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The Effectiveness of Flipped Classroom Teaching in Surgical Nursing Education

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Abstract: Surgical nursing education has long grappled with a tension between traditional lecture-based models and actual practice needs. Students have difficulty converting theory into functional nursing skills in the passive format of knowledge acquisition. As medical education concepts have been renewed, the goals of educating nursing talents with independent judgment and adaptability to clinical practice have evolved into a significant direction of teaching reform. To this end, the "flipped classroom" model that blends lecture with discussion, through the mechanism of "internalized absorption" and "discussion" in the classroom, represents both a new teaching model that meets the need for integration of surgical nursing knowledge and an approach to skill application. This model reconstructs the teaching and learning process by providing a bridge for students to transfer from understanding knowledge to clinical thinking, thus providing a path forward for the dilemma of the separation of theory and practice in surgical nursing education.

Keywords: Flipped classroom; Surgical nursing teaching; Application effect

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1. Introduction

A significant contradiction appears in the present education of surgical nursing students: despite their ability to memorize considerable theory, they exhibit a lack of analytical skills and confidence when any clinical situation arises. This contradiction is evidence that one-way indoctrination teaching can be limited in its ability to transform a learner's learning into appropriate abilities. The flipped classroom, containing three stages, involves imparting knowledge, internalization and absorption, and group discussion. Its essence is to stimulate the learner's ability to engage in active knowledge construction. Surgical nursing is intricately dependent on complex disease diagnoses and emergency treatment, and so learners in the field should possess those high-order thinking skills. The delayed discussion design in the flipped classroom specifically builds a buffer space for incubating clinical thinking. This teaching model reform addresses more than merely the efficiency of knowledge transfer; it engages the deeper transformation of the true essence of nursing education from a focus on training skills to educating for the full breadth of literacy.

2. Theoretical basis for applying the flipped classroom model in surgical nursing education

2.1. Core elements and key components of the flipped classroom model

The flipped classroom teaching model presents a clear time structure division, with its core components consisting of three organic parts: the teacher's intensive lecture, students' internalization and absorption, and discussion in the next class. In the first part, teachers need to accurately refine the core concepts and clinical knowledge framework of surgical nursing courses, such as condensing explanations around key steps of perioperative nursing or observation points of complications. Students then enter an independent internalization stage, where they consult nursing case materials and organize personal study notes based on the classroom lectures. This process encourages them to actively construct a logical system of surgical nursing knowledge. The discussion in the next class is designed as a student group exchange and teacher-student interaction session, where students conduct clinical scenario simulation analysis based on the questions accumulated during the previous internalization stage, while teachers guide the direction of thinking in a timely manner according to the discussion situation [1]. This model forms a unique teaching rhythm through time isolation and task decomposition, maintaining the efficiency of knowledge transfer while leaving sufficient space for students to explore independently. Its structural design implicitly follows the gradual law of surgical nursing ability formation.

2.2. Disciplinary characteristics and competency development requirements in surgical nursing education

The core task of surgical nursing teaching lies in cultivating learners' ability to transform systematic medical knowledge into clinical practice. This process requires that teaching arrangements must balance the integration of theoretical knowledge and the response to clinical situations. The subject's knowledge system encompasses a vast array of anatomical locations and operational norms that require precise memorization, such as the nursing essentials for different surgical incisions or the maintenance standards for various drainage tubes. These contents constitute the basic framework of surgical nursing ability. The observation of dynamically changing conditions and emergency management reflects the requirements for ability cultivation in the subject. Students need to develop the ability to flexibly adjust standardized nursing procedures to individual cases. The actual work pace in surgical wards requires nursing staff to prioritize multiple tasks within a limited time frame [2]. The cultivation of this decision-making ability must be integrated throughout the entire teaching process. During the teaching process, special attention should also be paid to the adaptation span of students from theoretical learning to clinical practice, helping them build professional confidence and emergency preparedness when facing complex conditions. These subject characteristics determine that surgical nursing teaching cannot stop at knowledge impartation, but should construct a training environment that simulates the clinical decision-making process.

2.3. Analysis of the intrinsic compatibility between the flipped classroom model and surgical nursing education

The time structure arrangement of the flipped classroom naturally aligns with the gradual pattern of surgical nursing ability formation. The teacher's intensive lecture ensures that students grasp core knowledge frameworks, such as operating room nursing procedures or wound assessment standards, laying the foundation for subsequent ability development. During the internalization and absorption phase, students independently think through typical surgical cases, simulating the complete cognitive activity from information collection to

preliminary judgment in clinical practice. The discussion in the next class creates a communication context that replicates the team collaboration scene during hospital handovers or nursing rounds, allowing learners to practice clinical reasoning skills by explaining the rationale behind nursing plans. The surgical nursing teaching emphasizes a balance between operational standardization and thinking flexibility in the precise design of the flipped classroom. The knowledge internalization phase cultivates a rigorous attitude towards standardized operations, while the discussion phase trains adaptability to changes in patient conditions. The teaching model provides a gradual transformation path for the unique knowledge types of surgical nursing, naturally integrating abstract theories into the problem-solving process within nursing contexts [3].

3. Optimized application pathways for the flipped classroom in surgical nursing education

3.1. Precision teaching design guided by core knowledge points

Precision-based teaching design should identify core knowledge points based on surgical nursing curriculum standards and clinical practice requirements, such as making aseptic operating principles in the operating room or postoperative complication observation indicators the focus of teaching. Teachers need to highlight the logical connections between these knowledge points during the intensive lecture phase, using clinical typical cases to explain the theoretical basis of surgical patient care. The development of task sheets should be centered around core knowledge points, designing well-structured learning tasks to guide students from memorizing basic concepts to analyzing complex nursing situations. During the internalization phase, students are arranged to organize surgical nursing notes or draw mind maps to help them establish a networked structure of surgical nursing knowledge. In the class-to-class discussion phase, students are organized to debate dilemmas in clinical situations, such as choosing the best decision for pain management schemes for different types of surgical patients. The entire teaching design forms a complete chain from knowledge understanding to clinical application, with each link focusing on the gradual formation of key surgical nursing abilities [4].

3.2. Strategies for transforming teacher-student roles and enhancing comprehensive competencies

The role of teachers needs to shift from being knowledge transmitters to being designers and facilitators of the learning process, focusing on elucidating key theories and technical difficulties in surgical nursing during the intensive lecture segment. Students should become active participants in knowledge construction, independently completing clinical case analysis and forming personal insights during the internalization stage. Teachers design a tiered question chain to guide students in in-depth discussions on topics such as postoperative infection prevention, observing students' clinical thinking trajectories during the discussion, and providing timely guidance. Students need to assume different roles and tasks in group collaboration, simulating the cooperation mode of clinical nursing teams to cultivate communication and coordination skills. Teachers provide personalized guidance based on students' discussion performance, giving targeted feedback on specific knowledge points such as wound assessment standards. Students reflect on their learning gains by writing reflection journals, integrating fragmented nursing knowledge points into systematic clinical decision-making abilities. The transformation of the teacher-student interaction mode has shifted the focus of teaching from simple memorization to the comprehensive improvement of core competencies in surgical nursing. This bidirectional growth relationship helps to build a closer teaching community [5].

3.3. Development and application of modular learning resources and task sheets

The teaching team should develop modular learning resources with a clear structure based on the surgical nursing knowledge system, dividing core content such as operating room nursing, wound management, and perioperative monitoring into independent units. Each module needs to integrate diverse materials such as clinical operation videos, typical case analyses, and the latest nursing guidelines to form a complete knowledge map. The task list design should reflect a gradual learning path, setting different levels of learning tasks from basic concept understanding to complex situational application. Students use the module resources to complete the knowledge internalization stage of learning, organizing nursing points for surgical patients, or analyzing observation indicators of postoperative complications according to the requirements of the task list. The classroom discussion session revolves around the focal issues in the module, such as group debates on nursing plans for different types of surgical wounds. The module resource library needs to be continuously supplemented with real-life cases from clinical practice, keeping pace with the development of surgical nursing techniques. The task list should leave room for personalized adjustments during implementation, allowing students to choose expansive learning content based on their own learning progress. The entire resource system and task system form a solid foundation supporting the implementation of the flipped classroom approach, maintaining the organic unity of systematicity and flexibility in surgical nursing teaching.

3.4. Reform of multi-dimensional assessment throughout the teaching process

The assessment and evaluation system should break through the limitations of traditional final exams and construct a whole-process evaluation framework covering knowledge internalization, classroom discussion, and practical application. Teachers need to design detailed observation record forms to track students' clinical thinking trajectories and problem-solving abilities demonstrated during classroom discussions. Student personal learning portfolios include various learning outcomes ranging from note-taking to case analysis, reflecting the complete process of their knowledge construction. The peer evaluation mechanism introduces a group cooperation scenario, allowing students to evaluate each other's contributions in simulated nursing teams based on clear criteria [6]. The clinical skills assessment requires the creation of a scenario close to a real hospital ward to observe students' mastery of surgical instrument preparation and aseptic operation standards. Periodic theoretical tests focus on assessing the ability to integrate and apply surgical nursing knowledge, using clinical situational questions to test students' decision-making and analysis skills. Evaluation feedback should be timely and specific, providing suggestions for improvement in operations such as wound assessment or drainage tube care. Various assessment data are ultimately aggregated into a comprehensive ability profile, clearly presenting each student's development trajectory in terms of knowledge, skills, and professional qualities.

3.5. Implementation conditions, quality assurance, and continuous improvement mechanisms

Teaching units need to establish a systematic teacher development support system and regularly conduct specialized research activities that combine the operational processes of the flipped classroom with the characteristics of surgical nursing teaching. School management departments should provide smart classrooms and simulated operating room environments suitable for group discussions, and offer high-definition recording and broadcasting equipment to capture students' operational details. Course teams need to establish clear teaching quality monitoring standards, encompassing key indicators ranging from classroom interaction quality to the transformation of clinical skills. A feedback mechanism involving both teachers and students collects practical issues encountered during the teaching process, such as the difficulty of setting task lists or the rationality

of discussion time allocation. Teaching supervisors analyze classroom teaching effectiveness based on observation records and provide specific case references for teachers to improve their teaching strategies. The update and maintenance of the module resource library requires the establishment of a clinical expert review process to ensure that the introduced case materials comply with current surgical nursing practice standards. Students' final comprehensive evaluation data reflect the weak links in course design, guiding the optimization and adjustment of subsequent teaching content. Regular teaching reflection meetings summarize and analyze various implementation issues, forming a complete improvement loop from problem identification to solution implementation. The entire support system maintains a dynamic adjustment characteristic, continuously improving each link based on the development of surgical nursing technology and teaching feedback [7].

4. Evaluation and analysis of flipped classroom outcomes

4.1. Changes in student initiative and classroom engagement

The implementation of the flipped classroom approach has prompted significant changes in students' learning initiative. During the pre-class preparation stage, students began to actively consult literature related to surgical patient care. The participation pattern in classroom discussion sessions shifted from passive response to active speaking, with group representatives able to clearly articulate their group's nursing perspectives on complex cases. Teacher observation records showed that students exhibited a stronger willingness to explore during wound assessment simulation exercises, actively trying different combinations of assessment methods. The effective utilization rate of extracurricular study time has been improved, with students spontaneously organizing study group discussions on the observation points of postoperative complications. The quality of classroom interaction has significantly improved, with students gradually shifting their questions from basic concept understanding to a clinical decision-making basis. The internalization trend of learning motivation is reflected in the transformation of students' note content, from simply recording key knowledge to annotating personal thoughts and questions. Student feedback in the peer evaluation session is more specific and in-depth, and is able to provide constructive suggestions for improving nursing plans. The intellectual collisions during classroom discussions stimulate students' interest in continuous exploration, with some students continuing to delve into the specialized nursing challenges covered in class after class. This shift in learning state extends to the clinical internship stage, where students demonstrate a stronger sense of active learning in real nursing scenarios [8].

4.2. Effects on theoretical knowledge mastery and clinical skill enhancement

The implementation of the flipped classroom approach has led to significant progress in students' knowledge acquisition and skill transformation. Theoretical test results reflect that students have developed a more systematic understanding of perioperative nursing essentials and can accurately grasp the observation indicators and treatment principles for postoperative complications. Clinical instructors have noticed that students exhibit a solid operational foundation from the early stages of their internship, performing aseptic technique standards and wound care procedures with greater methodicalness. Case analysis assignments demonstrate students' flexible application of theoretical knowledge, enabling them to develop personalized nursing plans based on specific surgical types. Performance in simulation training verifies the improvement in skill proficiency, with students maintaining standardized operational procedures even in complex situations. Clinical assessment data show that students perform calmly in emergency situations, able to adjust nursing measures promptly according to changes in patient conditions. Feedback from internship hospitals indicates that students integrate

into the clinical work environment more quickly and collaborate and communicate more smoothly with the medical team. The connection between theoretical teaching and clinical practice has significantly improved, with students demonstrating appropriate professionalism when facing real patients [9]. The effectiveness of the knowledge internalization process is reflected in students' ability to transfer classroom learning to new clinical scenarios, demonstrating strong adaptability. This teaching model helps students build a learning experience that integrates knowledge with practice, laying a solid foundation for future career development.

4.3. Development of clinical decision-making and critical thinking abilities

Students have demonstrated more comprehensive information integration skills in clinical case analysis, able to extract key clues from patient history, physical signs, and laboratory test results. Case analysis assignments show that students are beginning to focus on the theoretical basis of nursing interventions, actively consulting literature to support their decision-making plans. During classroom discussions, more critical viewpoints have emerged, and students have proposed improvement suggestions based on evidence-based medicine for conventional nursing schemes. Clinical internship instructors have observed that students can accurately summarize the key points of the patient's condition during shift handovers and propose reasonable nursing hypotheses. In simulated teaching scenarios, students have shown a stronger awareness of risk assessment, considering possible complications and preventive measures before performing operations. Case discussion records reflect that students are gradually developing a habit of thinking from multiple perspectives, able to simultaneously pay attention to the impact of physiological indicators and psychosocial factors on patients. In the process of developing nursing plans, students pay more attention to individualization of the plan, able to adjust standardized processes based on the type of surgery and patient characteristics. During clinical thinking, students demonstrate better logical coherence, able to clearly elaborate on the causal relationship between various nursing interventions. The content of reflection journals indicates that students are beginning to pay attention to the limitations of their own decisions and actively seek ways to improve clinical reasoning. This improvement in thinking ability enables students to maintain a clear judgment when facing complex cases, laying the foundation for becoming qualified clinical nursing personnel [10].

4.4. Survey analysis of teaching satisfaction and acceptance

The questionnaire survey collected positive feedback from students regarding the reform of the teaching mode. Most students believed that the cross-class discussion sessions helped them better understand the difficulties in nursing surgical patients. In the open-ended questions, students mentioned that the task list design made learning objectives more explicit, especially providing clear guidance on wound assessment and pain management. Teacher observation records showed that students' engagement in case discussions exceeded expectations, and they were able to engage in in-depth discussions around complex nursing issues. Course evaluation data reflected that students' acceptance of this teaching method remained at a high level, and they believed that the autonomous learning space provided during the knowledge internalization stage facilitated personalized development. Some students suggested increasing opportunities for group discussions in simulated clinical scenarios, hoping to further enhance their decision-making abilities through practice. Teacher interview data indicated that the teaching team recognized the value of this mode in cultivating students' clinical thinking, especially its significant effectiveness in improving students' ability to analyze nursing problems. Student evaluations mentioned that the classroom atmosphere became livelier, and the exchange of ideas among peers sparked their interest in exploring professional knowledge. Follow-up surveys found that students maintained a

positive evaluation of this teaching mode even after entering clinical practice, believing that the content learned could effectively guide their actual work [11].

4.5. Long-term impact and sustainability of the teaching model

Graduate follow-up surveys show that nursing personnel trained in the flipped classroom demonstrate stronger problem-identifying abilities in clinical work and are capable of independently handling common postoperative nursing issues. The continuous enrichment of the teaching resource library provides a solid foundation for curriculum development, and the typical cases and teaching reflections accumulated over the years constitute valuable school-based resources. The teaching team has gradually formed a stable cooperation model in teaching practice, continuously improving the operational details of the flipped classroom through regular teaching and research activities. The flexibility of the curriculum allows for timely adjustments to teaching content based on the development of surgical nursing techniques, maintaining synchronization with clinical practice. The continuous records of student learning profiles provide empirical evidence for optimizing teaching models, helping teachers accurately identify areas for improvement in each teaching link. The hospital feedback mechanism has established a school-hospital cooperation channel, promoting a deep alignment between teaching content and clinical needs, with employer evaluations becoming an important reference for curriculum adjustments. The virtuous cycle of teacher-student interaction drives the continuous optimization of teaching strategies, and students' active participation in classroom construction injects lasting vitality into the curriculum. The support of the teaching management system ensures the stability of the implementation of the flipped classroom, gradually moving it from pilot exploration to normalized operation.

5. Conclusion

The implementation of the flipped classroom in surgical nursing has demonstrated its distinct worth as a method to convert knowledge into action. Students progressively progress from being receivers of knowledge to being active investigators of clinical issues. This change can be seen in terms of their calmer responses to the uncertainty of clinical practice and more developed abilities with critical thinking and decision making. The successful transition of the teaching style rests on teachers managing the pace of the lesson accurately and collaboratively revising an evaluative system. It is only when a complete closed loop of teaching, learning, and evaluation is formed that the educational experience can provide the opportunity for continual improvements. Moving forward, surgical nursing education must continue to deepen the integration of the flipped classroom with clinical practice, in an effort to make the classroom a rich development ground for great nursing talent.

Disclosure statement

The author declares no conflict of interest.

References

[1] Ogunlowo SO, Ajibade BL, 2024, Investigating the Differential Efficacy of Lecture and Demonstration Teaching Methods in Teaching Medical-Surgical Nursing Among Nursing Students. BMC Nursing, 23(1): 9–11.

[2] Song M, Xu L, Li J, et al., 2024, Application Research of SPOC Split-Classroom Blended Teaching Method Based on Digital Teaching Resources in Surgical Nursing Practice Instruction. Modern Medicine and Health, 40(17):

3037–3041.

[3] Cheng L, Feng S, Sun Z, 2020, Systematic Evaluation of the Application Effectiveness of Split-Classroom Teaching in Undergraduate Nursing Education. Journal of Nurse Education, 35(23): 2193–2198.

[4] Yang X, Zhang Q, 2019, Application of Team-Based Learning (TBL) Methodology Based on Split Classroom in Surgical Nursing Education. Modern Vocational Education, (36): 160–161.

[5] Lv H, Tang L, Luo G, et al., 2024, Rain Classroom and PAD Class Blended Learning Mode Effectively Improves Teaching Quality in a Surgical Nursing Course. American Journal of Translational Research, 16(1): 8.

[6] Haji Abad AF, Keshmiri F, Jabinian F, et al., 2025, Micro-Learning and Mindtools in Mobile-Learning (M-Learning): Effects on Knowledge and Self-Efficacy in Laparoscopy Education for Surgical Nursing Students. BMC nursing, 24(1): 202.

[7] Yilmaz CA, Baş SN, Aygin D, 2024, Determining the Effectiveness of Various Active Learning Methods on Surgical Nursing Education: A Quasi-Experimental Study. Teaching and Learning in Nursing, 19(3): e471–e476.

[8] Perihan S, Çakır OG, Ertürk YM, et al., 2023, Exploration of Nursing Students' Views on the Theory-Practice Gap in Surgical Nursing Education and Its Relationship with Attitudes Towards the Profession and Evidence-Based Practice. Nurse Education in Practice, 69: 103623–103624.

[9] Jamie H, Megan H, 2020, Facilitating Multiple Medical-Surgical Nursing Practicum Groups During Simulation Laboratory Days. Nursing Education Perspectives, 2020: 5.

[10] Liu H, 2024, Design of the Special Children Rehabilitation Department in a Tiered Disability Rehabilitation Center Based on Class-Based Instruction Concepts: A Case Study of the Children's Rehabilitation Area at the Guangdong Provincial Rehabilitation Base for Persons with Disabilities. Urban Architecture, 21(22): 153–156.

[11] Qiu H, 2024, Implementation and Strategy Exploration of Differentiated Instruction in Vocational Education Classroom Teaching. Journal of Multimedia and Network Teaching in China (Mid-Month Edition), (02): 111–114.