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An in-depth study on the integration of mathematics teaching into ideological and political education in colleges and universities

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Abstract: In the development of modern education innovation, mathematics teaching, as a basic course for colleges and universities to cultivate professional talents, has a positive impact on the cultivation of students' thinking ability and comprehensive quality, so it is the key and difficult point of practical education construction and curriculum innovation. In the new educational environment, according to the current situation and main problems of college mathematics curriculum construction, the comprehensive infiltration of ideological and political education elements can promote the accurate transmission of mathematical knowledge. Therefore, on the basis of understanding the current situation of mathematics teaching in modern colleges and universities, this paper makes clear the feasibility of integrating ideological and political education elements, and discusses how to integrate ideological and political education elements in mathematics teaching in colleges and universities, so as to provide effective basis for the guidance of modern education.

Keywords:college mathematics; Ideological and political education; Ideological and political elements; Mainly living; Four dimensional education

1. Introduction

In the educational reform and development of our country, we always pay great attention to students' ideological and political education. For example, "Several Opinions of the CPC Central Committee on Further Strengthening and Improving Moral Education in Schools" points out that, according to the characteristics of different disciplines, we should promote the organic combination of various disciplines and courses with moral education; The Opinions of the CPC Central Committee and The State Council on Further Strengthening and Improving Ideological and Political Education for College Students points out that all courses in institutions of higher learning have the function of educating students, and all teachers are responsible for educating students. The majority of teachers should take a highly responsible attitude, take the lead in setting an example, teaching by words and deeds, and exert a subtle influence on college students with good thoughts, morality, quality and personality. Ideological and political education should be integrated into all aspects of college students' professional learning, including teaching, scientific research and social service. In institutions of higher learning education course construction guidelines, points out that all colleges and universities, all teachers, all courses are responsible for a good education, good a canal, a kind of responsibility farmland, make all kinds of courses and education course synthetic counterparts, will be the dominant education and recessive education unifies, form the coordination effect, build the entire all-round education of the whole landscape[1.2].

Based on the integrated analysis of mathematics teaching in colleges and universities in recent years, it can be seen that specialized courses are one of the first courses that students come into contact with when they enter the university, mainly delivering basic theoretical knowledge and practical application ability to students. But because college students have the feature such as diversity, individuation, some students mathematical foundation is solid, and some students mathematics foundation is too weak, so under the background of new education guidance, not only to get rid of the limitation of the traditional teaching mode, but also from the perspective of talent cultivation, the introduction of more valuable elements of teaching. The most critical factor is ideological and political education, which can not only strengthen students' professional quality, but

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also enable them to master more excellent spirit before entering the society. From the perspective of mathematics teaching, traditional teachers pay more attention to knowledge imparting and ability cultivation and neglect ideological education because of the large amount of knowledge to be learned and the limited hours of practical teaching. From the long-term perspective of students, the basic theories and application methods in mathematics teaching are important tools for students to learn and apply the knowledge of professional courses, as well as ideological tools to analyze and solve problems in the future. At the same time, contains rich philosophy thought in college mathematics teaching, specialized courses in developing the wisdom of experience also accumulated a large number of mathematicians, students can not only reserve when learning a lot of knowledge, can also understand the behind contains the mathematical literacy and life philosophy, applied to the real life, to help students with the ability of independent thinking, Finally become suitable for the development of the new era of outstanding talents. This paper mainly studies how to integrate ideological and political education elements into college mathematics teaching under the background of modern education, and puts forward effective teaching methods.[3.4]

2. Method

2.1 Students are mainly born

College as a social development important way of cultivating the excellent talents, not only to the full implementation of the core concept is given priority to with students and all-round education to ensure professionals in various fields in mastering a large amount of theoretical knowledge and practical skills at the same time, have a correct outlook on life, values, world view, can be in the self development comprehensive practice the socialist core values. Therefore, it is very important to integrate ideological and political education into college mathematics teaching. Based on the analysis of student-centered curriculum ideological and political education system as shown in Figure 1 below, it can be seen that, on the one hand, the main contents of ideological and political elements and moral elements should be determined first, and then they should be regarded as part of mathematics curriculum objectives. On the other hand, on the basis of determining the training objectives of professional talents, the teaching objectives should be gradually improved by combining ideological and political elements, and the quality control system should be optimized.

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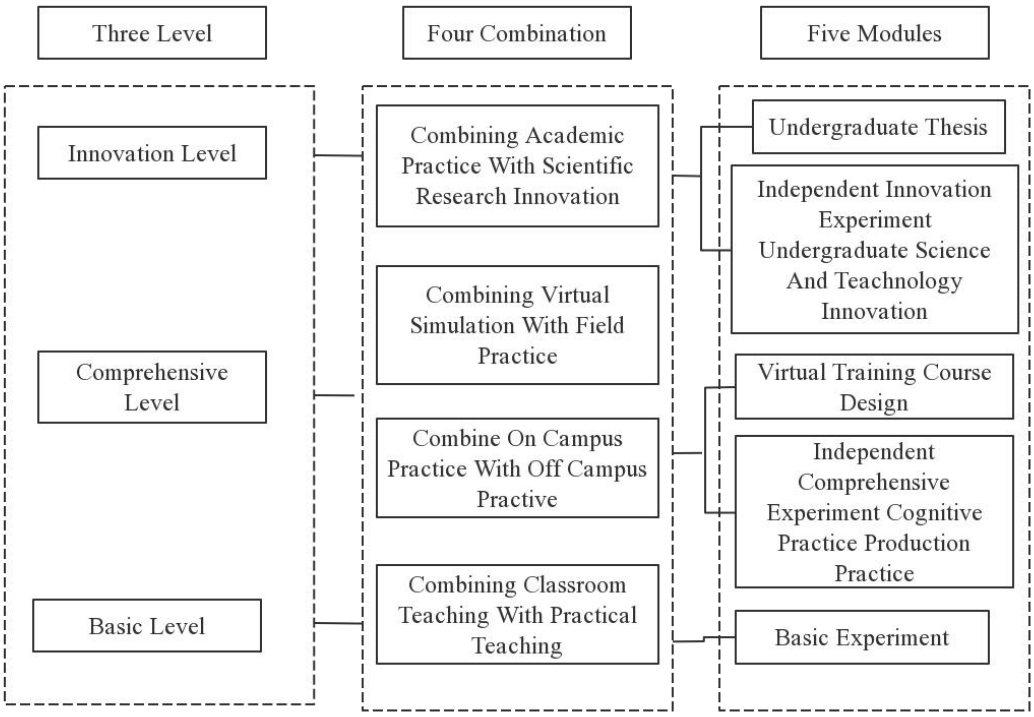

Fig. 1 Student-centered teaching system

2.2 Parallel lines

In order to integrate ideological and political education elements into mathematics education in colleges and universities, we should formulate guiding countermeasures of professional knowledge and ideological and political education. First of all, we should dig deep into the ideological and political elements in the mathematical knowledge system, construct relevant content material database, gradually enrich the content cases of practical teaching, and actively cultivate students' cultural confidence and national pride. Secondly, we should increase the teaching cases of real people and real events, and actively promote the spirit of sacrifice, so as to guide students to build a correct outlook on life and values; Finally, we should increase the knowledge and excellent spirit of western culture, and on the basis of comparing the differences between Chinese and Western culture, we should cultivate students' consciousness of thinking and scientific spirit of pursuing truth. In this process, teachers, as organizers and guiders of ideological and political education, should appropriately integrate ideological and political elements according to the learning status of students in the class, and encourage and support students to conduct independent exploration and learning in their spare time. In building are shown in figure 2 below mathematics education teaching system, teachers put forward higher requirements of mathematics profession in university, for example, to establish a system for collaborative lesson preparation, organize teachers to participate in the activities of education training, during the daily teaching job specification's own words and deeds, etc., both to improve teachers' teaching ability, and can fully show the ideological elements in the mathematics teaching of application value.[5.6]

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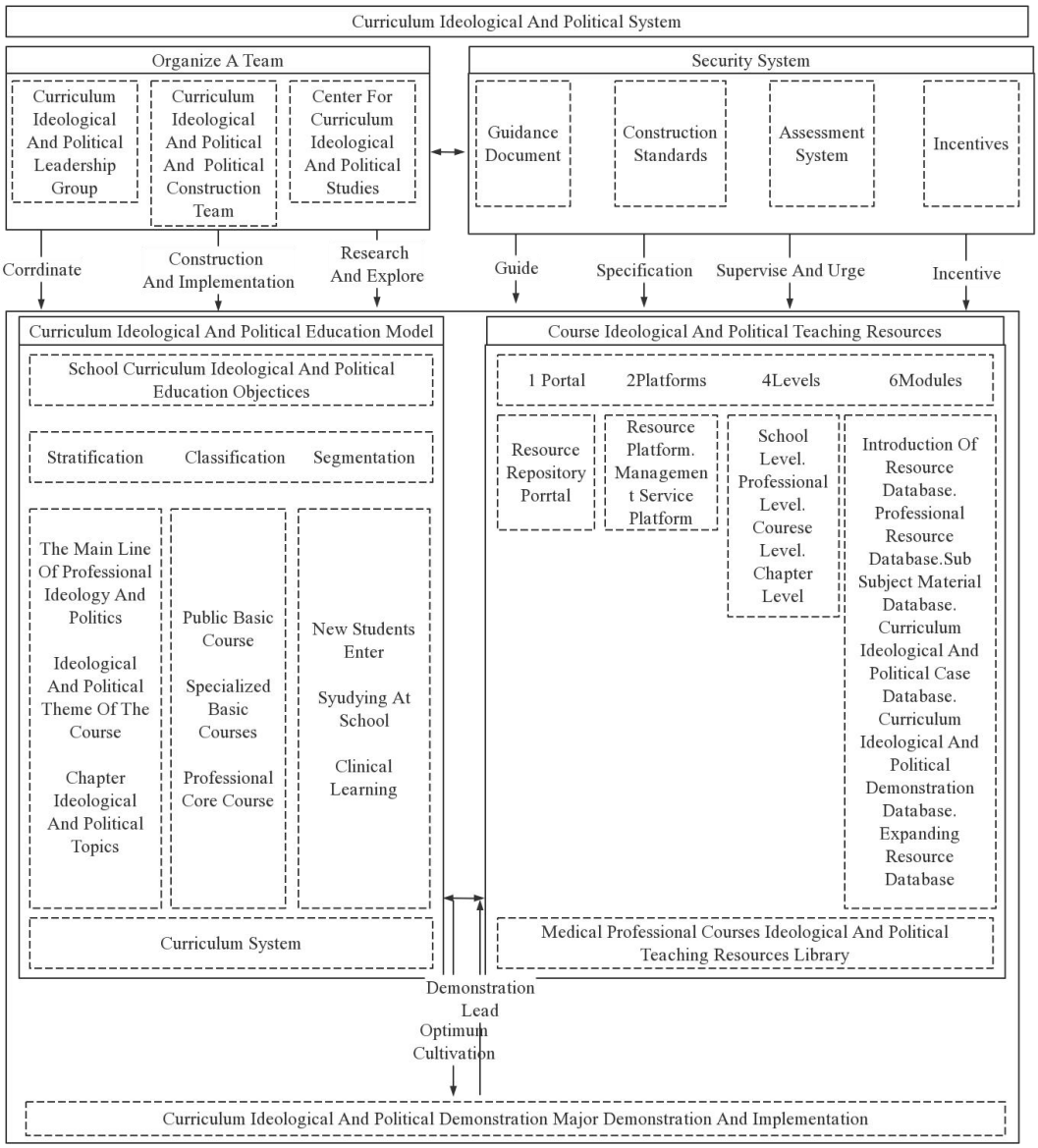

Figure 2 Mathematical ideological and political teaching system

2.3 The Trinity

Mathematics teaching in modern colleges and universities requires that students' knowledge, ability and values should be developed in a trinity. The specific content involves the following points: on the one hand, students should form correct three views on the basis of systematically mastering general education and subject knowledge; On the other hand, they should independently practice the core socialist values and gradually optimize their artistic accomplishment, humanistic accomplishment, legal awareness and moral accomplishment. Therefore, in the construction of college mathematics curriculum ideological and political education system, we should not only pay attention to the cultivation of theoretical knowledge and practical ability, but also fully stimulate students' sense of mission and responsibility, so as to make them become high-quality and high-level talents needed for social development.

2.4 Four-dimensional education

Under the background of information technology, integrating ideological and political education elements into mathematics teaching in colleges and universities, the four-dimensional curriculum education model can be built and popularized according to the guidance of ideological value. From

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the perspective of practical education, four-dimensional course teaching is the four dimensions of exponential teaching: First, online autonomous learning with online courses as the core, as shown in Figure 3 below. It is necessary to build an information technology platform on the basis of integrating online and offline resources, and ensure the full integration of traditional resources and network resources, which can not only give play to the guidance and inspiration of teachers, but also stimulate the creativity and enthusiasm of students in learning.[7.8]

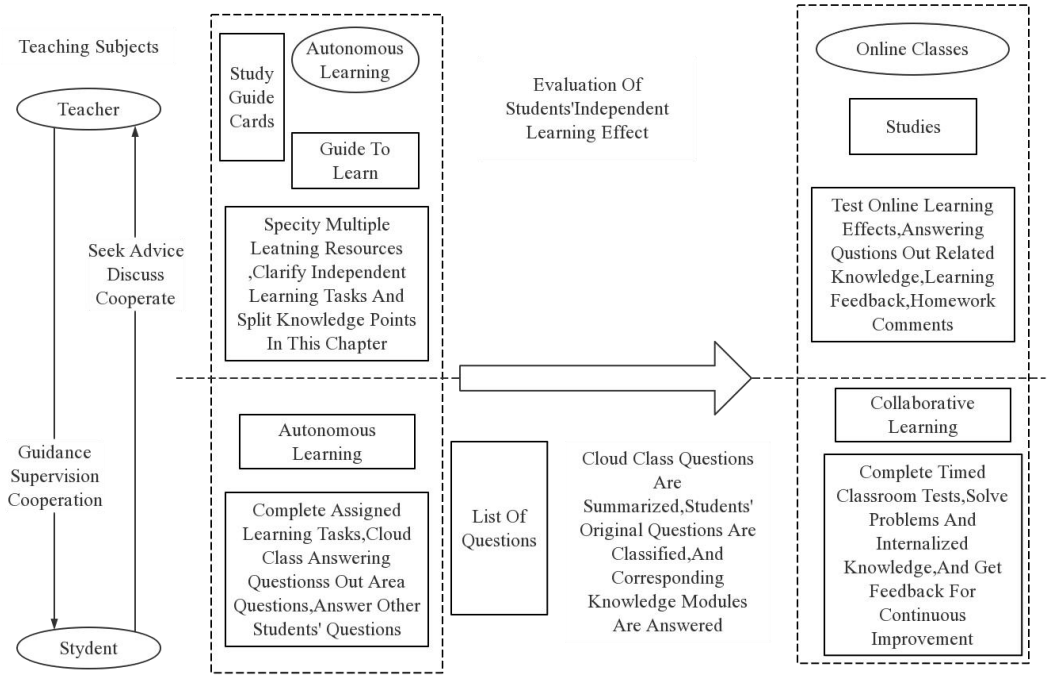

Fig. 3 Online autonomous learning platform

Secondly, offline cooperative learning centered on flipped classroom is shown in Figure 4 below. This education model will follow the online course learning situation to put forward effective learning tasks, and cooperative learning as the core, to rebuild the group evaluation system. From the perspective of practical education, the student-centered new learning pattern will effectively reverse the knowledge learning and knowledge internalization in and out of class, in order to solve the problems faced by practical teaching;

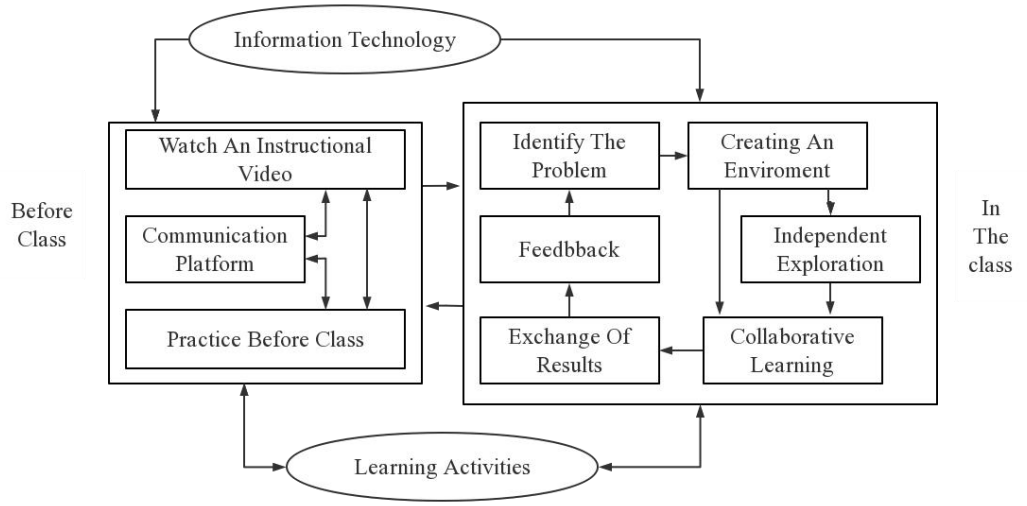

Fig. 4 Cooperative learning in flipped classroom

Thirdly, expand learning with the public account of the course as the core. The application of this model in college mathematics teaching can not only meet the various teaching needs of

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professional teachers, but also enable students to carry out targeted learning. For example, by adding micro-lesson videos to the illustrated articles and attaching links for after-class exercises and knowledge development, students can receive relevant content in time and search for science videos they are interested in.

Finally, the specific structure of experiential learning centered on practical projects is shown in Figure 5 below:

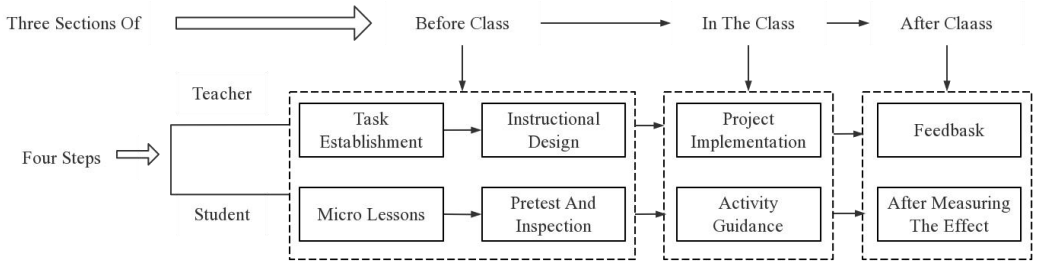

Fig. 5 Experiential learning based on practical projects

The teaching system of thinking course can build a comprehensive three-dimensional learning environment, which can help students choose diversified learning modes according to their own learning conditions, such as transfer learning, cooperative learning, autonomous learning and so on. From the overall situation of education management, the multi-dimensional and multi-carrier learning mode can not only achieve the goal of mathematics education management, but also show the ideological and political education elements. In the multi-dimensional and multi-carrier teaching mode, mathematical ideological and political education elements can be integrated into the whole process of teaching, fully showing the role of classroom teaching as the main way of educating people. At the same time, moral education is regarded as the basic goal of education, in the organic combination of explicit education and implicit education, college students can optimize their knowledge level and professional quality in the overall development.[9.10]

3. Result analysis

After mastering ideological and political elements, a university integrated them into the courses of real variable function, complex variable function, ordinary differential equation and mathematical analysis. The final results show that the degree of support for disciplinary literacy of these analytical courses has improved compared with the previous year, which proves that the integration of ideological and political education elements plays a huge role in cultivating students. Therefore, in the reform and development of modern education, professional teachers should change the traditional teaching thinking, constantly optimize their own ideological consciousness, and master more ideological and political moral education teaching elements through various channels to ensure the consistent image of mathematics and other courses. At the same time, teachers of various subjects should design standardized teaching programs in communication with each other. Especially when the elements of ideological and political education are integrated into the mathematics teaching in colleges and universities, mathematics teachers and ideological and political teachers should communicate and exchange educational experience with each other, actively participate in the educational lectures of schools and social organizations, and then extensively study which knowledge points can be combined with ideological and political elements in the centralized lesson preparation. Under this course design, students can construct a more reasonable and correct outlook on life and values. In addition, professional students should be encouraged and supported to participate in classroom design and activity promotion, which can not only fully mobilize the enthusiasm and autonomy of students in learning, but also enable them to understand the main reasons for teachers to integrate ideological and political elements, thus improving the efficiency and quality of classroom teaching. After the basic teaching task, the teacher let the students according to their own abilities and interests, select class debate, knowledge

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competition, social practice and other activities, both to apply knowledge to practical life, and can let students understand the practical significance of the mathematical knowledge, and accept the good quality and rich spiritual influence, and finally build correct life values.

4. Conclusion

To sum up, on the basis of integrating previous teaching experience and according to the application value of ideological and political education elements, college mathematics teachers should deeply explore how to make rational use of ideological and political education elements according to the characteristics of the discipline. To the desired setting discipline education goal, the current university mathematics teachers from multiple perspectives, analyzes the relationship between the mathematics education and ideological elements, and give priority to with students from, two line parallel, trinity, four dimensions, education and other aspects, put forward the brand-new teaching mode, this can not only strengthen the professional education resultant force, also can ensure students build right through.

Reference

[1] Hong wu 'e. Exploration and Practice of ideological and Political Teaching Reform in Higher Mathematics Courses -- Analysis and reference of The Report on Teaching Quality of Undergraduate Education in National Colleges and Universities (2021) [J]. China Electronic Education, 2022(6):2.

[2] Dehe li, Bo li, Xiao zhang. Research on the realization path of integrating ideological and political elements into Mathematics courses in Colleges and universities [J]. Education Theory and Practice, 2022, 42(3):4.

[3] Dan wei. Development of Red Culture in Ideological and Political Social Practice in Colleges and Universities in the New Era -- Comment on "Research on The Integration of Red Tourism Education Elements into Ideological and Political Education in Colleges and Universities in the New Media Era" [J]. Science and Technology Management Research, 2021, 41(14):1.

[4] Jie dong. Discussion on the Path of Integrating Ideological and political elements into professional practice Teaching [J]. School Party Building and Ideological Education, 2022(11):4.

[5] Xiaotong jia, Liyan wang. Innovation and exploration of higher mathematics teaching reform under the background of curriculum ideology and politics [J]. Education Progress, 2021, 11(2):4.

[6] Dan wang, Xiayu zhang. Case Study on Ideological and Political Teaching of Applied Mathematics Course [J]. Journal of Changzhou Vocational College of Information Technology, 2021.

[7] Qianqian yuan, Zhenguo lu. Research on the Integration of "Curriculum Ideology and Politics" into higher Mathematics Curriculum Teaching [J]. Chizi, 2020, 000(002):104-106.

[8] Ping zhong, Qiufen feng. The significance and measures of integrating ideological and political education into mathematics teaching in colleges and universities [J]. Public Relations World, 2020(8):2.

[9] An investigation into the integration of curriculum thought and politics into medical higher mathematics teaching [J]. Health Vocational Education, 2019, 37 (17), 62-64, 2020: Shanghai Teacher Professional Development Project.

[10] Fan feng, Shirong zhou, Zhichao chen. The extension of number system and the Concept of complex number teaching from the perspective of curriculum ideology and politics [J]. Science Examination Research, 2022, 29(3):3.