

# The Problems and Strategies of Junior Physics Classroom Questioning

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**Abstract:** Classroom questioning is an important part of physics classroom teaching in junior middle school. It is not only a common method of classroom interaction between teachers and students, but also an evaluation way for teachers to effectively test students' mastery of knowledge. It is mentioned in the Physics Curriculum Standards of Compulsory Education that problem teaching should be highlighted to encourage students to actively use knowledge in problem solving. However, teachers do not pay much attention to classroom questioning in traditional classroom teaching. Therefore, this paper analyzes the existing problems of classroom questioning in junior high school physics, and expounds the countermeasures of classroom questioning, so as to improve the teaching quality of junior high school physics and cultivate students' core quality of physics.

**Keywords:** Junior high school physics; Classroom questions; Problems and strategies

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## 1. Introduction

Physics teaching in junior high school should give full play to the unique education function of different teaching methods. Classroom questioning, as an important link in the teaching process, can not only inspire students' thinking, but also guide students to actively explore and discover knowledge and actively participate in physics class through question-oriented teaching activities. In addition, teachers can obtain real feedback information from the classroom and understand the students' mastery of knowledge and skills. However, in actual teaching, teachers and students do not pay much attention to questions in class. In order to save class time, teachers only ask questions to top students, which will cause students with difficulty to lose enthusiasm for physics learning. Some teachers even only use teaching method and blindly instill knowledge to students, so that students cannot find the direction of learning and innovate their thinking. Therefore, teachers should base on the cultivation of students' core literacy in physics, give full play to the due role of questions, effectively ask questions based on the content of physics teaching, use appropriate classroom questioning strategies, promote students' active learning through question teaching methods, and constantly enhance students' ability to solve practical problems with physics knowledge.

## 2. Current Status of Physics Classroom Questioning in Junior High School

Through the practical observation of junior high school physics class and combined with the real class listening experience during the internship, I found that current junior high school students lack the awareness of problems. Physics is an experimental subject, so it is more important to propose problems than to solve them. Due to the teacher's leadership in class, many students blindly absorb the knowledge taught by teachers without thinking. Dare not ask questions or even do not ask questions, this kind of classroom teaching for students will not promote the growth and development of thinking, students can not dare to question also means that teachers do not have the opportunity to teach and learn. In class, teachers should encourage students to actively ask questions and dare to question. From putting forward problems to solving problems, students go through the process of thinking, comparison, exploration and practice, from which they can really get knowledge, understand knowledge and flexibly use knowledge to solve practical problems. In addition, some questions designed by teachers lack effectiveness. For example, the same questions keep coming up. After explaining a question, some teachers habitually ask students "Is it right?" and "is it right?". And some teachers set the difficulty of the question is too simple, students do not need to think or answer quickly, can not inspire students to think deeply; Some teachers only interact with top students in class, so the question setting cannot meet the learning needs of all students, and the question setting cannot take into account all students. Finally, teachers lack pertinence and guidance in their theoretical answers. They cannot point out the merits of specific answers pertinently, so this evaluation method may discourage students from thinking and solving problems by themselves.

### **3. Junior High School Physics Class Questions Existing Problems**

#### **3.1 Failure to Respect the Principal Position of Students**

In traditional physics classes, teachers blindly convey and infuse new knowledge to students, and students keep their heads down to take notes without thinking. Knowledge is not recorded in books, but should be truly understood and used. After the curriculum reform, it is clearly proposed that the traditional teaching mode should be changed, students' main position should be respected, teachers should take the lead, and physics teachers should have effective interaction with students when teaching knowledge points. Classroom questioning is a way of communication between teachers and students, so that students can actively participate in the physics classroom, not obsessive "stuffing teaching" but actively want to explore knowledge. However, teachers are still the main body in most classes. Whether due to insufficient schedule of the course or teachers' teaching habits, students' teaching is the main reason. Without necessary effective communication, students' physical thinking cannot be exercised and improved, and the flow of knowledge cannot be realized.

#### **3.2 The Problem Setting is not Reasonable**

Classroom questioning is an important part of physics classroom teaching in junior high school. It is aimed at all students, so the setting of questions should take into account all levels of students and meet the learning needs of all students. Questions should not be asked just for the sake of questioning. If the question is set too simple, students will lose the process of thinking and blurt out, students think that such a simple question is a waste of time, no meaning of thinking and learning, not easy to stimulate students' desire for knowledge, may produce conflict; On the contrary, if the difficulty of setting questions is too high, teachers will only communicate and interact with some good students, and some students will be afraid of being asked questions. Moreover, junior high school students are in adolescence, and their self-esteem is very strong, so they will be afraid of not being able to answer the questions, teachers' criticism and classmates' ridicule, which is very unfavorable to the development of students' ability and cannot reach the pre-set classroom effect. When teachers put forward some open questions, they may limit the answers to be very rigid because they are afraid of trouble or need to waste time to explain to students.

#### **3.3 The Way of Reasoning is too Casual**

The learning of physics requires the ability of logical thinking. Junior high school students have just come into contact with the learning of physics, so their thinking is not strict enough and they do not have enough understanding of some knowledge, so they may have logical confusion when answering questions. Many teachers will evaluate the results obtained by students when they meet such answers. They often lack the evaluation of the thinking process, only evaluate the right and wrong, and do not evaluate the students from the perspective of professional knowledge, do not pay attention to the development of students' physical thinking and the cultivation of physical ability, and do not guide students to find problems and solve them through effective guidance and independent exploration. Internalize their own knowledge, so "good" and "bad" such random and mechanical evaluation way, students will not continue to think and research learning motivation.

### **4. Coping Strategies for Questions in Junior Physics Class**

#### **4.1 Stimulate Learning Motivation and Guide Students to Think Actively**

In physics teaching in junior high school, cognitive conflict is the trigger for students to start thinking, which can not only make students out of an active state of learning. When students have different views on the same issue, this contradiction point can trigger heated arguments and discussions among students. The teaching effect achieved by these arguments is difficult for teachers to achieve in teaching. It is precisely because contradictory points are produced in the process of learning the laws of physics which are different from the original cognition, teachers can cleverly set doubts and stimulate students' enthusiasm for discussion and active thinking by centering on contradictory points and conflicts, gradually clarify the original wrong understanding, and exercise students' dialectical thinking and analytical ability, so as to achieve a good learning and research atmosphere.

#### **4.2 Scientific Design Problems, Taking into Account all Kinds of Students**

When designing questions, teachers should not be limited to the textbook to promote students' divergent thinking, nor should they be separated from the life and cognition of junior middle school students. The questions should be enlightening, relevant to the student's real life, and allow the student to use his or her brain, not just imagine. In the design of problems, teachers should design problems scientifically and reasonably according to the cognitive level of students at different levels, and make repeated deliberation and comprehensive use of a variety of teaching methods to design comprehensive, effective and accurate good questions. Moreover, the

problems in the middle school class should meet the learning needs of students at all levels. A problem can be divided into several small problems, which can be deepened layer by layer and gradually promoted to take into account all students.

### **4.3 Provide Waiting Time and Give Effective Feedback**

Different students have different time to think about a question. Students spend different amounts of time thinking about different problems. Therefore, teachers should leave time for students to think when designing questions. According to the learning situation and the difficulty of the question, the waiting time should be determined when most students have finished thinking. Secondly, teachers' effective feedback will affect students' learning attitude towards physics. Junior high school students attach importance to the recognition of others psychologically, and teachers take affirmation as the main attitude when giving evaluation, and the content should not be simply "very good". For example, in a difficult exercise, students can be asked to do "little master", this way can make students deeply impressed with knowledge.

## **5. Conclusion**

In junior high school physics teaching, classroom questioning is a very important link. Teachers should design effective and scientific questions according to the existing problems in classroom questioning, combined with the cognitive level and psychological development characteristics of junior high school students and the teaching content of junior high school physics, guide students to learn actively, cultivate problem awareness, exercise practical ability, and improve the core quality of students' physics. Achieve good classroom results.

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