

Digital Teaching Platform Helps the Transformation of High School Chemistry Teaching

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Abstract: With the rapid development of information technology, the digital teaching platform has become an important tool in the field of education. As the key link of cultivating students' scientific literacy, high school chemistry teaching is faced with the demand of transformation of teaching methods and modes. The purpose of this study is to explore how the digital teaching platform helps the transformation of high school chemistry teaching, in order to provide reference for improving the teaching quality and efficiency.

Keywords: Digital teaching platform; High school chemistry; Transformation strategy

Introduction

With the in-depth implementation of the 2020 Revised Curriculum Standard, it emphasizes the inclusion of digital experiments into the teaching material system, and clearly encourages the wide application of information technology in education and teaching, marking that China's basic education is gradually moving towards a new stage of digital transformation. In this context, we should vigorously promote the digital transformation of basic education, and strive to build a comprehensive coverage, efficient and convenient digital resource system^[1]. In the teaching of chemistry, the application of digital teaching methods can not only significantly improve students' interest in learning and teaching effect, but also help students better understand the difficulties of chemistry and promote the overall improvement of chemistry education quality through the integration of digital experiments.

1. The value of using the digital teaching platform to help the transformation of high school chemistry teaching

1.1 Improve teaching efficiency

The application of digital teaching platform in high school chemistry teaching plays a significant role in improving teaching efficiency. By integrating rich multimedia resources and interactive tools, the platform presents complex chemical structures and reaction processes in an intuitive and vivid way, which helps students to quickly understand and master relevant knowledge points. Compared with the traditional blackboard and book teaching, the dual visual and auditory dual stimulation provided by the digital teaching platform can attract students' attention more. In addition, the platform is also equipped with an intelligent evaluation function, which can instantly feedback the students' learning situation. This immediate feedback mechanism not only helps teachers to timely understand students' learning progress and mastery, but also accurately adjust the teaching strategies according to the evaluation results, so as to ensure that teaching activities can be carried out targeted and further improve the teaching efficiency and quality.

1.2 Stimulate students' interest

In high school chemistry teaching, the digital teaching platform has successfully stimulated students' interest in learning and their curiosity by integrating innovative elements such as gamified learning design and virtual experiments. These novel teaching methods not only allow students to learn chemistry knowledge in a relaxed and happy atmosphere, but also encourage them to actively explore the mysteries of the chemistry world, and cultivate their independent learning ability and innovative thinking. In this student-centered teaching mode, students' learning motivation is fully stimulated, and chemistry learning becomes more vivid and interesting^[2].

1.3 Promoting equity in education

With its unique advantages, the digital teaching platform plays an important role in promoting education fairness in the high school chemistry teaching. It breaks the limitation of region and time, so that the high-quality educational resources can cross the mountains and rivers, widely spread and shared with every student. For remote areas or schools with relatively scarce educational resources, the digital teaching platform is like a bridge, connecting them with high-quality educational resources, effectively narrowing the educational gap, providing more and better learning opportunities for students in these areas, and thus promoting the realization of educational equity.

2. Using the digital teaching platform to help the transformation of high school chemistry teaching strategy

2.1 Deepen students' inquiry experience through interactive tools

In the practice of high school chemistry teaching, interactive tools, as an indispensable form of digital teaching platform, are of great significance for deepening students' inquiry experience. With the rapid development of information technology, the field of education is undergoing profound changes, and interactive tools are an important driving force in this change, and they play a pivotal role in chemistry teaching. Specifically, high school chemistry teachers can enrich their teaching methods through the diversified tools in the platform of "lesson preparation assistant". For example, with tools such as taking photos and video recording, students can easily connect the knowledge points learned in class to form a systematic knowledge system. These tools not only allow students to review and consolidate what they have learned, but also help them understand chemical principles from different perspectives and deepen their memory.

In addition, tools such as judgment and choice, test and evaluation can effectively stimulate students' thinking. By participating in these interactive learning activities, students need to quickly retrieve and apply the knowledge they have learned in their minds, so as to exercise their thinking ability and problem-solving ability. At the same time, these tools can also instantly feedback students' learning situation and help teachers adjust their teaching strategies in time. It is worth mentioning that 3D models, virtual experiments and other tools provide students with an in-depth understanding of chemical phenomena. Through these tools, students can intuitively observe complex processes such as molecular structure and chemical reactions, thus gaining a deeper understanding of chemical principles. The tools such as experimental design, students 'self-evaluation and mutual evaluation further promote students' independent learning and cooperative learning, enabling them to continuously improve their critical, creative thinking and teamwork ability in the process of inquiry.

2.2 Support teachers' precise teaching through data analysis

In the practice of high school chemistry teaching, data resources and their analysis constitute an important cornerstone of precision teaching. With the continuous development of information technology, various digital teaching tools have sprung up, providing unprecedented teaching support for teachers. Among them, "teaching assistant" and "homework guidance assistant" are two highly representative tools, which are accurate teaching for teachers to provide a strong guarantee through the powerful data analysis function, ^[3]. First of all, the "teaching assistant" provides a window for teachers with its digital experiment, data sharing and other functions to fully understand the students' learning situation. Through digital experiments, teachers can collect students' data in the experiment process in real time, such as reaction time, temperature change, product generation, etc., these data can directly reflect students' experimental operation skills and understanding degree. At the same time, the data sharing function enables teachers to easily obtain students' learning progress, homework completion and other information, providing rich data resources for accurate teaching.

The "homework guidance assistant" further strengthens the data support of teachers through the functions of answer statistics and immediate feedback. It can make real-time statistics of students' answers, including the correct rate, error rate, easy to error points, etc., providing teachers with a detailed students' study analysis report. Through these data, teachers can quickly find out the difficulties and problems encountered by students in the learning process, so as to adjust teaching strategies in time to ensure that teaching activities can accurately meet students' learning needs. Finally, the immediate data analysis not only helps teachers to find out the needs and difficulties of students, but also realizes the transformation of student activities under the data empowerment. Under the guidance of data, teachers can more accurately guide students to conduct experimental operations, answer difficult questions, and even make personalized teaching plans according to students' individual differences. This precise implementation of teaching activities not only improves the efficiency of classroom teaching, but also promotes the personalized development of students.

2.3 Activate students' multi-dimensional thinking through digital experiments

In chemistry teaching, digital experiment, with its unique charm, has become an important push force to stimulate students' multi-dimensional thinking. Traditional chemical experiments are often limited by experimental conditions, observation means and other factors, and it is difficult to reveal the essence of chemical phenomena comprehensively and deeply. The digital experiment, with its accurate data collection, intuitive image display and powerful data analysis ability, effectively solves this problem, so that students can develop more in-depth and comprehensive thinking in the chemistry experiment.

Through high-precision sensors and data processing software, digital experiments transform chemical phenomena that are originally difficult to observe or measure into quantifiable data and visual images. This "visualization" and explicit treatment method enables students to understand the experimental principles and phenomena more intuitively, so as to avoid the difficulty in understanding because the experimental phenomenon is not obvious or difficult to observe. At the same time, the dynamic presentation of data and images also provides students with richer and more diversified information sources, which helps them to understand and analyze chemical problems from different angles and levels. On this basis, the digital experiment further cultivates the students' thinking ability such as evidence reasoning and model construction. Students need to analyze and reason according to the experimental data, so as to draw scientific conclusions. In this process, they need to use logical thinking, critical thinking and other advanced thinking ability, in-depth analysis and interpretation of the experimental data. At the same time, the digital experiment also provides students with practical opportunities to construct chemical models, so that they can further abstract the chemical laws on the basis of understanding the experimental phenomena, so as to form a more systematic and comprehensive chemical knowledge system.

Conclusion

To sum up, the digital teaching platform plays an important role in the transformation of high school chemistry teaching, which not only improves the teaching efficiency, but also stimulates students' interest in learning and promotes educational equity. In the future, we should further explore and optimize the application of the digital teaching platform in the high school chemistry teaching, so as to better serve the teaching reform and student development.

References:

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