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Research Article

Research on the Integration of Educational Elements of Chinese National Community into Practical Teaching Resources for Undergraduate Students

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Abstract

From the perspective of teaching and education practice of undergraduate students majoring in artificial intelligence, the polymorphic educational practice teaching resources of Chinese national community with various carriers and forms are provided to realize the integration of value guidance, knowledge imparting and ability training in the construction of teaching resources. Here, the ideological value guidance runs through the whole teaching process, and the responsibility and mission of cultivating students to serve the country with technology is highlighted and strengthened. By practice, students' feelings of home and country are cultivated and they are guided to grow into technical talents who care about the society and have the responsibility of the times. That is to build awareness education resources of the Chinese national community carrying cultural self-confidence, national identity and national identity by big data technology and deep learning technology, establishing the concept of big education, expanding the space-time scope of undergraduates' education, and stimulating students' identity and practice of the Chinese national community in the practical teaching of computer specialty. It is necessary to establish a moral education system for undergraduate students in nationalities universities to enhance the effectiveness of Chinese community education for nationalities university undergraduate students and provide an example for the education practice of Chinese community consciousness.

Keywords

Undergraduate Students, Artificial Intelligence, Education of Chinese National Community, Practice Teaching, Moral Education

1. Introduction

The socialist education in China aims to cultivate socialist builders and successors who are well-rounded in morality, intelligence, physique, aesthetics, and labor. China's higher education should be grounded in the strategic context of the great rejuvenation of the Chinese nation and the unprecedented changes in the world over the past century. It should embrace the "greater good of the country", grasp the overall trend, dare to take on responsibilities, and be adept at making contributions, thereby serving the prosperity of the country, the rejuvenation of the nation, and the happiness of the people.

Under the explosive growth of Internet data, how to face the new situation and new challenges, and how to cultivate the

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awareness education of the Chinese national community for the undergraduates majoring in artificial intelligence, especially the undergraduates in nationalities universities, is an urgent problem for university educators. In the practice of undergraduate higher education, higher education institutions, especially nationalities universities, bear the important mission of strengthening the education of the Chinese national community. The young generation, especially the undergraduates majoring in artificial intelligence, is not only the future of the country, but also the main force to realize the Chinese dream of the great rejuvenation of the Chinese nation. It is necessary to strengthen the guiding education role of the network information obtained by students, increase the Internet resource supply of value identity, cultural identity, network guidance, national identity, political identity, national identity, and cultural self-confidence and integrate the elements of Chinese national community consciousness into all aspects of education and teaching. Elements of Chinese National Community should run through the whole process of undergraduate professional education, and realize the leading role of undergraduate students' education of Chinese national community consciousness.

At present, most of the studies on building a strong sense of community of the Chinese nation are carried out from the perspective of ideological and political education and around the social science level. For example, there are research on the education of national outlook in [1], building a strong sense of community of the Chinese nation based on cultural identity in [2], research on strengthening sense of community of the Chinese nation through multidisciplinary cohesion in [3], methods for student workers to use the Internet to cultivate college students' socialist core values in [4], research on ways to cultivate the awareness of community of the Chinese nation among ethnic minority college students in [5], cultivation of the awareness of community of the Chinese nation among ethnic minority college students in the new media era in [6], theory of strengthening sense of community of the Chinese nation in [7], discussion of opportunities, challenges and countermeasures of national identity education for Chinese college students in [8], and cultural approaches to consolidate the sense of community for the Chinese nation in [9] and related research in [10-15].

Most of these studies are based on theoretical research and analysis, supplemented by practical cultivation paths. There are not many literatures to carry out relevant research from the perspective of undergraduate professional education, computer science, artificial intelligence and emerging interdisciplinary technology. Therefore, the Internet big data intelligent computing technology is used as a teaching resource to help, and the education elements of building a solid Chinese national community for undergraduate students in nationalities universities are integrated into the process of undergraduates' teaching and education, which is forward-looking, technically difficult and exploratory.

2. Design Ideas for Practical Teaching Cases in Artificial Intelligence Major

This study starts from the perspective of teaching and educating undergraduate students in nationalities universities, using big data technology and deep learning technology to construct educational resources that carry cultural confidence, national identity, and ethnic identity in the consciousness of the Chinese national community. It establishes a big education concept, expands the temporal and spatial scope of undergraduate teaching and education, and inspires students' identification and practice of the Chinese national community in the professional education of artificial intelligence undergraduate students. In the education of cultivating the sense of community of the Chinese nation among undergraduate students, a blended teaching mode is implemented that combines student-centered theory and practice, in class and out of class teaching, online and offline teaching, adopting diverse and flexible teaching methods. Based on theoretical knowledge, the teaching mode enables students to deeply understand the objective existence of the Chinese national community, and gradually develop logical and critical thinking in professional education, and rationally view the sense of community of the Chinese nation. It helps to inspire students' empathy in professional practice activities, psychologically and emotionally accept the sense of community of the Chinese nation, form correct national and ethnic views, and ultimately manifest as emotional and behavioral identification.

3. Design Examples of Practical Teaching Cases

Taking the visualization system of socialist core values knowledge graph as an example, the design and implementation process is introduced. This engineering practice project uses technology such as knowledge graph and natural language processing to construct a knowledge graph of socialist core values, training students' comprehensive ability to apply what they have learned. They can use their theoretical and practical knowledge to scientifically analyze social problems, establish correct outlooks on life and values, enhance students' sense of mission to engage in professional research, and encourage them to transform patriotism into practical actions of national dedication.

This example is for the course of software engineering in our school's artificial intelligence major. The following parts are the teaching process of integrating elements of the Chinese national community education.

The entire teaching process is divided into four parts: teacher-student communication, classroom practical teaching, after-school practice, and teaching reflection. Among them, teacher-student communication serves as an auxiliary, and teaching reflection should be carried out after the completion of engineering practice courses, as shown in Figure 1.

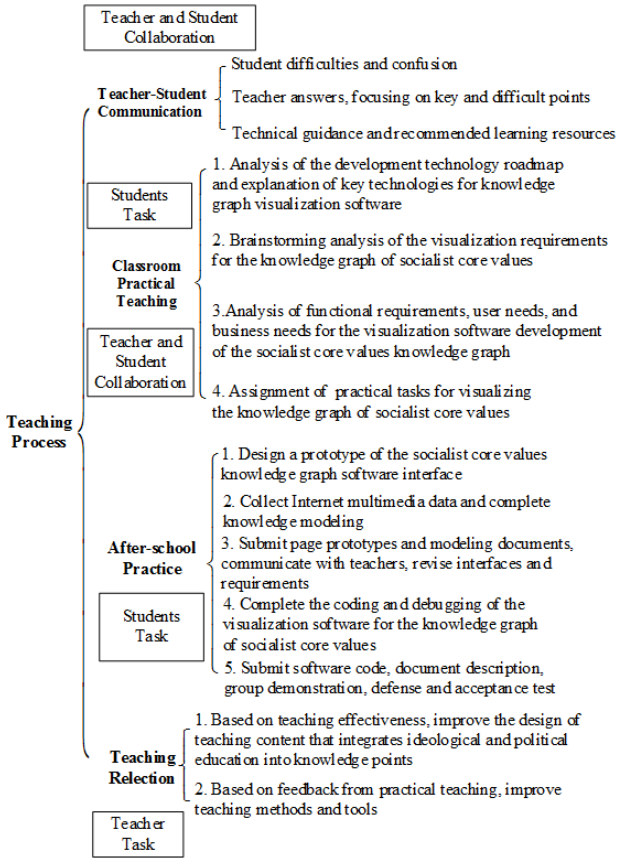

Figure 1. *Diagram for the teaching process.*

During the guidance stage, teachers release technical materials and recommended resources related to deep learning knowledge graphs. Students learn technology and reserve knowledge through online platform according to the learning tasks assigned by teachers. They learn to review literature and consult data through information retrieval technology on the Internet. If there are difficulties and puzzles, they can ask teachers and peer experts to interpret them. Then they complete online project data research, offline problem and case analysis and discussion based on division of labor and cooperation project tasks, and prepare classroom presentation materials.

In the theoretical teaching stage of classroom, students present and report project or case analysis results. After introducing the theme and ideological and political education, teachers will teach and exchange knowledge points on the problems and key difficulties that arise during the students' knowledge reserve stage, and organize discussions by posing questions. The teacher mainly teaches named entity recognition technology based on bidirectional long short-term memory recurrent neural network + conditional random field, relationship extraction technology, short text classification technology, sentence entity recognition method based on word encoding, graph completion combining TextCNN and attention mechanism attention, entity disambiguation, knowledge graph automatic update technology. During the classroom practical teaching stage, teachers explain the requirements of industry case projects, assign practical teaching tasks, and showcase industry project cases. Students will advance their practical experience through offline requirements research, propose project plans, and discuss the feasibility of the plans with their teaching team and industry experts.

In the subsequent practical stage, students are grouped to form a project team and complete the phased deliverables of the project through division of labor and cooperation. According to the software engineering development concept, students first complete online and offline learning tasks, summarize knowledge points and mind maps, improve and enhance project plans based on knowledge points, and finally complete milestone tasks according to the schedule. They participate in online and offline milestone achievement defense and review. The stages alternate between serial and parallel execution, and are not entirely executed in the same timeline sequence.

The design concept of this practical project is shown in Figure 2, which integrates the educational effects of knowledge transfer, engineering practice ability cultivation, and value guidance.

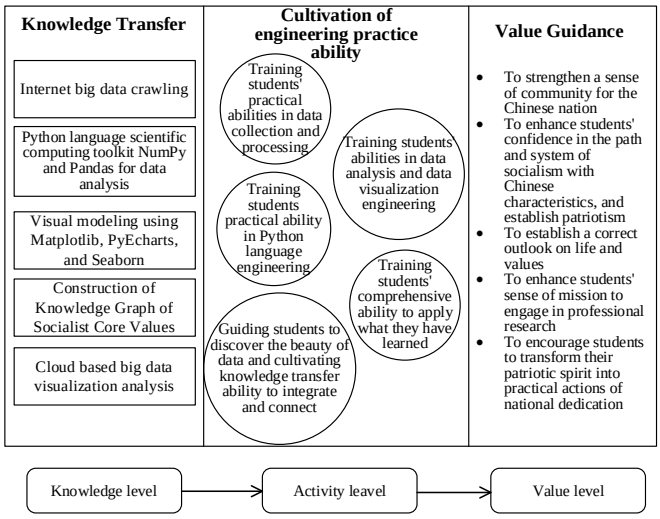

Figure 2. *Design concept of the practical project.*

The design and implementation process of practical teaching is as follows:

(1) Live course learning: the teacher led the students to learn the data science practice series live public courses of Boya Big Data College, and learned how to use Python to crawl Internet big data, how to use Pandas to conduct exploratory analysis of data, and how to analyze real-time data in specific scenarios. And the programming tool will provide decision references by analyzing the results using the interactive PyEcharts visualization analysis tool.

(2) Team building: Students crawl and analyze data on socialist core values in groups and through teamwork, and use brainstorming to design project goals and plans. They pro-

mote project progress through the submission of phased deliverables and daily and weekly reports. And they can use various methods such as team discussions, group meetings, and teacher technical support to solve technical problems. The evaluation of practical teaching results will be conducted through project defense, presentation of achievements, self-evaluation by students, peer evaluation by students, and expert scoring.

(3) Coding practice: with the idea of software engineering, students complete the Internet big data crawling and analysis of socialist core values in the form of team cooperation. The project presents socialist core values at the level of science popularization by means of knowledge mapping technology. It helps college students to fully understand the relevant knowledge of socialist core values, and lets students to learn to apply what they have learned. According to the guidance of the team teacher, each student team designs the knowledge graph to be constructed based on the rules and definitions of the Chinese national community consciousness field. After data acquisition and processing, they use deep learning based named entity recognition methods to organize and save some structured data. After knowledge fusion, the data is imported into the Neo4j graph database to construct a knowledge graph of the socialist core values that includes multiple entities. By visualizing and analyzing the knowledge graph of socialist core values, students can understand the achievements of our country and government in development and construction, further enhance their confidence in the path and system of socialism with Chinese characteristics, and establish patriotism.

During the process of student coding practice, data analysis was conducted using scientific computing toolkits NumPy and Pandas implemented in Python language, and visualization analysis was performed using Matplotlib, PyEcharts, and Seaborn. Through this practical teaching session, students complete the construction of a knowledge graph of socialist core values and conduct visual analysis based on the knowledge graph, allowing students to personally experience the role and application of big data crawling and scientific visual analysis, and learn to use the knowledge they have learned to scientifically respond to social problems. The purpose of this project is to train students' comprehensive ability to apply what they have learned, to use their theoretical and practical knowledge to scientifically analyze social problems, thereby establishing correct outlooks on life and values, enhancing their sense of mission to engage in professional research, and encouraging them to transform their patriotic spirit into practical actions of national dedication.

4. Conclusions

This study conducted a research on the educational model of cultivating the awareness of the Chinese national community among undergraduate students in nationalities universities through cultural, technological, and practical paths. Taking the education of cultivating the common consciousness of the Chinese nation among undergraduate students majoring in artificial intelligence as the core, the aim is to achieve interdisciplinary integration of ideological and political education, computer science, and emerging interdisciplinary fields, with both academic rationality and practicality. Each discipline will learn from each other in strengthening and deepening the construction of a sense of community for the Chinese nation, and uphold integrity and innovation in interdisciplinary integration. The practice deeply explored the era connotation and development space of strengthening a sense of community for the Chinese nation, and avoided the limitations of a single discipline. Through interdisciplinary linkage and collaborative promotion on the practical path, the study has explored teaching methods and tools for cultivating a sense of community among the Chinese nation in the practical teaching of artificial intelligence undergraduate students. The study also has explored scientific and effective practical paths using undergraduate engineering practice as the practical carrier of Chinese nation community education.

Author Contributions

Shuang Liu: Conceptualization, Supervision
Peng Chen: Methodology
Jiana Meng: Investigation
Qiguo Dai: Validation
Yuangang Wang: Validation

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Data Availability Statement

No data was used.

Conflicts of Interest

The authors declare no conflicts of interest.

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