



Research on the Construction of Three-dimensional Teaching Mode of Ideological and Political Education in Colleges and Universities under the Background of Information Education

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Abstract. With the rapid development and wide application of information technology, information education has become an important direction of teaching reform in colleges and universities. This paper focuses on the construction of three-dimensional teaching mode of ideological and political education in colleges and universities under the background of information education, aiming at discussing how to make full use of information technology, innovate ideological and political teaching methods and improve the effectiveness of ideological and political teaching. Practice has proved that under the omni-directional, multi-level and networked three-dimensional teaching mode of ideological and political course, with the help of diversified information education means, the correlation and promotion of offline classroom theory teaching, extracurricular practice teaching and online network teaching have been realized, the whole process of overall education and teaching activities has been reshaped, the series of links before, during and after class has been promoted, and the construction of ideological and political education system in colleges and universities has been improved. It is not only beneficial to improve the effectiveness of ideological and political education in colleges and universities, but also provides theoretical reference and practical guidance for the reform and development of ideological and political education in colleges and universities.

Keywords: information education; ideological and political education in colleges and universities; three-dimensional teaching mode; teaching reform.

1 Introduction

With the rapid development and widespread application of information technology, the field of education has gradually entered a new era of digitization, networking, and informatization, and higher education has attracted much attention due to its unique role positioning and important historical mission. Faced with the ever-changing educational ecological environment, the teaching of ideological and political education in universities is facing unprecedented opportunities for transformation and develop-

ment. From the current situation, the teaching of ideological and political education in universities still adheres to the traditional classroom teaching mode, lacking effective channels for deep integration with information technology. The teaching content and methods also urgently need to be updated and optimized, which cannot keep up with the increasing personalized learning needs of students and even more difficult to adapt to the urgent requirements of the development of information technology education in universities. [1] In this situation, numerous domestic and foreign experts and scholars have begun to invest in research and attempt to establish a new teaching model that is more in line with the needs of modern education. For example, reference [2] focuses on reforming the teaching mode of ideological and political courses in universities from multiple dimensions such as teaching philosophy, teaching methods, teaching means, and evaluation systems; Bathinda Punjab [3] proposed a practical path for the transition from traditional teaching mode to virtual teaching mode in universities, and verified the feasibility of the plan through questionnaire surveys and data analysis; Wang Maoqing [4] and others have promoted the implementation and application of three-dimensional teaching models in ideological course teaching by introducing information technology teaching methods, achieving innovative reforms in teaching processes. Therefore, this article aims to analyze and demonstrate the feasibility of the three-dimensional teaching model in ideological and political education in universities under the background of information technology education, and propose corresponding feasible practical paths, in order to improve the teaching effectiveness of ideological and political courses, promote the comprehensive development of students, and make efforts to promote the development of ideological and political education in universities to a higher level.

2 The Influence of Information Education on Ideological and Political Education

2.1 Accelerate the Spread of Knowledge Systems and Resources

With the powerful information transmission function of network information technology, it is convenient to match teaching content with teaching cases, which is beneficial for improving the abundance of teaching resources and strengthening the teaching effectiveness of ideological and political courses. In addition, the promotion of information technology education has accelerated the construction of digital teaching resources, achieving seamless integration and efficient interaction between ideological and political course teaching and modern network resources, and promoting the deep integration of digital resources and ideological and political course teaching. [5]

2.2 Promote the Transformation and Upgrading of Teaching Processes

With the continuous progress of information technology, the combination of online network system and intelligent terminal equipment not only builds a new platform for students to learn and communicate, but also integrates multimedia forms such as pic-

tures, videos and animations to show the learning content, and derives many teaching modes of ideological and political courses. [6].

2.3 Promote the Innovative Construction of Ideological and Political Course

Information education, with its remarkable characteristics, leads the innovation of the teaching concept of ideological and political courses in colleges and universities. From the traditional teacher-centered teaching concept to the student-centered teaching concept, we pay more attention to cultivating students' critical thinking, innovative ability and practical ability. In addition, information education has also improved the applicability and feasibility of practical teaching of ideological and political courses. By utilizing virtual simulation technology and online education, teachers can create more realistic and vivid teaching scenarios for students, allowing them to learn and appreciate ideological and political knowledge in practice, thereby strengthening their understanding and mastery of theoretical knowledge. [7].

3 The Construction of Three-dimensional Teaching Mode

For this study, universities should actively explore and practice the three-dimensional teaching model of ideological and political education in the context of information technology education. Specifically, universities need to start from multiple dimensions, including promoting the reform of teaching forms, integrating high-quality teaching resources, innovating teaching methods, and improving teaching evaluation systems, in order to adapt to the development needs of the information technology education era and promote the modernization process of ideological and political education. [8] The implementation structure of the three-dimensional teaching model for ideological and political education is shown in Figure 1.

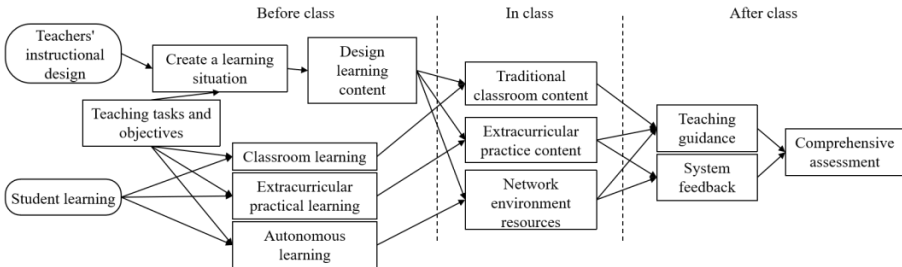


Fig. 1. Implementation structure of three-dimensional teaching mode of ideological and political education

3.1 Construction of Online Teaching System

As the foundation for the implementation and application of a three-dimensional teaching model, the architecture design and functional development of online teaching systems are related to the execution and control of subsequent ideological and politi-

cal teaching processes. In terms of architecture design, the system adopts the B/S mode, with personalized design and development of the client interaction interface through the React framework, and the server side built based on the SSH framework according to the MVC mode. [9]

In terms of system basic development environment, Linux CentOS 8.3.2011 is selected as the server operating system to provide a stable and reliable operating environment. Java is chosen as the development language, and its rich libraries and powerful functions support system development. The integrated development tool adopts Eclipse2019 to improve development efficiency and code quality. The Web server chooses Tomcat 10.0 to ensure efficient and stable Web services. The database server uses Mysql 5.7.31 to meet the needs of data storage and query. In the development of application service module, we mainly focus on online login authentication, online teaching, data analysis, assessment and other functions. The development of these modules is closely combined with the basic structural framework of the system, and the association and connection are realized through specific data interfaces.

3.2 Integration of Teaching Resources

Under the framework of a three-dimensional teaching model, teacher users can fully utilize online teaching systems to efficiently complete a series of tasks such as integrating, producing, uploading, and publishing ideological and political teaching resources. This approach not only effectively promotes the sharing and optimization of teaching resources, but also significantly improves the efficiency of teaching process execution and promotes the overall improvement of teaching quality. When teacher users log in to the system, they can choose appropriate resources to integrate according to the established teaching needs and goals, and form rich and diverse teaching contents through further excavation and transformation. As shown below, when teaching resources are uploaded, the example construction and execution of pseudo code of Web Uploader component under the system interactive interface:

<p>Function: Javascript create Web Uploader instance</p> <pre> function uploadFile() { const fileInput = document.getElementById('fileInput'); const statusDiv = document.getElementById('status'); if (fileInput.files.length === 0) { statusDiv.textContent = 'Please select a file and upload it'; return; } xhr.onload = function() { if (this.status === 200) { statusDiv.textContent = 'File uploaded successfully'; } else { statusDiv.textContent = 'File upload failed.'; } } } </pre>

3.3 Innovation of Teaching Methods

Under the implementation of the three-dimensional teaching model, practical teaching, classroom teaching, and online learning all play a crucial role. With the help of

online teaching platforms, practical teaching can have more flexible implementation methods and presentation forms, fully enhancing student participation and enthusiasm. At the same time, the systematic real-time interaction and feedback mechanism enables teachers to closely monitor the learning progress of students, timely capture their feedback opinions, and provide them with more targeted guidance and assistance. Figure 2 shows the specific process of ideological and political practice teaching activities under the three-dimensional teaching mode, in which all links can be completed with the help of online teaching system to ensure the consistency and effectiveness of teaching.

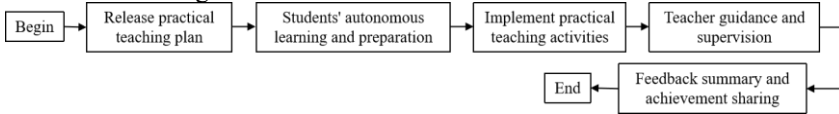


Fig. 2. Practical teaching process

3.4 Improvement of Teaching Evaluation System

In the online teaching system, by preset a student learning effectiveness evaluation system and a fuzzy evaluation algorithm model, it is possible to analyze and calculate the collected student learning behavior data, and obtain specific and objective evaluation results, as shown in Table 1. When the system automatically calculates the score, we adopt a specific formula for calculating the λ_{max} weight value, as shown in Formula 1. This formula first constructs a score judgment matrix, which integrates various score values. Subsequently, we performed column normalization on each row element in the matrix to ensure that the relative weights of each score in the comparison were accurately reflected. Next, the normalized row vectors are summed to further integrate information. Finally, through quadratic normalization, we obtained the sorting weight vector W . Finally, we use the sum-product method to calculate the corresponding weight λ_{max} . This process ensures the objectivity and accuracy of the evaluation results, and provides strong support for the comprehensive evaluation of students' learning effect. [10]

Table 1. Specific results

Target layer	Criterion layer	Measures layer	Weighted value	Item score	Score
Learning evaluation	Learning attitude C1	Classroom teaching performance	$\lambda_{11}=0.084$	80	6.72
		Daily work completion degree	$\lambda_{12}=0.134$	73	9.782
		Practical task completion degree	$\lambda_{13}=0.215$	70	15.05
	Learning process C2	Team task participation times	$\lambda_{21}=0.047$	66	3.102
		Communication times	$\lambda_{22}=0.106$	75	7.95
		Test results	$\lambda_{31}=0.044$	79	3.476
Learning results C3	Practice evaluation results	$\lambda_{32}=0.161$	84	13.524	
		

$$C = \begin{bmatrix} c_{11} & c_{12} & c_{13} \\ c_{21} & c_{22} & c_{23} \\ c_{31} & c_{32} & c_{33} \end{bmatrix} \quad \lambda_{max} = \sum_{i=1}^n \frac{(CW)_i}{nW_i} \tag{1}$$

4 Conclusion

In order to improve the effectiveness of ideological and political education in colleges and universities, this paper puts forward the construction scheme and practical path of three-dimensional teaching mode in view of many shortcomings faced by traditional teaching mode. Practice has proved that under the three-dimensional teaching mode, with the help of diversified information education means, the innovation and reform in teaching forms, teaching resources, teaching methods and teaching evaluation system have been realized, which has promoted the improvement of the ideological and political education system in colleges and universities. In subsequent research, we need to conduct a more in-depth analysis and evaluation of the application effect of the three-dimensional teaching model in ideological and political education, and moderately introduce new digital technologies such as big data and cloud computing to improve the service system of online teaching platforms, enhance data analysis and processing capabilities, and make beneficial attempts for universities to achieve innovative information technology teaching reform as soon as possible.

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