

Practice and Research on the Infiltration of "Experiential Teaching" in Biology Teaching

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Abstract: The traditional teaching view holds that learning and doing are two different processes, which can only be done after learning. Therefore, teachers usually teach the concepts and principles to be learned first, then let students do a certain amount of exercises and try to solve relevant problems, thus ignoring the students' dominant position. The "experiential teaching" method is a teaching method that focuses on promoting students' discovery and learning, emphasizing the interaction between knowledge and learning subjects, as well as the exchange of information and emotion between teachers and students. To enable students to participate in the learning process completely requires students to play an active spirit, feel, discover knowledge and develop thinking in the process of experience. This research is guided by the theory of "experiential teaching", starting from the students' internalization of biology, and according to the characteristics of biological teaching process, it creates experiential teaching strategies and constructs an experiential teaching mode.

1. Introduction

In the usual teaching process, teachers usually speak and students listen. In the whole teaching process, teachers play a leading role, ignoring students' subjective initiative and reducing students' participation. Although the teaching reform has been continuously deepened, for most senior high school students at this stage, the impression of biological learning is mostly on the level of memory [1]. As a result, the learning efficiency is relatively low, and the ability to master knowledge is not enough to meet the educational requirements of the new curriculum standard. Students only accept passively in the learning process and seldom participate actively in the learning process, resulting in tired teaching by teachers, bitter learning by students and poor teaching effect. In order to overcome the traditionalization, mechanization and "spoon-feeding" teaching of the traditional teaching mode, we must update the teaching concept, correctly understand the teaching characteristics and carry out teaching and learning according to the law of "generation, development, application and sublimation" of teaching [2]. According to students' cognitive characteristics, emotional characteristics and biological teaching process characteristics, we have created experience teaching strategies and constructed experience teaching mode. We propose to carry out "experience teaching" in biological teaching in an all-round way.

2. An Overview of "Experiential Teaching"

"Experiential teaching" refers to the process of teaching, according to the cognitive characteristics and laws of students, teachers through actively creating actual or simulated situations and opportunities, present or reproduce, restore the teaching content, guide students from passive to active, from dependence to autonomy, from acceptance to creativity to experience the teaching situation [3]. The traditional teaching method that teachers are the center of teaching and students only need to listen carefully and copy the main points has been changed. Inquiry in this standard is a dynamic and active learning process. It is what the students want to do, not what the teacher does for them. Therefore, in the process of biology teaching, it is necessary to strengthen the use of

effective teaching methods and create a relaxed and pleasant teaching environment so as to encourage students to participate in it more actively. It is a teaching method of human culture. While grasping the integrity of students, it can also take into account the differences between individual students, so that each student can participate in the classroom and enhance their interest in learning the subject.

3. Application of "Experiential Teaching" in Biology Teaching

3.1. Creating Situations to Stimulate Motivation and Promote Perception

Teachers create situations according to their learning objectives, which is the starting point of teaching and the orientation stage of learning activities. Stimulating motivation is the starting stage of "experiential teaching" and has the functions of vitality, direction, selection, maintenance and reinforcement for students to participate in learning activities [4]. Therefore, teachers should be good at using the connection between daily life scenes and biology teaching to teach knowledge points. For example, in the explanation of heredity and variation, real life can be linked with biology teaching. To improve and expand the experiment in the teaching materials, to increase the depth and breadth of the experimental inquiry, for example, in the chlorophyll extraction experiment, students can use circular paper chromatography, and a variety of experimental materials can be used in one experiment. In this case, it is necessary to use the "experiential teaching" method to improve. Teachers can make full use of video recording or practice to show the whole process of scientists discovering and solving problems to students. Teachers macroscopically control the teaching process, participate in the process of knowledge generation through students' inquiry experience, actively discover and comprehend knowledge, and complete the construction of new knowledge [5]. Knowledge is put into question, situation and reality, because perception, activity and life are the direct ways to form experience.

3.2. Restoring Scene-Based Experience Teaching

"Experiential teaching" is to enable students to experience themselves in the learning process. Therefore, in the biology classroom teaching, teachers should try their best to restore the scene and demonstrate some life experiments that can be done in the classroom, so as to help students better understand and understand. This requires the use of "experiential teaching" to improve this situation. Teachers can watch videos or practice to show students the problems discovered by scientists. Teachers should embody the requirements of biology curriculum standards when designing biology inquiry activities, take the construction of knowledge and development ability as the main objectives, take scientific methods as important clues, grasp the setting intention of various inquiry activities, and pay attention to the effective connection with theoretical teaching [6]. In biological experiments, students through standardized operation, careful observation, and specific analysis of experimental data, finally draw experimental conclusions and apply them to classroom biological learning. In teaching, it is necessary to integrate knowledge. The process of integrating knowledge is a systematic cognitive process of knowledge. Teachers use typical examples to make students understand the characteristics of a specific thing in an intuitive way. Situational materials for situational teaching in the curriculum should be mainly in the form of text, charts and videos, and should reproduce as much as possible similar real situations [7].

3.3. Scientific Experience, Training Students' Practical Ability

Biology is a subject based on experiments, and the learning process of biology cannot be separated from the assistance of experiments. In the process of biological learning, biological experiments, research learning and scientific and technological activities are all concrete processes of students' experiential learning. Students are required to go to the field, prepare the leaves of several cruciferous plants, conduct isolated feeding observation on cabbage caterpillar, make observation records, analyze the results and draw conclusions. Teachers can analyze and explain step by step, and draw out the teaching content by using the actual observed phenomena, which not

only helps teachers to better carry out biological teaching activities, but also makes the teaching content more persuasive. Make full use of all kinds of modern teaching methods to create teaching situations that can enlighten students' thinking, encourage students to find problems themselves and solve them, so that students can consciously and fully experience the situations to solve problems, and guide students to experience the ways and methods. In extracurricular practical activities, students should be encouraged to communicate with each other, learn from each other, cooperate with each other and participate in each other, so that students can explore and acquire knowledge in an atmosphere full of cooperation. The teaching situation that encourages students to find problems and solve them, enables students to consciously and fully experience the situation for solving problems, and guides the ways and methods of students' experience, and conforms to the cognitive laws of students.

3.4. Cooperation and Exchange, Deepen Understanding and Solve Problems

Cooperation is a very important issue in classroom teaching that embodies modern teaching ideas. Communication is an important condition for the formation of subjective consciousness [8]. Cooperation and communication can promote students' experience internalization, deepen understanding and solve problems. In the actual teaching, we try our best to create an equal, harmonious, relaxed and pleasant atmosphere. Teachers and students get along with each other in a relationship of dialogue, tolerance, equality and sharing, so that students can boldly question and dare to seek differences after forming a certain understanding of knowledge. By participating in small games, students can fully lift their spirits and deepen their understanding of theoretical knowledge. We can carry out cooperative inquiry activities in small groups. When carrying out group cooperation, I carefully set up study groups, grouped according to their home addresses, and designated team leaders to be responsible for carrying out the inquiry activities of this group. Group teaching and individual teaching are supplemented, which can enable students to communicate effectively. After students think and have heated discussions, teachers should take advantage of heat to iron out the teaching contents and use biological knowledge points to answer various questions, so that students can quickly absorb relevant knowledge points. In view of the problems in inquiry learning, the study group should be taken as a unit to discuss, correct and summarize them in time. During the organization and implementation, the focus should be on cultivating students' cooperation and communication ability, and the right and wrong of inquiry results should not be deliberately pursued.

3.5. Timely Evaluation, Feedback and Adjustment Guide Expansion

In order to stimulate students' desire to learn and strengthen students' competitive awareness, in the process of solving problems between teachers and students, we carry out positive and moderate encouraging evaluation on students by means of teachers' self-evaluation, students' self-evaluation and teachers' and students' co-evaluation. Evaluation is a powerful measure and method to activate students' thinking, determines the direction and value of students' experience, and is the "result" of experience. Feedback externalization should run through the whole process of "experiential teaching". In teaching, students should be guided to sort out the information, experience and feelings obtained in the process of mutual discussion and in-depth understanding of the content, and then carefully design a set of targeted, enlightening, open and challenging questions and training questions to establish the internal connection between the old and new knowledge. It requires students to observe attentively, collect records, sort out and analyze the experiences they have experienced, so as to obtain various findings and find conclusive verification for the knowledge they have learned. This requires teachers to guide students when organizing cooperative learning, so that students can realize that cooperation is not only a way of learning, but also a life attitude and learning content. Through mutual assistance in groups, they should also learn to take responsibility. The classroom contents are carefully designed, and the current teaching mode is continuously innovated and perfected, so as to improve the students' comprehensive biological level while conforming to the teaching requirements under the new situation.

4. Matters Needing Attention in Application of "Experiential Teaching"

4.1. Students Should be Given Time and Space to Explore in Class

In classroom teaching, students' thinking space should be fully estimated while giving up time. Problem-inspired teaching methods can be adopted to guide students to read with problems and think while watching through the design of certain inspiring problems. The living environment is different from family education, and the personal status of students in the same class is also different. Therefore, teachers cannot stick to their existing knowledge of students and conclude from the students' classroom status and learning achievements that the students' inquiry learning ability is insufficient. Make it conform to the teaching purpose of imparting knowledge, teaching methods and training thinking. When students learn knowledge, they also need to sort out the knowledge, develop positive thinking and reprocess the knowledge. Society itself is a big classroom. Through social contact, students can master more knowledge that cannot be learned in school classrooms and move from classroom to society. This is helpful to cultivate students' correct concept of life, full of love for life and feeling the beauty of life.

4.2. Learning Resources Should be Drawn from Life as much as Possible

Teachers' activities should be mainly reflected in creating situations, enlightening thinking and being the motivation, guide and cooperator of students' learning. "Experiential teaching" should be geared to all students, and the education advocated by quality education should be geared to all and develop in an all-round way. Teachers choose real-life cases for teaching, students have no strange feeling about these cases, and it is easier to understand the teaching content. Therefore, every student should be provided with the opportunity to explore and show in class consciously and as much as possible, providing a stage for personality development. This requires teachers to spend more time and thoughts. They can start by talking and chatting with students, investigating their interests, observing carefully in class and other ways to fully grasp the learning situation and solve the problems that students encounter in inquiry learning.

4.3. Try to Overcome Objective Difficulties and Give Full Play to Teachers' Subjective Initiative

Although some objective factors will affect the development of "experiential teaching" in "experiential teaching", teachers can give full play to their subjective initiative and overcome practical difficulties so that "experiential teaching" can proceed smoothly. For example, scientific experimental situation: the situational material for learning biofilm system's function, "synthesis and secretion experiments of secreted proteins", cannot have too many realistic situations due to the limitation of experimental conditions and experimental funds. The learning process of biology is not only the construction process of knowledge, but also the training process of thinking. In teaching activities, teachers should be good at revealing the formation of teaching materials and changing the process of teaching from teachers to the process of discovery by students. Therefore, teachers can use multimedia to show relevant pictures and videos on the screen, which can enable students to form a specific understanding of knowledge points during the watching process and have dynamic memory of biological evolution, thus promoting students to have basic knowledge points.

5. Conclusion

In short, the "experiential teaching" method is a student-centered and life-centered teaching method. Through experiential learning, students can more easily master scientific and cultural knowledge and improve their own abilities. Let the students find something in the experience, enrich it continuously, improve it step by step, and create themselves. This will not only enable the students to learn the knowledge that can be applied in practice, but also enable the students to cultivate and develop their innovative ability in the experience. Its emphasis on "student-centered" and "experience process" is of great help to improve the traditional teaching mode, improve students' learning ability, broaden their horizons and improve their scientific literacy, and has

achieved good results in practical teaching work.

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