

Research on the Integration of Higher Education Chinese Textbooks and Artificial Intelligence

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Abstract: With the continuous advancement of information technology, artificial intelligence (AI) is increasingly penetrating the field of education. The integration of AI technology in optimizing higher education Chinese textbooks offers new possibilities for real-time content updates, personalized design, and enhanced interactivity. This paper explores the characteristics, existing problems, and optimization strategies of Chinese textbooks in higher education. It proposes strategies such as strengthening real-time content updates, designing personalized and interactive textbooks, and integrating AI technology. By incorporating AI, big data, and digital platforms, intelligent content updates can be realized, personalized learning paths can be designed, and student engagement and learning interest can be enhanced through interactive learning.

Keywords: Higher Education; Chinese Textbooks; Artificial Intelligence; Real-Time Update

1. Introduction

As a crucial component of foundational education, higher education Chinese textbooks play a vital role in cultivating students' language skills, cultural literacy, and thinking abilities. With the rapid development of information technology and AI, traditional textbooks are facing challenges such as outdated content, lack of personalized support, and poor interactivity. These challenges necessitate urgent optimization and innovation to better meet the demands of contemporary education and enhance students' comprehensive abilities. This paper explores how to reform and optimize higher education Chinese textbooks through AI, investigate digital and intelligent textbook design concepts, and promote the modernization of Chinese teaching in higher education.

2. Characteristics of Higher Education

Chinese Textbooks

2.1 Breadth and Depth of Content

Higher education Chinese textbooks are characterized by broad and in-depth content, making them vital tools for developing students' linguistic, cultural, and critical thinking skills. The textbooks cover a wide range of fields, including literature, culture, history, and philosophy, ranging from ancient classics to modern works and from literary creation to linguistic studies. These materials are designed not only to convey knowledge but also to foster comprehensive literacy. The inclusion of various literary styles-classical Chinese poetry and prose, modern reflections on societal issues, and foreign literature-broadens students' horizons and encourages cultural appreciation and critical reflection. In-depth learning further enables students to analyze texts from historical, cultural, and philosophical perspectives, enhancing their interpretative and critical thinking abilities.

2.2 Interdisciplinary and Diverse Content

Another key characteristic is the interdisciplinary and diversified nature of the textbooks. Chinese as a subject no longer exists in isolation; it intersects with history, philosophy, politics, and sociology to construct a multidimensional knowledge system. Literary works often reflect historical context, social conditions, and cultural ideologies, offering unique advantages in developing comprehensive student competencies. Classic works like *Dream of the Red Chamber* are examined alongside Qing Dynasty social background to enhance students' understanding of character destinies and class structure. The textbooks also embrace globalization by integrating foreign literature, folk literature, and non-literary texts, exposing students to a broader cultural landscape [1].

2.3 Educational and Practical Orientation

Chinese textbooks in higher education not only serve as knowledge carriers but also emphasize a

combination of educational and practical functions. Their educational value lies in guiding students' moral thinking, fostering social responsibility, and building cultural identity. Practical elements include writing exercises, speech training, and literary creation, which enhance students' expressive abilities and creativity. Through discussions, case studies, and applied exercises, students gain hands-on experience and a deeper understanding of concepts, achieving both knowledge mastery and skill development [2].

3. Existing Problems in Chinese Textbooks for Higher Education

3.1 Slow Content Updates

Despite their cultural richness, many Chinese textbooks fail to reflect rapid societal, technological, and cultural changes. Their outdated content reduces relevance to contemporary issues and limits students' understanding of modern culture and science. While classical literature remains a core component, it often overshadows modern digital texts, scientific writing, and contemporary issues. This gap hinders students from connecting with current societal trends and appreciating modern literature and culture [3].

3.2 Lack of Personalized Learning Support

Modern educational philosophy emphasizes personalized learning, yet traditional Chinese textbooks often adopt a one-size-fits-all approach. They overlook students' differences in pace, interests, and cognitive abilities. Materials and exercises are not differentiated, making them either too difficult for some students or lacking in challenge for others. This mismatch reduces learning engagement and effectiveness [4].

3.3 Insufficient Integration of Artificial Intelligence

Although AI has been widely adopted in various domains, its application in Chinese textbooks remains limited. Current uses are primarily in online platforms or Q&A systems rather than deeply integrated into textbook design, real-time feedback, or learning personalization. AI-based recommendation systems still struggle with accuracy and adaptability. Moreover, the lack of dynamic content adjustment and AI-driven assessment restricts the full potential of

technology-enhanced learning.

4. Optimization Strategies for Chinese Textbooks in Higher Education

4.1 Enhancing Real-Time Content Updates

To bridge the gap between textbook content and real-world developments, it's critical to enhance real-time updates. Big data and AI can track societal, cultural, and technological trends in real time, enabling educators and authors to promptly revise materials. With digital textbooks and cloud platforms, content updates become more agile and cost-effective compared to traditional print editions. Emerging topics such as internet culture, AI, and global communication should be included to foster students' awareness of current affairs and stimulate innovative thinking.

4.2 Designing Personalized and Interactive Textbooks

Textbooks should be tailored to individual learning needs using AI. By analyzing student data such as reading speed, comprehension, and answer accuracy, intelligent systems can adjust difficulty levels and learning paths in real time. This improves efficiency, fosters motivation, and supports independent learning. Additionally, interactive textbooks should incorporate simulations, online discussions, and gamification to enhance engagement. Real-time feedback mechanisms help students identify weaknesses and improve continuously. Intelligent systems can also provide hints or follow-up questions based on student responses.

4.3 Integrating Artificial Intelligence Technology

AI integration represents a breakthrough in textbook optimization. By analyzing learning data, AI assists teachers in accurately understanding student performance and adapting their teaching strategies. Natural Language Processing (NLP) enables intelligent reading and writing feedback, grammar and sentiment analysis, and structure evaluation. AI can assess student submissions and offer immediate, constructive suggestions. Technologies like voice recognition facilitate interactive speaking and listening practice. Virtual tutors or AI assistants provide real-time support, overcoming limitations of time and place and meeting students' needs for personalized learning

anytime, anywhere.

5. Conclusion

This paper analyzes the characteristics, problems, and optimization strategies of higher education Chinese textbooks and proposes using AI technology for real-time content updates, personalized learning design, and improved interactivity. As AI and big data technologies advance, textbook development can become more intelligent, providing richer and more diverse learning experiences. Teachers benefit from more targeted teaching, and students receive stronger, more personalized support. Optimizing textbooks not only improves teaching outcomes but also promotes the development of students' comprehensive skills and lifelong learning abilities.

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