Case Analysis of Teaching Design for Middle School Chemistry Teachers

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Abstract: Classroom Teaching Design is the Design and Planning of Classroom Teaching, and Classroom Teaching is an Effective Platform for the Common Development of Teachers and Students. a Successful Classroom Teaching Design Can Not Be Underestimated for the Role of Teachers' Teaching. with the Continuous Development of Modern Teaching Technology and the Change of Students' and Teachers' Quality Requirements, the Quality of Teaching Design Has Become More and More Proportional to Teachers' Teaching Quality. It Can Be Said That Teaching Design Ability is an Important Yardstick to Measure a Teacher's Teaching Ability. Taking Case Analysis and Instructional Design as the Starting Point, We Use Specific Cases to Explore the Basic Content and Basic Methods of Chemistry Teaching Design. a Detailed Analysis of the Project is Carried out from the Comparison of the Overall Comparison and the Chapter. through the Above Research Process, It is Expected to Provide Some Reference and Reference for the Professional Development of Teachers from the Perspective of Actual Case Analysis.

1. Introduction

The process of chemical teaching design is to use modern educational theory and modern information technology to optimize teaching through the design of teaching and learning process [1]. The change of students' learning methods depends on the change of teachers' teaching methods, and the comprehensive advantages of scientific inquiry teaching methods have become a consensus. Today, the new curriculum reform puts forward new requirements for teachers. Teachers' professional development not only affects teachers' professional growth career, but also relates to students' growth and the implementation of the national basic education teaching reform [2]. Teaching design emphasizes pre-design and planning. Everything is pre-established and not preemptive. Although there are many factors in the process, the more elaborate the design, the more difficult it is to grasp the complicated situation. Therefore, if you want to implement effective teaching, you will not leave. Open effective teaching design [3]. Each question is an indispensable aspect of classroom instruction design. At the same time, it involves the selection of teaching methods, teaching modes, teaching strategies and other factors. It can be said that both the steps of teaching design and the results of previous research are taken into account. The vertical integration and horizontal integration between the objectives of different disciplines pay more attention to cultivating interdisciplinary and literacy related to social adaptation.

2. Design of Teaching Objectives

Modern education theory holds that the teaching goal is the expected result of students' study or the standard that students' activities should reach. The basic feature of teaching design is how to create an effective teaching system [4]. These definitions elaborate teaching design from different angles. Although each has its own emphasis, they have common characteristics. It is a complex of students' knowledge, skills, emotions, attitudes, values and other requirements. It points to the process and pays attention to the students' understanding in the process of training, rather than the result orientation. The goal of chemistry classroom teaching is to express the expected results of chemistry classroom learning activities. It determines the direction of teaching work and restricts the activities of teaching and learning in chemistry classrooms [5]. Therefore, effective teaching must deal with the relationship between teaching and development, deal with the relationship between the recent development zone and the existing development zone, the relationship between general development and special development, and the relationship between common development and differential development. An excellent teacher should not only correctly understand the important position of teaching design, but also learn to make timely and necessary teaching strategies based on the student's learning state. Teaching design is not only a program to guide students' learning, but also a program to guide teachers' actions [6].

3. Design of Teaching Strategies

Teaching strategy is a way to achieve specific teaching objectives. The design of teaching strategies is an important part of teaching design, and it is an effective solution to the problems of "how to teach" and "how to learn" [7]. Objectively, the learning materials themselves should have logical meanings. subjectively, the learners themselves should have an active learning orientation. at the same time, the learners themselves should have a certain knowledge base, which can assimilate the new knowledge that the learners need to learn. For a long time, middle school teachers have a sense of distance in the application of teaching design theory, and there are blind spots in the process of transforming theory into practice. The reason is that the previous teaching design theory lacks concrete and in-depth analysis of chemistry classroom teaching structure. The teaching strategy includes the arrangement of the teaching process and content, the selection of teaching methods, learning methods, teaching steps and organizational forms, etc. It is to solve the problem of how to realize the teaching objectives. The core literacy of the chemistry discipline should be implicit in the content of the textbook. Teachers should combine the teaching content and creatively develop and use teaching materials for the purpose of achieving the core literacy of the development discipline according to the actual situation of the students. Therefore, the teaching design fully guides the students' curiosity, avoids the students' eagerness to seek new knowledge due to the increase of academic burden, and the irrational competition consciousness in the study distorts the correct evaluation of the self. The curriculum standard clearly defines "diversified learning methods based on scientific inquiry" as one of the key points of chemistry curriculum reform, and should undoubtedly become the focus of teaching strategy design [8].

4. Case Analysis of Middle School Chemistry Teaching Design

4.1 Case Analysis Method

This paper selects two teaching contents from the widely used current PEP version of the ordinary senior high school curriculum standard experimental textbook, and according to the current requirements on the core literacy of chemistry discipline, re-examines the contents of the textbook and excavates the core literacy value of the discipline. Through interviews with the three teachers and specific analysis of the teaching design texts of the three teachers, statistics of the relevant data of the teaching design analysis project, the characteristics of the teaching design of the three teachers are obtained, hoping to provide some reference for understanding the professional development of teachers.

4.2 Analysis of the Overall Characteristics of the Case

The overall characteristics of the analysis cases are mainly from the following aspects: teacher background, educational and teaching knowledge reserve, educational and teaching methods and abilities, teaching design concepts and teaching design styles. In teaching, the main properties of chlorine and its compounds should be understood by combining application examples in real situations or through experimental exploration, and the application of chlorine and its compounds in production and its impact on ecological environment should be understood. Chemistry classroom teaching section is a constituent unit of chemistry classroom teaching. The organization of teaching section content and the arrangement of teaching section sequence not only reflect teachers' teaching ideas, but also affect students' learning results, which can be said to be the only way to achieve this ideal effect. Adequate knowledge reserve in education and teaching can help teachers to understand textbooks more deeply, improve the effect of teaching and improve the perspective of teaching evaluation. In a sense, the determination of teaching content and the setting of teaching situation are the static elements of teaching design, while the design of teaching activities and processes is the dynamic elements of teaching design. When the teacher asks the students to recall what they have learned before, the students only care about their own memories, without considering that they can help each other. Teachers' professional background makes theoretical knowledge thorough in practice, and teaching is in the stage of proficiency, but there is still a lot of room for improvement.

After analyzing the teaching concepts of the three teachers' teaching design, Table 1 is obtained. High, medium and low are used to indicate the degree to which the teacher holds the teaching idea, high is used to indicate that the teacher holds this idea and carries out significant teaching design, middle is used to indicate that the teacher holds this idea for general teaching design, and low is used to indicate that the teaching design idea held by the teacher is not obvious.

Table 1	l Statistical	Table C	Of Three	Teachers'	Teaching	Design	Concepts
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Teaching design concept	A teacher	B teacher	C teacher
Focus on the collaborative interaction between teachers and students	High	Middle	High
Pay attention to students' self-directed learning	Low	high	Low
Pay attention to the subject status of students	High	Middle	High

In terms of subject content knowledge, teachers are teachers of chemistry teachers' major, who have been teaching for a long time and have already met the amount of knowledge required for teaching. No very detailed records are required for questions, inquiries, exercises and summaries involved in teaching design. Chemistry studies the composition, structure and change of matter. In the process of change, we should use the method of inquiry and find evidence to reason. Teachers should make initial arrangements for classroom teaching according to students' cognitive development, subject knowledge logic, curriculum standards and other factors. Not confident enough in the subject knowledge, many knowledge points are recorded in detail in the teaching design text. The teacher said that in order to ensure that there is no knowledge error in the teaching process, he often chooses to record the knowledge points in detail. Therefore, the core content can be adjusted in the order of presentation, presentation and depth, and connected into a series of problems with internal logical relationships, and then run through a series of student activities, making the whole class an organic overall. Only after the students have a deep understanding of the issues they are discussing, the cooperative learning between the students is meaningful. The students express their opinions in the process, listen to the opinions of others, and form a collision through the collision of thoughts. New perspective. According to the students' reflection and further reflection on teaching, students are given the opportunity to express themselves freely in an encouraging way. This kind of teaching method can make students and teachers resonate with thoughts, while teachers are lack of communication between teachers and students.

In this paper, the teacher's teaching design style is the personality and difference of each teacher's handling of information. After analyzing the teaching design styles of the three teachers, the following Table 2 is compiled:

Characteristics	A teacher	B teacher	C teacher
Characteristics		Dictioner	
Organization of information	Pay attention to the structure	Pay attention to the	Pay attention to the description
8	and relationship between	information structure	of objects
	and relationship between	i relationship between mormation structure	
	information		
Representation of Information	Process, Diagram, Text	Process, Text	Text
Strategies for solvi	g Induction, Analysis, Analogy	Induction and analysis	Practice, Analogy
problems			

Table 2 a Summary Of the Teaching Design Styles of the Three Teachers

Classroom teaching scenario design is that teachers, in order to achieve teaching objectives, create certain cognitive scenarios and emotional atmosphere according to certain teaching contents to activate students' existing knowledge, experience and learning motivation. In order to ensure that the students can get the experimental results consistent with the facts as much as possible, the teachers divide the groups into groups first, then let the groups combine into large groups, and let the groups discuss the conclusions obtained by their own groups in the experimental process, so that each group can reflect on and revise the experiments they have done. From the teaching theory to the educational idea and then to the teaching design idea, let the teaching theory go down the high altar. For teachers, the key to becoming excellent teachers is their own internal needs, which is closely related to teachers' teaching ideas. Taking this case as an example, the teacher prescribes the scope of reagent and the content of inquiry, which not only makes the students have no clue, but also has certain difficulty. In the process of inquiry, the students will constantly stimulate their desire for inquiry. The reason for this is that considering that you have just learned the chemical balance, setting this section allows students to know how to consider the balance problem and help students learn about future knowledge. The idea promotes the teacher's behavior. As long as the teacher maintains the scientific teaching philosophy and continues to accumulate and internalize the experience, teacher can grow rapidly.

4.3 Comparative Analysis of the Characteristics of Different Cases

In the teaching design, we should show students various chemical-related examples, let students feel the magic and uniqueness of chemistry, let students recognize the role of chemistry in social development and real life, and let students have a strong interest in chemistry. At the same time, enhance social responsibility and recognize the social value of chemistry learning. Students take the life experience or observation of things around them as the starting point, get chemical knowledge from life, and realize the speed of chemical reaction. The premise is that teachers can effectively transform internalized chemical scientific experience into chemical learning content and present it to students in the form of chemical learning tasks. Formative evaluation in classroom teaching process is a kind of process evaluation. Its purpose is to diagnose the formation process of goals. Through timely feedback and correction, it can form a more suitable teaching for students, thus helping teachers and students achieve the set goals. Teachers show the relationship between chemistry and life to students by video, which is helpful to broaden students' vision. However, it is more meaningful for students to experience the wonder of chemistry through physical objects. The instruments and operations in interesting experiments can also instill the consciousness of standardized experiment operation into students. Students with different characteristics are easy to complement each other in the same group and learn from each other. At the same time, due to large differences, different starting points of thinking are more conducive to the collision of sparks of thinking.

Chemistry is an experiment-based science that focuses on the knowledge of cultivating students' inquiry ability. Entering the chemistry laboratory and focusing on training students' operation ability. From scientific literacy to the present core literacy, they are all implicit in chemistry teaching content and are the result of the continuous accumulation and deepening of subject knowledge. In order to achieve this goal, the setting of tasks usually takes the form of layers of depth, and students are encouraged to complete the process of learning content construction by themselves. In the design of teaching evaluation, we should not only formulate the evaluation criteria of students' academic performance, but also formulate the criteria for evaluating the development of inquiry ability, experimental skills, hobbies, critical thinking and innovation ability, as well as personality differences. In the process of teaching design, we should distinguish chemical and physical properties, verify the composition of candle burning and breathing air, grasp the basic principles of inquiry experiment, recognize chemical instruments, and grasp the operation principle of experiment. Teachers should try to let students take turns to assume different roles. In different tasks, take turns to assume the role of team leader, experimenter, recorder, rapporteur, etc., let students try each role, ensure the enthusiasm of students, and promote The multifaceted

development of students.

In the teaching of this chapter, teachers use examples, experiments and theoretical inferences, pictures, videos and other materials to enable students to form material microscopic views. In the teaching design, students are guided by the phenomenon of molecular movements in life. Thinking. For example, in the principle of chemical reaction, the idea of combining macroscopic and microscopic is more prominent, and the essence is understood through the phenomenon of chemical experiment; the difficulty of task can be grasped, and extracurricular knowledge is appropriately introduced to promote student development. Middle school chemistry does not require students to master the knowledge of water ionic product correction. In the process of exploring the nature of nitric acid with students, we should guide students to master the thinking method and the general method of scientific research in chemical learning, and make students understand the general process of scientific research, so as to improve students' ability of research-based learning. In addition, when using phenolphthalein and ammonia water to explore the phenomenon of molecular movement, the experiment was also improved. The combination of mineral water bottle cap dripping with ammonia water, test tube and filter paper dripping with phenolphthalein was used to prove the molecular movement. The improved experiment made the experimental effect clearer and saved experimental drugs. Taking scientific inquiry as the learning mode, combining teacher's teaching with students' learning process can promote students' chemical learning ability, scientific inquiry ability and knowledge understanding ability.

5. Conclusion

Through the case analysis in the current chemistry classroom and the questionnaires for students and interviews with teachers, we can understand that the application of cooperative learning in chemistry classroom has been more common, and teachers have the consciousness of guiding students to cooperative learning. The understanding of the curriculum and the understanding of students' cognition can be designed clearly, and in the process of implementation, it can flexibly adjust and increase or decrease according to the actual situation of students' learning, aiming at the smooth completion of students' learning tasks and the complete completion of experience construction. Many teachers think that their teaching design ability is deficient and hope to improve through many ways, but the interview also found that their efforts in this regard are far from filling the current gap. In terms of classroom implementation, we also need the active cooperative learning implemented in the classroom. Therefore, in order to develop the core accomplishment of chemistry with the content of chemistry teaching as the carrier, attention should be paid not to separate the accomplishment, but to make a comprehensive understanding of it as a whole.

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