

Exploration of Curriculum Ideological and Politics in College Physics Teaching

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Abstract: Integrating curriculum thinking and political education can promote students' all-round development, improve their ideological and moral quality and social responsibility, and cultivate talents with a sense of social responsibility and innovation. As an important way to cultivate talents and improve national quality, higher education has a direct impact on the development of the country and society in terms of its education quality. At present, China's higher education is facing the challenge of teaching quality improvement and talent cultivation quality. The article combines the work of university physics teaching and discusses the integration strategy in university physics teaching.

Keywords: curriculum Ideological and politics; college physics; teaching strategy

1. Introduction

As an important way to cultivate talents and improve national quality, the quality of education in higher education directly affects the development of the country and society. Currently, China's higher education is facing the challenges of teaching quality improvement and talent cultivation quality. In this context, how to integrate curriculum thinking education to further improve teaching quality and cultivate talents with innovation consciousness and social responsibility has become an important issue in the reform and development of higher education.

Physics subject is an important part of natural science and an important course in university basic education. University physics teaching has an important role in cultivating students' scientific literacy and improving their scientific thinking ability. However, traditional university physics teaching tends to focus only on students' mastery and application of knowledge points, neglecting the guidance of students' ideological and political education. Under such a teaching mode, students lack the understanding and experience of ideological and political education in the process of learning physics subjects, and are prone to the simple pursuit of science and technology and the value of application, while ignoring the social impact and humanistic value of science and technology ^[1].

In the new era, the purpose of higher education is to cultivate innovative talents with global vision, human sentiment and national consciousness. Therefore, university physics teaching should change from knowledge transfer to ideological and political education, focus on students' ideological and political education, cultivate students' humanistic qualities and sense of social responsibility, and improve the quality and level of university physics education. This thesis aims to study how to integrate curriculum ideological and political education in university physics teaching, and provide ideas and references for the innovative development of university physics education.

2. Theoretical basis of integrating curriculum thinking in university physics teaching

2.1 Based on the characteristics of the subject

As a basic subject, the teaching process of university physics requires students to have high abstract thinking ability and scientific literacy. Through the integration of curriculum thinking education, students can be guided to understand the scientific value and social significance of physics and establish correct learning attitude and values.

2.2 Based on the goal of talent cultivation

The goal of talent cultivation in university physics teaching is to cultivate talents with scientific literacy and innovative spirit. Through the integration of the curriculum thinking education, it can promote the overall development of students, improve their ideological and moral quality and social responsibility, and cultivate talents with a sense of social responsibility and innovation consciousness.

2.3 Based on the needs of education reform

At present, China's higher education is facing many problems and challenges, such as unstable education quality and disconnect between talent cultivation and social needs. The integration of curriculum thinking and political education can improve the quality and effect of teaching by changing the traditional teaching methods, so that students have more comprehensive ability and quality.

3. Analysis of the importance of implementing curriculum thinking in university physics teaching

With the development of society and the progress of human civilization, university physics teaching is also constantly improving and developing. With the introduction of the new curriculum reform and the "double first-class" construction, the university physics curriculum also pays more and more attention to the implementation of ideological and political education, which is of great significance to the cultivation of students' comprehensive quality and the development of all-round talents.

3.1 Enhance students' sense of social responsibility

University physics course ideology and politics can guide students to understand and recognize the nature and significance of science, cultivate students' scientific spirit and practical ability, and enhance students' sense of social responsibility. In the process of learning physics, students should not only understand the physical laws of nature, but also pay attention to and study the physical phenomena closely related to human production and life, such as energy, environment, communication, etc., understand the impact of the application of science and technology on social development, cultivate a sense of responsibility and mission to society, and make contributions to society.

3.2 Cultivate students' creative consciousness and innovative ability

College physics course Civics can promote the cultivation of students' creative consciousness and innovative ability. Physics is a subject that emphasizes experiment and investigation, and students need to conduct a lot of experiments and investigations in the process of learning physics. Through experiments and investigations, students can cultivate their creative ability and innovative consciousness, learn how to summarize the laws and think about problems from practice, and improve their problem-solving ability and level [2].

3.3 Cultivate students' moral cultivation and humanistic quality

University physics course Civics can cultivate students' moral cultivation and humanistic quality. In the process of learning physics, students need to abide by scientific ethics, observe laboratory safety regulations, comply with experimental procedures, and respect experimental data and conclusions.

3.4 Enhance students' patriotic feelings

College physics course Civics can enhance students' patriotic feelings by teaching relevant physics knowledge and guiding them to understand and recognize the achievements and contributions made by China in the field of science and technology. At the same time, studying physics can also guide students to understand and recognize the major scientific and technological challenges and needs facing China, and contribute to the development of science and technology in China.

3.5 Help students to develop comprehensively

University physics course Civics can help students develop comprehensively. In the process of learning physics, students need to conduct a large number of experiments and investigations, not only

need to have a solid theoretical knowledge of physics, but also need to have strong experimental ability, calculation ability and hands-on ability, all of which can help students develop comprehensively.

3.6 Cultivate students' scientific spirit

University physics course Civics can cultivate students' scientific spirit. Physics is a subject that emphasizes experiments and investigations, and students need to discover the essence and laws of science through experiments and investigations. Through studying physics, students can cultivate their scientific spirit, i.e., critical thinking, questioning spirit, experimental spirit, and inquiring spirit, etc. These spirits can help students better cope with problems and challenges in their study and work.

4. The main dilemma of integrating curriculum thinking into university physics teaching

With the development of higher education, the importance of curriculum thinking in university education has become more and more prominent, and the implementation of curriculum thinking in physics teaching has become a hot spot in the current educational reform. However, although many universities have started to implement curriculum thinking politics in physics courses, there are still some dilemmas and challenges in actual operation. In this paper, we will discuss the main dilemmas of integrating curriculum thinking politics into university physics teaching from the following aspects:

4.1 Inadequate teachers' philosophy of thinking politics

One of the main dilemmas that affects the implementation of curriculum thinking and politics is the lack of teachers' philosophy of thinking and politics. Teachers, as the main bearers of the implementation of the curriculum, need to have a correct philosophy of thinking and government and a rigorous teaching method. However, in the current education system, teachers pay more attention to knowledge transfer and assessment in the teaching process and neglect the importance of curriculum thinking politics. In addition, some teachers also have ideological consciousness and conceptual deviations, and cannot correctly guide students to establish correct values, outlook on life and worldview, thus affecting the implementation of curriculum Civics [3].

4.2 The singularity of teaching contents and methods

The singularity of teaching contents and methods is also one of the main dilemmas in the implementation of curriculum thinking politics. Traditional physics teaching focuses on the transmission of knowledge and experiments, and students' thinking and investigative abilities are not given full play, which makes it difficult to guarantee the implementation of curriculum Civics. In addition, some students are resistant to the subject of physics and think that physics is difficult to understand and apply, which affects the implementation of curriculum thinking politics.

4.3 The lag of students' ideology

The lagging of students' ideology is also one of the dilemmas that affect the implementation of curriculum Civics. Because traditional physics teaching focuses on knowledge transfer and experiment explanation, students have a lagging understanding of physics subject, often think that physics is just a boring and dull subject, and cannot really understand the value and significance of physics subject. In addition, some students lack confidence in their own ability and future development, which also affects the implementation of the course Civics.

4.4 Students' participation is not high

The lack of student participation is also one of the dilemmas that affect the implementation of curriculum thinking politics. In physics teaching, students often just passively receive knowledge, lacking initiative and participation, and find it difficult to truly understand and comprehend the content and meaning of the curriculum Civics. Some students also have the problems of insufficient learning motivation and slack thinking, which affect the effect of the implementation of curriculum thinking [4].

4.5 Imperfect teaching evaluation method

The imperfect way of teaching evaluation is also one of the dilemmas that affect the implementation of curriculum thinking politics. The traditional teaching evaluation is mainly based on examination results, which ignores the cultivation of students' thinking ability, innovation ability and comprehensive quality. Therefore, in the implementation of Curriculum Civics, the teaching evaluation method needs to be reformed and improved, focusing on the evaluation and cultivation of students' thinking quality and comprehensive quality.

5. Innovative Measures for Integrating Curriculum Civics in University Physics Teaching

The integration of university physics teaching into curriculum thinking and politics is a challenging and practically significant task, which requires continuous innovation of teaching contents and methods to improve students' ideology and participation.

5.1 Focus on the ideological and political leadership, combining theory and practice

The integration of university physics teaching into the course of thinking politics, first of all, needs to focus on thinking politics leading, from the teaching objectives, content and methods to implement the requirements of ideological and political education. In terms of teaching objectives, the cultivation of students' ideological quality and practical ability should be one of the objectives, so that students can better understand and experience the application and meaning of physics in the process of learning physics, and at the same time enhance the sense of social responsibility and the spirit of commitment. In terms of teaching content, practical activities should be integrated throughout the teaching process, such as introducing case studies of science and technology innovation and exploring the connection between physical science and social production and life, so that students can better understand the value and significance of the application of physics in real life. In terms of teaching methods, a variety of teaching methods such as interactive, inquiry and project-based should be used to guide students to participate actively and think independently, so as to cultivate their independent problem-solving ability and innovation consciousness^[5].

5.2 Innovative classroom teaching forms to improve the participation of students' ideas

The integration of university physics teaching into curriculum thinking requires innovative classroom teaching forms to improve students' ideological participation. For example, group discussions, interactive demonstrations, experimental operations, and extracurricular investigations can be used to allow students to better understand and experience the applications and meanings of physics in an interactive way, while enhancing their sense of social responsibility and commitment. Specifically, teachers can innovate classroom teaching formats through:

5.2.1 Group discussions

Students can be divided into small groups and allowed to discuss a certain topic, share their views and ideas with each other, and be guided to think about the applications and meanings of physics. The teacher can prepare some questions before the class and let students discuss them in their groups and report and share them in the class.

5.2.2 Interactive demonstrations

Students can make their own presentation materials, such as PPT, videos, animations, etc., to show a certain physics concept or principle, and invite other students for interactive Q&A to enhance their practical and expressive skills, and also guide them to deepen their understanding of physics concepts in the process of making presentation materials.

5.2.3 Experimental operation

Experimental manipulation is an important part of physics learning, which allows students to experience first-hand the phenomena and laws in the process of physics experiments and enhances their understanding and knowledge of physics. During the experimental operations, teachers can guide students to think about the phenomena and laws in the experimental process and give them an in-depth understanding of the experimental methods and applications of physics.

5.2.4 Extracurricular visits

Students can be organized to go on extracurricular visits to laboratories, enterprises or communities, so that they can understand the application and meaning of physics in a realistic environment and apply what they have learned to practical problems, and cultivate their practical ability and innovative consciousness.

5.3 Strengthen teachers' thought politics education and improve the ideological quality of teachers and students

The ideological and political quality and education level of teachers are crucial to the integration of university physics teaching into the curriculum of Civic Government, and their ideology and education methods directly affect the ideological quality and practical ability of students. Therefore, teachers should strengthen their own ideological education and improve the ideological quality of teachers and students. Specifically, teachers can make efforts in the following aspects:

5.3.1 Strengthen their own political theory learning

Teachers should constantly study and master theories and ideas of socialism with Chinese characteristics and gain a deeper understanding of national policies and guidelines in order to better lead students' thoughts.

5.3.2 Focus on their own cultivation and professional ethics

Teachers should establish a correct professional ethics, focus on their own cultivation and quality improvement, so that students can feel the positive energy leading in their words and actions.

5.3.3 Actively explore new modes of education and teaching

Teachers should actively explore the new mode of curriculum thinking and political integration, improve their own teaching and thinking and political education, and better guide students.

5.3.4 Establish a good teacher-student relationship with students

Teachers should establish a good teacher-student relationship with students, care about the growth and development of students, understand students' thoughts and needs, and actively guide and help students to grow up healthily.

5.4 Improve the evaluation system

Evaluation is an important part of course Civics, and the evaluation results reflect the teaching effect and the improvement of students' ideological quality. Therefore, improving the evaluation system is an important guarantee for the implementation of curriculum thinking politics. First of all, the evaluation should focus on comprehensiveness and plurality, and evaluate students from multiple aspects and angles, including knowledge, ability and morality. In particular, we should increase the evaluation indexes of course Civics: we should increase the evaluation indexes of course Civics in the course evaluation, such as students' sense of social responsibility, innovation spirit, teamwork ability, etc., to comprehensively assess students' quality and ability. Secondly, the evaluation should focus on relevance and effectiveness, that is, the evaluation results should have a catalytic effect on students' learning and ideological quality. Adopt a variety of evaluation methods: In addition to the traditional examination evaluation methods, a variety of evaluation methods such as student reports, group discussions and lab reports can be used to comprehensively assess students' learning outcomes and the effect of the course Civic Education. Finally, the evaluation should focus on impartiality and scientificity, that is, the evaluation results should be objective, fair and scientific, reflecting the true level and ideological quality of students.

6. Conclusion

Integrating curriculum thinking education in university physics teaching can guide students to understand the scientific value and social significance of physics and establish correct learning attitudes and values in the education process. The integration of curriculum thinking education can promote students' all-round development, improve their ideological and moral quality and social responsibility, and cultivate talents with a sense of social responsibility and innovation consciousness. In terms of implementation, it needs to be considered in terms of the setting of teaching contents, innovation of

teaching methods, transformation of teachers' roles and students' participation. At the same time, a scientific and effective effect evaluation system needs to be formulated to ensure the implementation effect of the integration course Civic and Political Education.

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