

Exploration of Cultivating a Sense of Community for the Chinese Nation in "Data Structures" Course Teaching

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Abstract: This article aims to research the correlation between the sense of community for the Chinese nation and the "tree" in data structures, exploring the application of tree structures in strengthening the sense of community for the Chinese nation and solving ethnic issues. The second part introduces the concept, connotation, and characteristics of the sense of community for the Chinese nation; the third part mainly discusses the "tree" in data structures and its application; the fourth part explores the correlation between the sense of community for the Chinese nation and the "tree" from the perspectives of their commonalities, the role of tree structures in the sense of community for the Chinese nation, and their application in solving ethnic issues. The fifth part discusses how to effectively teach this content in the classroom from the aspects of teaching objectives and content, teaching methods and tools, and teaching process and evaluation. By conducting an in-depth study on the correlation between the sense of community for the Chinese nation and the "tree," this paper aims to provide theoretical support and practical guidance for strengthening the construction of the sense of community for the Chinese nation, as well as new ideas and entry points for the field of data structures research.

Keywords: Tree, Data structure, Traditional Chinese culture.

1. Introduction and Preliminaries

1.1. Research Background and Significance

With the rapid development of information technology, data structure, as an important basic course in computer science, has gradually received attention. In practice, the data structure course is not only a required course for computer majors, but also one of the core courses for other related majors. However, the importance of cultivating students' awareness of the Chinese national community is often overlooked in the teaching of data structure courses.

In the current international and domestic background, promoting the awareness of the Chinese national community has become a need of the times. Strengthening the awareness of the Chinese national community is of great strategic significance for promoting socialist modernization construction and realizing the great rejuvenation of the Chinese nation. Therefore, actively exploring how to strengthen the awareness of the Chinese national community in the teaching of data structure courses has important theoretical and practical value.

1.2. Research Status

In recent years, scholars at home and abroad have conducted increasingly in-depth research on the awareness of the Chinese national community, but there has not been a systematic study on how to strengthen the awareness of the Chinese national community in the teaching of data structure courses. Therefore, this study will explore how to strengthen the awareness of the Chinese national community from the perspective of data structure course teaching.

1.3. Research Objectives and Methods

The purpose of this paper is to explore how to strengthen the awareness of the Chinese national community in the teaching of data structure courses, in order to provide new ideas and methods for data structure education.

Specific research objectives include:

1. Analyzing the concept, connotation and characteristics of the awareness of the Chinese national community;
2. Exploring the "tree" in data structure and its application;
3. Studying the correlation between the awareness of the Chinese national community and "tree";
4. Designing and implementing classroom teaching plans, and evaluating the teaching effect.

To achieve the above research objectives, this paper will adopt a literature review method. Firstly, by searching the China National Knowledge Infrastructure database and other relevant databases, we will analyze the research status of the awareness of the Chinese national community and data structure education, and summarize relevant research results. Then, based on the results of the literature review, we will design and implement classroom teaching plans and evaluate the teaching effect.

2. Strengthening the Awareness of the Chinese National Community: Concept and Characteristics

2.1. The Concept of the Awareness of the Chinese National Community

The awareness of the Chinese national community is an important theoretical and practical issue in current China's socialist modernization construction and a new proposition for ethnic ideology in the new era. Specifically, "community" refers to a group of people who share common values, beliefs, culture, and public interests. The "awareness of the Chinese national community" refers to a psychological and spiritual state formed by all members of the ethnic group in their common life and work, that is, people identifying and pursuing the interests, goals, and core values of the ethnic community in their thoughts and actions [1].

2.2. The Connotation of the Awareness of the Chinese National Community

To better understand the connotation of the awareness of the Chinese national community, we can refer to relevant literature. The connotation of the awareness of the Chinese national community includes six aspects: 1) ethnic consciousness; 2) cultural awareness of the community; 3) political awareness of the community; 4) historical awareness of the community; 5) economic awareness of the community; and 6) ecological awareness of the community. These aspects constitute the core content and basic elements of the awareness of the Chinese national community [2].

In addition, the awareness of the Chinese national community also includes important contents such as patriotism and excellent traditional Chinese culture. By strengthening the promotion and education of these contents, the awareness of the Chinese national community can be continuously enhanced and developed.

2.3. The Characteristics of the Awareness of the Chinese National Community

The awareness of the Chinese national community is closely related to the socialist system with Chinese characteristics and has many unique characteristics. The characteristics of the awareness of the Chinese national community include: 1) people-oriented; 2) emphasis on the collective; 3) emphasis on responsibility; 4) emphasis on mutual benefit; and 5) respect for diverse cultures [3].

Among them, being people-oriented is one of the core concepts of the awareness of the Chinese national community, emphasizing that people's values and interests should be the most important in the community. The emphasis on the collective reflects the thinking mode and cultural tradition of the Chinese people who tend to place individual interests above group interests. The emphasis on responsibility indicates that the awareness of the Chinese national community endows each person with the responsibility and role in maintaining and promoting the interests of the community. The emphasis on mutual benefit implies that the awareness of the Chinese national community emphasizes equality and mutual cooperation, and emphasizes the mutually beneficial relationship of "you are in me, and I am in you". Respect for diverse cultures means that in the awareness of the Chinese national community, the cultural differences and diversity of each ethnic group should be respected to build an inclusive, open, and innovative community [4-7].

3. Strengthening the Awareness of the Chinese National Community and the Relationship with Ethnic Minorities from the Perspective of "Tree"

3.1. The Han Chinese as the Root Node of the Tree

In computer science, a tree is an important data structure where each node can have multiple child nodes, forming a multi-level tree structure. We can use the tree structure to re-understand the awareness of the Chinese national community and the relationship between various ethnic minorities.

The Han Chinese can be seen as the root node of the entire tree, while different ethnic minorities are the child nodes of the tree. In this way, we can clearly see the relationships and hierarchies among various ethnic groups within the Chinese nation.

3.2. Ethnic Minorities as the Child Nodes of the Tree

Each ethnic minority can be seen as a child node of the tree, which has its unique culture, language, traditions, and customs. These characteristics make each ethnic minority possess unique values and contributions while also reflecting the diversity and complexity within the Chinese nation.

In the tree structure, the existence of child nodes makes the entire tree more complete and diverse. Similarly, in the Chinese nation, the existence of each ethnic minority adds color and charm to the whole nation, reflecting the respect and inclusiveness for multiculturalism in the awareness of the Chinese national community.

3.3. The Multi-Level Tree Structure Describes the Internal Relationships of the Chinese Nation

By seeing the Han Chinese as the root node of the tree and each ethnic minority as the child nodes of the tree, we can form a multi-level tree structure to describe the relationships and hierarchies among various ethnic groups within the Chinese nation.

In this multi-level tree structure, each node has its unique position and value. The ethnic minorities as the child nodes of the tree indicate that they have an independent status and role within the Chinese nation. At the same time, the entire tree structure also reflects the pursuit of core values such as unity, cooperation, and mutual assistance in the awareness of the Chinese national community.

In summary, by re-understanding the awareness of the Chinese national community and the relationship with ethnic minorities from the perspective of "tree", we can not only intuitively show the diversity and complexity within the Chinese nation but also provide new ideas and methods for promoting the development of the awareness of the Chinese national community.

4. Relationship between the Chinese National Community Consciousness and "Tree"

4.1. Commonalities between the Chinese National Community Consciousness and trees

The Chinese National Community Consciousness refers to the collective cognitive state formed by members of the Chinese nation in the historical process with strong connections and creativity. The "tree" in data structure is a commonly used non-linear data structure that can well represent hierarchical relationships or tree structures and is suitable for storing and manipulating hierarchical structured data.

The Chinese National Community Consciousness and tree structures have several commonalities:

Firstly, both the Chinese National Community

Consciousness and tree structures have obvious hierarchical structures. In the Chinese National Community Consciousness, there exist clear superior-subordinate and master-slave relationships between levels such as country, region, and ethnicity, and there are close connections and interactions between different levels. Similarly, a tree structure is also an organized hierarchy relationship of multiple nodes according to parent-child relationships, where each node has only one parent but can have multiple child nodes.

Secondly, both the Chinese National Community Consciousness and tree structures emphasize integrity and connectivity. The Chinese National Community Consciousness emphasizes that the Chinese nation is a whole with various parts interconnected and closely united, forming a powerful network. Similarly, each node in a tree structure is closely linked and dependent on other nodes, and the entire tree forms a tightly connected network.

Finally, both the Chinese National Community Consciousness and tree structures emphasize development and innovation. The Chinese National Community Consciousness pursues the prosperity, long-term development, and growth of the Chinese nation, encouraging all ethnic groups to jointly develop and strengthen through mutual exchange and integration. Tree structures also need to be constantly expanded and optimized in practical applications to adapt to increasingly complex data processing needs.

4.2. The role of tree structures in the Chinese National Community Consciousness

As a flexible data structure, tree structures also play an important role in the construction and promotion of the Chinese National Community Consciousness. Specifically, it has three applications:

(1) Application in cultural heritage protection and inheritance. By describing through the tree structure, the profound history and cultural heritage of the Chinese nation can be presented clearly. For example, traditional Chinese operas can be classified according to different types and regions and presented in a tree diagram to help people better understand and inherit this important cultural heritage.

(2) Application in ethnic integration and development. The Chinese nation is composed of 56 different ethnic groups, among which the Han people account for the vast majority of the population, while other minority ethnic groups are distributed in various regions. Through tree structures, the connections and dependencies between ethnic groups can be presented clearly, deepening their recognition and understanding of each other, and promoting the integration and development of various ethnic groups.

(3) Application in national governance and management. As an efficient data management method, tree structures can well support the information management and decision analysis of governments and social organizations. For example, in urban planning and construction, tree structures can be used to describe the relationships between various levels and regions of the city for better planning and management.

4.3. The application of tree structures in solving ethnic problems

Tree structures also have important applications in solving ethnic issues. For example, in the western regions of China, ethnic minorities occupy large areas of land, and the distribution of the Han population is relatively scattered. How to establish effective links and integration mechanisms between these different ethnic groups has always been an important problem. Tree structures can provide a simple and effective way for cross-ethnic communication. Specifically, minority ethnic groups can be classified by geographic location, historical culture, etc., and displayed using tree structures. At the same time, contact nodes between different ethnic groups can be added to the tree structure to promote communication and exchange between different ethnic groups and jointly promote the construction of the Chinese National Community Consciousness.

5. Classroom Teaching Design and Implementation

5.1. Teaching Objectives and Contents

This class aims to improve students' sense of national cultural identity and ethnic pride by explaining the concept and relevance of the Chinese National Community Consciousness and "tree" structures, as well as cultivate students' spirit of overcoming difficulties, cooperation, and progress. Specific teaching objectives are as follows:

- (1) Understand the concept, connotation, and characteristics of the Chinese National Community Consciousness;
- (2) Master the basic concepts, features, and application scenarios of trees;
- (3) Understand the relationship between the Chinese National Community Consciousness and tree structures;
- (4) Further strengthen students' sense of national cultural identity and ethnic pride;
- (5) Improve students' cooperation awareness and innovative thinking.

5.2. Teaching Methods and Tools

Multiple teaching methods are used in this class, including lectures, interactive Q&A, and small group explorations. Multimedia teaching tools such as PPTs and videos will also be utilized to help students better understand relevant knowledge.

5.3. Teaching Process and Evaluation

(1) Introduction: The teacher introduces the teaching content and objectives of this class, leading students to become aware of the Chinese National Community Consciousness and tree structures.

(2) Lecture: The teacher explains the concept, connotation, and characteristics of the Chinese National Community Consciousness, and provides examples to illustrate the basic concepts, features, and application scenarios of trees.

(3) Exploration: Students are divided into small groups to search for case studies related to the Chinese National Community Consciousness and tree structures using library or internet resources, and then report back to the class.

(4) Summary: The teacher consolidates and reviews the

knowledge learned by the students, reminding them to pay attention to the connection between the Chinese National Community Consciousness and tree structures and their important role in solving ethnic problems.

(5) Evaluation: Students complete classroom assignments, including individual reflection and group discussion, followed by self-evaluation and group evaluation, and the teacher provides corresponding feedback and suggestions.

The evaluation results show that the implementation of this classroom teaching plan has a significant effect. Students have a deeper understanding and recognition of the relevant knowledge of the Chinese National Community Consciousness and tree structures, while also enhancing their cooperation awareness and innovative thinking.

6. Conclusion and Outlook

6.1. Research Conclusion

This paper explored the correlation between the Chinese National Community Consciousness and "tree" structures, and proposed a teaching plan based on classroom teaching. The research shows that there are many similarities and complementarities between the Chinese National Community Consciousness and tree structures. They both have hierarchical structures, cooperative characteristics, etc., and can learn from and promote each other. Through classroom teaching, students' national consciousness and ethnic pride are enhanced, and their cooperation spirit and innovation ability are cultivated. Therefore, we can apply this tree structure thinking to solve ethnic problems, so as to better promote the unity and development of the country.

6.2. Research Limitations and Outlook

Although this paper explores the relationship between the Chinese National Community Consciousness and "tree" structures, there are still many issues that need further research in practical applications, such as how to better apply the tree structure thinking mode to practical problems and how to stimulate students' innovation and creativity. In addition, there are also some shortcomings in the implementation of the classroom teaching plan. For example, time arrangements may be tight, affecting the time for students to explore problems in depth. Therefore, in the future, we can continue to conduct in-depth research, seek more scientific and effective teaching methods and strategies, in order to better promote the unity and development of the country. At the same time, we can also expand the scope of research, such as exploring the "tree" structure and its application in other cultural backgrounds, in order to conduct

a deeper exploration of the tree structure thinking mode.

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