Innovative Research on the Integrated Education Mode of Ideological and Political Education Courses in Universities, Primary Schools and Middle Schools Empowered by Artificial Intelligence

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Abstract: In the process of educational modernization, it is very important to innovate the integrated education mode of IPE (ideological and political education) courses in universities, primary and secondary schools. This article focuses on exploring the effective path of AI (artificial intelligence) empowering this model, and comprehensively uses the methods of literature research and theoretical analysis to deeply analyze the relevant core concepts and theoretical basis. This article points out the shortcomings of the current education model in teaching content, methods and evaluation mechanism, and demonstrates the necessity of AI empowerment. At the same time, this article discusses its feasibility from the perspectives of technology development, policy support and teacher-student acceptance, and further puts forward strategies such as innovating teaching content, methods, evaluation and building a resource sharing platform with the help of AI. AI provides a new opportunity for the innovation of the integrated education mode of IPE courses in universities, primary and secondary schools. Through the rational use of relevant technologies and strategies, it is expected to improve the quality and effect of ideological and political education and promote the development of ideological and political education in a modern and scientific direction.

1. Introduction

In the era of rapid development of information technology, AI is infiltrating into all fields of society, and the education field is also deeply influenced by it [1]. As a key course to carry out the fundamental task of cultivating people by virtue, the IPE course in primary and secondary schools plays an irreplaceable role in cultivating socialist builders and successors with all-round development in morality, intelligence, physique, beauty and labor [2]. In this context, it is of great practical significance to explore the innovation of integrated education mode of IPE courses in universities, primary and secondary schools empowered by AI.

From the macro perspective of education development, China's current education is moving towards high quality and modernization, and the integration of IPE courses in universities, primary and secondary schools is an important link to achieve this goal [3]. The traditional education mode of IPE courses has a certain degree of disconnection and deficiency in terms of content cohesion, method application and evaluation mechanism, and it is difficult to fully meet the cognitive development needs of students of different classes [4]. This affects the effectiveness of ideological and political education, and hinders students from establishing a correct world outlook, outlook on life and values.

With its powerful data processing ability, personalized learning support and rich interactive means, AI technology provides a new opportunity to solve the above problems [5]. It can accurately analyze the learning characteristics and needs of students in different classes, and realize the customized presentation of the teaching content of IPE courses; Through virtual reality, intelligent counseling and other technologies, innovative teaching methods, enhance students' interest in learning and participation [6]. With the help of big data analysis, it realizes comprehensive and dynamic evaluation of students' learning process and effect, and provides scientific basis for teaching improvement.

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The state attaches great importance to education informatization and the construction of IPE courses, and has successively issued a series of policy documents to encourage the integration of modern information technology into the education and teaching process, which provides a policy guarantee for AI to empower the innovation of integrated education mode of IPE courses in universities, primary and secondary schools [7]. Under this situation, in-depth study on the innovation of integrated education mode of IPE courses in universities, primary and secondary schools empowered by AI will help to promote the high-quality development of IPE courses, enhance the effectiveness and pertinence of ideological and political education, and lay a solid foundation for cultivating new people of the times who are responsible for national rejuvenation.

2. Core concept

AI refers to the technology of simulating human intelligence through computer programs, covering machine learning, natural language processing, computer vision and other fields, and can realize intelligent interaction and personalized learning guidance in educational scenes [8]. The integration of IPE courses in colleges, middle schools and primary schools emphasizes the organic connection and coordinated development of IPE courses in different stages in terms of objectives, contents, methods and evaluation, so as to form a gradual and spiral educational system. Education mode refers to the combination of training objectives, teaching methods, management mechanisms and other factors adopted in the education process, aiming at achieving specific educational goals.

Cognitive development theory shows that there are differences in students' cognitive level in different classes, which requires that the teaching content and methods of IPE course should be adapted to it. According to this theory, AI can provide personalized learning paths and contents according to the cognitive characteristics of students in different classes. Constructivist learning theory emphasizes learners' active role in knowledge construction, and AI-enabled teaching environment can create more opportunities for students to explore independently, cooperate and communicate, and promote their active knowledge construction. The system theory holds that the whole function is greater than the sum of some functions. The integration of IPE courses in universities, primary and secondary schools is based on the idea of system theory, which regards the IPE courses in each period as an organic whole, and maximizes the educational function by optimizing the relationship between various elements. AI technology provides a powerful tool for realizing this system optimization.

3. AI empowers the necessity of the integrated education mode of IPE courses in universities, primary and secondary schools

Table 1: Comparison of Patriotism Education Content in Primary, Secondary, and Tertiary Schools

School Level	Patriotism Education Content	Teaching Methods	Existing Issues
Primary School	Presenting patriotic behaviors through simple stories and pictures, such as recounting the deeds of patriotic heroes	Teacher narration, watching animations	Content is too simplistic, lacks close connection with secondary school content, and students find it difficult to gain in-depth understanding
Secondary School	Interpreting patriotic spirit through historical events, such as content related to the War of Resistance Against Japanese Aggression	Classroom lectures, group discussions	Some content overlaps with primary school content, lacks clear progression, and fails to stimulate deep thinking in students
University	Analyzing patriotism from a theoretical perspective and guiding students to practice it through social practice	Special lectures, practical research	The transition from secondary school is unnatural, resulting in gaps in students' knowledge system construction

In the current integrated education mode of IPE courses in primary and secondary schools, there are problems in the connection of teaching contents [9]. Different students' IPE course content is similar in theme, but it lacks scientific progress in depth and breadth. In actual teaching, the

teaching content of each period sometimes appears repetition or fault. Table 1 takes "Patriotic Education" as an example. Primary schools mainly let students intuitively feel patriotic behavior through stories, pictures and other forms. Although the middle school will deepen the interpretation of patriotism to historical events, some contents are not well differentiated from primary schools. The theoretical analysis and practical guidance of patriotism in the university stage is not smooth in the transition with middle school. This makes it difficult for students to form a systematic ideological and political knowledge system.

In terms of teaching methods, traditional teaching is mainly taught by teachers, and the form is relatively simple. This method is inadequate when facing the diverse learning needs of students in different classes. Primary school students mainly think in images and need vivid and interesting teaching forms; Middle school students begin to transition to abstract thinking, which requires more interaction and exploration; College students prefer independent research and in-depth discussion. However, in actual teaching, it is difficult to switch teaching methods flexibly according to the characteristics of different classes. AI can use its diversified technical means, such as providing animation and gamification learning scenes for primary school students, designing virtual situation exploration activities for middle school students, and building an online academic exchange platform for college students to meet the learning needs of students in all academic periods (Figure 1).

Figure 1 Building student activities based on AI

In the evaluation mechanism, the traditional evaluation pays too much attention to the results, focusing on the test scores, ignoring the attitude and ability development of students in the learning process. The evaluation standards of different classes have not formed effective linkage, which leads to the lack of coherence and integrity in the evaluation of students' ideological and political literacy in different classes. AI can use big data technology to comprehensively collect data of students' learning process, comprehensively evaluate students from multiple dimensions, and establish a unified data evaluation framework among different learning segments to realize the integration and scientificity of evaluation.

4. AI empowers the feasibility of the integrated education mode of IPE courses in universities, primary and secondary schools

When discussing the integrated education mode of AI-empowered IPE courses in universities, primary and secondary schools, it is necessary to examine the feasibility of its implementation. Many factors show that this innovative model is practical and operable. Judging from the level of technological development, AI-related technologies have made remarkable progress. Machine learning algorithm can accurately analyze students' learning characteristics and needs according to their learning data. Natural language processing technology can realize intelligent tutoring and provide students with instant answers. Taking the experimental data of an intelligent education platform in some schools as an example (see Table 2), after a period of use, the students who participated in the pilot have significantly improved their academic performance and interest in learning. In the study of IPE course, students can obtain learning resources at any time with the help of smart devices. Based on the data of students' browsing records, answering questions and so on, the platform pushes ideological and political knowledge content that conforms to their current learning level and interest, helping students of different classes to learn IPE course better.

Table 2: Pilot Data of Intelligent Education Platforms

School Name	Number of Students Participating in the Pilot	Usage Duration (months)	Percentage of Academic Performance Improvement	Percentage of Increased Interest in Learning
School A	200	6	30%	40%
School B	150	8	35%	45%
School C	180	7	32%	42%

Education policy support provides a strong guarantee for AI to empower the integrated education mode of IPE courses. In recent years, the state has successively issued a number of policies to encourage the deep integration of education and information technology. Emphasis should be placed on promoting the construction of educational informatization and improving the level of educational modernization. These policies guide schools to actively explore the application of new technologies in education and teaching, and create a good policy environment for AI to integrate into IPE courses in universities, primary and secondary schools. Driven by the policy, the school has increased investment in information-based teaching facilities and carried out information technology training for teachers, laying the foundation for the application of AI in the teaching of IPE courses.

Nowadays, students grow up in the digital age and have a high degree of acceptance of new technologies. They are used to learning with smart devices, and AI-enabled learning methods can better meet their personalized and convenient learning needs. As for teachers, with the extensive development of education informatization training, teachers' information technology application ability has been continuously improved. More and more teachers realize the advantages of AI in optimizing teaching process and improving teaching quality, and are willing to try to integrate it into IPE course teaching.

5. AI empowers innovative strategies of integrated education mode of IPE courses in universities, primary and secondary schools

The development of AI has brought new innovative ideas and methods for the integrated education mode of IPE courses in universities, primary and secondary schools. In the innovation of teaching content, accurate adaptation is achieved with AI. The cognitive level of students in different classes is quite different. AI can tailor the ideological and political content for each class according to the student data. Table 3 takes legal education as an example. In primary school, simple and easy-to-understand rule of law stories are generated by using animation, children's songs and other forms, so that students can get a preliminary understanding of legal rules. In the middle school stage, combined with case analysis, the virtual court scene is built through AI, so that students can deeply understand the legal provisions. In the university stage, we provide cutting-edge legal theory research materials, and use the data analysis function of AI to assist students to explore legal hot issues in depth. In this way, the effective connection and progressive progress of ideological and political teaching content in each period can be realized.

Table 3: Optimization of Rule-of-Law Education Content in Primary, Secondary, and Tertiary Schools with the Help of AI

School Level	Original Rule-of-Law Education Content	Optimized Content with the Help of AI
Primary School	Simple explanations of basic legal knowledge	Rule-of-law stories presented in the form of animations and children's songs, incorporating game interaction elements
Secondary School	Case analysis of legal provisions	Constructing virtual courtroom scenarios where students can simulate roles and participate in the trial process, combined with detailed case analysis
University	Theoretical research on law and discussion of hot topics	Providing cutting-edge academic materials and utilizing data analysis to assist students in in-depth exploration of hot issues

In terms of teaching methods, use AI innovative means to stimulate students' interest. For primary school students, educational institutions and developers can create intelligent interactive games, such as the "Moral Guardian" game, enabling students to learn moral knowledge through task completion. Middle school students can adopt AI-assisted group collaborative inquiry mode, such as using smart devices to investigate social phenomena and using data analysis tools to explore the essence of problems. College students, on the other hand, use AI-supported independent research learning, for example, with the help of literature intelligent analysis tools, to study ideological and political theory topics in depth. These innovative methods can fully mobilize the learning enthusiasm of students in all stages and improve the learning effect.

In the teaching evaluation, comprehensive and dynamic evaluation is realized with the help of AI. Traditional evaluation is mainly based on test scores, which has limitations. AI can build a comprehensive evaluation system by collecting multi-dimensional data such as students' classroom performance, homework completion, online learning duration and interaction. For example, every question, answer and discussion of students on the intelligent learning platform is recorded and analyzed, forming a student-specific learning portrait, and teachers can adjust teaching strategies in time according to this portrait to achieve accurate guidance for students' learning process. In addition, AI can also be used to build an integrated teaching resource sharing platform for IPE courses in universities, primary and secondary schools. The integration of high-quality ideological and political teaching resources—such as courseware, case bases, and video materials—from each period enables the exchange of needed resources, breaks down barriers between periods, and provides teachers' instruction and students' learning with rich and diverse materials.

6. Conclusions

This article focuses on the innovative research on the integrated education mode of IPE courses in universities, primary and secondary schools. Through systematic theoretical analysis, the core concepts and theoretical basis are clarified, the necessity and feasibility of AI empowerment are discussed in an all-round way, and practical innovative strategies are put forward. It is found that there are many problems to be solved urgently in the traditional integrated education mode of IPE courses in universities, primary and secondary schools in terms of teaching content convergence, diversity of teaching methods and scientific evaluation mechanism. With its powerful data analysis and personalized support, AI can effectively make up for these shortcomings and provide key assistance for the innovation of integrated education mode of IPE courses. This fully demonstrates the necessity of AI empowerment. The rapid development of technology has laid a solid foundation for the application of AI in the field of education. The strong support of educational policies has created a favorable development environment, and the high acceptance of new technologies by teachers and students has provided a wide range of practical space. These factors together constitute the feasible conditions for AI empowerment.

Based on this, the innovative strategies proposed in this article cover many aspects such as teaching content, methods, evaluation and resource sharing platform construction. It is expected to realize the organic connection and coordinated development of IPE courses in colleges, middle schools and primary schools through AI's accurate adaptation to the content of IPE courses in each period, innovative and diversified teaching methods to stimulate students' interest, building a comprehensive and dynamic evaluation system and building an integrated teaching resource sharing platform, and significantly improving the quality and effect of ideological and political education.

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