

Research on the Application Strategy of "Situation-guided Questioning" Teaching Mode in Vocational and Technical Education

Dehao Sheng^a, Xiangyu Jia^{b,*}, Yisheng Chen^c, and Linfeng Ye^d

Automobile NCO Academy, Army Military Transportation University, Bengbu 233011, China

^aDehao2001@sina.com, ^b920452046@qq.com, ^cChenyisheng126.com, ^dyelinfeng@163.com

*Corresponding author

Keywords: Situation-guided questioning, vocational and technical education

Abstract: Starting from the basic concept and connotation of "Situation-guided questioning" teaching, this paper focuses on the organization and implementation of "Situation-guided questioning" teaching, as well as the problems that need attention in the teaching process. Through the analysis, it is concluded that the vocational and technical education adopts the "situational guidance" teaching, highlighting the cultivation of students' ability to find and solve problems, which can better promote the development of students in "asking" and further improve the post holding ability of Vocational and technical education students.

1. Introduction

"Situation-guided questioning" teaching is a kind of teaching activity with the basic characteristic of "questioning". It is an attempt to simulate a kind of approximate practical knowledge situation by putting forward a series of questions which can reflect the teaching content and process, let the students experience the whole process of analyzing, researching, arguing and solving the problem. "Situation-guided questioning" teaching is not only a teaching idea, but also a teaching method. For Vocational and technical education, teaching objectives, teaching tasks and teaching objects are quite different from academic education, so it is necessary to have corresponding teaching methods.

2. The proposition of "situation-guided questioning" teaching

"It is often more important to ask a question than to solve a problem, because solving a problem may be only a scientific experimental skill," Einstein said. "To ask a new question, a new possibility, and to look at an old problem from a new perspective, requires creative imagination and marks real progress in science"[1]. The best art of teaching is to ask students to ask questions in the right context or situation. Doubt is the starting point of constructing teaching, creating problem situations for students to observe, analyze, reveal and generalize, so as to guide them to put forward valuable questions, and then to carry out research on the problems, training their logical thinking ability and innovative awareness, which is necessary for vocational and technical education. The famous Soviet Educator Shatalov said: "The creativity of teachers is the source of students' creativity." According to the teaching content, we can build an open teaching mode of "setting the situation - asking questions - exploring and discussing - drawing conclusions - asking new questions". This new teaching mode starts from the situation inducing students to ask questions and ends with asking new questions, which is actually another new starting point for students to learn after class. Driven by problems, students' desire to learn is enhanced, which encourages students to constantly put forward problems and solve problems, from unknown to known, so as to achieve the purpose of Vocational and technical education. In the classroom teaching of vocational and technical education, although many teachers also take problems as their starting point, they often put forward questions as their own "patent", the whole teaching process is that the teachers introduce the questions one by one according to their own design, and pursue the classroom teaching order too much, even though it is better than the pure "injection" teaching, but it can not really arouse the enthusiasm of students'

thinking, and it is easy to cause students to be long in seeking common thinking but short in seeking different thinking, so that students can only do "learning answer" , but not do "learning question" . This is not conducive to the training of students'innovative ability and good personality. In order to make the students'questions have clear aim, scientific and pertinence, the teachers should guide the students and teach them the angles and methods of questioning. Polliat said, "the important point is that questions that can and should be asked by faculty members may be raised by future students themselves" [2]. Therefore, "situation-guided questioning" teaching must go into the big classroom of vocational and technical education and will occupy a major position here, is the trend.

3. The connotation of "situation-guided questioning" teaching

3.1 The goal of "situation-guided questioning" teaching: question, think, research and comprehend

The basic aim of "situation-guided questioning" teaching is to realize the transformation from knowledge to ability, and to fully explore its individuality and creativity. Through arousing the interest, setting up the classroom situation, "guiding thinking" with the emotion, exchanging the collision with the debate "guiding research", highlighting the personality around the ability "guiding comprehension". In the process of "guiding comprehension", first, we should observe the law of "guiding comprehension", develop the students' thinking ability of transferring, extending and interactiong, understand the growing point of knowledge as well as its position and function in the knowledge network, and abstract and condense it. Second, we should be good at associating the method of "comprehension" and developing the students' ability of divergent thinking in many angles and at many levels. Third, we should be good at popularizing "comprehension" in general and developing the students' ability of dialectical thinking. Fourth, we should be good at seeking different "comprehension" characteristics. Fifth, we should be good at distinguishing and misunderstanding the essence of "understanding", and develop students' critical thinking ability.

3.2 The role of "situation-guided questioning" teaching: simulation, catalysis, innovation and complementarity

"Situational guidance" teaching can guide students to be involved in the situation, consciously integrate into specific roles, and promote the organic combination of theoretical analysis and practical guidance ability of students. Through the "problem" traction, the original knowledge and experience of students with good foundation and certain experience can be quickly mobilized, constantly colliding and integrating with new knowledge, and in a short period of time, the students with poor foundation and lack of experience can be "urged to mature".

Because of the indefiniteness of the answers in the "situation-guided questioning" teaching, the students are forced to think independently, and in the course of discussion, everyone inspires and collides with each other, constantly broadening the train of thought, raising the awareness and sublimating the thoughtIt is beneficial to train the students'multi-directional and divergent thinking mode, and to improve their innovative ability and quality.

Vocational and technical education requires more and more teachers'quality. Any teacher, regardless of the level of theoretical knowledge or experience, will have different degrees of limitations. Through extensive discussion and communication, teachers can not only find their own shortcomings, but also learn and master a large number of perceptual materials from students. In particular, some vocational and technical education students from the grass-roots factory, with a certain degree of practical experience. They come to college with an urgent need to solve practical problems and improve their ability to hold office, and teachers have a strong need to understand post practice. Through the Interaction and collision between the two sides, not only solve the practical problems of vocational and technical education students, but also make up for the teacher's lack of practice, in the multi-directional movement of knowledge to achieve mutual promotion of teaching and learning.

3.3 The principle of "situation-guided questioning" teaching: simplicity, practice, individuality and wholeness

3.3.1 Highlighting the characteristicst to pursue the principle of simplicity

The most prominent characteristic of "situation-guided questioning" teaching should be "simplicity". The simple and complicated way of thinking shows the basic thinking of solving problems and discovering knowledge. Therefore, it is of great significance to master this strategic thought in order to inspire students'interest and improve their thinking ability. "Simplicity" is the ideological source of the best way of thinking, is the "economy" of thinking, through which the best way of thinking can be produced. In order to improve the efficiency and speed of memorizing and mastering knowledge, the teaching should use simple and reasonable ways, concise and accurate language expression, simple and lively way of thinking, and concise summary, finally to achieve high-efficiency and high-quality classroom teaching effect.

3.3.2 The main line runs through to pursue the principle of practice

Practical consciousness is also called practical idea. Simply speaking, it means the view of the function and application of the post practice, which means the understanding and the degree of the practice. It should include: observing in practice, using practical knowledge to explain the problems in the job, and then analyzing in the way of practice, with the practice of thinking to deal with the four aspects of consciousness. "Situational inquiry" teaching, through solving the problems students encounter in practice to improve their ability and quality. In addition, teachers also help students to solve real-life problems in the realization of their own value [3].

Practice itself is a process of post construction. By putting forward various problems in post work, the practice model is established and the application of practical knowledge completes the transformation from knowledge to ability. In vocational and technical education, the teacher's experience is more and more important. Obviously, a teacher without any actual experience is not competent for the teaching of vocational and technical education. Therefore, it is necessary to strengthen the teaching staff from technicians and engineers with working experience, and to strengthen the training of teachers from colleges and universities to relevant factories or companies, so that the teachers gradually form "practical" exchanges between factories and institutions.

4. Implementation of "situation-guided questioning" teaching

4.1 Hierarchical control of "situation-guided questioning"

The teacher guides the question to have to carry on according to the certain step, the leading question procedure must conform to the student's cognition rule. Specifically, according to the "questions, design questions, guide questions, answer questions," the order of Control, gradually realize the transfer of knowledge to improve capacity.

The core of "situation-guided questioning" teaching lies in how to guide "questioning". The teacher should grasp the gradient and rhythm of "questioning", and master the art of "questioning". In teaching practice, teachers should follow the gradient principle of "leading from easy to difficult, from shallow to deep", and gradually lead students into a good teaching situation.

First, lead the students to imitate the question simply. Under the guidance of the teacher, students learn to ask questions in accordance with the teacher's method. Students at this stage often ask direct questions. Second, guide the students to think about the initial question. After learning how to imitate the questions simply, the students began to think consciously and put forward some new questions. After reading and thinking, students at this stage of the question has a certain sense of maturity. Again, guide the students with the problem of learning, study and then ask. When a student asks a question, the teacher does not rush to answer it. Instead, he hands the question to the student and instructs the student to focus on the question. After the students have mastered the essential characteristics of the problem, the problem that originates from the teaching content and is higher than the teaching content will naturally arise. At this stage, the problems raised by the students have

a certain depth and difficulty, reflecting a certain level, sometimes it even stumps the teacher. Finally, guide the students to understand and ask after careful consideration. When students ask questions, the teacher should participate in them in time, play the role of the student temporarily and guide the student to lead the question to a certain depth, and induce the student to ask the question at a higher level. At this stage, students often put forward questions that hit the key, with the characteristics of "revealing the law", "original", "discovery", and then "problem-solving". This group of students has a preliminary basis for moving into the professional areas of the curriculum. By setting questions, explaining questions and controlling levels, we can get unexpected teaching effects in teaching practice and achieve the expected teaching goals.

4.2 Basic strategies of "situation-guided questioning"

4.2.1 Inspiring guidance

Inspiring guidance is an effective strategy to give full play to students' non-intelligence factors and make them willing to ask questions. One is to stimulate interest. That is, teachers create interesting classroom situations to stimulate students' interest in learning and to induce them to ask questions. The other is to inspire emotion. Emotion is the catalyst for students to develop their subjectivity. Teachers must create a harmonious, friendly and relaxed teaching atmosphere, open the emotional channel of teaching communication, and integrate their emotions into the teaching content, so that the teacher and the students have empathy. Only in such a state of mind, it can make students' thinking activities really be fully, profoundly and creatively developed. Three is to stimulate the question. Stimulating question is the internal driving force to guide students to ask questions, it can motivate students to actively question the difficult. The teacher takes the pertinence to stimulate the question, can enable the student in the study to ask the question according to the key, knows which content needs to ask, and learns to control the quantity and the quality of questioning. When teachers guide the questions, they may docking the teaching focal point and the difficult point, implements "the accurate bombing" to the student in the study process difficulty.

4.2.2 Method guidance

Starting from the students' existing cognitive structure and thinking level, the teacher skillfully set questions to enable the students to obtain the methods of questioning, to master the skills of questioning, so that the students can ask and be good at asking.

First, teachers should ask questions about the key points and difficulties of the teaching content. The need of learning is the objective basis of question design. So where questions should be placed? First of all, we should understand the key points of teaching content. Put forward key questions. Each question can stir up waves of thinking. When the characteristics are studied thoroughly, the students will understand the whole problem thoroughly. Secondly, we should recognize the focus of the contradiction. It is the place where students are most confused in cognition, which is often the focus and difficulty of teaching. Third, we should know that there is no doubt on the surface, but there is doubt in fact. "No doubt" is the reflection of students' thinking staying at the superficial level in their study, not really without any problems. If we encourage questions here, we can promote thinking from the surface to the inside, from the superficial to the deep, and cultivate students' ability to find problems. Fourth, we should pay attention to the connection of the teaching content. Knowledge points and knowledge points form a complete knowledge system. Chapters, sections and subjects often reflect the internal relationship of knowledge. Setting questions here can not only make the knowledge connect before and after, but also naturally transition to the learning of the next problem, and promote the formation of students' knowledge structure of the system.

The second is to ask from the shallow depth, layer by layer progressive. The former question is the foundation of the latter question, and the latter question is the deepening of the former question, which leads the thinking step by step to the new world of seeking knowledge. This enables students to learn to turn a group of questions into a chain of several links, with the method of interlocked questions, so that the question can deepen their understanding of knowledge.

Third, we should learn to decompose problems. It is to decompose a big problem into several

small problems and put forward sub problems that are not directly related, so as to enter the center of a big problem. This kind of questioning conforms to the cognitive law of students from concrete to abstract, from individual to general. It not only enables students to better grasp the main points and connotation of the contained knowledge, but also cultivates students' ability of analysis and comprehensive thinking, enables students to learn to simplify and decompose difficult problems. When students are faced with some difficult and complex problems, they can grasp the big problems from the overall situation by putting forward some clear small problems.

4.3 Misunderstandings in "situation-guided questioning" teaching

In the process of the implementation of the "situation-guided questioning" teaching, the few questions raised by the students are beyond the teacher's expectation, and it is easy to make the teacher who is not fully prepared unable to answer them, so the teacher must make full efforts in two aspects: 1) preparing with many hands and asking questions to himself. "situation-guided questioning" teaching is a random-oriented teaching, the teacher guides the students according to their characteristics and the random situation in the classroom, which requires the teacher to stand in front of the students to simulate the situation, set their own problems. The teacher should think about all the questions, think carefully and make full preparations. In this way, the teacher can adjust and guide the lesson plan according to the different understanding degree of the objects in the class. This kind of teaching method puts forward higher request to the teacher's strain ability and the ability of grasping the overall situation. 2) the structure of knowledge should be "T" shaped. That is, the teacher horizontal knowledge to be broad, vertical field of expertise to be profound. Students ask a wide range of questions, sometimes put unexpected problems, which requires the teacher to reach a certain breadth of knowledge, in case of "will not answer" embarrassing scenes. As the dominant position of teaching and learning is changed from time to time in the classroom, the teacher's knowledge structure, thinking mode, ability of solving problems in practice and the depth, breadth and height of teaching are strongly challenged, and the teacher is required to upgrade his knowledge at any time. In addition, when students ask questions that teachers don't know how to ask, they can't avoid them, and they can't trick them. The right thing to do is to explain the reason to the students, consult the materials after class or discuss the research with colleagues, then answer the students in the next class.

5. Conclusion

Vocational and technical education aims at improving students'ability to hold a post, cultivating students'ability to raise, analyze and solve problems, and enhancing students'innovative consciousness to meet the needs of vocational and technical education. In the further development of vocational and technical education in China, we should actively study and explore the laws of vocational and technical education, focus on the cultivation of students' ability and quality, and further reform teaching methods, is the current each teacher is worth thinking and the research topic.

References

- [1] Einstein, Some thoughts on education. Speech at the 300th anniversary of American higher education, 1936.
- [2] Polya, The discovery of Mathematics (Volume I and II) [M]. Trans. Ouyangjiang, Liu Yuantu, et al. Beijing: Science Press.
- [3] Vasyl Sukhomlynsky. Recommendations for teachers, Beijing: Science Press.