

Original Paper

Exploration of Ideological and Political Education in the Course of “Biopharmaceutical Testing and Testing Technology” under the Post Pandemic Situation

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Author’s Biography: Pingping Zhou (1990-), female, lecturer, research focus on applied chemistry and education and teaching research in detection analysis related courses.

Abstract

Motivated by curriculum reform and the traditional theoretical teaching content system of drug analysis and testing, we will strengthen experimental teaching in accordance with enterprise needs of vocational colleges. And then, under the direction of content and task driven, we will build an ACQUIN quality certification system for the Biopharmaceutical Testing and Testing Technology course to strengthen students’ independent participation, pique their interest in learning, and cultivate high-quality skilled talents who are capable of doing things and being good person, by thoroughly examining the ideological and political components of the course.

Keywords

Biopharmaceutical Testing and Testing Technology, ACQUIN Quality Certification, Curriculum ideology and politics, Teamwork

Under the correct leadership of the Communist Party of China (CPC) and the joint efforts of the Chinese government, after more than three years of COVID-19 prevention and control, we have

basically come out of the haze of COVID-19, but there are still some people with two Yang, three Yang and even multiple Yang, which still bring more or less impact on our daily life. At the same time, in order to prevent a variety of new viruses that may appear in the future, China and even the world still need to reserve a large number of high-quality professional personnel in analysis and testing, vaccines, reagents and drug research and development and production. Based on this, our biopharmaceutical technology major is committed to cultivating quasi-professionals with solid professional knowledge, excellent professional skills and high comprehensive literacy for lifelong development in the pharmaceutical industry. *Biopharmaceutical Testing and Testing Technology* is its professional core skill course. We are striving to build the ability to formulate test programs, the ability to operate independently, the ability to process data correctly and the ability to write test reports completely; With seeking truth from facts, objective and fair, scientific and rigorous, love and dedication, reverence for life, teamwork and other high-quality technical talents. Among them, the realization and assessment of professional skills training goals have been practiced tens of thousands of times (Lv, Meng, Ren, etc., 2023; Li, Wei, & Cheng, 2023) in our traditional teaching. However, in our daily teaching activities, how to integrate ideological and political elements under the premise of ensuring professional knowledge as the main body, how to achieve curriculum ideological and political goals and how to evaluate the realization of curriculum ideological and political goals are worthy of our in-depth discussion. Therefore, this paper mainly discusses the realization of ideological and political goals of the course *Biopharmaceutical Testing and Testing Technology*.

1. Based on the Teaching Content, Explore the Ideological and Political Elements

According to the teaching content, combined with actual cases, excavating and refining the appropriate ideological and political materials, to achieve the ideological and political goals of the course, to achieve the education function. For example, at the beginning of the course, through the statistics of the third dose of COVID-19 vaccine among students in the class and the video broadcast of the 2017 Changchun Changsheng vaccine incident that shocked the whole country, the importance of vaccine quality inspection was emphasized while attracting students' attention. In the class explaining drug quality standards—*Chinese Pharmacopoeia* to students, the class introduced Chinese drug quality standards – *Chinese Pharmacopoeia* through the bottom line that there are no rules and standards, and law is the bottom line of morality. In the five thousand years of development of China, the development of any dynasty cannot be separated from the legal constraints. Students are guided to think about whether there are standards and bottom lines for drug testing, and what are our standards and bottom lines? In this way, students' professional cognition and professional ethics can be cultivated. The specific ideological and political elements of the course “Biological Drug Testing Technology” are listed in the following Table:

Table 1. Ideological and Political Elements of the Course *Biopharmaceutical Testing and Testing Technology*

Serial Number	Ideological and political elements	Examples
1	A sense of responsibility	Examples of role models of The Times, such as academician Zhong Nanshan's courageous deeds and Tu Youyou's deeds with artemisinin, will inspire students' spirit of responsibility and sense of mission.
2	Professional ethics	In 2017, Changchun Changsheng vaccine incident, leucorin liquid death incident, human immunoglobulin caused adverse reactions incident, etc., stimulate students' professional quality and strengthen students' professional ethics.
3	Critical thinking	When explaining real-time fluorescent RT-PCR detection and antigen and antibody detection technology to students, the two detection methods of novel coronavirus (nucleic acid detection and antigen and antibody detection), which are currently hot topics, are introduced in real time, so that students can analyze the advantages and disadvantages of the two detection methods based on what they have learned, and think about how to combine the two detection methods to make comprehensive judgment and

4	Professionalism	<p>make up for the shortcomings. To improve students' enthusiasm for learning and cultivate their ability of dialectical thinking.</p> <p>Use task-led loose-leaf textbooks and situational simulation teaching methods to promote students to feel the work content in advance and firm career direction. In addition, through the recording of test data and the processing of reports, the cases of data fraud in the production process of Changchun Changsheng vaccine are introduced, so as to cultivate students' professional spirit of seeking truth from facts, being objective and fair, and being scientific and rigorous.</p>
5	Work as a team	<p>Develop students' sense of teamwork through class group tasks as well as group exercises in lab classes.</p>

2. Establish the ACQUIN Quality Certification System for the Course *Biopharmaceutical Testing and Testing Technology*, and Clarify the Ideological and Political Goals of the Course and the Evaluation of Achievement Degree

ACQUIN professional certification is a subset (Wang, 2020) of the German higher education assurance system recognized by the German Accreditation Commission. Under the framework of the European Union certification system, ACQUIN certification results have industry and professional significance, and are widely recognized (Wang, 2020) in the world. With the rapid development of globalization, system transplantation has become one (Wang, 2020; Wang & Xu, 2019) of the main ways for countries to learn from each other. Our university has successfully carried out local transplantation of this system, which provides a complete standard and operation manual for our university in terms of professional goals, course quality, teaching resources, system guarantee and so on. As an important part of the

ACQUIN certification for Biopharmaceutical Technology, we need to establish the ACQUIN International certificationsystem for the course *Biopharmaceutical Testing and Testing Technology*. In order to better evaluate the course, we need to define the course objectives and set up a reasonable target assessment plan when constructing the course system. The ideological and political goals of the course as an indispensable part of the goals, also need to set a reasonable target assessment program, and carry out the achievement evaluation.

The construction process of ACQUIN international certification system of *Biopharmaceutical Testing and Testing Technology* course is mainly as follows:

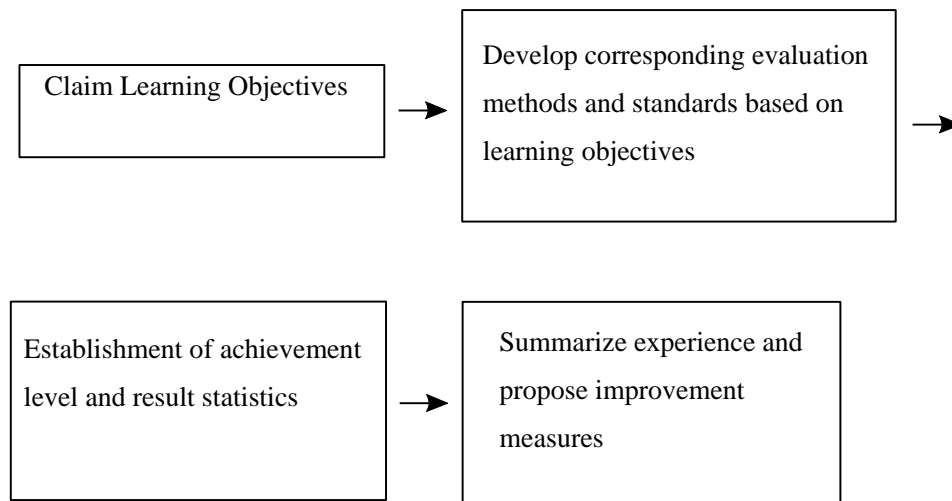


Figure 1. The Flowchart of Constructing the ACQUIN International Certification System for the Course of *Biopharmaceutical Testing and Testing Technology*

Based on the above flow chart, the realization, evaluation and continuous improvement of our ideological and political goals are also completed in accordance with the above process. Next, I will take the ideological and political goal of cultivating students' teamwork spirit as an example to analyze the process.

2.1 Identify the Ideological and Political Learning Objectives of the Course

The first step to establish the ACQUIN international certification system for the course *Biopharmaceutical Testing and Testing Technology* is to identify the learning objectives of this course from the learning objectives of the entire major as stipulated by the professional committee of the College. The ideological and political goal is one part of it. Therefore, on the basis of closely combining the actual content of the course, from the actual point of view, the ideological and political goal of cultivating students' teamwork spirit is recognized.

2.2 According to the Selected Ideological and Political Goals to Develop the Corresponding Evaluation Methods and Standards

There are corresponding national standards and testing and evaluation methods for the quality of food and

drugs. Similarly, how to achieve the curriculum objectives should also set up the corresponding evaluation methods and evaluation standards. Based on this, taking into account the actual teaching process, I set up practical and feasible evaluation methods and evaluation standards for the claimed ideological and political goals. For the evaluation of the achievement of the ideological and political goal of cultivating students' teamwork spirit, I mainly set up the following evaluation methods: Select three practical training projects with higher comprehensive degree from the eight experimental practical training sessions, and ask students to form teams to complete the experiment and submit the experiment report. After the experiment, the teacher will score the students according to the following standards, and the team members are also required to evaluate each other according to the following standards: The final score = teacher's score *60% + average score of student's mutual evaluation score *40%. The final score of the individual will be recorded in the score book, and the specific scoring standards are as follows:

Table 2. Evaluation Criteria of Teamwork Spirit

Assessment Criteria	Specific description	Score (on a 100-point scale)
Organization	Able to organize and set up experimental groups, with reasonable division of labor among group members, clear division of labor of experimental sub-operation, data recording, data processing and other tasks, and close and orderly experimental process	Weight 35%
Team and communication	Team members can work together to complete experimental tasks, communicate effectively, respect and collaboration understand the efforts of others, and finally get results within the margin of error.	Weight 35%
Demonstrate	The group leader has a big picture view, good organizational ability, strong analytical ability, expression and communication ability, and can lead the group to successfully complete the experimental task and obtain the results with high precision and accuracy.	Weight 30%
Rating reference: Very good 90 points, satisfactory 80 points, fair 70 points, pass 60 points, fail 60 points.		The weighted sum calculates the final grade

Among them, the teacher rating and team members' mutual evaluation table is as follows:

Table 3. Teacher Rating and Team Mutual Evaluation Table about Team Spirit

	Organization and Teamwork division of labor (Score out of 100, weight 35%)	Teamwork and Demonstrate communication leadership skills (Score out of 100, weight 35%)	Total points
The Members	out of 100, weight 35%)	(Score out of 100, weight 35%)	

Note. The description of organization and division of labor is as follows : able to organize and establish an experimental group, with reasonable division of labor among group members, clear division of labor of tasks such as experimental sub-operation, data recording and data processing, and close and orderly experimental process; Team cooperation and communication are described as follows: team members can work together to complete experimental tasks, and communicate effectively, respect and understand the efforts of others, and the final result is within the tolerance of error; The leadership is described as follows: The group leader has a big picture view, good organizational skills, strong analytical skills, expression and communication skills, and can lead the group to successfully complete the experimental task.

2.3 Establishment of Achievement Degree and Result Statistics

In view of the evaluation methods and evaluation standards established above, the corresponding achievement degree should also be established. Because course certification is a cyclic process, the purpose of each cycle is to sum up experience and propose improvement measures, so as to promote the continuous improvement of the teaching of this course. Therefore, when setting the satisfaction degree of each learning goal, it should not be set too high at one time, but should set a moderate value based on the actual level of students, and make statistics at the end of each semester according to the actual situation. Based on the above considerations, I set up the following achievement degree for the course of analytical Chemistry, as shown in the following Table:

Table 4. Setting Table of Achievement Degree of Teamwork Spirit and Statistical Table of Results

Learning Objectives	Type of assessment	Assessment description	Assessment level	Results
Teamwork spirit	Students work in groups to experiment	Able to communicate effectively with team members and demonstrate leadership skills during group project experiments	Satisfaction ≥ 70 Pass ≥ 60 Do not pass < 60 (Total score :100)	Satisfied = Pass = Don't pass =

2.4 Summarize Experience and Propose Improvement Measures

This process is mainly based on the summary and analysis of the previous statistical results. If the satisfaction is high, the experience will be summarized. If the satisfaction is low, the improvement measures need to be put forward, and the improvement will be made continuously in the next cycle to achieve satisfactory results.

3. Summarization

Based on the background of the post-epidemic situation, integrating ideological and political elements into the course of Biological Drug Detection Technology is a necessary way to improve the quality of education of the course. Adhering to the fundamental idea of “moral cultivation”, on (Wang & Xiang, 2016) the basis of cultivating students’ professional theoretical knowledge and skill literacy, we constantly cultivate students’ professional literacy, set up correct values and ethics for students, so as to eventually cultivate socialist successors for the society with all-round development of “morality, intelligence, physical fitness, the United States and labor”. On the basis of integrating the existing resources of the university, this paper deeply explores the ideological and political elements of professional courses, and integrates them into professional classes in a way of melting salt in soup. At the same time, it ensures the circular improvement of educational quality by constructing the ACQUIN quality certification system of the course *Biopharmaceutical Testing and Testing Technology*.

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