

Design and Practice of Tiered Learning Objectives for Secondary Vocational Surgical Nursing Courses Based on OBE

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Abstract

Objective To explore solutions to teaching dilemmas arising from uneven learning competency levels among students in secondary vocational nursing programs, unclear teaching objectives, low course interest, and high learning anxiety and stress levels. **Methods** Based on the OBE (Outcome-Based Education) philosophy and combined with the practical requirements of surgical nursing course instruction, tiered teaching objectives were designed, implemented, and analyzed for the secondary vocational nursing course 'Surgical Nursing'. **Results** Following the design of tiered teaching objectives, students demonstrated clear learning objectives, increased course interest, enhanced classroom enjoyment, and reduced learning anxiety and stress levels. **Conclusion** The tiered teaching objectives based on the OBE philosophy have produced positive effects in promoting the cultivation of learning habits, enhancing learning motivation, and increasing students' sense of success and pleasure. This approach is conducive to improving the teaching quality of secondary vocational surgical nursing courses and provides a valuable reference for cultivating high-quality nursing professionals.

Full Text

Design and Practice of Layered Teaching Objectives for Vocational Surgical Nursing Curriculum Based on OBE Concept

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Abstract Objective: To explore solutions for teaching challenges in vocational nursing programs, including uneven student learning capabilities, unclear teaching objectives, low curriculum interest, and high levels of learning anxiety and

stress. Method: Grounded in the OBE educational philosophy and tailored to the practical demands of surgical nursing instruction, we designed, implemented, and evaluated stratified teaching objectives for the *Surgical Nursing* course in vocational nursing programs. Result: Following the implementation of stratified teaching objectives, students demonstrated clearer learning goals, heightened interest in the course, increased classroom engagement, and reduced levels of learning anxiety and stress. Conclusion: The stratified teaching objectives rooted in the OBE concept play a positive role in fostering learning habits, boosting motivation, and enhancing students' feelings of success and accomplishment. They are instrumental in improving the quality of surgical nursing education in vocational institutions and offer valuable insights for nurturing high-caliber nursing professionals.

[**Keywords**] OBE concept; surgical nursing; layered teaching objectives; curriculum design

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1.1 Challenges and Dilemmas in Vocational Nursing Education

The primary objectives of vocational nursing education in China are to prepare students for advanced studies in higher vocational colleges and to serve community-based primary healthcare. To meet the demands of the new era, teaching effectiveness must be further improved, yet implementation has encountered significant bottlenecks. The main challenges are twofold. First, regarding student demographics, entrance examination scores are generally low with substantial variation, resulting in considerable disparities in learning capabilities within the same cohort. This heterogeneity lowers the overall standard of teaching and learning, with comparative data showing a declining trend in course performance relative to previous years. Second, survey data reveal high levels of learning anxiety and stress, primarily because students lack clear learning objectives and direction, coupled with insufficient interest and motivation, which subjectively undermines teaching and learning outcomes.

As nursing educators in vocational schools, we must adhere to the principle of “flexible admission with rigorous graduation” and seek breakthrough teaching methodologies. Guiding students toward clear learning directions, clarifying their objectives, enhancing curriculum interest, and mitigating the challenges posed by ability disparities to ultimately achieve nursing talent development goals represent a new challenge for vocational nursing education.

1.2 Analysis and Transformation to Overcome Challenges

Through collective teaching research conducted by our school's OBE research group, we integrated the “begin with the end in mind” principle from Outcome-

Based Education (OBE) [?][?] with learning motivation theory [?] to transform traditional “one-size-fits-all” teaching objectives. We selected the core professional course *Surgical Nursing* as a pilot to implement classroom-level stratified teaching objectives. This approach uses differentiated targets to accommodate students with varying learning abilities and motivations, thereby eliminating the negative impact of heterogeneous ability levels on teaching effectiveness and enabling every student to learn at an appropriate level. Simultaneously, we restructured objective descriptions to be student-centered, helping learners clearly articulate what they should do and how to do it in each lesson, thereby increasing interest and enhancing teaching outcomes.

2.1 Clarifying Design Principles

Grounded in OBE philosophy and aligned with the characteristics of surgical nursing and student needs, we established “simple, efficient, collaborative, and dynamic” as our guiding principles. First, we considered student acceptance and teacher compliance, designing a simple, universally applicable, and detailed objective template that could be applied across all course chapters to reduce teacher workload and facilitate implementation. Second, we emphasized teacher-student collaboration, following a “learning-centered, teaching-assisted” approach where objectives are co-developed by both parties. Third, we stressed dynamic updating, allowing students to select different objective levels for different content and units to accommodate continuous improvement. Finally, we emphasized timely feedback, requiring teachers to provide positive, prompt, and effective observations and feedback to continuously optimize teaching objectives.

2.2 Designing Layered Teaching Objectives

Following Bloom’s Taxonomy of Educational Objectives [?], we designed three progressive levels: basic, advanced, and climbing. The basic level focuses on fundamental knowledge and skills mastery for competency attainment. The advanced level emphasizes comprehensive application abilities, requiring students to build upon basic objectives by developing analytical and problem-solving skills through real case analysis. The climbing level targets critical thinking and innovation, demanding in-depth study and research to cultivate pioneering abilities and rigorous scientific spirit [?]. Additionally, objective descriptions were shifted to first-person perspective to emphasize student agency in “how will I learn? What will I do?”

2.3 Reshaping Layered Objectives for Different Course Types

We developed separate objective frameworks for theoretical and practical sessions, creating complementary and mutually reinforcing systems to achieve synergistic effects [?].

2.3.1 Practical Session Objective Design Each practical lesson’s objectives are subdivided into three dimensions: competency, knowledge, and ability.

The basic level (60-79 points) aims for competency, requiring independent completion of fundamental operations as the passing standard. The advanced level (80-89 points) demands fluent, script-free performance as the good standard. The climbing level (90-100 points) requires students to actively demonstrate operations for peers and showcase skills at nursing competition standards as the excellent standard (see Table 1).

2.3.2 Theory Session Objective Design For theoretical courses, we used the National Nurse Licensing Examination as our 硬性 outcome goal to 逆向 engineer objective design. Basic objectives require correct completion of A1, A2, A3, and A4 type questions. Advanced objectives involve mastering chapter content to complete fill-in-the-blank and short-answer questions. Climbing objectives demand integration across chapters, self-summarization, and the ability to create presentations to share and explain content with teachers and classmates (see Table 2).

Table 1: Layered Teaching Objective Design for “Operating Room Nursing” Practical Session

Dimension	Original Objective Description	OBE-Based Layered Objectives	Specific Descriptions by Level
Competency	Cultivate hands-on ability and cooperative spirit; establish strict aseptic concepts	60-79 points: I can participate in learning, cooperate with classmates, and gradually develop aseptic concepts. 80-89 points: I can actively participate, cooperate harmoniously, and demonstrate strong aseptic concepts. 90-100 points: I can proactively learn ahead and help classmates; strictly adhere to aseptic principles and identify violations.	

Dimension	Original Objective Description	OBE-Based Layered Objectives	Specific Descriptions by Level
Knowledge	Master principles, methods, and procedures of operating room aseptic technique	60-79 points: I know the purpose, methods, and procedures. 80-89 points: I can verbally articulate the purpose, methods, and procedures. 90-100 points: I can explain the purpose, methods, and procedures to classmates.	
Ability	Master sterile techniques for surgical personnel	60-79 points: I can independently perform hand washing and gowning. 80-89 points: I can proficiently perform hand washing and gowning. 90-100 points: I can demonstrate and explain details and precautions to classmates.	

Scoring Rules:

1. The average score across competency, knowledge, and ability dimensions constitutes the lesson score.
2. Students who fail to meet self-selected objectives receive the score of the previous level.
3. Students failing to meet basic objectives receive zero points and must retake the lesson, with the retake score recorded as 60 points.

Table 2: Layered Teaching Objective Design for “Breast Cancer Patient Nursing” Theory Session

Dimension	Original Objective Description	OBE-Based Layered Objectives	Specific Descriptions by Level	Assessment Method
Competency	Provide patient-centered care and privacy protection	60-79 points: I can empathize with patients.80-89 points: I can attend to patient feelings and provide timely comfort.90-100 points: I can accurately assess patient feelings, provide effective comfort, and protect privacy in professional practice.	Licensing exam multiple-choice questions (60-79 points)	
Knowledge	Master etiology and nursing assessment of breast cancer	60-79 points: I know the etiology and assessment.80-89 points: I can narrate the etiology and assessment.90-100 points: I can create presentations to explain etiology and assessment.	Multiple-choice + fill-in + short answer (80-89 points)	

Dimension	Original Objective Description	OBE-Based Layered Objectives	Specific Descriptions by Level	Assessment Method
Ability	Master nursing diagnoses and interventions	60-79 points: I know the nursing diagnoses and interventions.80-89 points: I can narrate the nursing diagnoses and interventions.90-100 points: I can explain diagnoses/interventions and provide health education.	Multiple-choice + fill-in + short answer + video/oral analysis (90-100 points)	

Scoring Rules: Same as Table 1.

3.1 Implementation Steps

Before class, teachers announce the preset layered objectives, allowing students to self-select and register their choices within five minutes. Classroom instruction proceeds according to the original teaching plan. Post-class assessments include tests, self-evaluation, peer evaluation, and teacher evaluation to verify objective achievement. Drawing from gaming reward mechanisms, course credits are adjusted immediately upon meeting objectives, providing students with direct, timely, and effective feedback and encouragement.

Students who fail to meet objectives are assigned to remedial study, supervised by high-achieving peers during self-study periods until competency is achieved. Students who actively assist peers can earn volunteer hours redeemable for preferential treatment such as bonus conduct points or exemption from classroom duties.

3.2 Continuous Optimization

Continuous optimization represents another crucial OBE principle. Leveraging data from an online learning platform, we dynamically adjust objectives and teaching methods based on actual student performance and feedback. Since learning is the central focus, we prioritize student feedback in several ways: if basic-level students show low pass rates, we slow instruction pace and provide

targeted tutoring; if advanced-level selections decline, we adjust teaching methods to facilitate success; if climbing-level selections increase, we appropriately raise objective difficulty. This flexible adjustment ensures objectives remain targeted and effective.

4.1 Observation Indicators

The experiment involved 119 female students from two vocational nursing classes (Classes 9 and 10, 2022 cohort) in a large-lecture setting. Traditional teaching objectives were used during weeks 1-8 of the second semester in 2023, followed by layered objectives during weeks 9-16. Data were collected through pre- and post-experiment questionnaires, full-classroom video recordings, and learning platform analytics for comparative analysis.

Learning interest was measured through participation rates, classroom interaction, group collaboration, preview/review habits, assignment completion, and autonomous learning time. Course satisfaction, learning anxiety/stress levels, and sense of achievement were assessed via self-report questionnaires. Results comparing pre- and post-intervention indicators are presented in Table 3.

4.2 Results

Table 3: Analysis of Observation Indicators Before and After Layered Teaching Implementation

Indicator	Pre-Experiment (n=119)	Post-Experiment (n=119)
1. Classroom Performance		
In-class drowsiness rate	8.41%	2.52%
2. Classroom Interaction	Average 15.52 students per lesson	Average 67.30 students per lesson
3. Group Collaboration	Average 33.61 students per lesson	Average 92.43 students per lesson
4. Preview & Review	64.10% completion rate	90.77% completion rate
5. Assignment Quality	Some plagiarism observed	Innovative assignments emerged
6. Test Scores		

Indicator	Pre-Experiment (n=119)	Post-Experiment (n=119)
Assignment completion rate	67.22%	96.63%
Test average	45.66 points	75.78 points
Excellence rate	0.54%	10.51%
7. Self-Assessment		
Course satisfaction	64.10%	90.77%
Learning interest score (out of 100)	65 points	90.77 points
Learning anxiety/stress (30-150 scale)	105 points	67.22 points
Sense of achievement (negative responses)	57.89%	0.57%
Intrinsic motivation (primary driver)	39.49%	67.22%
8. Autonomous Learning Time	111 students	90.77% of students

Experimental Results: Students demonstrated significantly enhanced interest in course content, evidenced by higher participation, more active interaction, and proactive learning attitudes. Intrinsic learning motivation increased substantially, with students actively seeking knowledge and exploring new domains rather than relying solely on external rewards. The continuous achievement of objectives strengthened students' sense of success, effectively alleviating learning anxiety and stress, enabling them to face challenges with more positive attitudes. The OBE-based layered teaching objectives positively impacted learning habit formation, motivation enhancement, and increased student success satisfaction.

5.1 Discussion

The practice revealed that during the early experimental phase, 70.58% of students selected basic objectives, 23.53% chose advanced, and only 5.89% selected

climbing objectives. After one month, this structure shifted significantly (see Figure 1 [Figure 1: see original paper]): advanced selections increased to 53.78%, and climbing selections rose to 12.61%, stabilizing thereafter. Course satisfaction reached 90.77% with a 100% objective achievement rate. These data indicate that under teacher guidance, students' intrinsic motivation was actively mobilized, and their self-improvement awareness gradually strengthened. OBE-based layered teaching objectives effectively improve vocational surgical nursing education quality and facilitate nursing talent development goals.

5.2 Outlook

The positive impact of OBE-based layered teaching objectives on educational effectiveness is evident. Beyond refining teaching objectives, our team increased the weight of process-based assessment to 40% for classroom achievement, 20% for chapter quizzes, and 40% for periodic examinations (see Figure 2 [Figure 2: see original paper]). This evaluation approach emphasizes learning experience and participation, allowing students to secure 60% of course credits through attentive class participation and objective completion, significantly boosting motivation—a crucial factor for successful implementation. However, we identified limitations in current data collection systems regarding convenience, which we aim to address in future research.

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