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Research on the Path of Aiding Integrating Excellent Traditional Chinese Culture into Biochemistry Teaching Curriculum with the Artificial Intelligence Technologies



Abstract: - Traditional culture has profound connotation and great inclusiveness. Incorporating traditional culture into biochemistry education not only boosts students' enthusiasm and attentiveness but also expands their analytical viewpoints. With the help of artificial intelligence technology, interweaving scientific and cultural wisdom, we can better promote our ancient traditions and instill a deep sense of national pride in our students. The article delves into the backdrop of merging Chinese exemplary traditional culture with the biochemistry curriculum. It further investigates the challenges of intensifying the instruction of this esteemed culture and the considerations when utilizing Chinese traditional values to enhance biochemistry education. On this basis, the article highlights the practical rationale for weaving Chinese exemplary traditional culture into the biochemistry curriculum, and briefly discusses the possible ways to improve the teaching effect of the course with the help of artificial intelligence technology, in order to promote the profound synergy between the three and thus promote the development of the biochemistry education framework.

Keywords: Chinese Excellent Traditional Culture; Biochemistry; Value Orientation; Cultural Balance, Artificial Intelligence Technologies.

I. INTRODUCTION

Throughout the whole process of education development, science education and humanities education have gone through the development process from opposition to integration. As society advances and the era evolves, melding science with culture, and integrating scientific education with humanistic values and teachings, becomes an undeniable trajectory for educational growth [1]. In the 2014 "Guidelines for Enhancing Chinese Exceptional Traditional Culture Education" released by the Ministry of Education, it was emphasized that the inclusion of Chinese traditional cultural elements should be bolstered during curriculum development and standards revision. Furthermore, it was suggested that relevant content from this culture should seamlessly blend into the teaching methods and procedures. Biochemistry is a fundamental course within the field of life sciences, concentrating on living organisms and examining the chemical essence of life. Cause the teaching of biochemistry mostly involves interdisciplinary themes, it is really a difficult subject for both teachers and students [2, 3]. Previously, research on the reform of biochemistry teaching mainly focused on online teaching [4], distance education [5], PBL(Problem based learning), TBL(Team Based Learning) or CBL(Case Study Based Learning) teaching model research [6-8], the construction of a framework for cultivating students' biochemical literacy [9], or the development of computing resources in biochemistry education and applications [10]. There was a lack of exploration of the path of combining humanities education and subject education. With the continuous updating and development of Ethnoscience and humanistic education concepts, more and more educators realize that combining scientific knowledge with traditional or local culture is an effective teaching path that can not only strengthen students' sense of national identity but also stimulate their interest in learning. A preprint which uunder Review at Biodiversity and Conservation from Rainer W. Bussmann et al. indicates that increasing the promotion and education of traditional

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knowledge and local culture in the field of ecological protection can help improve the tendency of students and researchers to protect local natural resources and ecological diversity [11]. A study in the teaching of chemistry also shows that increasing traditional culture and ethnic science education can improve the teaching effectiveness of chemistry courses [12].

Chinese civilization is the fusion of Chinese national science and traditional Chinese culture. Just like a plant, it is a comprehensive scientific system. Natural sciences are its roots, humanities and social sciences are its branches, scientific discoveries and technological inventions are its fruits and flowers. The Chinese traditional culture, which stretches for thousands of years, is broad and profound, has a long history, has distinctive national characteristics and great inclusiveness. This embodies the wisdom of the Chinese people and the culmination of their humanistic spirit, offering abundant spiritual sustenance for the endurance, evolution, and flourishing of the Chinese nation. Some of its contents can be organically integrated with biochemical knowledge. Based on the situation above, educators must intertwine teaching practices with the rich elements of traditional Chinese culture present in biochemistry. With the improvement of digitalization, the use of artificial intelligence technology to improve the quality of classroom teaching has become an inevitable trend in the development of modern education, and the teaching of biochemistry is no exception. The use of artificial intelligence technology to build an intelligent interactive platform allows students to freely switch between ancient and modern Chinese and foreign scenes, and explore biochemistry knowledge to their heart's content, which can enhance the immersion of learning. At the same time, big data can also be used to analyze students' learning habits, and intelligently recommend cases and reading materials combining traditional culture and biochemistry to achieve personalized learning [13]. In addition, intelligent teaching assistants can also be developed to assist teachers in explaining the biochemical wisdom contained in traditional culture and improving the quality of teaching.

By incorporating AI technology and seamlessly blending this culture into biochemistry lessons, they can transform intricate and abstract concepts into more tangible and comprehensive ones. The goal is to craft a lively and engaging biochemistry session, elevate students' eagerness and proactive engagement, and thereby enhance the overall teaching outcomes. While complementing the teaching process, it's imperative to promote traditional Chinese culture, fostering a synthesis of scientific and humanities education. This paper briefly discusses the integration path of traditional Chinese culture and biochemistry teaching and the potential role of artificial intelligence technology in it, aiming to provide a reference for the potential reform of biochemistry curriculum.

II. BACKGROUND ANALYSIS OF THE INTEGRATION OF ARTIFICIAL INTELLIGENCE TECHNOLOGY IN THE TEACHING OF EXCELLENT TRADITIONAL CHINESE CULTURE AND BIOCHEMISTRY COURSES

The excellent traditional Chinese culture acts as the spiritual anchor and consistent values of the Chinese people, serving as a precious asset in strengthening students' sense of national cultural identity. Promoting the excellent traditional Chinese culture, enhancing students' holistic development, and assisting them in cultivating a well-rounded personality are fitting endeavors for educators [14]. Biochemistry is the chemistry related to life. It is a discipline that studies the chemical composition of organisms and the laws of chemical changes in the process of life. It is also the most rapid and dynamic frontier discipline in natural science. Life is the bedrock of human existence and progression, as well as the cornerstone of societal advancement. The outlook on life is the fundamental view and view of life formed by people in social practice. It belongs to the category of outlook on life, including life cognition, life attitude, life value, and other aspects, which determines the objectives of individual life activities, the direction of life path, and the orientation of life value. Life is the origin and essence of education.

Traditional Chinese culture is vast and deep-rooted, spanning a rich historical tapestry. It has gathered the ideological crystallization and cultural essence of countless ancestors' cognition of life, and provided extensive and profound cultural materials for the education of life outlook. Education should take talent training as the core and moral education as the foundation. To maximize the educational potential of specialized courses and harmonize them with revered traditional Chinese culture, higher education institutions should devise a comprehensive and multi-faceted curriculum framework. This would facilitate the seamless merger of traditional Chinese values with biochemistry instructional modules.

With the rapid development of technology and the advancement of globalization, artificial intelligence technology is becoming a key force to promote the transformation of various industries. In the field of education, artificial intelligence not only improves the convenience and efficiency of teaching, but also provides new opportunities for the integration of traditional culture and science education. Through deep learning, natural language processing and other technical means, artificial intelligence can realize the intelligent processing and presentation of traditional cultural knowledge, so that abstract cultural concepts can be concretized and vivid [15,

16]. At the same time, artificial intelligence can also intelligently recommend relevant learning resources and cases according to students' learning needs and interests, so as to achieve personalized teaching. In the biochemistry courses, artificial intelligence can help students better understand biochemical phenomena and principles and improve their learning effect through simulation experiments and virtual simulations. In addition, the cultural exchange and integration in the context of globalization also provides an external impetus for the integration of traditional culture and biochemistry curriculum teaching. As an important part of world culture, the dissemination and promotion of China's excellent traditional culture is of great significance to enhance the international community's understanding and recognition of China. By integrating traditional culture and biochemistry courses, students can have a deeper understanding of the unique charm and value of Chinese culture in the process of learning, and enhance cultural self-confidence and national pride. At a time when China is comprehensively promoting educational reform and innovation, emphasizing the cultivation of students' innovative spirit and practical ability, the integration of traditional culture and biochemistry curriculum teaching is an important direction of educational reform and innovation.

III. PROBLEMS IN DEEPENING THE EDUCATION OF EXCELLENT TRADITIONAL CHINESE CULTURE

Imparting esteemed traditional Chinese culture is the foremost method to preserve and foster our ancestral heritage. As the emphasis on educating about China's distinguished traditional culture grows, there's an ongoing emergence of both theoretical dissections of its essence and practical endeavors to weave it into classrooms and instructional materials. While the education of China's esteemed traditional culture has shown preliminary success, challenges remain in the realms of ideological comprehension, execution, and resource assurance that need addressing [17, 18]. Research indicates that the fundamental issue stems from an inadequate comprehension and translation when converting distinguished traditional Chinese culture into educational frameworks. This shortfall results in an insufficient theoretical foundation for enacting traditional cultural education in practical scenarios.

A. *The Education Orientation of Chinese Excellent Traditional Culture has Deviated*

The educational approach to China's esteemed traditional culture has evolved from the initial promotion of Chinese culture, to highlighting its exceptional traditional aspects, and then to a dedicated educational system centered around this distinguished cultural heritage. It has gone through the process of gradual conceptualization and terminalization, but its connotation has not been effectively analyzed. In pertinent texts, the terms "preservation of China's distinguished traditional culture" and "education of China's distinguished traditional culture" are used interchangeably. Their core meanings, foundational content, and execution strategies overlap. This overlap causes a misconception during policy interpretation and application: the act of preserving China's rich traditional culture is perceived as identical to its education. The fundamental essence that the education of this culture is rooted in academic instruction gets overlooked. This oversight skews the comprehension of the true direction and purpose of teaching China's venerable traditional culture.

The misalignment in understanding the essence of China's distinguished traditional culture education has led to an overemphasis on its expansion and amplification. This causes an excessive pursuit of innovation and freshness during its promotion. There's an overindulgence in integrating appealing traditional cultural activities into subject instruction. By employing "expansion," "activity-driven" mindsets to meet the demands of integrating traditional culture into "curricula, textbooks, and classrooms," the outcome is that traditional cultural education becomes superficial and disjointed. Such an approach strays from the original objectives and trajectory of imparting China's esteemed traditional culture [19, 20]. Defining the essence and direction of China's distinguished traditional culture education, along with emphasizing the pedagogical purpose of traditional culture in curriculum and textbook development, form the foundational principles for enhancing the education of China's esteemed traditional culture.

B. *Inadequate Research on the Selection Criteria of Chinese Excellent Traditional Culture Education Content*

Choosing the right content for the education of China's esteemed traditional culture is a pivotal concern in the advancement of this cultural educational initiative. Since the 21st century, the concept of Chinese excellent traditional culture has gone through three stages: "scattered concept, mixed connotation", "stable expression, boundary establishment", and then "deepening connotation, pointing to practice". Its concept connotation has gradually become clear. Simultaneously, scholars have grown to distinguish between the education of outstanding traditional Chinese culture and general traditional Chinese culture education. Efforts have been initiated to determine the criteria for content selection within the former's framework. However, due to misconceptions and misdirection in understanding the nuances of outstanding traditional Chinese culture education, and given the

intricate, vast, and varied nature of traditional culture, a definitive and refined standard for content selection in this educational realm remains unestablished.

The absence of thorough research on content selection criteria for China's esteemed traditional culture education has introduced increased unpredictability and bias in content choices. This has resulted in uneven distribution and mismatches within the educational material, creating disparities in its presentation. Furthermore, the education of China's distinguished traditional culture is often misconstrued as a mere "resurrection of ancient traditions." This leads to issues like an overemphasis on ancient texts, which deviates from the natural progression of students' cognitive growth and understanding [21, 22]. To intensify the education of China's esteemed traditional culture, it's imperative to establish clear selection criteria for its content and refine the overall content framework of this cultural education.

IV. PROBLEMS TO BE PAID ATTENTION TO IN THE TEACHING OF BIOCHEMISTRY ASSISTED BY TRADITIONAL CHINESE CULTURE

Integrating traditional Chinese culture into biochemistry instruction not only enlivens the classroom environment and piques students' curiosity but also adds a touch of literary essence to biochemistry, enhancing the aesthetic appeal of its classroom delivery. During instruction, educators should judiciously choose relevant traditional Chinese cultural content to weave in, ensuring it aligns with the curriculum and resonates with the students' current context and understanding. Otherwise, it may backfire, not only failing to achieve the expected teaching objectives, but also causing students' disgust and reducing the classroom teaching effect. Given the issues highlighted in the education of esteemed traditional Chinese culture, a deeper analysis is needed for its integration into biochemistry instruction. When leveraging traditional Chinese culture as a supplemental teaching tool, the following considerations should be heeded:

A. *Pay Attention to the Rationality of Introducing Traditional Chinese Culture into Biochemistry Teaching*

Teachers should prioritize building a reservoir of knowledge and cultivating creative thought. It's vital to choose suitable teaching resources, craft the instructional sequence with care, and introduce relevant traditional Chinese cultural content at opportune moments. In the process of teaching, it is not allowed to quote for the sake of reference, let alone to draw on and copy mechanically, so as to make the natural transition between biochemical knowledge and traditional Chinese culture, without abrupt, so that students have a sense of intimacy and identity, and truly and effectively play its role of auxiliary teaching.

B. *Pay Attention to Expanding the Integration Form of Traditional Chinese Culture*

Merging traditional Chinese culture shouldn't be limited to just the academic content. It's essential to harness the profound essence of traditional culture to impart moral values and cultural enlightenment to students. Guide students to learn how to behave and do things while learning biochemistry knowledge, like Chinese traditional culture, feel the beauty of language, nature and life, enable students to learn knowledge and receive education in biochemistry class, and promote the positive transfer of biochemistry knowledge.

C. *The Selection of Elements of Traditional Chinese Culture should be Ideological*

University students are at a pivotal life phase where their perspectives on life, worldview, and core values are taking shape. They should be given correct guidance in class, otherwise they will be easily misled and affected by social undesirable phenomena. Therefore, when choosing Chinese traditional culture, on the one hand, we should try to choose positive and energetic materials, which should be carried forward firmly in the classroom, and on the other hand, if we introduce materials that conflict with positive energy, we should give correct guidance in the classroom.

D. *The Proportion of Traditional Chinese Culture should not be too Large*

When applying traditional Chinese culture to assist biochemistry teaching, teachers should remember that it is better to lack than to abuse. At the right time, select the right materials to effectively play the role of auxiliary teaching. Unintentional abuse will only make students overwhelmed, focus too much attention on the applied materials, and it is difficult to shift to the topic of biochemistry in a short time. We should do less and better, otherwise it will have the opposite effect.

V. PRACTICE LOGIC OF INTEGRATING EXCELLENT TRADITIONAL CHINESE CULTURE INTO BIOCHEMISTRY TEACHING COURSE

Considering the challenges present in the education of China's esteemed traditional culture and the aspects to heed in its supplementary role in biochemistry instruction, an initial investigation into incorporating this rich culture into the biochemistry curriculum is undertaken.

A. *Create an Atmosphere, Improve Teachers' Quality and Form Scientific Teaching Concepts*

Ideological and political teaching generally contains a large number of excellent traditional Chinese cultural elements. Hence, it's feasible to incorporate content related to ideology and civics into the biochemistry curriculum. By adhering to the principle of "moral development and holistic nurturing," the emphasis should be on structured curriculum development. Convene a dedicated meeting focused on curriculum development, emphasizing that the integration of China's esteemed traditional culture into the biochemistry curriculum is pivotal. It aligns with the institution's commitment to wholeheartedly implementing the national education policy, upholding the direction of socialist education, and enhancing and adapting to the evolving educational landscape. A strategy for bolstering the fusion of China's distinguished traditional culture into the biochemistry instruction has been devised. This strategy sets a foundational theoretical ambiance, paving the way for the seamless assimilation of China's rich cultural heritage into biochemistry education [23, 24].

Teachers are the key factor in implementing and promoting the development of the curriculum. Educators are assembled for specialized training titled "Reflections and Pedagogical Practices on Incorporating China's Esteemed Traditional Culture into the Biochemistry Curriculum." This training aims to boost the educators' commitment and sense of duty, setting a robust groundwork for the successful integration of China's revered traditional culture into the biochemistry instructional framework.

B. *Refine the Excellent Traditional Chinese Culture and Integrate it into the Curriculum Objectives of Biochemistry Teaching, and Integrate it into the Talent Training Program and Syllabus*

The talent development blueprint explicitly states the objective to nurture application-centric individuals possessing commendable professional ethics and an innovative mindset. These individuals should exhibit holistic growth encompassing moral, intellectual, physical, aesthetic, and labor-oriented facets. Students are expected to harbor deep love for their homeland, uphold honesty and integrity, demonstrate responsibility, and possess a readiness to contribute. They should be adept at employing the fundamental tenets and perspectives of dialectical and historical materialism to comprehend, dissect, and address issues. Moreover, they should maintain a proper worldview, life perspective, and set of values, complemented by exemplary ideological and moral character, as well as a heightened sense of social duty. The teaching and research section of biochemistry and molecular biology also incorporated the elements of excellent traditional Chinese culture into the syllabus when compiling the new version of the syllabus.

C. *Find the Entry Point and Dig into the Elements of Excellent Traditional Chinese Culture*

The amalgamation of 4 thematic categories and 20 traditional cultural elements of China's esteemed traditional culture education forms the content selection criteria for this educational endeavor. For a detailed breakdown, refer to Table 1.

Table 1: Elements of Chinese excellent traditional culture

Theme	Personality cultivation education	Social care education	Education of family feelings	Community education with a shared future for mankind
Elements of traditional culture	Have a good heart	respect the old and cherish the young	unremitting self-improvement	Respect nature
	Loyal and trustworthy	honour the teacher and respect his teaching	Patriotic	Understand others
	distinguish between truth and falsehood	do boldly what is righteous	Fearless of power	Harmonious symbiosis
	uphold fundamental principles and break new ground	Harmonious neighborhood	down-to-earth	Datong ideal
	Unity of knowledge and action	Help the disabled and the poor	fully inclusive and equitable	-
	Tough and open-minded	-	-	-

The content of biochemistry instruction encompasses a wealth of elements derived from China's distinguished traditional culture. For a more detailed representation of these elements, please refer to Table 2.

Table 2: Biochemistry teaching contents and the elements of excellent traditional Chinese culture

Biochemistry teaching content	Elements of excellent traditional Chinese culture
Nucleic acid molecular structure	The magic of life
The role of drugs and the molecular mechanism of addiction	Cherish life
Care for experimental animals	humanistic concern
Final raw experimental data	seek truth from facts
Control experiment design	Scientific thinking
Ethanol metabolism	social responsibility
Nutritional value and complementary function of protein	Teamwork
Blood glucose regulation	dialectical thinking
Gene editing baby birth	Research ethics
human genome project	Patriotism

Based on the preceding analysis, biochemistry instruction is rich in elements of China's esteemed traditional culture. Educators should delve deeply into these cultural components from various angles, ensuring that biochemistry education harmoniously aligns with and resonates with China's outstanding cultural heritage.

D. Cultivate Scientific Research Dialectical Thinking

Dialectical thinking ability involves recognizing, analyzing, and resolving contradictions. It enables individuals to pinpoint central issues, identify crucial aspects, and discern the underlying patterns and laws governing the evolution of matters. In biochemistry, various levels of dialectical unity can be observed, such as the interplay between structure and function, the integration of synthesis and decomposition, and the synergy between individual components and the entirety, among others. For example, when learning material metabolism and regulation, biomolecules have their own metabolic pathways. However, each metabolic pathway must be coordinated to ensure individual health. Integrate the dialectical unity thought into teaching, so that students can understand the essence of life, and clearly "move the whole body by pulling one hair", so that they can find the essence of disease in future clinical work and benefit for life.

Taking biochemistry teaching in molecular biology as an example. In recent years, there has been a growing consensus in the field of estrogen signaling that virtually all major human tissues exhibit responsiveness to estrogen. The influence of estrogen on human health is significantly more intricate and profound than previously understood by scientists. Furthermore, some researchers argue that the estrogen receptors ER- α and ER- β play key roles in this complex web of effects. The interactions between them (antagonistic effects, synergistic effects, etc.) simulate the balance between yin and yang in the traditional Chinese culture of the Book of Changes [25]. Similarly, similar viewpoints can also be transferred and applied to the explanation of knowledge points on blood glucose dynamic regulation in biochemistry courses, in order to help students understand why various complex reactions within organisms can proceed in an orderly manner and better understand the interactions between related molecular signals. By incorporating ancient academic principles like "seeking knowledge from facts" and "seeking truth from facts," students can nurture a rigorous research mindset and enhance their capacity for critical thinking.

E. Ecologization of Excellent Traditional Chinese Culture is the Value Orientation of the School Curriculum System

Ecology constitutes a significant aspect of culture. Safeguarding and advancing the ecological aspects of China's esteemed traditional culture is a fundamental concept within the value framework of the biochemistry teaching curriculum system. Currently, the integration of China's esteemed traditional culture into educational institutions and courses often leans towards a policy-driven approach. It tends to treat China's exceptional traditional culture as a "static traditional culture" fixed in a particular historical period, reflecting a limited, unchanging, and isolated perspective on culture. Hence, fostering the ecological perspective of China's esteemed traditional culture is the guiding principle of the biochemistry teaching curriculum system. This approach is beneficial for both preserving and revitalizing China's distinguished traditional culture. Primarily, the ecological alignment of China's esteemed traditional culture guides educational institutions to amalgamate resources both internally and externally. This ensures that the distinctive qualities genuinely become the hallmark of the school's curriculum system. The ecological integration of China's esteemed traditional culture is contingent upon its geographical and community context. This serves as a theoretical compass for shaping the distinctiveness of the

school's curriculum system. It allows the institution to enhance the conceptual essence of the curriculum system, devise curriculum content, and build curriculum components in harmony with local characteristics. The practical orientation of China's esteemed traditional culture is manifest in the development of the curriculum system. This approach aids students in acquiring a proper comprehension of China's distinguished traditional culture and enables them to fulfill their role in preserving and innovating cultural heritage.

Secondly, as the guiding principle of the school curriculum system, the ecological perspective of China's esteemed traditional culture paints a comprehensive vision for both preserving and innovating this rich cultural heritage. China's esteemed traditional culture should not be viewed as a static entity detached from its specific ecological surroundings, but rather as a dynamic culture that can be both understood and integrated into various contexts. It is not impossible for students to assimilate this culture into their own modes of thinking and behavior. Adopting the ecological perspective of China's esteemed traditional culture as the guiding principle for the school's curriculum system can shift the approach from merely imparting knowledge about the culture's inheritance. Notably, the school's curriculum system solidifies the central concept of ecological China's esteemed traditional culture, serving as the foremost carrier of core values in the operation of the entire school curriculum system. Building on this foundation, educational institutions should establish a mechanism for harnessing resources related to China's esteemed traditional culture. They should seamlessly integrate the framework of China's esteemed traditional culture into the school curriculum system, fostering a dynamic learning environment for students where esteemed traditional Chinese culture and modern culture coexist harmoniously. Simultaneously, educators should create a classroom atmosphere where students are exposed to a natural environment and cultural ambiance that align with their individual cultural backgrounds. This ensures that students are learning within a nurturing and supportive educational environment.

F. Excavate Excellent Traditional Chinese Cultural Resources in Different Dimensions and Maintain the Cultural Balance in the School Curriculum System Structure

Educational institutions should convert the resources related to China's esteemed traditional culture into tangible curriculum content. This initiative serves to facilitate the seamless incorporation of China's distinguished traditional culture into the school's curriculum system. Hence, educational institutions can explore China's esteemed traditional cultural resources from various perspectives and adapt them into curriculum content and formats. This approach helps maintain equilibrium among different cultural elements within the structure of the school's curriculum system. Among them, the structure of school curriculum system consists of qualitative structure, category structure and quantitative structure. Following this approach, schools can compile the resources related to China's esteemed traditional culture into distinct content and construct a curriculum framework that ensures cultural equilibrium.

Initially, relying on the qualitative framework, foster the profound amalgamation of China's esteemed traditional culture with other cultural components within the curriculum system in a multi-dimensional manner. The qualitative structure is to construct a three-dimensional network curriculum structure that links and interacts with each other around the goal of harmony in human development. For example, personality curriculum, emotion curriculum, knowledge curriculum and practice curriculum constitute a curriculum structure. Based on the three-dimensional network structure, the excellent traditional Chinese cultural resources are divided into dimensions and integrated into the corresponding dimensions, forming the overall framework of the school curriculum system structure with other cultural content. China's esteemed traditional culture can be categorized into four educational dimensions: knowledge science, citizenship, cultural democracy, and individual psychology. The school can incorporate China's esteemed traditional culture into the qualitative framework based on these four fundamental educational criteria. For example, schools can combine the current national curriculum content with local knowledge to form knowledge curriculum, and integrate the values of Chinese national identity and national identity to form emotional curriculum.

Secondly, the class-based structure presents the curriculum form of cultural exchange and blending in the form of "interaction and integration". The structure of class is the description of school curriculum categories and their relationships. The educational institution strategizes, fuses, extends, and pioneers the national curriculum, regional curriculum, and school-specific curriculum to develop a foundation curriculum, an expanded curriculum, and a distinctive curriculum. These courses are designed on the basis of qualitative structure, which can be divided into corresponding qualitative structure to ensure the comprehensiveness and harmony of curriculum education. Following this approach, the school curriculum weaves China's esteemed traditional culture into the class structure, using the foundational framework of "national curriculum - regional curriculum - school-specific curriculum."

Ultimately, this results in various curriculum formats, including core, enrichment, exploratory, and practical components. China's esteemed traditional culture can be systematically incorporated into the content of school-specific and regional curricula. It can also enrich and broaden the content of the national curriculum through suitable teaching methodologies. Specific course content configuration and suitable teaching methods form different course forms, and the excellent traditional Chinese culture is intertwined, such as Chinese literature, Chinese history and other contents constitute the basic course; Ethnic customs and other contents constitute the inquiry course; National musical instruments, national handicrafts and other contents constitute activity courses; Regional ecological environment protection constitutes the survival course.

G. Construct Dynamically Developed School Curriculum System Elements to Realize "Educating People with Culture and Culture"

The ecological integration of China's esteemed traditional culture and the development of students mutually reinforce one another. In other words, the ecological alignment of China's esteemed traditional culture fosters the advancement of students, and the progression of students in turn safeguards and advances the ecological integration of China's esteemed traditional culture. Consequently, educational institutions should construct a dynamic and inclusive curriculum system that maximizes the educational potential of the curriculum structure, ultimately achieving the goal of "cultivating individuals through culture and nurturing culture through individuals." This requires curriculum designers and implementers to understand the overall planning of school curriculum, consciously study and judge the relationship between culture and school curriculum system, the relationship between education objectives and curriculum structure, and the relationship between resource allocation and curriculum implementation.

Establish curriculum objectives consciously based on culture. The curriculum goal is the concretization of the education goal. When defining curriculum objectives, it's crucial to have a conscious grasp of the curriculum landscape and elucidate the connection between China's esteemed traditional culture and the curriculum goals. In formulating curriculum objectives, educational institutions should deliberately reevaluate China's esteemed traditional culture in conjunction with the contemporary curriculum content. They should enhance and refine the spiritual essence of China's esteemed traditional culture in alignment with the present era. This ensures that the educational goals encompass the core values of China's esteemed traditional culture. For instance, the admirable values of unity, cooperation, and respect for elders found within China's esteemed traditional culture can be integrated into the educational objectives. Building upon this foundation and considering student characteristics, curriculum types, subject progress, and societal demands, educational objectives should be systematically deconstructed into appropriate levels, creating an interconnected and holistic curriculum objective system.

VI. CONCLUSION

Initially, this article establishes the viability and essential nature of infusing China's esteemed traditional culture into the biochemistry curriculum. It explores potential avenues for doing so by scrutinizing deficiencies in the current teaching methodology. Introducing the life content from traditional Chinese culture into biochemistry teaching not only helps students deepen their understanding of biochemistry knowledge and traditional Chinese culture, but also helps students form a scientific view of life and health, inspiring them to respect and understand the wisdom expression of life. The biochemistry curriculum system, combined with the concept of life education, is more comprehensive, not only deepening the connotation of classroom teaching but also enhancing the persuasiveness, affinity, and effectiveness of "curriculum ideology and politics", making students full of respect, love, appreciation, and exploration towards life. In addition, by exploring the wisdom and philosophical ideas in traditional culture, students can form a more comprehensive and in-depth understanding when learning biochemistry knowledge, strengthen their dialectical thinking, and cultivate their rigorous and knowledge seeking work attitude. At the same time, this integration method also helps to cultivate students' innovative thinking and scientific literacy. By digging deeper into the value connotation of traditional culture, combining the scientific principles of biochemistry courses, and using the advantages of artificial intelligence technology, we can create a richer, more diverse and interesting learning environment for students to promote their all-round development.

While we have initiated the practice of merging China's esteemed traditional culture with biochemistry curriculum instruction, there are still uncharted territories worth exploring in this research endeavor. For instance, there is a need for more comprehensive exploration into the fusion of traditional culture and biochemistry courses, with the aim of offering more practical and actionable integration strategies. Secondly, for the specific course design, this study only provides a rough framework, which can be further refined in the future. For example, more

targeted integration plans can be designed for different levels of higher education (such as tertiary, undergraduate, graduate), as well as different themes (such as molecular biology, genetics, biochemistry, etc.), and even different majors (such as clinical medicine, nursing, dentistry, biology). Additionally, it's essential to preserve the neutrality of scientific instruction and take care not to convert biochemistry education into a platform solely for traditional cultural instruction. Furthermore, this study did not provide specific implementation steps and evaluation methods for the development of practical solutions for the fusion path. Moving forward, concrete integration practices can be implemented, and a variety of assessment methods (including student self-assessment, teacher evaluation, and course effectiveness evaluation) can be employed to gauge the real impact of incorporating China's esteemed traditional culture into biochemistry instruction. Lastly, it's important to acknowledge that this study primarily concentrates on the positive impacts of China's esteemed traditional culture. In the future, it would be valuable to explore potential challenges that integrating traditional culture may entail, such as students' misconceptions about traditional culture and conflicts between traditional education and modern science. This proactive approach can help preemptively address issues that may arise during the integration process.

In conclusion, it is highly feasible to incorporate China's respected traditional culture into biochemistry education with the help of artificial intelligence technology, and it is of great significance and value. Nevertheless, it calls for more extensive research and practical implementation to fully realize its potential. Future related research can deepen this integration from multiple levels to better cultivate students' scientific literacy and humanistic spirit.

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