Research on Educational Function of Physics History Based on Core Accomplishments in Senior High School Physics Teaching

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Abstract: in Physics Teaching, Cultivating Students' Core Literacy in Physics is a Concrete Embodiment of Core Literacy Theory in Physics Teaching. as an Important Branch of Physics, the History of Physics Has Certain Educational Functions That Conventional Physics Teaching Cannot. to Achieve, Combining the History of Physics with High School Physics Teaching is One of the Important Methods to Cultivate the Core Literacy of Students in Physics. Fully Tap the Educational Value of the History of Physics, Cultivate and Enhance the Core Quality of Students. Combine with Practice, Apply Concepts and Laws, Cultivate Students' Ability of Modeling and Solving Practical Problems. Students Actively Participate in Physics Classroom Teaching, Teachers and Students' Emotions Are Improved, Students Are More Willing and Good At Learning Physics, Learning Efficiency is Higher, Learning Performance is Improved Significantly, Physics Classroom Teaching as a Whole Becomes More Efficient and High-Quality.

1. Introduction

The History of Physics Mainly Records the Development Process of Physics, Which Includes Scientific Inquiry Methods of Physics Experiments and Theories, and Scientific Thinking Activities of Physicists [1].in Physics Teaching, Cultivating Students' Core Accomplishment of Physics is the Embodiment of Core Accomplishment Theory in Physics Teaching. as an Important Branch of Physics, the History of Physics Has Some Educational Functions That Cannot Be Realized by Conventional Physics Teaching. Combining the History of Physics with High School Physics Teaching is One of the Important Methods to Cultivate Students' Core Accomplishment of Physics [2].High School Physics is a Relatively Abstract Natural Discipline, is Also a Very Important Basic Discipline. It Can Cultivate Students' Physical Literacy and Scientific Thinking Ability, So That Students Can Use the Physical Knowledge They Have Learned to Solve Practical Problems in Their Study and Life, and in Their Life [3]. High School Physics Course Helps Students Continue to Learn Basic Physics Knowledge and Skills [4]. Experience the Process of Scientific Inquiry and Understand Scientific Research Methods [5]. Therefore, Using the Content Characteristics of the History of Physics and Its Rich Teaching Factors to Educate Students on Scientific Literacy and Humanistic Spirit is Highly Feasible and Effective [6].

2. Research Purpose

This Topic Takes High School Physics as an Example, Analyzes the Problems Existing in the Current High School Physics Teaching, and Puts Forward the Practical Strategies of High School Physics Teaching Based on the Cultivation of Core Literacy Combined with the Actual Teaching Situation. Use a Variety of Physical Knowledge to Solve Problems in Life and the Causes of Natural Phenomena, So That Students Can Establish a Certain Physical Concept. Secondly, We Should Think Critically and Question Things More, Internalize Scientific Thinking Methods, So That Students Can Put Forward Scientific Opinions [7]. Fully Tap the Educational Value of the History of Physics, Cultivate and Enhance the Core Quality of Students [8]. Therefore, It is Necessary to Study the Current Teaching Situation of the History of Physics and the Core Literacy

Level of the Current Students. by Analyzing the Interaction between the Two and the Overall Impact on the Students' Performance, It is Found That through the Combination of the History of Physics and the Physics Teaching in Senior High School, Students Can Understand the Characteristics of the Physics Subject and Master the Special Methods of the Physics Subject Learning to Enable Students to Understand Physics Knowledge from the Perspective of Physics Development. the Development of Core Literacy of Chinese Students “is Mainly Divided into Three Aspects, Involving Six Major Literacy [9]. Its Content is Shown in Figure 1:

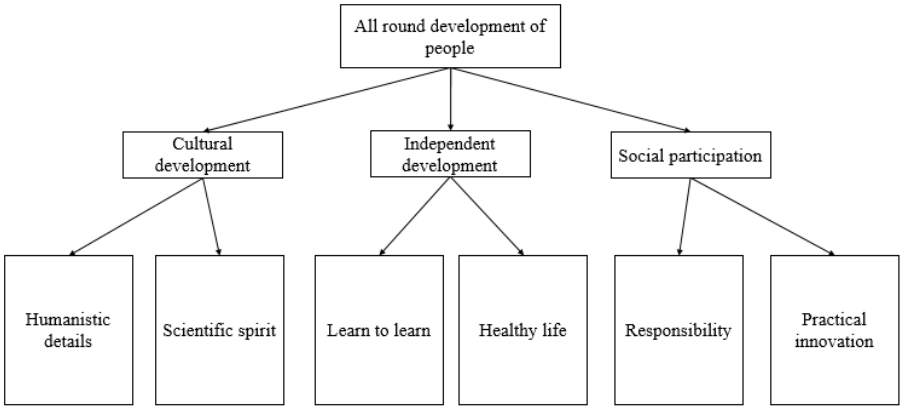

Fig.1 Development of Core Accomplishments of Chinese Students

3. The Main Content of the Study and Specific Measures

3.1 To Improve the Efficiency of High School Physics Classroom Teaching

Physical concept literacy refers to students' knowledge of energy, motion, matter, and their interactions from a physical perspective, and to sublimate related concepts in the mind, so as to deepen and master related concepts in textbooks. First of all, if the teacher wants to achieve high-efficiency teaching, efficient management of the classroom, and improve the efficiency of students' listening and learning, it is necessary to properly prepare lessons under the class, organize the schedule of the class, and find out the key points and Difficulties, but also think about coping strategies and solutions to problems in the classroom. Teachers should creatively use teaching materials to supplement and perfect the content of the history of physics in teaching so as to let its educational function influence students imperceptibly [10].To understand the influence of the history of physics on each dimension of the core accomplishment of physics, according to the relevant theories of pedagogy, psychology and physics history teaching, and in combination with the learning characteristics of current high school students and the teaching habits of front-line physics teachers, this paper puts forward targeted teaching suggestions on the combination of physics history and physics teaching in high school.

3.2 Guide Learning and Cultivate Physical Concepts

The core accomplishment of high school physics consists of four aspects: physical concept, scientific thinking, experimental inquiry and scientific attitude and responsibility. The new curriculum standard for senior high school physics also mentions that students should gradually develop correct methods, attitudes, values and world outlook through the study of senior high school physics, understand the influence of science and technology on individuals, society and environment, understand the essence of science, the unity of science and humanity, improve personal accomplishment and cultivate social responsibility. In the classroom, teachers can also connect physical knowledge with things in real life through design, thus making classroom introduction more lively and improving students' interest in learningIn physics teaching, the method of continuously infiltrating physics thoughts and discussing problems will enable students to form a good study habit, which will play an important role in learning physics well. In the process of

inquiry, we must infiltrate the methods of physical thought. It is impossible to train students 'innovative ability and spirit through one lesson, but as long as each lesson is accumulated for the formation of students' creative thinking habits, this ability and spirit can be gradually cultivated. IntoThe software is used to analyze the correlation between students' physics achievements and the teaching of physics history, physics concepts, scientific inquiry and scientific thinking in our school. This paper analyzes the correlation between the teaching of physics history in our school and the concepts of physics, scientific inquiry and scientific thinking. The correlation of results is shown in table 1.

Table 1 Performance Correlation

		Physical performance	Teaching of History of Physics	Physical concept	Scientific inquiry	Scientific thinking
Physical performance	Pearson correlation	0.532	0.095	0..246	0.000	0..498
	Significance (double-tailed)	0.000	0.000	0.056	0.000	0.000
	Number of cases	542	542	542	542	542

4. Research on the Strategies of Improving the Core Quality of High School Physics Teaching

4.1 Research Methods of Inquiry Learning for Senior High School Students

In daily physics teaching, teachers need to transform existing instruments and related experiments to create new experimental methods and types, and use multiple things for the laboratory. Guiding students to understand the research ideas and methods of scientists is more important than grasping the knowledge itself. Analyze and summarize their in-depth understanding of the advantages and disadvantages of traditional physics history teaching methods, as well as their understanding of the combination of physics history and high school physics teaching based on core literacy to enrich the research content of this topic. Let students understand that scientific development is two sides of a coin, which can not only benefit mankind, but also harm mankind, thus making them have a sense of responsibility for human society in their hearts. By explaining the history of physics development to students, I have imperceptibly improved their core qualities in physics. Connecting with reality, applying concepts and laws to cultivate students' modeling ability and ability to solve practical problems. Only when students find the most suitable learning method, can they fundamentally solve the difficulties encountered in the process of learning physics, and can they realize the mystery of physics and gain personal satisfaction.

4.2 Analysis of Teaching Cases of Penetrating History of Physics

To build an efficient physics classroom based on core literacy, the role of the teacher is to clear the obstacles inside and outside the classroom, and to help students reach their learning goals and eliminate obstacles in a timely manner. This is an effective means to improve effectiveness. To be accurate, we must pay attention to practical exercises. This is our An important link in building an efficient physics classroom. Competition in today's world is a competition for talents, and training high-quality talents is the fundamental task of school education. The comprehensive implementation of the new high school curriculum reform, putting the cultivation of students' scientific literacy in the first place, has become an urgent need for education. In the usual experimental teaching, we must do as much as possible on the basis of existing experimental instruments. Of course, this includes the modification of existing instruments and experiments to create new experiments. The transfer of knowledge and the cultivation of quality cannot be separated. Traditional teaching places too much emphasis on imparting knowledge. In teaching, it focuses on concepts, laws and students' mastery of knowledge. It ignores the value cultivation and personality development of the educated, which restricts the improvement of their quality as citizens. Students actively participate in physics classroom teaching, and the emotions of teachers and students have been further improved. Students are more willing and good at learning physics

than before, their learning efficiency is higher, and their academic performance is significantly improved. The overall physics classroom teaching has become more efficient and high-quality.

5. Conclusion

The study found that the current trend of physics propositions for college entrance examinations has four characteristics: highlighting the basics and strengthening the examination of thinking methods; focusing on comprehensiveness and enriching the presentation of test questions; strengthening the applicability, focusing on integrating theory with practice; embodying innovation and enhancing openness Sexuality and inquiryFirst of all, in the process of physics teaching, teachers should learn to use scientific and reasonable methods to guide students to learn relevant physics knowledge and teach students effective learning methods. Scientific literacy and humanistic spirit cannot be separated. It is very necessary to infiltrate physics history education into physics teaching in middle schools, which can enable students to form the necessary character and key ability to meet the needs of life-long development and social development. In addition, the research results of this lesson have been extended to other high schools, hoping to provide some support for the reform and innovation of physics teaching in other high schools.

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