

Implementation and Practice of Organic Chemistry Mixed Teaching

Yige Li

Shihezi University, Shihezi City, Xinjiang, 832003, China

Keywords: Mixed teaching method, Organic chemistry, Course teaching

Abstract: The mixed teaching method is a new teaching mode, which makes up for the shortcomings of the traditional teaching mode, and makes some innovations and breakthroughs on the basis of it. It has certain advantages in playing the dominant position of students. According to the characteristics of students' major, this paper discusses the practical application of mixed teaching method in organic chemistry teaching from the aspects of learning needs, teaching design and evaluation standards.

1. Introduction

Organic chemistry is an important basic course for materials, life, environmental resources and other majors, and it is also a leading course in the core curriculum group of these majors. It not only provides students with necessary theoretical knowledge in work or scientific research activities, but also plays a basic role in the follow-up professional courses. At the same time, it is imperative to explore a new teaching mode to enhance the students' initiative in learning chemistry.

2. Teaching Status of Organic Chemistry

In recent years, the curriculum reform in education is in full swing. Colleges and universities have carried out a series of innovations to change the traditional teaching mode. However, due to the uneven level of students' basic knowledge, this innovation has various shortcomings. Many times, the curriculum reform not only does not produce theoretical results, but also leads to the phenomenon of class hour compression and interdisciplinary. Traditional "organic chemistry" course teaching is mainly based on classroom teaching, teachers only rely on teaching materials, PPT, blackboard writing method for classroom teaching, students through after-school practice to consolidate the knowledge learned in class. In order to complete the teaching task in the limited class hours, teachers often ignore the students' absorption and digestion process of knowledge, and only explain the key theoretical knowledge in the classroom, while the surrounding knowledge is ignored. This "cramming" teaching mode has some defects, such as the single teaching form and the weakening of students' classroom status, which affects the actual teaching effect. In addition, organic chemistry, as the basic course of most engineering courses, has the characteristics of extensive contents, numerous reaction equations and complex reaction mechanism. In this case, blindly expanding the amount of teaching information leads to students' passive listening in class,

lacking self thinking ability and thinking expansion ability. This is also the main reason for the formation of the strange circle of “easy to understand, difficult to remember and more difficult to use”. Over time, students in this teaching environment will relax themselves, lose interest in learning, leading to the loss of vitality in the classroom^[1].

With the development of Internet, multimedia courseware often appears in many courses teaching, organic chemistry is no exception. Because multimedia courseware can not only enrich students' learning content, enhance the classroom atmosphere, provide review channels after class, but also facilitate the communication between teachers. However, the role of teachers in teaching students knowledge, guiding students' learning direction and answering students' doubts can not be completely replaced by multimedia courseware. Therefore, the teaching method that combines the advantages of traditional teaching mode and network teaching, namely blended learning, has become the trend of teaching method reform in Colleges and universities, and is bound to become the final result of teaching reform in Colleges and universities^[2].

3. Mixed Teaching Method

3.1 Teaching Principles

Blended teaching (B-Learning) = e-learning + face to face: blended teaching can attract learners to study independently and selectively in an efficient way. Mixed teaching absorbs the advantages of the two kinds of teaching and maximizes the effectiveness of teachers and learners. In blended learning, learners can combine network-based learning with face-to-face learning, and learn something. Mixed teaching emphasizes the idea of “paying equal attention to learning and teaching”, which has a guiding role for the development of mixed teaching^[3].

3.2 Pattern Analysis

3.2.1 Traditional Teaching Mode

The traditional teaching part of blended teaching is carried out by teachers in the way of face-to-face teaching, which is an offline teaching process. In this process, the practical problems to be solved are: (1) communicating with students to solve the specific problems encountered in the learning process; (2) listening to students' feedback on online learning and solving the problems in time; (3) applying multimedia technology to the traditional classroom, activating the classroom atmosphere, making the learning content more vivid and stimulating students' interest; (4) using flipped classroom regularly Model teaching, training students' comprehensive ability^[4].

3.2.2 Network Teaching Mode

Network teaching mainly takes the network teaching platform of colleges and universities as the carrier. Teachers upload learning resources such as syllabus, teaching design, teaching courseware and micro class video in the network teaching platform. Learners can selectively carry out independent learning according to their own needs, and then carry out interactive discussion in the learning flow area, and leave online messages to teachers to solve problems. The micro class video mainly takes knowledge points as the unit, and its duration is about 10 minutes. It is intuitive and concise. It is helpful to stimulate students' interest in learning and improve their autonomous learning ability. In addition, learners can arrange the time and progress of online learning according to their own time. Once students encounter problems that are difficult to solve in the process of learning, they can choose to learn from others' ideas in the discussion area, or they can leave messages directly to ask questions. In this way, learners can make use of their prime time for

autonomous learning, so that learners are in a state of vigorous and efficient learning^[5].

Teachers need to achieve: (1) regularly update teaching resources to ensure students' learning progress; (2) micro class video knowledge points cover a wide range, while ensuring the number of micro lessons, we should pay more attention to quality to meet the learning needs of students; (3) teachers should record micro class, and suggest using officepowerpoint 2016 software to make PPT, combined with adobe The presenter software recorded the video, and finally used Camtasia Studio software to edit the video. The micro class video recorded by this method has the form of host type micro class, which is a popular micro class mode at present, which can attract learners to watch the micro class video and improve their learning interest; (4) arrange corresponding micro lesson exercises in the course assignment area so that students can timely check and fill the gaps; (5) set up a thinking and discussion area, so that teachers and students, students and students can be online (6) use wechat platform to leave messages with students at any time to interact and solve problems in real time^[6].

Through the network teaching, we can realize the zero distance online communication between teachers and students, and shorten the distance between teachers and students. In this way, those students who are afraid to ask questions to the teacher in class due to psychological reasons can also ask questions to the teacher through online questions and messages, which greatly improves students' interest in learning and makes them happy to learn. It is necessary for students to form a good habit of thinking and learning independently, and to get a good learning habit.

4. Design of Mixed Teaching Method in Organic Chemistry

4.1 Clarify Students' Learning Needs

In the traditional “organic chemistry” teaching class, teachers mainly start from the basic concepts, combine with the basic reactions, and analyze the reaction mechanism from the perspective of stereochemistry. In the mixed teaching method, these contents are still the focus of teaching. This course is usually offered in the second semester of freshman, which not only relates to the mastery of professional courses, but also directly affects the follow-up research activities. Therefore, the demand of students for the course of organic chemistry can not be limited to the needs of graduation design and innovation and entrepreneurship project design, but also from the perspective of professional personnel training, and strive to cultivate students' discipline quality and professional quality, such as the ability to think and deal with unexpected chemical events. In the implementation of blended teaching, colleges and universities should be guided by the maximization of students' cognitive needs and non cognitive needs, so as to achieve the ultimate goal of unity of knowledge and practice^[7].

4.2 Instructional Design

Based on the teaching syllabus of organic chemistry, the course content is divided into lecture part and self-study part according to the students' understanding ability of each knowledge point and the importance and difficulty of each knowledge point in different professional system. Teachers only teach the key and difficult content in class, and set up online Q & A and online communication means to answer difficult problems for students after class. Students review and consolidate knowledge points through after-school online learning and network self-test. On the network self-study platform, students can also discuss, exchange, information retrieval, data sharing and achievement exhibition in their spare time And so on. This kind of mixed teaching method can not only strengthen the enthusiasm of students, but also solve the situation that students are afraid that teachers dare not ask questions in person; teachers can also use this teaching method to grasp

students' learning dynamics at any time, solve problems and puzzles for students in time, and solve the backlog of students' problems^[8].

5. Conclusion

With the great innovation in the field of teaching in recent years, “organic chemistry” course is also constantly adapting to the current education environment. How to make use of the limited class hours for reasonable teaching arrangement, how to make students effectively accept a large number of new knowledge and new content is bound to become a hot issue in the education field. Blended teaching method is the integration of traditional teaching method and online teaching method, and constantly supplement and improve. It has its own advantages and characteristics: while giving full play to the leading position of teachers, it can stimulate students' thirst and exploration for chemical knowledge; while ensuring students' dominant position, it can cultivate students' enthusiasm and creativity in the field of science. This education method can not only improve students' learning efficiency, but also enhance their ability to find and solve problems. It has a visual advantage to participate in scientific research activities or continue to learn professional knowledge in the future.

References

- [1] Cheng fangting, Sun Jing, Li Xiaoli. Research on mixed teaching of organic chemistry [J]. *Journal of Zhenjiang University*, vol. 32, no. 4, pp. 73-75, 2019.
- [2] Wu Qin, Lu Yongzhong. Teaching design of blended learning in organic chemistry [J]. *Guangzhou Chemical Engineering*, vol. 42, no. 10, pp. 214-215, 2014.
- [3] Wu Qin, Lu Yongzhong. Teaching implementation of blended learning in organic chemistry [J]. *Guangdong chemical engineering*, vol. 41, no. 5, pp. 173-175, 2014.
- [4] Shen Hui, Gong Jumei, Jia Zhenzhen, et al. Implementation of Hybrid Teaching Mode in the course of medicinal organic chemistry [J]. *Journal of Anhui Institute of water resources and hydropower*, vol. 20, no. 2, pp. 75-78, 2020.
- [5] Ding Weijia, Luo Ying, Cai Xin, et al. Research on the hybrid teaching of Organic Chemistry Online + virtual offline flipped classroom based on SPOC [J]. *Guangdong chemical engineering*, vol. 47, no. 6, pp. 214-215, 2020.
- [6] Jiang Huiying. Application of Hybrid Teaching in Organic Chemistry Course [J]. *Southern agricultural machinery*, vol. 50, no. 23, pp. 195, 2019.
- [7] Li Jun, Li Feng, Li Deqiang. Exploration of Hybrid Teaching in agricultural basic organic chemistry course [J]. *Shandong Chemical Engineering*, vol. 48, no. 21, pp. 149-150, 2019.
- [8] Zhang Dawei, Lu Ke, Zou Nan, et al. Mixed teaching practice of agricultural organic chemistry experiment course assisted by wechat platform [J]. *Chemical education*, vol. 41, no. 12, pp. 66-70, 2020.