

# Survey and Analysis of the Teaching Status of Pathogenic Biology and Immunology for Nursing Majors in Higher Vocational Colleges from the Perspective of “Three Comprehensive Education”

Fenfang Qi\*, Lianying Zhang, Jinxia Zhang, Guolan Xian

*Department of Basic Education of Zunyi Medical and Pharmaceutical College, Zunyi, Guizhou, China*

*\*Corresponding Author.*

**Abstract:** Objective To investigate the implementation of ideological education in the course of Pathogenic Organisms and Immunology among nursing students in higher vocational colleges from the perspective of “Three Comprehensive Education”, providing new ideas for integrating ideological and moral qualities into the teaching of Pathogenic Organisms and Immunology, and providing reference for vocational colleges to cultivate excellent medical talents with strong skills and both moral and professional abilities. Methods A questionnaire survey about the teaching status of Pathogenic Biology and Immunology was conducted. And 283 students in nursing major from Zunyi Medical and Pharmaceutical College participated in the investigation. Results Most students believed that the teaching of Pathogenic Biology and Immunology is highly preachy, and they hope to incorporate more ideological elements like national pride, Chinese traditional culture, contemporary demands and professional confidence into the course. It is recommended to apply practical teaching, case discussions, special lectures, and other teaching forms in the class. Conclusion There are still shortcomings in the teaching of Pathogenic Biology and Immunology. Based on the characteristics of higher vocational college students, the course teaching can be used as a carrier, and multiple measures could be taken to enhance the ideological and moral abilities of professional course teachers. Abundant ideological and moral elements can be used to enrich the teaching content, and diversified teaching forms can be used to stimulate the interest of the students in

learning, to give full play to the role of cultivating virtue and nurturing people.

**Keywords:** Higher Vocational College; Nursing Major; Pathogenic Biology and Immunology; Ideological Education; Three Comprehensive Education

## 1. Introduction

At the 2016 National Conference on Ideological and Moral Work in Higher Education Institutions, the national leaders pointed out that we must adhere to taking moral education as the central link, integrate ideological and moral work into the entire process of education and teaching, achieve full process and all-round education, and strive to create a new situation for the development of higher education in China. In 2017, China issued Document No. 31, proposing the requirements of educating all staff, educating throughout the entire process, and educating in all aspects (“Three Comprehensive Education”). In this process, universities bear important responsibilities and missions, becoming important institutions and practical places for cultivating morality and talents [1]. Strengthening ideological education and integrating the concept of “Three Comprehensive Education” can build a learning system that aligns with the development of contemporary university students. Investigating and analyzing the learning mindset of college students under the background of “Three Comprehensive Education” can help understand the current ideological and moral level, improve ideological and moral education in universities, and create a positive learning atmosphere for students. Cleverly integrating elements of ideological and moral education into the

teaching process of professional courses, achieving complementary and collaborative efforts between professional knowledge imparting and ideological education. Truly implementing the fundamental task of cultivating virtue and talent, and comprehensively improving the quality of talent cultivation [2]. As a core foundational course in vocational nursing, Pathogenic Biology and Immunology course not only carries the responsibility of imparting professional knowledge but also serves as a bridge connecting basic medicine and clinical medicine. It is crucial for exploring students' ability to identify, prevent, and treat infectious diseases caused by pathogenic microorganisms. This course contains rich elements of ideological and moral education and can serve as an important carrier for medical students to carry out professional course ideological education [3]. To further promote the development of the teaching reform of the course "Pathogenic Biology and Immunology" at our university, we designed a survey questionnaire for the relevant content of the course teaching and conducted a survey analysis on 283 nursing students in our university based on the investigation and research of other universities [4-6] in this study, to provide a theoretical basis for the subsequent teaching reform of the course "Pathogenic Biology and Immunology".

## 2 Investigation Subjects and Methods

### 2.1 Investigation Subjects

A questionnaire survey was conducted on 283 nursing students who had taken the Pathogenic Biology and Immunology course at Zunyi Medical and Pharmaceutical College. All research subjects gave informed consent to the research content.

### 2.2 Methods

An anonymous online questionnaire was distributed via the SoJump platform. The survey included four single-choice questions (e.g., gender, age, source of students, and the type of course deemed most influential on good character and behavior) and three multiple-choice questions (e.g., the problems in the current ideological and moral education, desired elements to be integrated, and preferred teaching formats).

## 3. Survey Results

### 3.1 Basic Information of Students

All 283 responses were valid, including 249 females (87.99%) and 34 males (12.01%). The age distribution was as follows: 18 years old (8.48%), 19 years old (40.99%), 20 years old (37.81%), and above 20 (12.72%). Regarding student sources, 80 students (28.27%) were from the college entrance examination, 92 students (32.51%) from high school self-recruitment, and 111 students (39.22%) from vocational school self-recruitment (Figure 1).

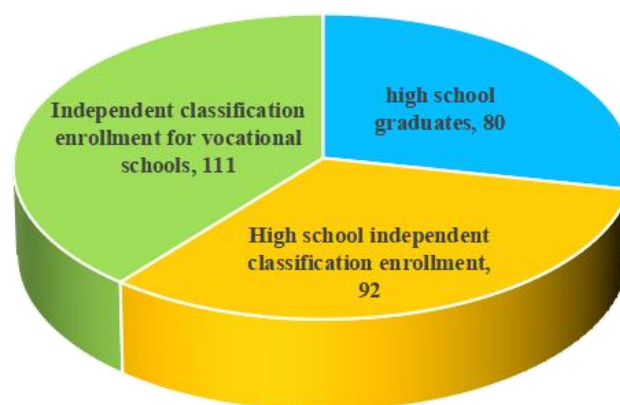


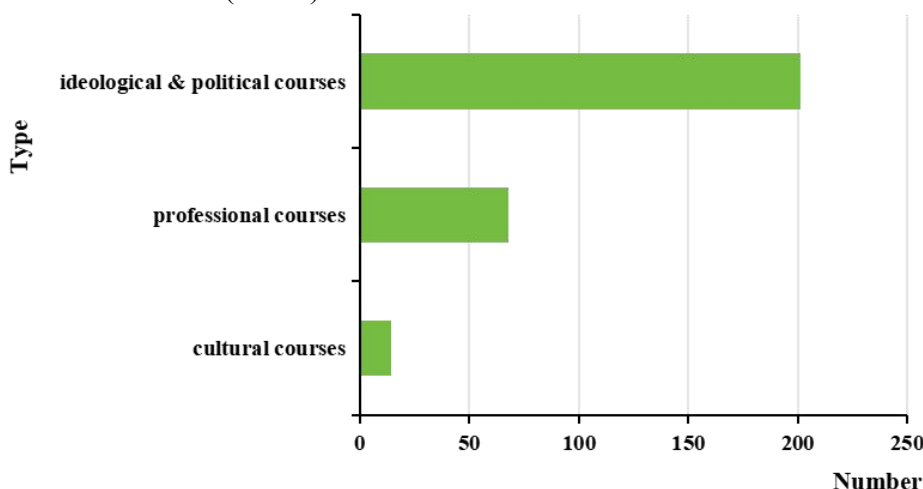
Figure 1. Sources of Surveyed Students

### 3.2 The Courses were Considered to Have a Significant Impact on the Formation of Good Character and Behavior in the Student

Regarding the question of "Which type of course has the most significant impact on the formation of good character and behavior?" 201 students (71.02%) chose political education courses (such as ideological ethics,

laws, current situation, and policies), 68 students (24.03%) selected professional courses, and 14 students (4.95%) chose

cultural courses (such as language, mathematics, and English), as shown in Figure 2.



**Figure 2. Courses Considered most Influential on Good Character and Behavior Formation of the Students**

### 3.3 Problems in the Teaching of the Pathogenic Biology and Immunology Course

Among the main problems identified in education of the Pathogenic Biology and Immunology course, 124 students (43.82%)

believed it to be overly preachy. Other issues included being detached from reality (22.97%), unrelated to professional knowledge (32.16%), monotonous teaching methods (34.28%), and lack of interaction (24.73%), as shown in Table 1.

**Table 1. Problems on the Teaching of Pathogenic Biology and Immunology from the Students' Perspectives (n=283)**

Survey Content Options	number	proportion
Detachment from reality	65	22.97%
Unrelated to professional knowledge	91	32.16%
Highly preachy	124	43.82%
Single teaching method	97	34.28%
Poor interactivity	70	24.73%

### 3.4 Suggestions for Improvement in the Teaching of Pathogenic Biology and Immunology

Students suggested various approaches to enhance the teaching in the course.

Suggestions included combining online and offline teaching (38.16%), practical teaching activities (73.85%), case discussions (58.30%), special lectures (62.19%), and increased interaction (47.35%), as shown in Table 2.

**Table 2. Preferred Formats for Improvement in the Teaching of Pathogenic Biology and Immunology (n=283)**

Survey Content Options	number	proportion
Combining online and offline teaching	108	38.16%
Practical Activity Teaching	209	73.85%
Conduct case discussions	165	58.30%
Conduct specialized lectures	176	62.19%
enhanced interaction	134	47.35%

In terms of “what ideological and moral elements do you hope to integrate into this course”, the most common choices are Chinese traditional culture (211, 74.56%), contemporary demands (210, 74.20%), and

national pride (207, 73.14%), followed by professional confidence (182, 64.31%), the anti-epidemic deeds of professional medical staff (182, 64.31%), medical-legal awareness and professional ethics (182, 64.31%), typical

clinical medical cases (170, 60.07%), 11.31%), as shown in Table 3. craftsmanship (116, 40.99%), and others (32,

**Table 3. The Ideological and Moral Elements that Students Hope to Integrate into “Pathogenic Biology and Immunology” (n=283)**

Survey Content Options	number	proportion
national pride	207	73.14%
contemporary demands	210	74.20%
Chinese traditional culture	211	74.56%
Typical clinical medical cases	170	60.07%
Professional confidence	182	64.31%
Professional medical staff's anti epidemic deeds Medical	182	64.31%
Medical legal awareness and professional ethics	182	64.31%
Craftsmanship spirit	116	40.99%
others	32	11.31%

#### 4. Strategies for Reform and Innovation in Teaching Pathogenic Biology and Immunology

Based on the characteristics of the Pathogenic Biology and Immunology course and student demographics, the following strategies are proposed: improving teachers' ideological and moral teaching competence, enriching course content with diverse elements, and employing varied teaching methods.

##### 4.1 Enhancing Teachers' Ideological and Moral Teaching Competence

Ideological and moral education is not only the responsibility of political course teachers but also an integral part of professional course teachers' duties [7]. A key breakthrough in achieving the goal of nurturing talent through ideological and moral education in higher education lies in enhancing teachers' awareness and competence in integrating such elements into their courses [2]. Currently, teachers face two common misconceptions when implementing curriculum-based ideological and moral education: first, neglecting the integration of ideological and moral elements into professional courses and equating it with traditional ideological and moral courses; second, overlooking the organic combination and mutual promotion of “curriculum” and “ideological and moral education”, treating them as mechanically additive. These misconceptions stem from a lack of deep understanding of the principles of curriculum-based ideological and moral education and insufficient skills and strategies in practical application. To address this

cognitive and practical dilemma, it is essential to strengthen teachers' in-depth understanding and acceptance of the principles of ideological and moral education. Simultaneously, their ability to incorporate such elements into course design and teaching processes must be improved, ensuring the implementation takes root and achieves its intended educational outcomes. Firstly, teachers should develop the correct philosophy of “embedding ideological and moral education in courses and integrating courses into ideological and moral education” through theoretical learning, conceptual presentations, and exchanges. This will ensure they maintain the correct direction during implementation and convey positive energy. Secondly, teacher training channels should be expanded by organizing systematic professional training, workshops, teaching outcome showcases, and interdisciplinary collaborations. These activities aim to optimize teachers' ideological and moral teaching capabilities, thus improving teaching effectiveness. Thirdly, a scientific and reasonable multidimensional evaluation and feedback system for curriculum-based ideological and moral education should be established. Implementing such education should be explicitly included in the evaluation criteria for teaching quality. This will encourage teachers to value and actively participate in the practice of ideological and moral education. Feedback on its implementation should also be widely collected to identify shortcomings and highlights in teaching, enabling timely adjustments in teaching strategies. Finally, a robust incentive system should be established

to motivate teachers and maximize their creativity [8], to build a team with high moral and educational abilities.

#### **4.2 Enriching Course Content with Diverse Ideological and Moral Elements**

The results of this study show that 79.15% of students hope to integrate ideological and moral education with professional knowledge. This percentage reflects the high acceptance and anticipation of students for the concept of ideological and moral education in professional courses. The findings indicate that as to Pathogenic Biology and Immunology course, students not only aspire to cultivate a sense of national pride but also wish to delve deeply into and absorb ideological and moral elements closely related to medical expertise.

This outcome highlights an important direction in education—how to effectively connect the acquisition of professional knowledge with the shaping of moral character, achieving a dual nourishment of wisdom and virtue. Therefore, teachers should act as bridges and guides, creatively employing various teaching methods. For instance, extracting stories of exemplary figures and collecting cases can help identify themes such as national confidence, dedication, compassion, and social responsibility. These efforts can promote the synchronized development of students' professional knowledge and ideological literacy.

In practical teaching, for example, while introducing the historical development of Pathogenic Biology and Immunology, stories such as the Tang Dynasty's discovery of variolation for smallpox prevention or Tang Feifan's first successful isolation of Chlamydia trachomatis can be used to instill national confidence, inspiring a sense of national pride among students.

#### **4.3 Employing Diverse Teaching Methods**

As a higher vocational college, 71.73% of the nursing students in this institution come from independent admissions, and these students generally have weaker foundational knowledge, as well as lower learning and self-directed learning abilities. The study results indicate that most students perceive the ideological and moral education in the Pathogenic Biology and Immunology course as overly preachy. Other reported issues

include detachment from reality, irrelevance to professional knowledge, monotonous teaching methods, and poor interaction. Effective teaching methods can organically integrate knowledge transmission with value cultivation during the educational process, ultimately achieved the fostering character and morality. Since professional knowledge tends to be relatively abstract and dull, conventional teaching methods often leave students feeling disengaged. Diverse teaching approaches can not only stimulate students' enthusiasm for learning and ignite their interest and also address the problem of overly didactic teaching.

The survey revealed that most students prefer practical teaching activities, special lectures, and case discussions as formats for ideological and moral education. For instance, activities like scenario simulations, role-playing, and guided discussions can be used to extend classroom learning on topics like occupational protection and infectious disease prevention. Students can be organized into groups to complete tasks after class, fostering their interest in learning while enhancing their cooperation, cohesion, and empathy. By integrating case-based teaching, ideological and moral elements can be brought into the classroom. For example, the students who has great interest in scientific research can be guided and supported to participate in faculty-led research projects or attend innovative experimental design forums. Such activities inspire and cultivate their innovative abilities, practical skills, and research thinking, allowing them to internalize the spirit of scientific inquiry through exploration and innovation. Additionally, through holiday internships, students can gain frontline exposure and hands-on participation in healthcare professionals' work. This experience not only enhances their employability and professional identity but also strengthens their sense of mission and responsibility to serve society.

#### **5. Conclusion**

Integrating ideological and moral education into the teaching practice of Pathogenic Biology and Immunology is a solid step toward implementing the educational philosophy of fostering character and morality. Considering the unique characteristics and

developmental needs of higher vocational college students, this integration can be achieved by leveraging course teaching as a core platform.

The focus should be on enhancing the ideological and moral teaching capabilities of professional course instructors, actively developing course content enriched with ideological and moral elements, and employing diverse teaching methods to stimulate students' interest in learning. These reforms aim to transform the Pathogenic Biology and Immunology course into a critical platform for guiding students in establishing correct social core values, honing their professional qualities, and enhancing their sense of social responsibility.

In response to the uniqueness and development needs of vocational college students, we can rely on the core platform of curriculum teaching, focus on improving the ideological and moral teaching ability of professional course teachers, actively develop ideological and moral elements to enrich course teaching content, adopt diversified teaching forms to stimulate students' learning interest, and reform ideological and moral education in courses. We will take the course of "Pathogenic Biology and Immunology" as an important battlefield to guide students to establish correct social core values, hone professional ethics, and enhance social responsibility, ultimately achieve the unity of knowledge, skills, and value guidance, and promote the high-quality development of vocational education.

#### Acknowledgments

This paper is supported by Education and Teaching Reform Project of Zunyi Medical and Pharmaceutical College [No. 2022 (03)].

#### References

- [1] Zhang Xiaoying, Dai Qing. Exploration of Library Reading Promotion Activities under the Concept of "Three Comprehensive Education". Journal of Heilongjiang Teacher Development College, 2024, 43 (12): 153-156
- [2] Qiang Dandan, Liu Xiaoming. Exploration of Paths for the Development of Teachers in Higher Education under the Perspective of Curriculum Ideological and Moral Education. Shaanxi Education (Higher Education), 2024, (08): 68-70.
- [3] Liu Yu, Jiang Qingtao, Wang Hui. Application of CBL Teaching Method on the Pathogenic Biology and Immunology Course in the Perspective of Curriculum Ideological and Moral Education. Industry and Technology Forum, 2023, 22(23): 203-206.
- [4] Wu Fangzhen, Li Zhilin, Xu Jingfeng, et al. Investigations and Studies on Curriculum Ideological and Moral Education in the Analytical Chemistry Lab Course. Yunnan Chemical Industry, 2021, 48(10): 157-160.
- [5] Wang Yan, Yang Jian. Survey Analysis and Discussion of Reform Measures in Experimental Courses of Pathogenic Biology and Immunology. Modern Medicine and Health, 2020, 36(11): 1748-1751.
- [6] Du Lian, Yang Yahui, Huang Kun, et al. Survey and Consideration on the Current Situation of Ideological and Moral Education in the Psychiatry Course. Clinical Laboratory Medicine, 2024, 21(12): 1819-1821.
- [7] Qiao Limin, Shi Yaxing, Yao Hua. "Practice and Exploration of Curriculum Ideological and Moral Education in Animal Breeding Courses. Shandong Animal Husbandry and Veterinary Science, 2024, 45(07): 86-89.
- [8] Xie Youyi, Zhang Lang. Challenges and Implementation Strategies of Curriculum Ideological and Moral Education for Professional Course Teachers in Colleges and Universities. New West, 2023, (09): 143-145.