

Research on the Strategy of Integration of Information Technology and Inorganic Chemistry in Senior High School

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Abstract. The content of inorganic chemistry in senior high school is complex and difficult to understand. The integration of information technology and inorganic chemistry in senior high school can enrich the way of classroom introduction, implement situational teaching and stimulate students' love for inorganic chemistry. At the same time, it can also provide alternative means for our senior high school students to understand knowledge, which can effectively break through the key and difficult points in the classroom and transform the abstract content in chemistry into visual knowledge. This paper first clarifies the theoretical basis for the integration of information technology and high school chemistry resources, introduces the source of chemical teaching materials in information technology, and proposes that multimedia information technology is the best auxiliary teaching method in high school inorganic chemistry classroom, which has the advantages of strong effectiveness.

Keywords: Information Technology; High School Inorganic Chemistry; Multi-Media; Classroom Teaching.

1. Introduction

With the advent of the information technology era, all walks of life are affected by it, and classroom teaching has become efficient and innovative because of its involvement. More and more abstract knowledge. As senior high school students, we should rack our brains to make the abstract inorganic chemical equations and other contents difficult to understand become visual and easy to absorb. In this way, our learning confidence will be doubled and we can better formulate the inorganic chemistry learning plan. Teachers integrate information technology, especially multimedia technology, into the classroom well, and show abstract problems through video materials, network pictures, and other teaching resources. We learn more thoroughly. From the perspective of teaching our high school students, it is conducive to the formation of chemical thinking.

2. The Theoretical Basis of the Integration of Information Technology and Inorganic Chemistry Teaching Resources

The speed of information development has driven the reform of secondary education in China, and secondary education represented by high school education has also been branded with the era of information. Inorganic chemistry information teaching has laid the foundation for the modernization of secondary education. To achieve the modernization of secondary education, the only way is to integrate information technology and inorganic chemistry in high school. Professor Qian Xuesen, the originator of missiles, once put forward the evaluation that the future education is the combination of the human brain and computer network. Inorganic chemistry education informatization has many advantages, such as the ability to collect teaching resources worldwide, the diversity of learning methods, and the creation of a good platform for autonomous cooperative learning. It can organically combine information resources, information technology, and chemical learning knowledge points. We need to study how to connect theory with practice, how to integrate the concept of "informatization of inorganic chemistry education" into the learning process of inorganic chemistry in high school, how to collect the resources needed for learning, and how to solve the practical problems in learning.

3. Sources of Inorganic Chemistry Information Resources

There are many sources of teaching information resources, including modern media such as TV, the Internet, newspapers, and magazines. In the classroom, we can try to get rid of the shackles of textbooks, pay attention to the relationship between inorganic chemistry and people's life by watching TV and newspapers, improve our enthusiasm to learn inorganic chemistry, and achieve the effect of applying what we have learned, and cultivate our ability and consciousness to insight into problems, dare to raise questions, and actively think about problems independently. Inorganic chemistry information learning resources on the Internet are the most abundant. From the chemical microstructure to the macro world, from simple pictures to complex animation effects, from fixed statements to dynamic content, from the history of chemical development to contemporary chemical scientists, from experiments in teaching materials to unimaginable on-site chemical experiments, the Internet presents a colorful chemical world for people. For example, the ignited magnesium strip can burn violently in the gas collecting cylinder full of carbon dioxide, which is a demonstration experiment in the high school textbook. Through an online search, you can download the amazing experiment of "lighting the magnesium bar between two pieces of dry ice, turning off the light, and seeing strong luminescence and heating in the dark" and increase the chemical interest and sensory impression through the experimental video. However, relying solely on various search engines, blindness and oneness are more prominent; If we only rely on the learning of theme websites or online courseware, and the content is relatively thin, what we need is a learning resource platform with rich information but strong pertinence. The author believes that as a senior high school student, the most suitable way to integrate information technology and inorganic chemistry teaching in senior high school is multimedia learning way.

4. Necessity of Information Technology Integration into High School Inorganic Chemistry

4.1 Requirements for Improving Teaching Quality

After the new curriculum reform, the traditional teaching model has been completely abandoned. The new teaching mode makes use of efficient information technology, integrates the teaching resources required by teachers, improves teachers' teaching levels, creates a relaxed teaching atmosphere, and greatly improves teachers' teaching quality.

4.2 Rapid Development of Modern Information Technology

Informatization is the general trend of social development today, and the application of modern information technology in the field of education has become the development trend of the education model in the new era. Therefore, today's teachers should follow the trend of social development in teaching activities, make rational use of information technology, grasp the maximum use of modern information technology in teaching activities, and strive to show students the teaching characteristics of the new era.

4.3 Requirements of the Course Itself

Inorganic chemistry in senior high school is far more theoretical and complex than other disciplines. It has a large teaching difficulty coefficient, low students' interest in learning, and generally low academic performance. Information technology has solved this problem well. With its multimedia technology, inorganic chemistry has become no longer boring, and the basic theory has become lively and interesting, greatly improving the efficiency of teachers' teaching and students' learning.

5. Practice of Information Technology in Inorganic Chemistry in Senior High School

Improve students' interest in learning and create a good learning atmosphere. For example, when teachers teach students about the composition and structure of common substances through multimedia modern information technology, they can use video animation to show students the basic composition of substances, which will remind students of animation composition when they think of the substance in the future to achieve a profound goal. Use modern information technology to help students build knowledge systems. The chemistry course has a large number of chemical equations that need to be memorized, and each chapter has a complete knowledge context. To integrate these fragmentary knowledge threads to form a complete knowledge system, teachers need to use some image structures on the multimedia to guide students to fill and modify the entire structure. In this way, it can not only promote students' deep memory of knowledge points but also train students' logical thinking ability. Inorganic chemistry is an empirical subject, and chemical experiments account for a large proportion of the whole chemistry curriculum. The knowledge that has been verified by the experiment is always fresh in the students' minds. Therefore, teachers should vigorously promote experimental courses in the teaching process. For those experiments that lack practical feasibility, teachers can use animation to simulate experiments, so as to let students form a knowledge system that combines experimental phenomena and knowledge theory systems.

6. The Role of the Integration of Information Technology and Inorganic Chemistry Classroom

6.1 Create Teaching Situations, Stimulate Interest and Improve Classroom Efficiency

Learning interest determines the potential of students to learn a certain subject. Interest is the preference and choice of people's hearts for specific things. Students cannot learn without interest as a guide. Chemistry teachers should reasonably choose the teaching information resources that students are interested in, and show them through multimedia-assisted teaching, so as to create a teaching atmosphere with strong interest and let students participate in the classroom. Through the application of information technology, the intangible teaching content can be turned into something tangible. Through video pictures and animation effects, it can be displayed to students, so that students can learn to think in the process of watching. This is a subversion of the traditional learning mode, making the classroom dynamic and inspiring, increasing the actual capacity of the classroom. In just 45 minutes, It enables students to deepen their understanding of inorganic chemistry principles and knowledge and improves their application ability. Under the background of rich and colorful information resource sharing, students can learn real inorganic chemistry knowledge and optimize classroom efficiency.

6.2 Help Highlight the Key and Difficult Points of the Textbook and Enrich the Teaching Methods

The research object of inorganic chemistry in senior high school is the change of the microcosmic world such as molecules, atoms, and ions. For these microcosmic worlds, the traditional methods that have no visual display cost a lot of classroom time, but the effect is not satisfactory, because the microcosmic world needs to be displayed in a visual way to help students understand. This requires teachers to use information technology means in the classroom, such as multimedia means, to express abstract and indescribable conceptual things through intuitive and visual things. This can reduce complexity to simplicity and achieve twice the result with half the effort. In particular, multimedia courseware can contain words, sounds, and videos to achieve the effect of both pictures and texts. In this way, we can avoid too many abstract things, start from the visual image, increase students' understanding of the micro world, and break through the key and difficult points.

6.3 Increase the Capacity of Chemistry Class and Integrate the Content

There will be a large number of examples and chemical equations in the chemistry course. The knowledge of each chapter will form a knowledge network. These knowledge networks should be presented to students in an intuitive form. The best way to display them is through information technology represented by multimedia. On the basis of expanding the chemistry classroom, we can also improve our ability to understand, digest and absorb knowledge. In inorganic chemistry class, blackboard writing is necessary, but it takes a lot of time to write. We focus on taking notes but ignore the important and difficult points. We can use information technology to increase knowledge points, highlight key and difficult points, and especially record some important knowledge points based on the actual content.

6.4 Optimize Chemical Experiment Links in Senior High School, Plus Feedback and Evaluation

As a typical representative of natural science, we should summarize essence through chemical phenomena. Therefore, chemical experiments are very important for understanding and consolidating knowledge. Chemical experiments can make us contact with chemical phenomena at zero distance, gain direct experience, and cultivate our awareness of learning and using flexibility. Therefore, when we do experiments, we can use information technology to carry out simulation experiments, which are generally difficult for our students to operate directly, and are dangerous experiments. Secondly, feedback practice needs to be strengthened. The mastery of inorganic chemistry knowledge needs to be consolidated through a lot of practice. Therefore, in the classroom, we also need to conduct self-testing and timely self-feedback and evaluation after class.

7. Precautions for Using Information Technology

Although information technology is important for the study of inorganic chemistry content, it should be carefully controlled when it is used. If the user is not scientific and reasonable, the effect is the opposite. Therefore, the following matters should be paid attention to when using information technology in the study process.

7.1 Don't Put the Cart before the Horse in Mastering the Main Content of the Class

The main content of the classroom should be the content of the teaching materials. The information technology represented by multimedia only plays a role in assisting learning, and cannot replace the entire learning process. We need to respect the characteristics of the subject and the law of learning. We should not just focus on the exquisite courseware made by teachers, but return to books and listen carefully to the teacher's explanations of key and difficult points.

7.2 The Role of Note-Taking cannot be Ignored

The teacher shows us the beautiful courseware content. Usually, the blackboard writing is in the courseware. We students can't just look at it and ignore the role of note-taking. This is wrong. Taking notes in class is a good learning habit. The blackboard writing displayed in the media is equivalent to replacing the teacher's summary of knowledge points with chalk on the blackboard. As students, they should record these knowledge frames with notebooks to consolidate and sort out the knowledge points after class. The chemical equation should be demonstrated to us in a dynamic form on the courseware to show us the whole process of reasoning and summary. We should seize the opportunity to record, otherwise no matter how good the classroom design is, it will be difficult to play a role.

7.3 Grasp the Rhythm of the Class, and the Class Capacity Should be Moderate

Multimedia can expand the capacity of the classroom, and the speed of knowledge replacement is very fast. We should grasp the time of knowledge replacement, not too fast, and grasp the discretion, otherwise, no advanced teaching aids can achieve the desired effect. At the same time, we should

keep up with the changing speed of the courseware and maintain concentration in the classroom, otherwise, we will lose the knowledge points linked with each other.

8. Conclusion

From the above analysis, we can see that the integration of information technology and subjects is the unity of theory and practice. We need to strengthen how to make information technology directly play its role and how to link information technology and the inorganic chemistry learning process in the classroom. It is true that having the quality of information technology is the basis and prerequisite for achieving the unity of information technology and disciplines. It is necessary to use information technology reasonably in inorganic chemistry learning under the guidance of teachers' inspiration, make systematic arrangements and design, improve the effect of inorganic chemistry learning based on their own ability, master the learning methods suitable for the information age, and make the integration of information technology and discipline learning more practical. However, information technology has both advantages and disadvantages. For example, some students in our class with poor self-control became addicted to online games in the name of information technology. In addition, some chemical experiments cannot be replaced by network simulation experiments, otherwise, they will lose the effect of experiments. Distortion also occurs when information technology is used to simulate the microscopic chemical world.

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