

The Application of Micro -course in the Teaching of properties and characteristics of surfactant

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Abstract: Surfactant chemistry is one of the basic courses of applied chemistry. The properties and characteristics of surfactant are the key content knowledge points of the course. We take the performance characteristics of surfactant as an example, design and implement the teaching plan according to the learning characteristics of students and the teaching requirements of practical teaching of surfactant chemistry, and carry out the application research of micro-class-based flipped classroom teaching mode in practical teaching of surfactant chemistry.

1. Introduction

Surfactant chemistry is a rapidly developing subject as other subjects in the 21st century. The course of surfactant chemistry is the basic compulsory course of applied chemistry major. At the same time, surfactant chemistry is a compulsory course for many colleges and universities. Over the years, the majority teachers continue to improve the existing teaching mode, explore new teaching mode, and strive to improve the quality of teaching, training more qualified applied chemistry talents[1-2].

At the beginning of this century, computer additional teaching mode was gradually carried out in classroom teaching in colleges and universities, which complemented the blackboard and chalk teaching mode, improved the traditional teaching mode and improved the classroom teaching effect. Since 2011, micro-course teaching has been gradually carried out, and various kinds of micro-course teaching competitions at different levels are in full swing all over the country. Therefore, we introduces micro lesson materials into the traditional teaching process of surfactant chemistry, enriching the teaching methods and means, broke the time and space restrictions of traditional teaching, and improving students' learning initiative in orther to achieve better teaching effect [3-4].

2. Overview of micro class

Since the national program : medium - and long-term education reform and development (2010-2020) was released in 2011, China has attached greater importance to education informatization and achieved fruitful results in all aspects. It involves the discussion on the integration of information technology and curriculum, teaching and learning mode under the information environment, and information teaching design, emphasizing the transformation of learning mode brought by information technology and the support learning. Flipped classroom is born in response to the trend and injects fresh vitality into the development of educational informatization that follows to the general background of educational informatization in China. With the constant updating of information technology and teaching concepts, flipped classroom has become a hot topic in the education circles at home and abroad. In the fall of 2008, David Penrose, the “one-minute professor” at San Juan College in new Mexico, first carry on the influential “one-minute micro-video”. In recent years, university teachers have gradually introduced micro-lessons into classroom teaching and achieved great results.

3. Course Content

This section mainly describes 1) how surfactant can reduce the surface tension of water, 2) surfactant have the characteristics of washing effects, which occupies a very important position in the whole textbook system.

In addition, it can enable students to to the cultivation of ideas such as drug selection, device design and experimental methods to verify the surface properties of surfactant in the self-designed laboratory

4. Teaching objectives of chemical properties and characteristics of surfactant

4.1. Knowledge and skills

1) Understand the concept of surfactant and the relationship between structure and properties of surfactant.

2) Learning the methods of experimental research and can design and complete some chemical experiments.

4.2. Process and method

1) Cultivate students' basic methods of scientific inquiry and improve their ability of scientific inquiry

2) Explore and analyze the factors affecting the performance and effect of surfactant through experiments

4.3. Emotional attitude and values

1) Stimulate students' enthusiasm to participate in chemical science and technology activities, cultivate their awareness of applying chemical knowledge to production and life practice in order to make reasonable judgments on social and life issues related to chemistry.

2) Enhance students' interest and emotion in practical surfactant and realize the value of chemistry study through the discussion of the factors that affect on the performance and effect of surfactant.

5. Analysis of the students

1) At present, some senior college students have poor learning habits, such as no interest in learning. From the employment point of students, we take advantage of micro class means to strengthen professional class, weaken the disadvantages in order to achieve the desired effects

2) Nowadays, students tend to be emotional, have poor analytical and logical abilities, and have divergent thinking. However, they have active thinking and strong creativity, especially in the practical and practical links. The classroom contents are presented in the form of cases or thematic content, which can attract students' attention and improve the quality of teaching.

6. Design and application of micro-course

We made the surfactant performance micro class for daily washing activities as the entry point, and clarified the learning requirements in the micro class, with related homework attached. Then the micro lectures are sent to students, and also put them on the campus website, so that students can learn online or offline

The surfactant concentration and temperature which affect on the surface tension is the key problem of the lesson, teacher can explain clearly by answering questions through the network The teacher clarifies clear again the part which student don't understand so that the students master relevant knowledge fully the relevant assignment. The aim of the micro class is that let the students use knowledge in solving problems, and to consolidate the knowledge and fully mobilize students' autonomous learning to improve the teaching effect.

7. Conclusion

Micro class has received extensive attention of education workers due to many characteristics of micro class, such as short time content of pure learning goals. Micro class is more suitable for mobile ubiquitous autonomous learning. Flip class that is the reversal of the traditional classroom teaching mode, is a kind of brand-new teaching idea. The present article we build a micro class learning framework and design a practical and feasible implementation flip the process of the classroom in the high school curriculum. The surfactant chemistry course is as an example to carry on the practice, analyze the effect, the existing problems were discussed, so as to stimulate students interest in learning, cultivate the students' learning autonomy. We should constantly learn new knowledge and technology, timely summarize teaching experience, improve teaching ability.

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