

Analysis of Clinical Teaching Strategy of Neurorehabilitation based on Flipped Classroom Teaching Mode

Juan Tian, Canlin Zhou*

Lingnan Normal University, Gongdong, 524048, China

**Corresponding Author*

Keywords: Neurology, Clinical teaching, Autonomous learning, Interaction between teachers and students, Micro class, Flipped classroom

Abstract: Neurology is a highly professional practical medicine. The teaching content involves many different subjects. Its theoretical knowledge is Abstract and difficult to understand, and the anatomical content is boring. It has always been a difficulty in teaching. How to improve students' enthusiasm and learning ability in teaching is the key to improve the teaching quality to the greatest extent in the limited classroom time. Under the background of the current Internet information age, the teaching mode of flipped classroom based on micro class has full play. The combination of “micro class” and “flipped class” was applied to the clinical teaching of Neurology, the specific teaching scheme was put forward, and the teaching effect was evaluated, analyzed and summarized.

1. Introduction

The concept of flipped classroom was first put forward in 1996. It refers to a teaching model in which students learn knowledge independently in advance, and then discuss problems between students and teachers and students in the classroom, so as to achieve the purpose of teaching. With the rapid development of communication and information technology, all kinds of intelligent devices are popularized among college students, Under this background, the implementation of the flipped classroom teaching mode based on micro class can not only improve students' learning interest, but also enhance the interaction between teachers and students, and improve students' problem exploration ability and autonomous learning ability. Therefore, this paper analyzes the effects of the traditional teaching mode and the flipped classroom teaching mode based on micro class in the clinical teaching of Neurology.

2. Micro Class and Flipped Class

2.1 Micro Class

2.1.1 Concept and Composition of Micro Course

“Micro course” refers to a short and complete teaching activity carried out around a knowledge

point or teaching link in the form of streaming media through careful information-based teaching design and video as the main carrier in order to enable learners to obtain the best effect of autonomous learning[1]. Its core content is classroom teaching video. At the same time, it also contains auxiliary teaching resources related to the teaching theme, such as teaching design, material courseware, teaching reflection, practice test, student feedback and teacher comments. They jointly “create” a semi-structured and thematic resource unit application “small environment” with a certain organizational relationship and presentation.

2.1.2 Characteristics of Micro Class

1) Short teaching time: the duration of “micro class” is generally 5 ~ 8 min, and the maximum is no more than 10 min. it is controlled within the time range in which students can pay more attention, which is in line with the characteristics of students' physical and mental development. Compared with the traditional teaching example of 45 min one class, “micro class” can be called “lesson fragment” or “micro lesson”. 2) Highlight the theme: “micro class” is mainly to highlight the teaching of a certain knowledge point in classroom teaching (such as key points, difficulties and doubtful points in teaching), or to reflect the teaching and learning activities of a certain teaching link and teaching theme in the classroom. Each “micro course” only aims at a specific problem, has strong pertinence, and is more convenient to find. Compared with the traditional course, the content of “micro course” is more concise and the theme is more prominent. 3) Facilitate students' Autonomous Learning: the “micro class” released through the network has various functions such as pause and playback. Students can control the playback speed according to their own situation without worrying about the speed of teaching rhythm, which is conducive to students' autonomous learning. At the same time, it can be downloaded and saved to terminal devices flexibly and conveniently (such as laptop, mobile phone, MP4, etc.) Mobile learning is realized on the platform, which is convenient for students to review and consolidate after learning for a period of time. It can make students make full use of their limited time to overcome difficult problems, improve learning efficiency, and make students study personalized at the same time[2].

2.2 Flipped Classroom

Flipped classroom reconstructs students' learning process, that is, students learn knowledge before class and complete “information transmission”. Teachers can not only provide video, but also provide online guidance; The “absorption and internalization” of knowledge is completed in the classroom through the interaction between teachers and students and between students. Teachers can understand students' learning difficulties in advance and give effective guidance in the classroom[3]. The mutual communication between students is more helpful to promote the absorption and internalization process of students' knowledge, so as to achieve better teaching effect.

3. Characteristics and Current Situation of Clinical Teaching of Neurology

Neurology is a clinical medical discipline that studies the etiology, pathogenesis, pathology, clinical manifestations, diagnosis, treatment and prognosis of central and peripheral nervous system diseases. It is closely related to neuroanatomy, imaging, pathology, physiology, immunology and genetics. It is a highly professional practical medicine. The traditional clinical teaching method generally adopts the large class teaching mode of “teachers speak and students listen”. Due to the abstraction of theoretical knowledge, the content of neuroanatomy is obscure and difficult to understand, and the teaching mode of rote memorization can not achieve the ideal teaching effect[4].

Students often lack initiative in learning, rely too much on Teachers' explanation, lack of teacher-student interaction and mobile phone meeting, so no problems are found Problem solving enthusiasm and innovative spirit, when entering clinical work, often theory is divorced from practice, and can not become clinical skilled professionals. In addition, teachers' teaching design also puts too much emphasis on textbooks and teachers as the center, ignoring students as the main body of the teaching process and the ability of autonomous learning. Students often study passively and have low efficiency. Therefore, in the clinical teaching of Neurology, we should pay attention to the change of educational concept, take students as the center, fully mobilize their subjective initiative and cultivate their ability to solve practical clinical problems.

4. Advantages of Flipping Course Based on Micro Course in Neurology Practice Teaching

Based on the clinical practice teaching of the micro class flipped classroom, the micro class makes the teaching vivid by using video, animation, pictures and other methods, can fully combine the theoretical knowledge with practice, and can watch and learn the unfamiliar content repeatedly and many times according to their own situation, so as to be familiar with and master various knowledge points. On the basis of the prepared micro class, the intern self-study first turns to the teacher to organize discussion on the learned micro class knowledge, solve doubts and answer questions, and realize classroom turnover. The implementation of such a teaching form is not restricted by factors such as time and place, and has strong flexibility. The teaching method and form of flipped classroom is for interns to effectively learn their own knowledge defects and deficiencies, and finally achieve the content learning of micro class knowledge points and the improvement of clinical skills[5]. The identity of teaching teachers has also changed from a single knowledge transmitter to a learning instructor, which not only promotes the improvement of students' ability, but also promotes the teaching teachers to learn by themselves, Finally achieve the goal of teaching and learning. Because of the teaching method of flipped classroom based on micro class, students can use fragmented time to learn at any time before class, check and fill in missing knowledge points, and encounter learning problems. They can also interact with teachers and students through online communication tools, gradually enabling students to develop the concept of active learning, which not only improves the efficiency of teaching, It also improves students' ability to explore unknown problems, and effective learning and discussion also promotes students' learning and communication ability.

Application of flipped classroom based on micro class in clinical teaching of Neurology

4.1 Production Course

According to the teaching objectives and requirements of Neurology, teachers determine the key points and difficulties of learning, design and make a series of micro videos before class, supplemented by clinical typical micro cases and micro exercises, divide a complete teaching class into 3 ~ 4 knowledge points, and make multiple micro videos respectively[6]. There are no teacher's avatars and too many classroom objects in the micro video to avoid distraction when students study alone. It can be equipped with voice over or narration to help students understand and remember.

4.2 Pre Class Learning

Teachers and all students in the experimental group establish a wechat learning group. One week before class, teachers upload multiple micro videos to the wechat group. Students can watch them online or download them before class, study independently, record the problems encountered in learning, and look for answers by consulting reference books or searching relevant literature at

home and abroad[7]. At the same time, the ward is open. Students can contact teachers and go to the patient's bedside to learn clinical knowledge related to micro video. Finally, the students feed back the learning problems to the group leader of each group, and the group leader will summarize the problems and feed them back to the teacher.

4.3 Class Discussion

1) Teachers expand and determine problems according to all feedback problems and common problems. 2) According to the problems determined by the teacher, each student in the group thinks independently and discusses and analyzes the problems with other students in the group. 3) Each group will send representatives to report and exchange the learning results and discussion results of the group, and share their solutions with the students. Role play can be used. For example, one group plays the patient and the other group plays the doctor to simulate the clinical process. This link always focuses on students' speech or operation. Teachers only correct students when they make mistakes or encounter unsolvable problems. 4) Finally, the teacher summarizes, explains in detail some key points, difficulties and common problems, systematically analyzes the knowledge of the whole class, further emphasizes the important problems in the class, summarizes the key and difficult points of the course, comments on the speeches of each group, points out the deficiencies and puts forward the requirements for improvement in the future.

4.4 Review after Class

After the discussion in class, according to the students' exchange results and feedback in class, the teacher makes a micro courseware and uploads it to the wechat learning group for students' review. At the same time, according to the students' understanding and absorption of knowledge, teachers combine the test sites with the key and difficult points of learning, and make micro practice videos with different degrees of difficulty after class, such as case analysis and disease simulation exercises, so as to further strengthen the solidification of knowledge and avoid forgetting.

4.5 Summarize Experience

The teaching teachers in the teaching and Research Department of Neurology conduct full discussion and analysis according to the students' performance in the whole flipped classroom, such as the students' learning effect before class, the students' participation and performance in group and inter group discussions in class, and the completion of assignments after class, so as to summarize experiences and lessons, so as to provide theoretical support for the next clinical teaching[8].

5. Conclusion

To sum up, the application of flipped classroom based on micro class in clinical teaching of Neurology can not only strengthen students' autonomous learning ability, fully mobilize students' subjective initiative and learning interest, but also improve students' ability to analyze and solve problems in the clinical process. At the same time, through students' repeated discussion and analysis in class and completing micro exercises after class, students can continuously improve their understanding and understanding of knowledge and enhance their ability of team cooperation and interpersonal communication.

Acknowledgement

Zhanjiang Science and Technology Project: “Study on the” Knowledge, Trust and Action “service Mode of primary osteoporosis” (Project No. :2019B01090)

References

- [1] Chen Xiaohong, he Ting, Dai Miaoxia, et al. Application of flipped classroom teaching model in clinical practice teaching of nursing students in neurology [J]. *Nursing and rehabilitation*,vol. 17, no. 1, pp. 99-101, 2018.
- [2] Lin Qiang, Wang WANYING, you Yaoyao, et al. Research on the teaching effect of theoretical and practical rehabilitation therapy courses based on online teaching mode [J]. *Modern medicine and health*,vol. 37, no. 6, pp. 1042-1046, 2021.
- [3] Chen Lei, Zhang Ping, Zhu Xuan, et al. Application effect evaluation of CBL based flipped classroom in neurology clinical teaching [J]. *Chongqing Medical*,vol. 49, no. 12, pp. 2046-2049, 2020.
- [4] Lian Haiwei, Liu Renzhong, Jian Zhihong, et al. Exploration of flipped classroom combined with PBL in neurosurgery clinical teaching [J]. *Chinese Journal of medical education exploration*,vol. 18, no. 1, pp. 77-81, 2019.
- [5] Chen Zhulin, Huang Guang, Du Tieying. Application of flipped classroom based on micro class in clinical teaching of Neurology [J]. *Continuing medical education*,vol. 33, no. 8, pp. 37-38, 2019.
- [6] Wang Jianjiao, Wu Zhichao, Li Yang, et al. Design and application of flipped classroom teaching model based on precision teaching in clinical practice teaching of Neurosurgery [J]. *Chinese Journal of medicine*,vol. 55, no. 5, pp. 575-577, 2020.
- [7] Chen ya, Xu Zucui, Liao Shusheng, et al. Application exploration of flipped classroom based on micro class in clinical practice teaching of Neurology [J]. *China health industry*,vol. 17, no. 13, pp. 158-160, 2020.
- [8] Zhang Yu. To explore the application effect of micro class combined with flipped classroom teaching mode in clinical nursing teaching in neurosurgical ICU ward [J]. *China health industry*,vol. 17, no. 21, pp. 109-111, 2020.