

Development of Knowledge Graph Based Ideological and Political Education Model for Foreign Language Courses Following ADDIE Framework

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Abstract: This study aims to construct a new model of ideological and political education in foreign language courses based on knowledge graphs and the ADDIE Framework. The "Guidelines for Ideological and Political Construction of Courses in Higher Education Institutions" emphasize the importance of ideological and political education across all disciplines and specialties in universities. However, current ideological and political education in foreign language courses faces several challenges, including the separation of course content and ideological elements, the absence of Chinese cultural elements in textbooks, and the singularity of teaching methods. By utilizing knowledge graphs, high-quality ideological and political elements are integrated into the foreign language curriculum, achieving an organic fusion of ideological education and course knowledge. This model is based on the ADDIE instructional design principle, which includes five stages: Analysis, Design, Development, Implementation, and Evaluation. It also incorporates constructivist theory, emphasizing active student participation and interaction.

1. Introduction

The "Guidelines for Ideological and Political Construction of Courses in Higher Education Institutions" (hereinafter referred to as the "Guidelines") is a foundational document that guides the promotion of ideological and political education in courses across all universities and disciplines nationwide, and implements the fundamental task of fostering virtue through education. The "Guidelines" deeply clarify the significant importance of constructing ideological and political education within courses and set clear objectives for such construction across universities in the country. Additionally, the "Guidelines" point out that public foundational courses and professional courses in all universities nationwide are the main forces for the construction of ideological and political education (Ministry of Education, 2020). The characteristics of foreign language teaching courses endow university foreign language courses with a unique advantage in guiding the values and ideological consciousness of Chinese university students, while also bearing an important mission [3].

In recent years, ideological and political education in foreign language courses has achieved

significant results in value guidance, such as the enrichment and innovation of ideological and political teaching content, and the enhancement of foreign language teachers' ideological and political literacy and teaching capabilities. However, there are also practical difficulties, such as the separation of course knowledge and ideological elements; the long-term absence of Chinese elements in foreign language textbooks, which emphasize Western culture over Chinese stories; the lack of digital teaching resources, which limits the digitalization process of ideological and political education; and the singularity of teaching methods, which affects students' active participation and deep thinking. These challenges not only impact the quality of ideological and political education but also restrict its development and innovation in the context of the new era. It is urgent to explore more effective teaching strategies and methods from multiple perspectives to achieve continuous improvement and long-term development of ideological and political education in foreign language courses.

A knowledge graph is a structured knowledge base that represents and organizes knowledge in a graphical form, allowing for the visualization and graphical representation of knowledge systems [7]. It plays a positive role in systematically mastering course knowledge and linking high-quality learning resources. This study aims to design a new model for ideological and political education in foreign language courses based on the ADDIE instructional design model (Analysis - Design - Development - Implementation - Evaluation) [13]. By using the course knowledge graph as a baseline, high-quality ideological and political elements can be integrated into the course knowledge graph, facilitating the fusion of "knowledge + ideology" and promoting the aligned development of courses and ideological education [4].

2. Theoretical Foundation

2.1. ADDIE Instructional Design Framework

Analysis: This stage involves a thorough analysis of learners' needs, objectives, background knowledge, and expected outcomes. It requires a deep understanding of the characteristics of learners, educators, and the learning environment to determine the direction of the instructional model design.

Design: Based on the analysis of teaching and learning needs, this stage involves setting instructional objectives, selecting teaching strategies and methods, and designing tools to assess learning outcomes.

Development: In this stage, the plans from the design phase are transformed into specific instructional materials and activities, such as creating handouts, videos, and interactive software.

Implementation: During this stage, the instructional design is put into practice. Teachers apply teaching strategies and conduct instructional activities in a real teaching environment.

Evaluation: The final evaluation stage involves assessing the effectiveness of the instructional activities, including learners' learning outcomes and the effectiveness of the instructional design. The evaluation results are used to improve future instructional design.

2.2. Constructivist Theory

The theoretical foundation of the ADDIE Framework is constructivism. Constructivist learning theory emphasizes that learning is an active, individualized process where students construct their own knowledge and understanding through interaction with the environment and the accumulation of experiences [1]. Knowledge is not passively received but actively constructed by individuals within a specific sociocultural context through interaction with the environment and their own practical activities [9]. This theory posits that learning is a social process where individuals

construct a deeper understanding of knowledge through communication with others, reflection, and adjustment of their understanding [2,7].

In the constructivist perspective, ideological and political education in courses is no longer a one-way transmission of knowledge but a multidimensional learning process involving active student participation, social interaction, experiential reflection, and contextual experience. Teachers can design problem scenarios closely related to course knowledge based on the course knowledge graph, guiding students to actively explore ideological themes such as core socialist values and national development goals. Through interactive activities such as case analysis, group discussions, and social practices, students exchange ideas, internalize ideological knowledge, and enhance the practical significance and depth of understanding of ideological education. Providing timely feedback helps students understand their thought processes and learning outcomes. Using digital educational technology tools such as knowledge graphs enriches the content and forms of ideological education, increasing students' interest and engagement in learning [8].

3. Construction of Knowledge Graph Based Ideological and Political Education Model

This study takes the "English Reading" course as an example to construct a new model for ideological and political education in foreign language courses based on the ADDIE Framework and constructivist learning theory. The construction process is as follows:

3.1. Analysis Stage

The analysis stage is the foundation and basis for the entire ADDIE instructional design. By objectively analyzing the current situation and existing problems in ideological and political education in foreign language courses, the instructional design becomes more targeted and effective. Through literature review, the following difficulties and needs in ideological and political education in foreign language courses were identified:

3.1.1. Lack of Chinese Elements in Current University Foreign Language Textbooks

Most of the widely used foreign language textbooks are traditionally based on the introduction of American and British cultures, filled with presentations of Western culture and values, but rarely incorporate Chinese culture or introduce the unique aspects of the Chinese system. There is a serious lack of systematic introduction to Chinese stories, the Chinese Dream, the socialist system with Chinese characteristics, and core socialist values. Existing textbooks lack not only the introduction of Chinese ideas but also relevant case studies and comparative analyses related to China. As a result, students might inherently believe that "the grass is greener on the other side," favoring Western culture and values. Furthermore, for many years, "foreign" has been equated with "Europe and America," leading to an overemphasis on British and American core cultures in many university English textbooks, while neglecting the cultures of other countries. This causes students to lack cultural reserves necessary for communication with people around the world [12]. Such textbooks cannot effectively support the goals of "promoting Chinese culture abroad" and "strengthening the international spread of Chinese values."

3.1.2. Lack of Value Orientation Due to Instrumental Focus in Foreign Language Teaching

In past teaching and social ideological levels, foreign languages were seen as tools for work and life. Therefore, foreign language teachers focused on building students' listening, speaking, reading, and writing knowledge systems, but paid little attention to shaping and guiding students' value systems. The "College English Teaching Guide" (2020) provides a macro definition: College

foreign language courses should possess both instrumental and humanistic characteristics. College foreign language teachers should not only teach practical knowledge but also pay attention to the humanistic attributes of the course, strengthening the value orientation of education and shaping students. Foreign language teaching should aim to develop students' proficiency in using foreign language tools while also fostering and guiding students comprehensively, ensuring that both functions develop in a balanced and integrated manner [12].

3.1.3. Separation Between Foreign Language Knowledge Teaching and Ideological and Political Education

University teachers should "integrate value guidance into the teaching of course knowledge and the cultivation of abilities" and to "unify explicit and implicit education to create a synergistic effect." This is not only a fundamental requirement for exploring the educational potential of disciplinary courses and improving the quality of university talent cultivation, but also a wise choice for the practical path of ideological and political education. However, in actual teaching practice, some professional course teachers tend to simply "insert" ideological and political education into the teaching of professional knowledge, resulting in a "split" between "course" and "ideology." This "mechanical" method of integrating ideological and political education fails to achieve a harmonious unity between ideological and political education and professional knowledge education, much like salt failing to naturally dissolve in water, and does not effectively promote the positive development of students' values, outlook on life, and worldview. On the contrary, it creates embarrassment for educators and resistance among learners [6]. A deep analysis of the root causes of this "separation" problem reveals that the core issue lies in the failure to identify deep integration points or intersections between professional education and ideological and political education. Consequently, the intrinsic carriers of ideological and political education cannot be accurately located, making it difficult to truly integrate ideological and political education into the core and essence of professional education. This leads to challenges in achieving a deep unity of knowledge and moral character in talent cultivation, thus impacting the comprehensive realization of both educational and moral objectives.

3.1.4. Traditional Ideological and Political Education with Low Digitalization

The forms of ideological and political education are mostly traditional, involving teacher lectures, PPT/videos, and student listening. This unidirectional flow of ideological education fails to integrate with online or blended teaching methods. Once students leave the classroom environment, it becomes difficult for them to receive systematic ideological and political education. One of the reasons for this situation is the content dilemma of digitalized ideological and political education, namely the insufficient supply of digital ideological and political education resources. While ideological and political education is on the rise, most professional courses still use earlier versions of textbooks and supporting resources. Early textbooks generally lack systematic ideological and political education resources, and the degree of digitalization of teaching resources is also relatively low. Digital ideological teaching materials and cases that adapt to these teaching models are currently relatively scarce, limiting teachers' flexibility and innovation in course design and implementation, and affecting students' opportunities to internalize knowledge through diversified learning methods. This has led to many digital teaching activities that integrate with digital platforms being unable to be carried out, and the degree of digitalization of ideological and political education remains low.

3.2. Design Stage

Step 1: Constructing a Knowledge Graph-Based Ideological and Political Resource Database for Courses.

First, conduct an in-depth analysis of the teaching content for each instructional unit to identify the embedded ideological and political elements, such as national honor, national spirit, and cultural heritage. Next, based on the identified ideological and political elements, establish clear unit-specific ideological and political goals to ensure that ideological education can be integrated into the teaching process in a targeted and purposeful manner. Then, find materials that align with the ideological goals, carefully selecting those that can both enhance students' language abilities and inspire their national pride and patriotism to be included in the resource database.

Step 2: Redesigning Ideological and Political Education in Courses Based on Knowledge Graphs.

The design of ideological and political education in courses is a core aspect of the digital reform of ideological and political education. University teachers should no longer be confined to traditional teaching methods but should actively leverage the power of digital technology to comprehensively innovate the instructional design of ideological and political education [10]. Through the knowledge graph platform, teachers can more accurately grasp students' learning needs and interests, integrating ideological and political literacy goals and value orientation with professional course content in an organic manner. By organizing the discipline knowledge graph, instructors can quickly identify the ideological and political literacy goals and value orientation within professional courses. Through a blended teaching model of "online + offline," students can master professional knowledge and skills while also appreciating the charm and value of ideological and political education. This teaching model can evoke students' emotional resonance with their profession and career, guiding them to establish correct career perspectives and values, laying a solid foundation for their future career development [5]. This integration method helps students develop a comprehensive competency structure in the learning of professional knowledge and skills, laying a solid foundation for their future career development and social adaptability [11].

3.3. Development Stage

This stage involves the writing of course content, such as drafting clear and accurate course material for each knowledge point to ensure students can fully and deeply understand and master the relevant knowledge. It also includes the production of micro-lecture videos and other teaching materials that present knowledge points in a vivid and intuitive manner, increasing students' interest and participation in learning. Additionally, participatory teaching lesson plans are written to encourage students to actively engage in classroom discussions and group activities, fostering their spirit of cooperation and communication skills. Diverse testing methods, such as online tests, case analyses, and group discussions, are developed to assess students' learning outcomes, helping them consolidate knowledge and improve their abilities.

Specifically, the steps are as follows:

Step 1. Constructing a Structured Framework: Use knowledge graphs to define key knowledge points in the course, making these points anchors for ideological and political education.

Step 2. Accurate Selection of Ideological and Political Elements: Based on the characteristics of nodes in the knowledge graph, accurately select matching ideological and political elements such as historical events and moral stories.

Step 3. Implementing Personalized Teaching: Recommend personalized ideological and political education resources, such as literature videos and social practice activities, based on students' learning progress, interests, and needs.

Step 4. Dynamically Updating Teaching Content: Continuously update and expand the

ideological and political elements and teaching resources in the knowledge graph to adapt to societal developments and changes in students' needs.

Step 5. Promoting Active Learning: Use the knowledge graph to guide students in exploring the connections between knowledge points, stimulating their active learning and critical thinking.

Step 6. Assessment and Feedback: Regularly assess students' learning outcomes and ideological and political literacy, providing timely feedback to help students adjust their learning strategies.

3.4. Implementation Stage

The implementation stage is the practical execution of the design and development work done previously. A blended online and offline teaching model is adopted, combining traditional classroom teaching with online learning platforms through the support of information technology, providing students with more flexible and diversified learning paths. Before class, teachers can use online platforms to release preview materials, guiding students to understand the course content in advance and stimulating their interest in learning. During class, teachers can use multimedia technology to present relevant materials for ideological and political education, organize group discussions, and case analysis activities to promote students' thinking and communication. After class, teachers can assess students' learning outcomes through online tests and assignment submissions, providing timely feedback and guidance. In the teaching implementation process, teachers play the role of creating learning and dialogue exchange scenarios, guiding students in self-directed inquiry learning, transforming the unidirectional flow of ideological and political education into a bidirectional and multidimensional flow, and changing passive acceptance of ideological and political education into active internalization of ideological concepts.

The implementation of teaching adopts a combination of online and offline methods. The online learning platform based on knowledge graphs provides students with rich self-learning resources, such as video watching and forum discussions, while offline classrooms become places for interaction and deepening understanding. Under the guidance of teachers, students deepen their understanding of the ideological and political sub-graphs in the knowledge graph through activities such as discussions, role-playing, and case analyses. Additionally, with the digital knowledge graph platform, ideological and political education extends from inside the classroom to outside. Inside the classroom, activities such as simulated international conferences and foreign language debate competitions integrate ideological and political education into every aspect of language learning. Outside the classroom, students are encouraged to participate in community service, cultural exchange activities, and apply the knowledge and ideological concepts learned in class to real-life situations, achieving a unity of knowledge and action. Finally, the ideological and political sub-graph of the knowledge graph is used to collect student learning feedback, assess the acceptance and actual effects of ideological and political education. Through regular questionnaires, interviews, and classroom observations, the effectiveness of ideological and political education is analyzed, and teaching strategies are adjusted in a timely manner to continuously improve teaching quality and effectiveness.

3.5. Evaluation Stage

The evaluation stage is crucial and runs throughout the entire teaching process. Comprehensive evaluation ensures the effectiveness of each stage, forming a positive teaching cycle. The evaluation of the teaching effectiveness of course knowledge is based on data from the information platform and student feedback, analyzing and summarizing each stage of the teaching process, accurately identifying problems, and continuously improving, highlighting the introspective cycle of the ADDIE Framework.

3.5.1. Evaluation of the Teaching Effectiveness of Course Knowledge

After class, teachers fully utilize the data insights from the information-based teaching platform and student feedback to conduct detailed evaluation and deep reflection on the entire ADDIE chain—from needs analysis, strategy planning, content creation to actual implementation. Through precise analysis of each stage, teaching bottlenecks and deficiencies are identified and located. Based on this, teachers continuously optimize teaching strategies and improve teaching content.

3.5.2. Evaluation of the Teaching Effectiveness of Ideological and Political Education

In terms of evaluating the effectiveness of ideological and political education, teachers can assess students' ideological and political education outcomes through various methods. Specific methods include student self-assessment, peer assessment, teacher evaluation, and feedback from social practice. Teachers can use tools such as questionnaires, classroom discussions, and reflection logs to comprehensively understand students' participation, understanding, and practical abilities in ideological and political courses. By analyzing this data, teachers can identify students' progress and shortcomings in ideological and political aspects, thereby adjusting teaching content and methods to enhance the pertinence and effectiveness of ideological and political education.

3.5.3. Comprehensive Evaluation of Students' Overall Qualities

To comprehensively assess students' overall qualities, teachers should adopt diversified evaluation methods, including academic performance, extracurricular activities, innovation abilities, and teamwork spirit. Specific methods may include final exams, project assignments, competition results, and participation in club activities. Through these comprehensive evaluations, teachers can fully understand the overall development of students and provide personalized development suggestions and support based on the evaluation results.

4. Conclusion

"Guidelines for Ideological and Political Construction of Courses in Higher Education Institutions" emphasize the importance and necessity of comprehensively promoting ideological and political education in higher education. University foreign language courses play a unique role in shaping the values of contemporary university students but also face challenges such as the separation between course knowledge and ideological elements, the lack of Chinese elements in textbooks, and the singularity of teaching methods. To address these issues, this study proposes a new model for ideological and political education in foreign language courses based on knowledge graphs and the ADDIE Framework. Through the five stages of analysis, design, development, implementation, and evaluation, combined with constructivist theory, this model emphasizes active student participation and interaction. By integrating high-quality ideological and political elements into the course knowledge system, it achieves an organic fusion of knowledge and ideology, effectively enhancing the effectiveness and innovativeness of ideological and political education in foreign language courses, and promoting the continuous improvement and long-term development of ideological and political education in foreign language courses.

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