

Research on the Application of Micro-course in Senior High School Chemistry Teaching

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Abstract: *With the rapid development of information technology, micro-course, as a new teaching method, has been gradually applied in chemistry teaching in senior high schools. Micro-course, driven by information technology, has the characteristics of pertinence, flexibility and timely feedback, which significantly improves students' learning efficiency and depth. This thesis systematically discusses the practical application of micro-courses in senior high school chemistry teaching, aiming at revealing its potential and value for educators and promoting teaching innovation.*

Keywords: *micro-class; High school chemistry teaching; Application strategy; Learning efficiency; comprehension*

1. Introduction

In the information society, the field of education is undergoing unprecedented changes. Among micro-class, as a new teaching method, is increasingly welcomed and recognized by teachers and students. Chemistry in senior high school is a subject that requires high practicality and theory, and traditional teaching methods are often difficult to meet the individual needs of students. Therefore, it is great significance to introduce micro-courses into senior high school chemistry teaching to improve teaching quality and students' learning effect.

2. The advantages of micro-courses in senior high school chemistry teaching

2.1 Targeted

Micro-course has a strong pertinence in teaching content, and it usually takes a specific knowledge point or problem as the theme for in-depth explanation and analysis. This teaching method can help students to concentrate more on their own learning needs and difficulties^[1]. In high school chemistry teaching, the pertinence of micro-courses can be reflected in the following aspects:

2.1.1 Focus on key knowledge points

Micro-courses can choose key knowledge points in chemistry courses to explain, such as chemical reaction principles, reaction equations, chemical bonds and other core concepts. Through in-depth analysis of these knowledge points, students can better understand and master chemical knowledge.

2.1.2 Aiming at students' learning difficulties

Micro-courses can explain difficult problems according to students' learning situation. For example, in view of the mistakes that some students often make in chemical experiments, or the concepts that are difficult to understand, special micro-lessons can be made to explain and demonstrate.

2.1.3 For practical application

Micro-class can also explain the application of chemistry in real life, such as the application of chemistry in materials science, environmental science, life science and other fields. By introducing applications, students can better understand the practical significance of chemical knowledge and improve their interest in learning.

Through the targeted teaching in the above aspects, micro-courses can help students better and master chemical knowledge and improve their learning efficiency and understanding ability. At the same time, the flexibility of micro-courses also enables students to study independently according to their own learning progress and needs, so as to better meet the needs of personalized learning.

2.2 High flexibility

Micro-lessons are presented in the form of video, which shows great flexibility and allows students to study anytime and anywhere. Not limited by region and time, students can choose the time and place of study independently according to their own study plan and rhythm, thus realizing personalized learning in the true sense. The diversified learning methods of micro-lessons, such as watching tutorial videos, listening to audio explanations or browsing illustrated materials, also allow students to choose according to their preferences and study habits. In chemistry teaching, micro-lessons can deeply analyze a certain knowledge point or problem, which is helpful for students to thoroughly understand and master the main points of knowledge. In addition, the content of micro-courses can be customized and expanded according to students' learning needs and interests, so as to adapt to different students' learning progress and understanding ability, and further enhance their flexibility. This flexible learning method can not only stimulate students' interest and enthusiasm in learning, but also enhance their autonomous learning ability and awareness of lifelong learning. Therefore, micro-lessons have significant application value in senior high school chemistry teaching, and provide a powerful tool for improving teaching quality and optimizing learning effect [2-3].

2.3 Timely feedback

Micro-courses are usually equipped with corresponding exercises and tests, which are like a quiz and can feedback students' learning situation in time. This kind of timely feedback enables students to quickly understand their mastery of knowledge, so as to find their own shortcomings and mistakes. This kind of feedback not only makes students more clear about their learning goals, but also encourages them to study harder. Meanwhile, teachers can adjust teaching strategies and methods in time through students' feedback to better meet students' learning needs. In micro-teaching, teachers should also pay attention to monitoring and evaluating students' learning process. By observing students' exercises and tests, teachers can understand the difficulties and problems that students encounter in learning, and adjust teaching strategies in time to help students overcome difficulties. This interactive learning method makes students participate in the learning process more actively and improves their learning effect and quality. In addition, teachers can also cultivate students' self-monitoring and self-regulation ability through timely feedback mechanism. By guiding autonomous management's learning process and reflecting on his own shortcomings, teachers can help students better master learning methods and skills. The cultivation of self-monitoring and self-regulation ability not only helps to improve students' learning efficiency, but also helps to cultivate students' autonomous learning ability and lifelong learning consciousness. In short, the timely feedback mechanism of micro-lessons plays an important role in improving students' learning efficiency and understanding ability. Micro-courses play an indispensable role in chemistry teaching in senior high schools by timely feeding back students' learning situation, adjusting teaching strategies and methods, and cultivating students' self-monitoring and self-adjustment ability.

2.4 Knowledge point concentration

The concentration of knowledge points is an important advantage of micro-courses in high school chemistry teaching. By taking a specific knowledge point or problem as the theme, micro-lessons can focus students' learning on one point, so that students can understand and master the relevant content more deeply. For example, teachers can design and explain special micro-courses for a chemical reaction. In the micro-class, teachers can introduce the principles, equations and energy changes of chemical reactions in detail. Through in-depth analysis of these knowledge points, students can better understand and master the relevant content. What's more, due to the concentration of knowledge points in micro-courses, students can get a more in-depth and systematic learning experience in a short time, which is conducive to improving their learning effect and quality. In addition, for some difficulties and doubts, teachers can also design special micro-courses to explain and analyze. By refining the difficulties and doubts, students can gradually break through the learning obstacles and improve their understanding and problem-solving ability. This teaching method with concentrated knowledge points can also help students better organize their learning ideas and form a systematic knowledge structure, laying a solid foundation for subsequent learning.

To sum up, micro-lesson, as a new teaching method, has a wide application prospect in chemistry teaching in senior high school. By reasonably designing the content, scientifically arranging the time and strengthening the interaction of micro-courses, teachers can give full play to the advantages of

micro-courses and improve students' learning interest and effect. Further more, combined with traditional teaching methods and means, teachers can better meet the learning needs of students and promote the innovation and development of chemistry teaching in senior high schools.

3. The application strategy of micro-lesson in senior high school chemistry teaching

3.1 Reasonable design of micro-course content

When designing the content of high school chemistry micro-course, teachers need to fully consider the teaching objectives and the actual situation of students, and select the core knowledge points and difficulties for in-depth analysis. In order to meet students' learning needs and cognitive characteristics, micro-lesson videos should be refined and vivid, which can attract students' attention [4]. When selecting the content of micro-courses, teachers can expand according to students' learning needs and interests, so that micro-courses are closer to real life. For example, teachers can choose chemical phenomena in daily life as the theme of micro-lessons, and help students better understand and apply chemical knowledge by analyzing and explaining these phenomena. At the same time, teachers can also guide students to think and explore actively and cultivate their practical ability and innovative thinking through experimental demonstration and case analysis. When making micro-lesson videos, teachers need to pay attention to the quality and effect of the videos. The video content should be clear and clear, which can accurately convey the teacher's intentions and ideas. Further more, teachers can also use multimedia technology, such as animation, charts, etc., to make videos more vivid and help students better understand and remember knowledge points. In a word, reasonable design of micro-course content is the key to improve the quality of chemistry teaching in senior high school. By closely combining the teaching objectives with the actual situation of students, selecting the core knowledge points and difficulties for in-depth analysis, and paying attention to the diversity and interest of the content, teachers can make more educational and attractive micro-lesson videos. This will help students gain richer knowledge experience in a relaxed and pleasant learning atmosphere and improve their learning effect and quality.

3.2 Scientific arrangement of micro-class time

Teachers must consider carefully and carefully when making micro-class time. Generally speaking, students' learning characteristics and concentration are the main basis for making micro-class time. Because students' attention is limited, too long micro-class time may lead to students' fatigue and distraction, thus reducing the learning effect. On the contrary, the short micro-lesson time may not fully cover the knowledge points, making it difficult for students to understand and master the relevant content. Therefore, teachers need to control the micro-class time in a suitable range, not only to ensure the richness of the content, but also to avoid being too long or too short. After research and practice, it is generally believed that the duration of micro-lesson video should be controlled between 5 and 10 minutes. This time period can not only ensure the compactness of the content, but also keep the students' concentration. In this time range, teachers can explain a core knowledge point or difficulty in a targeted way, so that students can grasp and understand it quickly. In addition to being scientific and reasonable in length, teachers should also consider its position and role in the whole teaching process when arranging micro-class time. In order to give full play to the role of micro-lessons, teachers can choose to play micro-lesson videos after traditional classroom explanations. In this way, students can better absorb and understand the relevant knowledge points through in-depth analysis and example demonstration of micro-courses on the basis of knowing the basic knowledge. This arrangement can not only consolidate what students have learned in class, but also expand and deepen their understanding. In a word, scientific arrangement of micro-class time is an important part to ensure effective learning. Teachers should fully consider students' learning characteristics and concentration when making micro-lesson time, control the micro-lesson time in a suitable range, and reasonably arrange its position and role in the whole teaching process. This will help students gain richer knowledge experience in a relaxed and pleasant learning atmosphere and improve their learning effect and quality.

3.3 Strengthen the interactivity of micro-courses

In the video production of micro-lessons, teachers should pay attention to interactive design to stimulate students' learning enthusiasm and participation. Interaction can not only enhance students'

understanding of micro-courses, but also help to establish a closer interaction between teachers and students. In order to improve the interactivity of micro-courses, teachers can take the following measures:

3.3.1 Introduce the problem link

Setting guiding questions in micro-lessons can stimulate students' thinking and guide them to understand knowledge points in depth. Teachers can ask questions in videos and encourage students to think and discuss after class, so as to promote the deeper digestion of knowledge.

3.3.2 Set up discussion sessions

Teachers can let students share their views in groups through online platforms or classroom interactions, so as to enhance their sense of cooperation and problem-solving ability. This discussion session can enhance students' sense of participation and interaction, and help to cultivate students' critical thinking and innovative ability.

3.3.3 Increase the interactive test

Adding interactive tests to micro-courses can help students check their learning effects in time. Through the interactive test, students can immediately know whether their answers are correct, so as to better consolidate their knowledge points.

3.3.4 Encourage students to mark and comment on micro-lessons

Teachers can encourage students to annotate and comment in micro-lesson videos to enhance their sense of participation and interaction. Students can leave their own questions and ideas in the video to communicate and discuss with teachers or other students.

Through the above measures, teachers can improve the interactivity of micro-courses and establish a closer interactive relationship between teachers and students. This will help to stimulate students' interest and participation in learning and improve their learning effect and quality. At the same time, teachers can better understand students' learning situation and needs through interactive design, so as to adjust their teaching methods and strategies ^[5].

3.4 Combining traditional teaching methods

In teaching practice, teachers need to skillfully combine micro-courses with traditional teaching methods in order to give full play to their advantages and improve teaching effect. First of all, teachers can use micro-lessons as an auxiliary tool for preview or review. By making relevant micro-lesson videos in advance, students can watch them themselves before or after class, so as to prepare for learning in class or consolidate the knowledge they have learned in class. In this way, teachers can better guide students to use micro-lessons for autonomous learning in pre-class preparation and after-class review, and improve their learning effect. Secondly, in the traditional classroom, teachers can use micro-lessons to arouse students' thinking and discussion. By setting questions or discussion sessions in micro-classes, teachers can guide students to think positively and express their views. This teaching method can enhance students' sense of participation and interaction, and also help to cultivate students' critical thinking and innovative ability. In addition, teachers can also combine micro-lessons with traditional interactive teaching methods. For example, in group discussion, students can use micro-lessons as the material for discussion, and deepen their understanding of knowledge points by watching examples or cases in videos. Moreover, teachers can also use traditional experimental demonstration methods to help students better master experimental skills and operational processes. Through the comprehensive application of micro-courses and traditional teaching methods, teachers can meet the diverse learning needs of students more comprehensively. This teaching mode can not only use modern scientific and technological means to improve teaching efficiency, but also retain the depth and interaction of traditional teaching. By combining the advantages of micro-courses with traditional teaching methods, teachers can better cultivate students' comprehensive literacy and practical application ability, and improve their learning effect and quality ^[6].

In short, in teaching practice, teachers should skillfully combine micro-courses with traditional teaching methods to give full play to their advantages. By using different teaching methods flexibly, teachers can better guide students to carry out autonomous learning and cooperative inquiry, and cultivate their innovative ability and problem-solving ability.

4. Conclusion

To sum up, micro-lesson, as a new teaching method, has a wide application prospect in chemistry teaching in senior high school. By reasonably designing the content of micro-courses, scientifically arranging the time of micro-courses, strengthening the interaction of micro-courses and combining traditional teaching methods, students' learning efficiency and understanding ability can be effectively improved, and the innovation and development of chemistry teaching in senior high schools can be promoted. However, some problems still need to be paid attention to in the practical application process, such as how to ensure the quality and effect of micro-lesson videos and how to improve students' autonomous learning ability. Therefore, in the future research, it is necessary to further explore these problems and find corresponding solutions to promote the wider application and development of micro-courses in high school chemistry teaching.

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