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Reform and Application of Basic Chemistry Experiment Teaching Mode under the Internet + Perspective

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***Abstract*:** Basic chemistry experiment teaching needs to reasonably integrate internet teaching elements, improve the depth and breadth of relevant teaching work, and break the limitations of traditional teaching work in time and space. In this process, teachers need to combine flipped classroom to return more classroom teaching time to students. Secondly, we also need to clarify the relationship between classroom teaching and network teaching, and never put the cart before the horse. This paper briefly discusses the reform and application of basic chemistry experiment teaching mode under the Internet + horizon.

***Keywords*:** Internet +; Basic Chemistry Experiment Teaching; Reform

1. Introduction

The reform of basic chemistry experiment teaching mode needs to be targeted and focused in the Internet + horizon. Teachers need to borrow the cyber source to improve the existing experimental teaching contents. At the same time, students should be guided to achieve the independent and efficient pre class preparation and self reinforcement learning after the course, so as to maximize the use of fragmentation time, and achieve good teaching guidance for students.

2. The advantages of basic chemistry experiment teaching under the Internet + horizon

2.1 Breaking the time and space constraints of traditional teaching work

Traditional teaching management activities are usually limited to the classroom or laboratory. Students often study independently after class. In this process, they cannot get effective teaching guidance from teachers, which make students lose the focus of learning. In today's Internet + horizon, the management of basic chemistry experiment will no longer be restricted by time and space in traditional teaching. Students can use their fragmented time to study independently and efficiently through the Internet and intelligent devices, arrange the corresponding learning progress according to their learning status, and show the timeliness and comprehensiveness of network education in the new era, so as to help students develop good autonomous learning habits, and cultivate students' awareness of lifelong learning.

2.2 Enriching the existing teaching functions combined with the network education platform

In the Internet + horizon, students are carrying out basic chemistry experiment teaching courses. Teachers can share corresponding courseware in the form of pictures, videos and documents. The students downloaded the corresponding learning courseware on the learning platform to learn independently. At the same time, in this process, middle school students can share their learning materials obtained from other ways with students and teachers to activate the online classroom teaching atmosphere, and more intuitively and comprehensively show the knowledge content that is difficult to be expressed or described directly in language in the traditional classroom learning process in the form of pictures, documents and videos.

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3. The problems of basic chemistry experiment teaching in the Internet + horizon

3.1 Students have poor self-control

There are significant differences between online education and offline classroom education. In the process of classroom teaching, teachers can timely restrict students' improper learning behavior and draw students' attention back to classroom learning. However, in the online classroom teaching after class, due to the lack of face-to-face communication, it is difficult for teachers to realize the directional management of students, and it is difficult to play a good teaching guidance effect for students with relatively poor self-control ability. Some students are easily distracted during online classroom learning. At the same time, students do not fully face up to learning in online classroom. Therefore, based on the above situation, teachers should timely help students establish a correct awareness of online classroom learning and improve students' autonomous learning ability and self-control.

3.2 The effect of autonomous preview before class will have a corresponding impact on experimental learning

Combined with network classroom teaching, it is mainly to realize the preview of relevant teaching knowledge points before class and consolidation practice after class. If students cannot achieve good self-learning effect in the process of preview before class, it may affect their experimental inquiry learning in class. At the same time, for students with relatively poor autonomous learning ability, due to their lack of autonomous learning strategies, the efficiency ofautonomous learning is low, which affects the follow-up classroom practical learning. Teachers should pay enough attention to relevant problems.

4. The reform of basic chemistry experiment teaching mode under the Internet + perspective

4.1 Clarifying the relationship between classroom teaching and network teaching

In the Internet + field of vision, the relationship between classroom teaching and online teaching should first be defined in the reform of teaching mode of basic chemistry experiment. Specifically, offline classroom teaching should be the main part of basic chemistry experiment teaching, while the corresponding online education after class is a supplement to offline classroom teaching. In the relevant teaching mode, teachers and students need to clarify the relationship between the two, and do not put the cart before the horse. At the same time, in the network teaching work, during the setting of relevant teaching resources and teaching contents, teachers need to closely focus on offline classroom teaching, so that students can complete the pre class preview and post class consolidation exercises of relevant knowledge points in advance through independent and efficient learning and exploration.

4.2 Introducing the teaching strategy of flipped classroom

In Internet + visual field, the reform of teaching mode of basic chemistry experiment should also regard students as the main body of classroom teaching. In order to achieve this goal of teaching management, teachers need to introduce flipped classroom teaching strategies in the process of chemical experiment teaching. It is difficult to achieve good teaching effect when flipping classroom is introduced into the traditional basic chemistry experiment teaching course without the support of Internet. Specifically, in the traditional flipped classroom, teachers need to return more classrooms teaching time to students, so that students can carry out independent and efficient group discussion learning. The prerequisite for relevant teaching work is that students can preview independently and efficiently before classroom teaching. In the era of underdeveloped network, it is difficult for students to conduct complete pre class preview through network resources, which makes the actual teaching effect of flipped classroom relatively low.

After introducing the corresponding Internet teaching management mode, teachers can give full play to the teaching effect of flipped classroom. Before classroom teaching, teachers need to upload the key contents contained in the corresponding chemical experiment teaching courseware to the network learning platform in the form of electronic courseware, so that students can previewthe relevant courseware independently in advance, consult the corresponding learning materials, and make a corresponding understanding of the chemical experiment course in advance. During this period, in order to test the actual preview effect of students, teachers can combine the online knowledge test to help teachers adjust the focus and key points of knowledge explanation in the subsequent flipped classroom.

After that, in the corresponding flipped classroom, teachers let students carry out group discussion learning and share their learning experience with each other. Students can also check omissions and fill vacancies in the group to improve their knowledge structure. Teachers then explain the key and difficult problems of relevant experimental courses according to the students' pre class preview status and their autonomous learning in the group, so as to ensure that the corresponding basic chemistry experiment teaching is targeted and focused.

After the students complete the flipped classroom learning, the teacher will give the students corresponding teaching courseware to consolidate and practice the key points of knowledge in the classroom. Combined with the form of network forum, the students can speak

freely in the forum and express their own experience in the study of basic chemistry experiment. And in this process, it can also ensure that students with relatively poor academic performance can catch up with the teaching progress, and help students with excellent academic performance to master more knowledge through corresponding after-school expansion learning.

5. Conclusion

Combined with network education and classroom education, teachers need to update and improve the traditional teaching evaluation strategy. Chemical experiment teaching focuses on assessing students' practical learning ability and practical ability, while the assessment and evaluation of students' practical ability can only be carried out in offline time. In order to improve the efficiency of teaching, teachers can arrange the written examination part in the online classroom, so that the utilization efficiency of offline classroom time can be further improved.

References

1. Zhu L, Chen H. Reform and application of basic chemistry experiment teaching mode in the Internet + horizon. Yunnan Chemical Industry 2019.
2. Hao H. Research on the teaching mode of biochemistry experiment Based on Internet + education. Science Mass (Science Education) 2020; (2): 145.
3. Gao W, Wang J, Ren H, et al. Research on inorganic chemistry experiment curriculum reform under "Internet + " mode. Shandong Chemical Industry 2019; 48(02): 188-189+191.