	69.64 ± 2.05

Note: The difference between the two groups is statistically significant ($p < 0.05$).

3.3. Effective application of PBL combined with the DOPS evaluation model

When the PBL method is combined with the DOPS evaluation model in standardized nurse training, education always takes problem-solving as the core goal of evaluation. This approach provides more scientific assessment feedback and offers nurses practical operation suggestions that address real-world issues. It helps nurses quickly improve their practical competence in clinical operations, consolidate basic knowledge, and narrow the gap between theory and practice, thereby establishing a systematic and more comprehensive evaluation method^[11].

Firstly, in the process of formulating evaluation criteria, PBL should serve as the basis to set reasonable evaluation checkpoints, so as to meet the requirements of the DOPS evaluation model. For example, in the evaluation and assessment of “closed intravenous infusion technology”, a comprehensive assessment can be conducted across multiple checkpoints, including nursing plan development, pre-procedure preparation, operation process, and post-procedure collaboration. Meanwhile, DOPS is applied to score nurses in various dimensions such as operational skills, communication proficiency, and clinical responsiveness. This assesses their performance in real clinical settings and achieves the training goal of centering assessments on competencies like problem-solving. Evaluation feedback is a key driver for improving nurses' nursing capabilities. Based on DOPS evaluation feedback, instructors can guide nurses to reflect on shortcomings in the problem-solving process. For instance, if a nurse identifies a new issue during the nursing operation for a certain disease, they should re-analyze the problem, explore new solutions, and further refine the problem-solving plan. Additionally, combining evaluation feedback to expand nurses' knowledge scope, if it is pointed out that a nurse lacks knowledge about the nursing of a rare disease, relevant thematic learning sessions should be organized, and nurses should be encouraged to research the latest advancements in the disease and apply new knowledge to solving similar problems^[12].

The dynamic adjustment of teaching and evaluation ensures the continuous optimization of their combined application. The teaching team and evaluation team communicate regularly, sharing information about nurses' performance in problem-solving and evaluation results. The teaching team adjusts the focus and methods of teaching content based on evaluation feedback, while the evaluation team optimizes evaluation indicators and criteria with reference to teaching objectives and processes, achieving mutual promotion. Furthermore, opinions and suggestions from nurses regarding teaching and evaluation are collected regularly, training effect data are

analyzed, experiences and lessons are summarized, and teaching and evaluation strategies are continuously optimized to enhance the quality of standardized nurse training^[13].

The teaching team not only adjusts the focus of teaching content and teaching methods accurately based on evaluation feedback but also optimizes evaluation indicators and criteria with reference to teaching objectives and processes, making them more in line with actual teaching needs and realizing the mutual promotion of teaching and evaluation. In addition, nurses' opinions and suggestions on teaching and evaluation are collected regularly, training effect data are comprehensively analyzed, experiences and lessons are summarized from practice, and teaching and evaluation strategies are constantly optimized^[14].

In summary, both the design of problems and guidance methods in the teaching process, as well as the indicator setting and evaluation procedures of the DOPS evaluation model, are continuously improved to adapt to the development needs of standardized nurse training. This effectively enhances the quality of standardized nurse training and lays a solid foundation for cultivating high-quality nursing professionals. At the same time, the teaching team should conduct regular communications to share information about nurses' performance in problem-solving and evaluation results.

4. Conclusion

To sum up, the application of the PBL method combined with the DOPS evaluation model in standardized nurse training plays a positive role in improving nurses' professional skills, professional ethics, and clinical adaptability. It is an important means of cultivating high-quality nursing professionals. Instructors should deeply understand the concepts, characteristics, and contemporary value of these two teaching and evaluation approaches, apply them flexibly, and build a complete standardized nurse training system. This will realize the organic integration of theory and practice, comprehensively improve nurses' overall quality, maximize training effectiveness, and contribute to the cultivation of high-quality nursing talents and the promotion of high-quality development of the nursing profession^[15].

Disclosure statement

The author declares no conflict of interest.

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