

## Research on Nursing Education Based on Turnover Classroom

Meiqin Zhang, Hongmei Tang\*, Huiyun Zhao, Shi Tang, Dan Li, Yuxiao Liu

Shanghai University of Medicine & Health Sciences, Shanghai, 201318, China

\*Corresponding Author

**Keywords:** Turn over the classroom, Nursing education, Teaching

**Abstract:** With the development of information technology, more and more educators use “micro-class”, “curtain class” and “flip class” in teaching to adapt to the development of modern education and the needs of students. In this paper, 60 nursing undergraduates were selected and divided into an experimental group and a control group by drawing lots. The experimental group has 30 students and the control group has 30 students, all of whom are girls. Using traditional teaching methods, the experimental group and the control group are taught by the same teacher, ensuring the same teaching hours, teaching progress and main contents. Statistical analysis of students' examination results and questionnaire survey were conducted to evaluate the teaching effect. The results showed that the final examination results of the experimental group were better than those of the control group, and 98.39% of the students in the experimental group affirmed the teaching method. The conclusion shows that the teaching mode based on flip class improves students' performance, cultivates students' self-study ability and is beneficial to teachers' professional growth.

### 1. Introduction

At present, mankind has entered the information age marked by computers, multimedia and the Internet. Information technology has penetrated into all aspects of social life and economic development. Education for all, quality education, quality education, personalized learning and lifelong learning have become important features of education development in the information age. Micro-class is a kind of micro-class relative to regular class, which is used to teach a single knowledge point or break through a certain teaching problem. Usually, short videos are used as teaching materials. Students can preview and review through micro-class to realize autonomous learning [2]. The traditional teaching mode takes teachers as the main body and students as the object, and students mainly acquire new knowledge from teachers' teaching in class. As a brand-new teaching mode, the “flipped classroom” is a change in learning methods for students and a change in teaching methods for teachers [3]. Basic nursing technology is the main course of nursing specialty, and it is also a practical course. It is also a compulsory course for nurse qualification examination. By changing the passive learning mode from listening to lectures to active inquiry learning, students will have more autonomy in learning, review will be more convenient, and they can cooperate with their peers to improve their team cooperation ability [4].

### 2. Objects and Methods

#### 2.1 Research Object

The subjects of the study were 60 nursing undergraduate students, divided into an experimental group and a control group by drawing lots based on class unit. The experimental group had 30 students and the control group had 30 students, all of whom were girls. Using traditional teaching methods, the experimental group and the control group are taught by the same teacher, ensuring the same teaching hours, teaching progress and main contents. The teaching teachers and hours of the two groups of nursing related courses are all the same, and there is no significant difference in age, gender, entrance scores and other medical basic related courses ( $p < 0.05$ ), which is comparable.

## **2.2 Research Method**

### **2.2.1 Investigation and Study**

It is necessary to investigate and evaluate the teaching effect of the reversed classroom mode after its implementation. This research grasps the realization of students' learning goals through the "self-evaluation form for learning goals realization". Through the survey data and results of the "Inverted Classroom Teaching Model Application Effect Evaluation Questionnaire" and interviews, we can understand and analyze the impact of the inverted classroom model on students' learning, teaching effect, students' attitude towards the inverted classroom and their recognition of teachers.

### **2.2.2 Traditional Teaching**

That is, "preview-lecture-review-test" teaching method. With the help of multimedia courseware and blackboard writing, students are taught knowledge, reviewed after class and tested at the end of the semester.

### **2.2.3 Observation Method**

In "before class-during class-after class" observation is used to understand the learning dynamics of students. Especially in the classroom, we can get feedback and find problems through teaching observation. To recognize the experience and shortcomings in practice and provide factual basis for better application and perfection of the flip classroom teaching mode.

### **2.2.4 Flipping Classroom Teaching Mode Based on Micro-Class**

Students are divided into 11 groups with 5-6 people in each group. Each group selects a group leader. According to the teaching objectives of each class, the teacher prepares 1-3 micro-lesson videos before the class. Each micro-lesson video only introduces a knowledge point or presents a case. Complete the process of "knowledge transfer". Students use sufficient spare time to watch online teaching resources and practice their operation skills in an open training room. At the same time, provide corresponding video materials or video material links, such as online open classes, and relevant supplementary materials, such as books or material links, to complete the homework in groups [5]. Teachers send videos to students one day in advance, and students can watch them in multimedia classrooms or on mobile phones or other video playback devices. So as to complete the process of "knowledge transfer" and "knowledge construction". The design of this link can fully reflect the characteristics of students' autonomous learning and cooperative learning. "In-class" is a flip class of practice class, so the teaching place is the practice room of the school practice base. The teacher simulated and demonstrated on the spot and made the skill operation of CAB three links intuitive and easy to understand with the aid of "teach-teach-back" system. According to the skill requirements of emergency nursing posts, the teaching content of two hours is divided into four learning tasks.

The teacher led the students to review the main points of knowledge in the micro-class with the question method, helping the students to recall what they learned, and answering the students' feedback questions one by one before class. In the process of students' practice, the teacher personally or together with the two big team leaders conducts patrol guidance; If there is plenty of time in class, students can be organized to communicate with each other. Team members will share the problems and points needing attention with other teams. Students carefully study the teaching materials, consult relevant materials, design and make PPT courseware by themselves, and give a speech for 10~15 min in formal class. The teacher summarized the content of this lesson, emphasizing again the important and difficult contents and the three learning objectives, and positioning the mastery effect and the realization of the objectives of this lesson together with the students. After the speech, further discussions will be held, and teachers will supplement, dispel doubts and summarize after the students' speech. Encourage students to reflect on their own learning methods, learning process, group cooperative learning and the completion of homework, and write learning notes to build a learning content structure diagram to help students make continuous progress.

## 2.3 Evaluation Method

### 2.3.1 Final Examination

At the same time after the end of the course, the final exam will be organized in a unified way. Try, and double-blind marking by the same teacher. The assessment methods, examination papers, teachers and locations of the two groups of students are exactly the same. The questions are designed according to the questions in the national nurse qualification examination, including A1 questions (single sentence pattern best multiple choice questions), A2 questions (medical record abstract best multiple choice questions), A3 questions (medical record group best multiple choice questions), A4 questions (medical record series best multiple choice questions). Finally, the results of the two groups of students were statistically analyzed to observe the differences between the two teaching modes in mastering the knowledge of human anatomy for nursing students.

### 2.3.2 Questionnaire Survey

A questionnaire survey was conducted on students, including whether to improve their autonomous learning ability, whether to improve their interest in learning, whether to help cultivate their clinical thinking ability, and whether to help cultivate their ability to comprehensively apply knowledge.

## 2.4 Statistical Analysis

SPSS 13.0 software was used for analysis, mainly descriptive statistical analysis and Colaizzi's 7-step analysis of phenomenological data [6].

## 3. Result

### 3.1 Comparability Analysis of Experimental Group and Control Group

Comparing the results of the three basic medical courses in the previous semester of the experimental group and the control group, including medical advanced mathematics, medical chemistry basics, and medical physics (all traditional teaching), the differences were not statistically significant ( $P > 0.05$ ). Students in each class have comparable learning foundations and are comparable (Table 1).

Table 1 the Results Of the Experimental Group and the Control Group Before the Experiment Were Compared ( $\bar{x} \pm s$ ,  $n = 50$ )

Group	Medical advanced mathematics	Fundamentals of medical chemistry	Medical physics
Experimental group	77.3±7.3	76.5±10.8	65.9±11.6
Control group	74.2±6.1	77.6±11.0	66.3±12.1

In classroom teaching, teachers should play videos of situational cases and set up relevant questions according to the contents of students' independent preview, and combine the cases with role-playing and answering questions in order to fully mobilize students' learning enthusiasm. With the in-depth understanding of flip class, scholars have found that flip class should follow certain rules and patterns, and attention should be paid to improving students' comprehensive ability while teaching reform. However, turning classroom teaching is convenient for students to carry out personalized learning. Students can arrange their own time, watch teaching videos in advance or watch learning repeatedly after class, which is helpful to improve nursing students' clinical operation skills [7].

### 3.2 The Evaluation of the Experimental Group Students on the Teaching Mode

The results show that 97.39% of the students hold a positive attitude towards the teaching mode. 92.55% of the students said that the teaching mode is helpful for mastering basic knowledge. 83.06% of the students said they were helpful to improve their autonomous learning ability. 97.59% of the students think that the teaching mode has cultivated their interest and motivation in learning. 73.88% of the students think it is helpful for their long-term development.

Table 2 the Evaluation Of the Experimental Group Students on the Teaching Mode [n(%)]

Evaluation project	very help	Help	General	Almost no help
Master basic knowledge	24(80%)	19(63%)	4(13%)	0(0%)
Training of practical operation skills	21(70%)	21(70%)	6(20%)	2(6%)
On the cultivation of autonomous learning ability	18(60%)	10(33%)	11(36%)	1(3%)
To cultivate the ability to analyze and solve problems	20(66%)	12(40%)	5(16%)	1(3%)
To cultivate interest and motivation in learning	17(56%)	15(50%)	2(6%)	0(0%)
For their long-term development	15(50%)	9(30%)	13(43%)	3(10%)

### 3.3 Analysis of Interview Records of Students

In the interview, more than 85% of the students said they were more suitable to the teaching mode, and 75.26% of the students were willing to continue to use the teaching mode for learning. Representative views include: “through one semester's study, my autonomous learning ability has been greatly improved, and I gradually like this teaching method.” “most courses adopt the traditional teaching mode of teachers' speaking and students' listening, which I think is very monotonous.” “I hope we can also use this model in theory class.” “The biggest advantage of turning over the classroom is to change passive learning into active learning.” “Flipping the classroom makes me realize to be the master of the classroom”. From this, we can see that most of the students approve of the reversed classroom teaching mode, which they like, which can also be seen in the previous effect evaluation and the survey data of the target realization. Learning and discussing with questions in class can improve students' learning motivation and learning efficiency, and further promote students' willingness to learn autonomously. Students preview before class with purpose, thus improving students' autonomous learning ability.

## 4. Discuss

### 4.1 Stimulate Students' Interest in Learning

The survey results show that 98.22% of the students think the teaching mode is very helpful to stimulate their interest and motivation in learning. From the perspective of educational psychology, interest is the psychological characteristic that students tend to know and study to acquire certain knowledge, and it is an internal force to promote their knowledge [8]. Flipping the classroom teaching mode reflects the main position of students, makes the classroom atmosphere more relaxed and active, and can better integrate theory with practice to create a clinical nursing atmosphere for students. Clear teaching objectives and prominent focus are the premise and cornerstone of successful classroom teaching [9]. This teaching mode can provide a flexible learning environment for students. Students can watch video courseware anytime and anywhere and preview in advance so that students can have more time and energy for group discussion in class. To encourage students to regulate their own learning, to “live” the classroom and to “move” the students so as to stimulate their enthusiasm for learning.

### 4.2 And Improve Students' Academic Performance

The results in Table 1 show that the students in the experimental group are obviously better than the control group. In this teaching mode, textbooks allow students to learn by themselves, knowledge points allow students to discuss, problems allow students to think, conclusions allow students to summarize, and laws allow students to discover. Students believe that turning over the classroom teaching mode is conducive to better memory and mastery of operation skills, improving learning efficiency of skill operation, and improving self-study ability and cooperation ability. It can be seen from this that turning over the classroom is of great help to students' skill learning and can improve learning efficiency and teaching effect. Through the “teach-back teach” system, teachers randomly selected two groups of students for the cardiopulmonary resuscitation CAB link operation competition. After the operation was completed, the other students performed error correction to enable students to find and solve problems and cultivate students' critical thinking ability.

### **4.3 It Enables Students to Learn Cooperation and Sharing in the Learning Process.**

The main learning mode of this teaching mode is group learning, and group activities run through before, during and after class. In the interview with students, it was also found that 76.49% of the students like peer education and believe that they can promote each other and make common progress in the process of discussing problems. More than 90% of the students approved of the teachers' role and preparation after the application of flip class. They think that teachers play a very good guiding role in the flip class, and they like the way teachers teach. Flipping the classroom broadens students' knowledge, improves their ability of information acquisition, knowledge update, continuous learning and independent analysis and problem solving, stimulates students' learning interest and development potential, and participates in interactive discussions to train students' systematic, creative and clinical thinking ability.

### **4.4 To Improve Students' Autonomous Learning Ability**

The main feature of micro-class is to meet the needs of students for personalized learning and fragmented learning. Stimulate students' enthusiasm for autonomous learning through lively and interesting micro-lesson videos; Self-exploration through group discussion; By turning over the classroom model, students can be inspired to understand new knowledge initiatively, thus improving their understanding, mastering methods and obtaining development, so that autonomous learning can be truly implemented in classroom teaching. In order to analyze cases in class and discuss real cases in clinical practice, full preparations have been made, which enables students to actively devote themselves to teacher-student interaction, while teachers also spend more time answering and solving students' questions. Active teacher-student interaction makes the classroom atmosphere more active, thus stimulating students' interest in learning.

## **5. Conclusion**

Teachers are the key to ensure the smooth implementation of the flip class. In the process of turning over the classroom, the quality of teaching materials, especially the network resources, requires teachers to check and even participate in the production. This study shows that the application of flip classroom teaching mode based on micro-class in nursing teaching in colleges and universities not only stimulates students' interest in learning, makes students actively learn and enjoy learning, but also makes students realize the happiness of cooperation and sharing in the learning process, and improves students' interpersonal communication ability. Flipping the classroom teaching mode has high requirements for teachers. Students' questions are often not only limited to their professional content, but may also be interested in the diagnosis and treatment methods of clinical diseases. Therefore, teachers have also gained a lot. It is conducive to the cultivation of the comprehensive quality of students and teachers, which is of great significance to the realization of the goal of quality education.

## **References**

- [1] Wang Xiaopeng, Che Liangju, Luo Gongyin, et al. (2017). Effect of Flipping Classroom on Autonomous Learning Ability of Nursing Undergraduates. *Educational Modernization*, no. 9, pp. 0115-0116.
- [2] Jin Ruihua, Tian Zhijuan, Luo Dan, et al. (2017). Application of flip classroom teaching mode in basic nursing experimental teaching. *China Higher Medical Education*, no. 2, pp. 61-62.
- [3] Bai Baoping, Liu Jinxia. (2019). Application of flip class based on micro-class in health assessment practical teaching for nursing undergraduates. *Chinese Journal of Medical Education Exploration*, vol. 18, no. 5, pp. 515-518.
- [4] Chen Aimei, Yan Ren. (2017). Research on Application of Traditional Chinese Medicine Nursing Flip Classroom. *Jiangsu Education*, no. 12, pp. 70-71.

- [5] Jake, Lv Yanyan. (2019). Moodle-based flip classroom application in obstetrics and gynecology nursing teaching. *Chinese Journal of Medical Education Exploration*, vol. 18, no. 9, pp. 942-945.
- [6] Gao Yaqi. (2017). Practical Research on Teaching Design of Basic Nursing Technology Course Based on Reversed Classroom Teaching Mode. *Henan Education (Higher Education)*, no. 2, pp. 86-87.
- [7] Ren Le. (2019). Application of Learning Online Platform Flip Classroom in Nursing Comprehensive Skills Training Teaching. *Journal of Community Medicine*, no. 1, pp. 39-42.
- [8] Huang Dan, Zhou Liangyan, Dai Chenqian. (2018). Exploration on the Application of Inverted Classroom Model in Pediatric Nursing Teaching in Higher Vocational Schools. *Curriculum Education Research*, no. 1, pp. 213-213.
- [9] Zhang Xiaomei, Cao Meng, Deng Qiulin, et al. (2018). Application of flip classroom teaching mode based on psychological empowerment in nursing clinical probation. *Southern Medical Education*, no. 4, pp. 17-20.