

A brief talk on the teaching method of basic chemistry in secondary vocational education

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Abstract: Basic chemistry is the entry-level basic course of secondary vocational stage, teachers need to combine the course content and student characteristics to reform the course, to innovate teaching strategies under the guidance of modern education concepts, mobilize students' learning enthusiasm, introduce modern information teaching technology, promote theory and practice teaching together, highlight students' learning subject status, adopt multiple assessment methods, Fully stimulate students' learning interest, mobilize students' learning initiative, and optimize the teaching effect. This paper analyzes the teaching methods of basic chemistry in secondary vocational education, hoping to provide some effective support for the teaching of basic chemistry in secondary vocational education.

Key words: secondary vocational school stage; Basic chemistry; Teaching methods

The knowledge point of basic chemistry is dense and has certain abstractness, which makes the basic chemistry course difficult to learn. As a scientific research course, chemistry requires students to have certain creative thinking. In the teaching process, teachers need to innovate teaching methods to activate students' thinking, cultivate students' chemistry learning ability and enhance their interest in chemistry learning through open and interesting teaching mode.

1. Analysis of the main problems of chemistry teaching in secondary vocational schools

(1) It is not closely related to professional development

Basic chemistry course is a basic professional course, each major has certain universality in the teaching objectives and teaching content design of the course, but in addition to considering the universality, professional characteristics should also be considered in the design of teaching objectives and teaching content, and the course teaching objectives with professional characteristics should be designed, emphasizing the cultivation of professional quality. So that students can apply the basic chemistry knowledge to solve the relevant problems in real life.

(2) The teaching model needs to be innovated

At present, there are a variety of innovative teaching models, which constantly highlight students' dominant position in learning and help students optimize their learning results. However, the innovation of the current teaching mode of basic chemistry course needs to be strengthened. When teachers choose the teaching mode, they often choose according to empiricism, and the classroom interaction is poor, which fails to effectively highlight students' learning subject status and pay attention to students' learning needs, and thus the teaching effect is greatly reduced.

(3) The assessment and evaluation mechanism lags behind

Teaching assessment is a crucial part of teaching work, which can provide direction and guidance for teaching reform, and guide students on "what to learn" and "how to learn". At present, the assessment method of basic chemistry courses is mainly a comprehensive evaluation model of "usual score + final exam", which focuses more on students' knowledge memory ability. Students can get good results through simple mechanical recitation, and are not willing to spend time and energy to think and explore.

2. The optimization and improvement of basic chemistry teaching in secondary vocational schools

(1) Integrate life elements to stimulate students' interest in chemistry learning

Chemistry, as a natural science course, aims to serve life. In the basic chemistry course, teachers can also properly introduce life elements to enhance students' learning interest in chemistry knowledge, so as to stimulate students' interest in chemistry. The life-based chemical elements stimulate students' desire and curiosity to explore, so that they can personally participate in the learning practice, feel the interest of exploring chemical knowledge, feel the practicability of chemical knowledge.

The introduction of life elements can also cultivate students' good habits of careful observation of life, active thinking and exploration, guide them to find magical and mysterious chemical phenomena full of interest, let students apply the knowledge learned in class to life, and enhance students' awareness of participating in chemical exploration. For example, when learning the chemical properties of "sodium carbonate" and "sodium bicarbonate", teachers can introduce pipe dredging agents in life, the main components of pipe dredging agents are sodium hydroxide and aluminum powder, guide students to configure a pipe dredging agent by hand, let students understand the nature of sodium hydroxide, so that they take the initiative to participate in chemical exploration experiments. Enhance students' interest in chemical experiment exploration, improve their ability to learn chemistry, enhance their operational enthusiasm, and develop a passion for chemical learning.

(2) Question guiding thinking, cultivating students' thinking in chemistry learning

In order to get students involved in chemistry learning activities, teachers need to design some exploratory questions to guide students' thinking, make them explore further, enhance their enthusiasm in chemistry learning and exploration, enhance students' creative

ability and comprehensive exploration ability, and make them more involved in chemistry learning activities. The questions should have a certain exploration significance, reflect the interest, but also reflect the hierarchy, so that students can expand based on a certain point to form a deeper understanding and cognition of chemistry knowledge. At the same time, teachers should also encourage students to explore independently. Online learning resources provide a broad platform for students to carry out exploration activities. Students can carry out independent exploration based on online resources to deepen their understanding and thinking of chemistry knowledge.

For example, students can be organized to form study groups and carry out experiments on chemical substance identification. For example, anhydrous copper sulfate is blue and slightly acidic when dissolved in water. Copper sulfate reacts with a solution of sodium hydroxide to form a blue flocculent, copper hydroxide; And the copper sulfate solution and barium chloride solution can also have a chemical reaction, which is the sulfate ion and barium ion reaction to produce a white precipitate, that is, barium sulfate, and so on. Students formed independent experimental research groups to carry out experimental operations based on the chemical properties of each substance to verify each substance. For example, dissolve the reagent in water, the blue solution can be determined to be copper sulfate solution, and then take part of the reagent, mix it with copper sulfate solution, if found blue flocculent precipitation, you can verify that the reagent is sodium hydroxide, if obtained white precipitation, you can know that the substance is barium chloride. Students conduct independent experimental exploration, which can form a deeper understanding of the chemical properties of the substance.

(3) Encourage students to explore and broaden their horizons

With the development of "Internet + education", online teaching resources are becoming more and more important in teaching activities. In daily teaching work, students often copy the knowledge, experience and skills taught by teachers, lack the consciousness of independent thinking, and lack of innovation ability. Chemistry itself belongs to the natural science course, which has high requirements for students' thinking ability and innovation ability. In teaching practice, teachers should guide students to think more and explore more, so as to improve their chemistry learning ability through independent exploration. Teachers should strengthen their own teaching ability, carefully prepare lessons, design excellent courseware, and explain the courseware in detail, so as to make the classroom teaching more lively and interesting and enhance students' ability to solve problems. Because there are many kinds of network resources, rich network resources on the one hand broaden students' horizon, on the other hand can cultivate students' thinking ability.

As there are many knowledge points in basic chemistry, it requires a lot of learning time and energy. In order to improve students' learning efficiency, it is necessary for all schools to strengthen the connection between basic chemistry and social production activities based on the concept of "output-oriented", propose the characteristics of basic chemistry, and make targeted teaching design according to the teaching objectives set in the early stage. Combine the basic chemistry knowledge with the scientific frontier development of each specialty to enhance the application of basic chemistry. It is necessary to plan the course content reasonably, grasp the balance between basic chemistry knowledge and professional knowledge, and build high quality chemistry teaching content.

Because the knowledge of chemistry is complicated, a "modular" knowledge system can be built, and the basic chemistry knowledge can be divided into modules, such as metal organic, organic pharmaceutical chemistry, natural organic and other knowledge modules. Because students have heavy learning tasks, teachers can also integrate research activities and special lectures into basic chemistry learning activities, so that students can expand their knowledge. Learn more cutting-edge knowledge in the field of chemistry, cultivate students' interest in chemistry learning, let them have more career choices, and better learn chemistry knowledge.

(4) Strengthen experimental teaching and cultivate students' ability of chemical exploration

Chemistry learning cannot be separated from experiments. However, at present, there are more confirmatory experiments in chemistry classes, and students can carry out exploration according to the experimental process listed in textbooks or extracurricular materials, lacking the process of independent thinking and independent innovation. Confirmatory experiments have the advantage of high teaching efficiency, but at the same time, they also limit the development of students' thinking. In confirmatory experiments, students are always in a passive state of acceptance, which will kill their interest in learning chemical knowledge. It is necessary for chemistry teachers in secondary vocational schools to reform the experimental teaching mode, transform confirmatory experiments into exploratory experiments, truly return the classroom to students, encourage students to complete the experimental exploration process independently, and finally form their own innovative ability.

For example, in the experimental lesson of "Sodium hydroxide dissolves in water and releases heat", teachers can innovate this experiment. The traditional experimental teaching step is to put a small piece of sodium hydroxide into a beaker containing cold water and stir it slowly with a glass rod. After sodium hydroxide is completely dissolved in water, the temperature change can be felt by touching to verify the law of heat release after sodium hydroxide dissolves in water. The teacher can stimulate the students' innovation ability through an inspiring question: in addition to touching the cup wall with their hands, what other ways can the students think of to verify the phenomenon of heat release experiment? After that, the teacher provided the students with free thinking and discussion space, and the students' thinking was mobilized and put forward a lot of innovative ideas. For example, some students said that by pasting a piece of milk candy on the outer wall of the beaker, the heat released after the sodium hydroxide dissolves will make the milk candy hot; Some students said that put a thermometer in the beaker, and the heat released after the sodium hydroxide dissolves in water will make the temperature of the thermometer rise rapidly. The students' creative ideas made the experiment more possible. Chemical experiment is an important way to show the interest of chemistry course, which can effectively stimulate the desire of secondary vocational students to explore chemistry. In the course of chemical experiment, teachers should grasp the psychology of students, from the perspective of stimulating interest, effectively mobilize the enthusiasm of students to learn chemistry knowledge, so that students can develop innovation ability in exploration.

(5) Carry out stratified teaching to meet the learning needs of students at all levels

Basic chemistry teaching usually follows the teaching syllabus to develop the basic teaching framework, but students' learning basis and learning ability are different, so chemistry teaching needs to reflect layers. Teachers should stratify chemistry knowledge according to basic knowledge, key knowledge and difficult knowledge, so as to meet the learning needs of students at all levels. According to the learning ability of students at each level, the knowledge should be explained specifically, so as to enhance the teaching quality of chemistry courses.

The chemistry course of secondary vocational schools involves many and complicated contents. Teachers need to have a comprehensive understanding of students at each level, and provide students with more teaching-related cases based on their specific conditions, so as to effectively improve students' chemistry learning level, explore the advantages of students at each level, improve their learning ability, and make them like chemistry. However, the study of basic chemistry needs a process. In order to help students build a more systematic and complete chemical knowledge system, teachers must strengthen the guidance to students in the actual teaching process. In the process of learning new knowledge, teachers should not rush to complete the comprehensive teaching task, but should gradually guide students based on their actual absorption and mastery ability. Let them absorb and master the knowledge through practice and practice. For example, teachers should pay more attention to students who are weak in receiving and slow in absorbing knowledge, and try not to waste the precious learning time of other students who are strong in absorbing and quick in digesting, so as to complete the teaching of knowledge. Teachers can provide targeted guidance for students with weak learning ability after class. Through repeated explanation, practice and demonstration, teachers can help them master knowledge and complete absorption and internalization.

Concluding Remarks

The rigorous thinking logic and magical chemical phenomena in secondary vocational chemistry are helpful to inspire students' innovative thinking. It can be said that chemistry courses have natural advantages in cultivating students' innovative ability. Chemistry teachers in secondary vocational schools should pay attention to students' consciousness of innovation, innovate chemistry teaching methods, promote students to gradually improve their comprehensive quality in chemical analysis and chemical exploration, increase the interest of chemistry, improve the quality and efficiency of chemistry teaching, and successfully achieve the goal of improving students' chemical literacy. It is hoped that the discussion in this paper can provide reference for similar research and improve the training quality of chemistry talents in secondary vocational schools.

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