

Research and Practice on Ideological and Political Education in College Physics Curriculum Based on“Smart Classroom”

Feng Yang, Jing Luo

School of Mechanical and Electronic Engineering,Jingdezhen Ceramic University,Jiangxi,333403,People’s Republic of China

Abstract: In college physics teaching,how to achieve moral education and cultivate students and how to achieve“walking in the same direction”with ideological and political courses is a highly concerned issue.And smart classrooms provide an efficient way to solve this problem.This paper focuses on college physics teaching and explores the research and practice of ideological and political education in courses based on smart classrooms,aiming to provide reference and guidance for educators in the field of college physics education.

Keywords: Smart Classroom;College Physics;Curriculum Ideology and Politics

Fund Project:

This paper is one of the research results of the project of“Research and Practice on Ideological and Political Education in College Physics Curriculum Based on‘Smart Classroom’”supported by University-Industry Collaborative Education Program of Ministry of Education of China(Project Number:202101028026).

This paper is one of the research results of the project“Research and Practice of College Physics Integrated Innovation Curriculum under the Background of New Engineering”supported by Regular Undergraduate University Education and Teaching Reform Research Project of Jiangxi Province(Project Number:JXJG-23-11-13).

1. Introduction

Smart classrooms have changed traditional teaching methods through digital and intelligent means,bringing infinite possibilities to education.College physics,as an important foundational course in engineering,plays an irreplaceable role in the cultivation of engineering talents.It not only cultivates students’basic knowledge of natural sciences,but also contributes to their ideological and political education,such as cultivating the spirit of scientists.However,due to the limited total classroom teaching hours,ideological and political education is often overlooked.Implementing ideological and political education in the curriculum is essential for enhancing the“two characteristics and one degree”of university physics,namely high-order orientation,innovativeness and challenge.How to organically combine“smart classroom”with“ideological and political education in curriculum”to improve the moral education effect of university physics courses is an urgent research and exploration issue^[1].

2. Strategies for Implementing Ideological and Political Education in College Physics Courses

To fully utilize the ideological and political functions of university physics,we will construct and reform the curriculum from the following aspects.

Firstly,strengthen the construction of the teaching team.In the teaching team,clarify the practical significance of ideological and political education in college physics courses and enhance the subjective initiative of teachers.Establish the educational and teaching concept of“curriculum ideology and politics”,and enhance the moral education ability and awareness of all teachers.University teachers should adhere to the principle that educators receive education first,strive to become disseminators of advanced ideological

and cultural values, firm supporters of governance, and better assume the responsibility of being mentors and guides for the healthy growth of students. Therefore, the first thing to do is to do a good job in the ideological construction of the teaching team. Firmly oppose the negative words and actions that teachers only need to “impart knowledge without cultivating people”, change the phenomenon of individual combat, emphasize collaborative education, and thus shift ideological and political education from specialized personnel to everyone.

Secondly, we need to explore the ideological and political content of college physics. The course content of college physics itself contains many ideological and political elements, but the reduction of class hours weakens this part in teachers' teaching process. Now, we not only need to expose these contents, but also further explore the good ideological and political content.

Thirdly, expand the teaching methods and approaches of ideological and political education in college physics courses. The teaching hours of university physics courses are limited, and many teaching objectives cannot be achieved solely through classroom teaching. Therefore, it is necessary to expand the teaching time and space beyond the classroom. Moreover, in order to naturally integrate the ideological and political elements of college physics into the teaching process, we also need to adopt new teaching methods. In teaching, various factors such as inspiration before class, guidance during class and assessment after class should be fully considered. Analyze the effectiveness of teaching content and methods through typical teaching cases and make timely adjustments. Through various auxiliary teaching methods such as multimedia video materials, the ideological and political elements in physics are displayed multi-dimensionally, which enables students to deepen their understanding of physics concepts and receive ideological and political education naturally^[2].

3. The Role and Implementation Plan of Smart Classroom in Ideological and Political Education of College Physics Courses

Smart classroom, as an innovative educational and teaching model, provides new ideas and means for ideological and political education in the curriculum. Smart classrooms can achieve the sharing and interaction of teaching resources through digital and intelligent technologies, expanding students' learning paths and stimulating their initiative in learning. In the teaching process of ideological and political education in courses, smart classrooms can play a role by establishing a rich and targeted database. Smart classrooms can organize various multimedia resources for students, such as audio and video, e-books, etc., providing them with diverse and specialized learning resources. Students can obtain various forms of learning materials through smart classrooms and engage in independent learning and thinking, enriching the content of ideological and political education in the curriculum. Smart classrooms can activate teaching interaction. Realize interaction between teachers and students, as well as between students, through online teaching platforms. Teachers can engage with students through online discussions, Q&A and other means to stimulate their thinking and participation. At the same time, students can also share their views and experiences through interactive platforms, promoting ideological exchange and deepening ideological and political education. Smart classrooms can also provide personalized learning support: through the learning analysis system of smart classrooms, students' learning situation can be quickly evaluated, and personalized learning support and guidance can be provided based on their learning weaknesses and needs. This can better meet the learning needs of students and enhance the effectiveness of ideological and political education courses.

Taking the construction of ideological and political education in college physics courses at Jingdezhen Ceramic University as an example, a smart classroom for college physics was established using the online teaching platform of Xuexitong, greatly improving the effectiveness of ideological and political education in college physics courses. Our university relies on the online platform of Xuexitong to carry out blended online and offline teaching, expanding the teaching time and space after class. We have mainly done the following work.

Firstly, establish a course ideological and political education teaching team. Smart classrooms are more conducive to communication and division of labor among teachers, and the spirit of teamwork and mutual promotion have been greatly improved. The teaching tasks of ideological and political education in the curriculum are mainly divided into several modules: excavation and organization of ideological and political resources, writing of teaching cases and design, production of ideological and political teaching resources and construction of ideological and political teaching evaluation system. Under the coordination of the smart classroom, each module can be relatively opposed and form an organic whole, which is conducive to the collaborative operation of team teachers and the calculation of workload, ensuring the orderly and efficient operation of the teaching team.

Secondly, excavate and organize ideological and political resources. Many university physics teaching teams are carrying out course ideological and political construction, and there are some high-quality published achievements. We first summarize and organize the existing ideological and political education resources online, and organize the learning links in the smart

classroom for students to learn. Secondly, develop case studies of ideological and political education in courses, integrating ideological and political elements before class, in class and after class. And make excellent teaching cases into teaching videos or papers for publication.

In addition, establish an evaluation system for ideological and political education in college physics courses. Teaching evaluation provides feedback information to correct teaching activities and learning methods. The teaching evaluation of ideological and political courses should comprehensively consider two factors: the professional course teaching evaluation mode and the ideological and political course teaching evaluation mode. Pay attention to the learning outcomes of students, and pay more attention to the development and changes of their learning process. Pay attention to combining formative evaluation with summative evaluation. For example, by designing a survey questionnaire to analyze the improvement of students' emotional attitudes and value orientations, including pre-school survey analysis, formation evaluation during the learning process, and post learning effect evaluation.

4. Conclusions

Smart classrooms are of great significance for the implementation of ideological and political education in college physics courses. By integrating online and offline teaching resources, creating a diversified teaching environment and improving the real-time interactivity of teaching information, the ideological and political teaching content is naturally integrated into the teaching process of university physics, greatly improving the two "characteristics and one degree" of university physics courses and greatly improving the effectiveness of students' learning of university physics. In the future, it is necessary to continue to strengthen the informatization construction of teaching teams, further improve the implementation effect of smart classrooms and ensure the optimization of ideological and political construction in university physics courses.

References:

- [1] Xiaoli Wang. Research and Practice on Ideological and Political Education in College Physics Courses[J] China University Teaching, 2020(10):4.
- [2] Xiaoli Zheng, Hongzhao Li, Xuemei Chen, Dan Su, Exploration and Practice of Course Ideological and Political 2.0 Construction-Taking University Physics Course as an Example[J] Physics Bulletin, 2021(6):4.