

Exploration and Practice of Curricular Ideology and Politics Education Reform in Biochemistry Course Ideological and Political Education

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ABSTRACT

Biochemistry is a specialized basic course of biology and agriculture majors. This paper takes "biochemistry course" as the object, analyzes the importance and necessity of curricular ideology and politics education reform of biochemistry course in colleges and universities; and deeply excavates the ideological and political elements in this course according to the course content; meanwhile, combined with specific cases and implementation plan, this paper expounds the path of curricular ideology and politics education reform in biochemistry course. This paper aims to provide theoretical support and practical experience for the ideological and political reform and practice of Biochemistry curriculum in colleges and universities, and also provide reference for the curricular ideology and politics education of other biological courses.

Keywords: *Biochemistry, Curricular ideology and politics, Teaching reform.*

1. INTRODUCTION

Teaching reform and practice based on the basic task of "strengthen moral education and cultivate people" and the teaching concept of "curricular ideology and politics" has been widely promoted and recognized in colleges and universities in China in recent years [1-4]. In October 2016, General secretary Jinping XI stressed at the National Conference on ideological and political work in colleges and universities, "to make good use of classroom teaching as the main channel, ideological and political theory courses should be strengthened in the process of improvement, and the affinity and pertinence of ideological and political education should be enhanced to meet the needs and expectations of students 'growth and development. All other courses should "keep a good section of canal and plant a good responsibility field," so that all kinds of courses and ideological and political theory courses go in the same direction to form a synergistic effect". This important instruction profoundly expounds the direction and significance of the curricular ideology and politics education reform [5]. After that, the major colleges and universities in the country have carried out a lot of exploration and practice in the reform of curricular ideology and politics education. In December 2017, the Ministry of Education issued the Implementation

Outline of the Quality Improvement Project of Ideological and Political Work in Colleges and Universities, which requires "vigorously promote the classroom teaching reform with the goal of "curricular ideology and politics", sort out the ideological and political education elements contained in various professional courses and the ideological and political education functions carried by courses, and integrate them into all links of classroom teaching, to realize the organic unity of ideological and political education and knowledge system education." On March 18, 2019, General secretary Jinping XI highly affirmed the important function and significance of ideological and political education in practicing the educational policy of "strengthening moral education in the process of cultivating students" at the school's ideological and political theory teachers' forum. In the face of the phenomenon that college students "thoughts and value orientation are influenced by various ideological trends from society and network and then deviate, it is urgent to reform college students" ideological and political education with professional courses as the carrier. The Ministry of Education issued the Guiding Outline for the Construction of Curricular Ideology and Politics Education in Colleges and Universities on May 28, 2020, which requires that "the content of curricular

ideology and politics education should closely focus on strengthening students' ideals and beliefs, take love of the party, patriotism, socialism, the people and the collective as the main line, and optimizing the content of ideological and political education in colleges and universities around political identity, feelings of family and country, cultural literacy, constitutional awareness of the rule of law, moral cultivation and other key points; and systematically carry out education of socialism with China characteristics and Chinese dream, education of socialist core values, education of rule of law, education of labor, education of mental health and education of excellent Chinese traditional culture".

The essence of "curricular ideology and politics" is to fully tap the elements of thinking about politics in the curriculum knowledge system, organically integrate ideological and political education with curriculum knowledge education, so that students can promote their all-round development of morality, intelligence, physique, beauty and labor, the formation of good moral sentiment, the shaping of correct values while mastering professional knowledge, and finally realize the training goal of "combining knowledge imparting, ability training and value leading development". This not only implements the National guidelines on the three all-around education, but also gives full play to the educational function of professional courses [6-7]. The biochemistry curriculum contains rich political thinking elements and scientific humanistic spirit; taking the Biochemistry curriculum as an example, the author analyzes the necessity and importance of political thinking reform, and expounds the specific path of political thinking education reform.

2. ANALYSIS ON THE NECESSITY OF IDEOLOGICAL AND POLITICAL EDUCATION IN BIOCHEMISTRY COURSE

In 2016, General secretary Jinping XI clearly pointed out at the National Conference on ideological and political work in colleges and universities that "the foundation of colleges and universities lies in strengthening moral education and cultivate people." Therefore, "curricular ideology and politics" is an important way to realize the talent training goal of strengthening moral education and cultivate people as the core task of talent training. In addition, "curricular ideology and politics" is of great significance to cultivate successors to socialism and national rejuvenation, and to realize the great rejuvenation of the Chinese nation and the great China dream [8].

Secondly, as a course of natural science, Biochemistry is an important carrier and channel of ideological and political education and scientific and humanistic education compared with other general education, humanities and curricular ideology and

politics. The scientific spirit and attitude of seeking truth scientifically, seeking truth strictly, daring to explore and innovate can exert a subtle influence on students' scientific literacy, internal cultivation, thinking habits and logical mode, and have a far-reaching impact on the formation and shaping of students' values, outlook on life and world view. Scientific knowledge contains many true and valuable scientific spirit and humanistic spirit. Through the exploration of life activities and laws, we can seek happiness for human beings and the development for society, which not only embodies the spirit of tireless scientific exploration, but also embodies the spirit of deep humanistic care.

Based on the above analysis, we can reasonably introduce typical science stories in the teaching process, not only tell the rigour of experimental design and convey the scientific spirit, but also convey the humanistic care of scientists in scientific exploration and research, so as to moisten things in silence. In addition, we can combine social hot issues to stimulate students' curiosity and thirst for knowledge, enhance the interest and attraction of the course, inspire students to actively think about scientific issues, and then improve the effect of classroom teaching and the value of classroom education. [9-11]

3. ANALYSIS ON THE IMPORTANCE OF IDEOLOGICAL AND POLITICAL EDUCATION IN BIOCHEMISTRY COURSE

Biochemistry is a science to study the chemical composition of life and the metabolic law of life activities. It is an important basic course in the field of natural science. This course is closely related to molecular biology, cell biology, microbiology, plant physiology and other disciplines. This course covers three major areas, including the structure and function of biological macromolecules, the metabolic and regulatory network of biological macromolecules, and the transmission, expression and regulation of genetic information. Biochemistry is the foundation and guarantee for learning other related professional courses well, and is also an important course for initially cultivating college students' scientific research literacy, scientific research methods and thinking, as well as international vision. As a natural science course, Biochemistry aims to reveal the essence and law of life activities, and is a science with rapid development. Through the reform of ideological and political education and the introduction of the latest research progress of this discipline, students can understand the development trend and scientific frontier of this course at home and abroad, lay a solid foundation for learning molecular biology, physiology, genetics, cell biology and other courses, build a knowledge framework, form a more comprehensive and solid knowledge system, and

lay a favorable Foundation for future employment, postgraduate study and graduation thesis development.

4. THE SPECIFIC PATH OF CURRICULAR IDEOLOGY AND POLITICS EDUCATION REFORM IN BIOCHEMISTRY COURSE

4.1. Integrating Curriculum Content, Transmitting Scientific Spirit and Advocating Science

(1) The introduction part is a summary of the whole overview and development of Biochemistry course, which contains many scientific figures, scientific stories and scientific research spirit, and we can interweave the stories of Nobel laureates in due time, explain the scientific stories, convey the scientific research spirit behind the scientific research stories, and make students realize that scientific discovery is the result of accidental and inevitable coexistence. Scientists' curiosity and obsession with the phenomenon of life activities, their love and focus on scientific research, and their unremitting efforts and exploration, sacrifice and dedication after numerous failures are the source of the continuous progress and development of science. The transmission and encouragement of scientific spirit can not only effectively arouse students' love for life, gratitude and dedication, stimulate students' desire to explore and study the mysteries of life, but also imperceptibly cultivate students' scientific literacy, stimulate their interest in learning and enhance their learning motivation [12].

(2) Biochemistry is an interdisciplinary subject, and some important advances are often the product of multidisciplinary combination. Take the proposal of the DNA double helix structure model as an example. The discovery of the model combines the knowledge of biology, chemistry and physics; through the historical origin of the discovery of the double helix, students can be taught not to limit their eyes to their own research field. The development of science has always been mutual promotion, extensive learning and inclusive, and only by widely absorbing the research technologies, methods and successes in different fields and learning, digesting and absorbing, can they achieve greater scientific research findings.

(3) The enzymes first discovered were proteins, and then United States scientists T.Cech and S. Altman discovered ribozymes, which challenged the traditional idea that all enzymes are proteins. This example can guide students to realize that our understanding of the world is constantly developing, constantly improving and constantly improving. Nothing is absolute, and affirmation and negation are sometimes mutually converted.

(4) Although the structure and content of proteins, nucleic acids, enzymes, sugars and vitamins are very different, they are indispensable to the life metabolism of organisms, and the life metabolism activities of organisms cannot be separated from the coordination and coordination of various biomolecules and various physiological activities. This phenomenon is like everyone in the society. Although the division of labor is different, they perform their respective duties and have their own characteristics and advantages. Only by supporting and cooperating with each other can everyone give full play to the advantages of Human Resources. Everyone has their own advantages, if everyone can give full play to their own advantages and values, the society and the country can develop more healthily, harmoniously and for a long time.

(5) It is mentioned in the chapter of biological oxidation that compared with chemical oxidation in vitro, biological oxidation is essentially dehydrogenation, electron loss or oxygenation. The oxidized substances are the same, and the structure of biological macromolecules often determines their properties and functions. The above phenomenon shows the importance of grasping the essence and law behind the phenomenon.

4.2. Integrating Scientific Stories to Convey Humanistic Spirit

(1) It is mentioned in the chapter of protein synthesis that the components involved in protein synthesis include ribosome, mRNA and various cofactors, which are complex processes that require the cooperation of a variety of substances. It can educate students to have the sense of teamwork and team spirit in their study and work, which can achieve twice the result with half the effort.

(2) DNA damage repair errors may lead to genetic diseases, but the most effective gene-editing technology, CRISPR/Cas9, uses DNA damage repair process to form gene mutations. The above phenomenon shows that everything has two sides, and the harmful side can be turned into the beneficial side by appropriate methods.

(3) When describing the lactose operon model, students can be guided to think about the changing external environment that organisms often face in their growth and development and life metabolism activities. Therefore, students can be guided to think that we should actively improve our own adaptability and adaptability to solve the difficulties and problems encountered, instead of complaining about the external environment and conditions.

4.3. Attach Importance to Case Teaching, Stimulate Learning Interest and Cultivate Scientific Thinking

Typical cases can not only enrich the teaching content, but also stimulate and cultivate students' learning enthusiasm and interest in biochemistry. By letting students understand the scientific exploration and verification behind the knowledge points of the course, we can guide students to realize that scientific research ideas are the core of scientific research, and precise and rigorous experimental design is the driving force of scientific research conclusions, so as to cultivate students' scientific inquiry thinking and advocating scientific feelings.

4.4. Explore Scientific Problems and Promote the Cultivation of Autonomous Learning Ability and Innovation Ability

Biochemistry is a very close combination of theory and practice. Learning this course well can promote the cultivation of students' autonomous learning ability, innovation ability and practical ability. According to the characteristics of this course, we can focus on each chapter of this course, which is closely related to the content of the course. In class, students can extract preview, learn knowledge with questions, and encourage students to scientifically answer by searching for literature and materials; and students can be divided into groups to discuss, express their personal views, stimulate and promote the cultivation of students' autonomous learning ability and innovation ability. In addition, through reading literature to find information, stimulate students' independent thinking, improve students' ability to find, analyze and solve problems.

4.5. Combine Social Hot Spots, Scientific Speculation, Remove False and Keep True, Distinguish Rumors

Combining with the social hot spots, current events news or life examples related to the content of this course, relevant videos and materials are introduced. Through the vivid display of teachers and the discussion and speech of student groups, students' attention will be attracted, scientific problems will be brought out gradually, students' curiosity will be aroused, students will be guided to reveal their essence through phenomena, and to eliminate false and authentic information and identify rumors. Meanwhile, students are inspired to think independently, rationally and scientifically through the study of basic knowledge, so as to train students to pay attention to social and people's livelihood issues, industry needs and national policies, and improve their sense of social responsibility and undertake consciousness.

In the process of preparing lessons, teachers should also pay more attention to educational methods, discipline frontier development, national affairs, college students' ideological values and employment prospects, and then improve the level and ability of ideological and political education from all aspects [13]. In the process of teaching, we can introduce rumors in daily life, such as that floss can be made of cotton. Through case analysis, we can guide students to think that the essence of floss meat is protein, while the essence of cotton is natural fiber. Through examples in life, we can teach students to have self judgment and independent thinking in the face of rumors, and guide students to use their professional knowledge to distinguish the true from the false. Take the novel coronavirus pneumonia as an example, the Internet rumors that alcohol can antiviral, guide students to think about new coronavirus's sensitivity to 75% of medical alcohol, and is sensitive to high temperature, ultraviolet rays and chlorine containing disinfectants. However, 75% of the medical alcohol can only effectively kill the virus and bacteria on the surface of the object, and achieve the purpose of disinfection and sterilization by denaturing and inactivating the protein. However, the human body's drinking concentration of 75% of the medical alcohol can not play a role in the prevention of novel coronavirus infection, alcohol into the digestive system will have an impact on immunity, which will increase the risk of infection. Another example is that the injection of immune antibodies can enhance the body's resistance to certain diseases in a short time, while eating collagen can not increase the synthesis and content of collagen in the skin. In conclusion, through the common examples and social hot spots in life, students can be guided to think scientifically and maintain the consciousness and ability of independent thinking.

5. CONCLUSIONS

Through extensive access to information and literature resources, and careful selection and design of Ideological and political cases, the ideological and political elements and connotation of the course are constantly enriched and broadened. The specific implementation plan of the curricular ideology and politics is planned and carefully designed, and written into the teaching plan, so as to avoid the "fragmentation" and "abrupt" problems, so that the plan is naturally integrated into the curriculum knowledge system, and becomes a sharp sword to improve the teaching and education effect of natural science courses such as biochemistry. The ideology and politics education reform of Biochemistry also requires teachers to pay attention to the cutting-edge development of relevant technology and knowledge, and combine theoretical teaching with practical case, so as to improve the quality and effect of teaching. In view of the strong

theoretical characteristics of this course, teachers integrate the ideological and political cases and ideological and political elements such as scientific stories while teaching knowledge. At the same time, they naturally integrate the principles of doing things, correct values and world outlook, national feelings and sense of responsibility, so that this course has strong persuasion and appeal, and give full play to the educational function of classroom teaching. Finally, the Trinity education goal of "imparting knowledge, strengthen moral education and cultivate people and leading value" can be realized.

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