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Application of Life-Oriented Teaching in Higher Vocational Chemistry Courses

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Abstract: Chemistry is closely intertwined with people's daily lives, and the application of life-oriented teaching in higher vocational chemistry education holds profound significance. It not only stimulates students' interest in exploration, enabling them to better learn and master chemical knowledge, but also enhances the course teaching effectiveness and fosters students' inquiry and practical abilities—truly achieving multiple objectives simultaneously. In view of this, this paper conducts an in-depth analysis focusing on the application of life-oriented teaching in higher vocational chemistry courses, aiming to provide valuable references for improving the teaching quality of chemistry courses and advancing the reform of higher vocational education.
Keywords: Higher vocational education; Chemistry courses; Life-oriented teaching; Application

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1. Introduction

With the gradual deepening of vocational education reform, higher vocational chemistry teaching has ushered in new opportunities for reform. In this context, how to more effectively cultivate students' chemical literacy and comprehensive abilities has become one of the teaching dilemmas perplexing higher vocational teachers. Life-oriented teaching is a teaching method that closely integrates chemical knowledge with students' actual lives. Compared with other teaching methods, it has distinct characteristics and significant advantages, which can effectively make up for the defects in traditional teaching. Life-oriented teaching emphasizes the combination of theory and practice. By introducing phenomena or examples from students' daily lives into chemistry classrooms, it guides students to conduct in-depth exploration and analysis of familiar life scenarios, thereby helping them understand and master chemical knowledge more deeply and lowering the learning threshold. At the same time, the application of life-oriented teaching can effectively stimulate students' learning interest, mobilize their enthusiasm and initiative, and further improve classroom participation. In this regard, under the background of vocational education reform, higher vocational chemistry teachers should fully recognize the important value of life-oriented teaching and flexibly integrate it into chemistry teaching, so as to more effectively cultivate students' chemical literacy and comprehensive abilities and lay a solid foundation for their all-round development.

2. Significance of applying life-oriented teaching in higher vocational chemistry teaching

The application of life-oriented teaching methods in higher vocational chemistry teaching has important practical significance. In this regard, this paper conducts an in-depth analysis of the following aspects.

2.1. Stimulate students' learning interest

Interest is the source of motivation for students to deeply participate in teaching activities [1]. Only when stimulated by a strong interest can they wholeheartedly engage in the study of chemical knowledge. Applying life-oriented teaching in higher vocational chemistry teaching and guiding students to analyze familiar life phenomena or life-close cases can effectively stimulate their interest in exploration, mobilize their enthusiasm and initiative, and make them actively participate in teaching activities, thus effectively improving the effect of chemistry teaching.

2.2. Reduce the difficulty of learning chemical knowledge

The application of life-oriented teaching in higher vocational chemistry teaching can also reduce the difficulty of knowledge learning and help students understand and master chemical knowledge more deeply [2]. Compared with other disciplines, higher vocational chemistry involves a large number of abstract concepts, complex chemical terms and chemical principles, such as oxidation reactions, ionization equilibrium, heavy metal elements, etc., which are often difficult for higher vocational students to understand and master. In the life-oriented teaching mode, teachers can connect this chemical knowledge with students' actual lives, which not only strengthens students' cognition but also reduces their sense of strangeness, making it easier for them to master relevant chemical knowledge. For example, when explaining redox reactions, teachers can introduce some common life phenomena, such as iron rusting, respiration, food spoilage, etc. In this way, teachers can help students establish cognition of knowledge in familiar scenarios, reduce their fear of unfamiliar knowledge, lower the learning difficulty, and help them better learn and master chemical knowledge.

2.3. Cultivate students' inquiry ability

The application of life-oriented teaching in higher vocational chemistry teaching can also effectively cultivate students' inquiry ability [3]. In the life-oriented teaching mode, students can find and put forward problems in familiar scenarios and try to solve them by using the chemical knowledge they have learned. This teaching method can not only effectively cultivate students' logical thinking ability and inquiry ability but also help them develop good learning habits. For example, when explaining the content of redox reactions, teachers introduce some life phenomena, such as food spoilage and metal rusting, into teaching, and guide students to conduct comprehensive and in-depth analysis of these oxidation reactions, exploring why these substances with different properties all undergo redox reactions, and what are the similarities and differences between these reactions, to enhance the depth and breadth of chemistry teaching.

3. Innovative application strategies of life-oriented teaching in higher vocational chemistry courses

3.1. Carefully select life materials to construct an interesting classroom introduction

Classroom introduction is a key link in teaching activities. An exciting and life-oriented introduction that can attract students' attention can quickly draw students' attention, stimulate their curiosity, and make them actively participate in teaching activities [4]. In this regard, during lesson preparation, higher vocational chemistry teachers need to observe life carefully and excavate materials related to chemistry teaching from daily life. For example, when teaching the content of "metal corrosion and protection", teachers can use multimedia equipment to present some scenes of metal corrosion and rusting in life in the form of pictures and videos, guide students to watch, and put forward questions such as "Students, what rusting phenomena have you seen in daily life?", "What are the hazards of metal rusting?", "How to protect metals

from rusting?", etc. In this way, optimize the introduction link, create a life scenario familiar to students, which can not only improve the depressed and boring classroom atmosphere, reduce students' sense of strangeness to new knowledge, but also stimulate their curiosity and desire for exploration, laying a solid foundation for improving the course teaching effect.

3.2. Ingeniously design life-oriented experiments to enhance students' practical experience

Chemistry is a discipline based on experiments. Organizing students to carry out chemical experiments can not only help them understand chemical knowledge more deeply, strengthen their cognition but also cultivate their experimental ability and inquiry ability [5]. In this regard, in higher vocational chemistry teaching, teachers can ingeniously design life-oriented experiments according to the teaching content and students' learning situation, so as to closely integrate life with teaching and improve teaching effect. Specifically:

Firstly, teachers can use some common items in life as experimental reagents for experiments. For example, in the experimental teaching of "acid-base neutralization reaction", teachers can replace hydrochloric acid with household rice vinegar and white vinegar, and sodium hydroxide solution can be replaced with baking soda solution. In addition, acid-base indicators can be replaced with purple cabbage juice. Let students carry out experiments with these common items in life, observe experimental phenomena, and record experimental data. In this way, it can not only stimulate students' interest in experiments, mobilize their enthusiasm, let them better master the principle of acid-base neutralization reaction, but also strengthen their cognition and make them feel the strong charm of chemistry.

Secondly, teachers can also guide students to carry out some life-oriented experiments. For example, teachers can organize students to carry out an experimental activity of making a simple water purifier. Divide the class into several learning groups with the same number and similar abilities, and require each group to complete the production of a "simple water purifier" through teamwork by using the chemical knowledge they have learned. First, tell students the chemical principle of the water purifier, then let students give full play to their imagination and creativity, and complete the production of the water purifier by using common items in life under team cooperation. After the production of the simple water purifier, teachers can comprehensively evaluate the water purification effect of the simple water purifiers made by each group, select the group with the best water purification effect, and give them rewards. In this way, it can not only help students learn chemical knowledge, understand the principle of water purifiers, but also strengthen their practical ability and hands-on ability, which can be described as achieving multiple goals with one action.

3.3. Carry out life-oriented extracurricular practical activities to expand students' learning space

Extracurricular practical activities are not only an extension of classroom teaching but also an effective channel to help students internalize knowledge [6]. In this regard, higher vocational teachers can organize and carry out a variety of life-oriented extracurricular practical activities according to the teaching content and students' learning situation, so as to more effectively cultivate students' chemical literacy. For example, teachers can organize students to visit sewage treatment plants. During the visit, arrange professionals to explain the methods and means of sewage treatment to students, analyze the chemical knowledge used, and let them see the operation of purification equipment with their own eyes. After the visit, require students to write a practical report. In this way, it can not only broaden students' horizons, increase their knowledge but also closely combine the knowledge learned in class with practical applications, helping them feel the strong charm of chemistry [7]. In addition, teachers can also organize students to carry out practical research activities. For example, divide the class into several groups, scientifically divide the urban rivers, require students to test the pH of multiple sections of the rivers, and draw a chart of the pH changes of urban rivers; at the same time, they can also guide students to investigate the use of food additives in daily life. Students can be divided into groups to conduct research in nearby supermarkets, shopping malls and other places, record information on food packaging, such as the types and contents of food additives. Then, through surfing the Internet to find information, consulting experts and other ways, understand the functions and safe use scope of these food additives. Finally, write an investigation report and share and exchange it in class. In this way, it

can not only help students correctly understand food additives, understand their functions, broaden their horizons but also cultivate their practical ability and problem-solving ability, thus laying a foundation for students' all-round development in the future [8].

3.4. Adopt life-oriented evaluation methods to fully feedback students' learning situation

Teaching evaluation is not only an important link in teaching activities but also an effective channel for teachers to understand the effect of course teaching and optimize teaching design [9]. Under the background of vocational education reform, the traditional teaching evaluation of higher vocational chemistry has some problems, such as single evaluation method and rigid evaluation standards, resulting in the lack of comprehensiveness and accuracy of evaluation results, which is difficult to fully reflect students' comprehensive abilities, and seriously affects the establishment of their learning goals and the formation of self-confidence. In this regard, under the life-oriented teaching mode, it is necessary to reform and optimize it to more comprehensively reflect students' learning situation and lay a foundation for their all-round development.

3.4.1. Adopt multiple evaluation subjects

In the past higher vocational chemistry teaching, teachers often served as the evaluation subject. However, teachers are easily affected by external factors, leading to inaccurate evaluation results. In this regard, in addition to teacher evaluation, students, peers, enterprise personnel, and other subjects can also be introduced. For example, after the extracurricular practical activities, in addition to teacher evaluation, students can be guided to evaluate their own performance and reflect on their performance in extracurricular practical activities, such as team communication and practical operation. Then, organize group members to conduct intra-group mutual evaluation, and let peers point out their advantages and disadvantages. Finally, teachers make a comprehensive evaluation based on students' self-evaluation and peer mutual evaluation, combined with experimental reports and learning performance. In this way, improve the accuracy of evaluation results, enables students to accurately understand their own problems, find their own advantages, correct them in time, and achieve comprehensive improvement of self-ability.

3.4.2. Adopt life-oriented evaluation content

In addition to paying attention to students' mastery of chemical knowledge, their innovative ability, environmental protection awareness, practical ability and other aspects should also be evaluated [10]. For example, when evaluating the experimental project of "simple water purifier", we should not only pay attention to the final water purification effect of the water purifier but also evaluate students' innovative ability, practical ability, team cooperation ability and other aspects in the experimental activity. In this way, evaluate students from multiple levels and dimensions, so as to improve the comprehensiveness and objectivity of evaluation results, and promote students' all-round development.

4. Conclusion

In short, the application of life-oriented teaching in higher vocational chemistry teaching has important practical significance. In this regard, under the background of vocational education reform, higher vocational teachers should fully recognize the value of life-oriented teaching, and use various ways and means to flexibly apply it to chemistry teaching, so as to more effectively cultivate students' chemical literacy and comprehensive abilities and lay a solid foundation for their all-round development in the future.

Disclosure statement

The author declares no conflict of interest.

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