

Exploration on the Curriculum Reform of Medical Microbiology in Colleges and Universities under the Pattern of “Great Ideological and Political Education”

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Abstract: With the implementation of the fundamental task of “establishing morality and cultivating people”, the construction of the pattern of “Great Ideological and Political Education” has become an important measure for colleges and universities to promote the concept of “all-round education, whole-process education, and all-staff education” at present. In this process, teachers should deeply grasp the characteristics and advantages of ideological and political education in courses, realize the goal of ideological and political guidance through the integration of ideological and political elements with professional courses, and gradually build a pattern of “Great Ideological and Political Education” featuring “full participation, whole-process implementation, and all-aspect fulfillment.” This paper explores the course of Medical Microbiology, expounds the problems faced by the teaching of Medical Microbiology in colleges and universities under the pattern of “Great Ideological and Political Education”, and then puts forward the paths and strategies for the curriculum reform of Medical Microbiology in colleges and universities under this pattern. In this way, it organically integrates value shaping, knowledge impartment, and ability cultivation, realizes the parallel development of the Medical Microbiology course and ideological and political education, and provides strong support for cultivating outstanding medical talents with both virtue and ability, as well as noble medical ethics in the new era.

Keywords: Colleges and universities; Medical microbiology; Pattern of “Great Ideological and Political Education”; Curriculum reform

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1. Introduction

The pattern of “Great Ideological and Political Education” is an educational concept that runs through the whole process of education. Under this background, the reform of the Microbiology course should be based

on the fundamental task of “establishing morality and cultivating people.” It is not only necessary to fulfill the important mission of imparting professional knowledge such as the biological characteristics of pathogens, pathogenic mechanisms, diagnosis and prevention, but also to explore and utilize rich ideological and political education resources in this process, so as to cultivate students’ ideological and political literacy such as cultural confidence, scientific spirit, professional ethics, feelings for the country and care for humanity. This paper explores the basic paths and methods of constructing the pattern of “Great Ideological and Political Education” in the curriculum reform of Medical Microbiology in colleges and universities, aiming to provide a reference model for the ideological and political construction of medical professional courses.

2. Problems faced by the teaching of medical microbiology in colleges and universities under the grand ideological and political pattern

2.1. Weak awareness of curriculum ideological and political education, and top-level design

First, there is a deviation in teachers’ cognition. Some professional teachers have a wrong understanding of ideological and political education, mistakenly believing that ideological and political work is the responsibility of ideological and political teachers and counselors. They neither have the awareness to take the initiative to undertake the infiltration of ideological and political education nor conduct in-depth learning of the methods and techniques of curriculum ideological and political education, which makes it difficult for them to implement ideological and political education at the cognitive level.

Second, the curriculum teaching objectives are separated from the ideological and political education objectives. In the current teaching of the Medical Microbiology course, teachers have a clearer goal for cultivating students’ professional knowledge and abilities, but the setting of ideological and political education objectives is relatively general and vague, and they even fail to combine the knowledge of the Medical Microbiology course, thus failing to form measurable and implementable objectives and evaluation mechanisms ^[1].

Third, there is a lack of systematic guidance and planning. At this stage, in the ideological and political teaching of the Medical Microbiology course, most teachers present the ideological and political elements in a fragmented way, and even mainly carry out infiltration randomly based on their own ideas. They fail to conduct systematic planning and design from the perspective of the curriculum system, resulting in the lack of continuity and depth in curriculum ideological and political education.

2.2. The excavation and integration of ideological and political elements are rigid

First, the integration method is rigid, and the integration effect remains superficial. Some teachers have insufficient awareness and understanding of the integration of ideological and political elements, which leads to a “for-the-sake-of-integration” purpose in their infiltrative teaching design. They rigidly insert ideological and political elements into classroom teaching, resulting in the ideological and political education effect remaining on the surface. For example, after teaching knowledge related to virus structure, teachers suddenly shift to the content of patriotic education without establishing carriers such as scenarios, contexts, characters, or stories, which causes students to feel resentful during the infiltration of ideological and political elements ^[2].

Second, the excavation of resources is insufficient, and the integration into teaching applications is not in-depth. On the one hand, most teachers of the Medical Microbiology course lack experience in ideological

and political education and a profound understanding of ideological and political elements. Therefore, when excavating ideological and political elements, they mainly focus on aspects such as scientists' stories and the country's great achievements, and fail to design details in combination with the specific content of the Medical Microbiology course. On the other hand, when integrating and applying ideological and political resources, teachers are also accustomed to presenting them through oral narration, rather than using forms such as videos, stories, historical materials, or statistical data, which results in poor integration effects.

Third, there is a lack of medical professional characteristics. In the ideological and political teaching of the Medical Microbiology course, teachers still lack the concept and awareness of infiltrating ideological and political elements from a professional perspective. They neither introduce ideological and political cases in the medical field nor focus on cultivating students' literacy in medical ethics, biosafety, and public health awareness, which weakens the appeal of ideological and political education.

2.3. Outdated and unitary teaching methods and carriers

First, the ideological and political teaching methods for the course are backward, with a lack of interest-building links. In the current ideological and political teaching of the Medical Microbiology course in colleges and universities, most teachers still adopt the "cramming" method of teaching. During this process, they fail to design teacher-student interaction activities, resulting in a poor learning experience for students. Some students even remain in a passive learning state, making it difficult for them to proactively accept the course knowledge and ideological and political content, let alone develop profound emotional resonance and ideological identification ^[3].

Second, the application of information technology is insufficient, and the development of information-based teaching models lags behind. Teachers of the Medical Microbiology course fail to leverage the advantages of information technology in the design of ideological and political infiltration. They do not use online courses, case databases, virtual simulation technology, etc., for auxiliary teaching, nor do they establish a multi-modal, multi-platform, and diversified teaching system. This leads to teaching formats that fail to attract students' attention and interest ^[4].

Third, the integration of practical teaching activities with ideological and political education is inadequate. In practical teaching sessions of the Medical Microbiology course, such as experimental courses and clinical internships, teachers only focus on students' operational skills and experimental results. Therefore, they rarely integrate ideological and political elements into these processes, failing to cultivate students' scientific attitude, team spirit, awareness of biosafety, and the concept of reverence for life.

2.4. Lack of teaching evaluation and feedback mechanisms

First, the evaluation dimensions are set in a unitary manner. The current teaching evaluation system for the Medical Microbiology course in colleges and universities mainly focuses on students' mastery of theoretical knowledge and their experimental operation skills, and conducts evaluation through means such as exam scores and experimental reports. It fails to evaluate students' comprehensive qualities such as values, professional ethics, and scientific spirit.

Second, there is a lack of evaluation methods. The evaluation of the Medical Microbiology course mainly relies on exams and experiments as assessment approaches, and no evaluation system integrating quantitative and qualitative methods has been established. In particular, it fails to include classroom observation, group

performance, reflection journals, case analysis reports, and other forms in the evaluation criteria.

Third, there is a lack of feedback and adjustment mechanisms. The purpose of teaching evaluation is not just to evaluate; instead, it is to identify students' shortcomings and problems based on the evaluation results, and then provide targeted teaching guidance and improvement plans. However, the current teaching evaluation of the Medical Microbiology course has not set up corresponding feedback and adjustment mechanisms, nor has it established a cyclic system of "teaching-evaluation-feedback-improvement", which significantly reduces the practical value of evaluation ^[5].

3. Reform paths and strategies of medical microbiology curriculum in colleges and universities under the grand ideological and political pattern

3.1. Reconstructing curriculum objectives and content system, and strengthening top-level design

First, establish three-dimensionally integrated curriculum objectives. For the Medical Microbiology curriculum, the construction of its ideological and political elements should start with top-level design. Then, under the guidance of curriculum objectives, teachers and students are guided to pay attention to the integration, infiltration, and teaching application of ideological and political elements, so as to achieve the goal and effect of implementing the fundamental task of fostering virtue through education. To this end, teachers should design the teaching objectives in a detailed, concrete, and precise manner to ensure the operability and identifiability of the objectives. For example, in the teaching of the curriculum module related to "bacterial drug resistance mechanisms", the knowledge module should focus on "understanding and explaining bacterial drug resistance mechanisms"; the competency objective should be oriented towards "possessing the ability to design drug sensitivity tests"; and the ideological and political objective should be refined based on "the social responsibility of rational use of antibiotics" ^[6]. This not only elaborates the knowledge and skills that students need to master in a progressive manner, but also achieves the goal of infiltrating ideological and political elements through prior guidance.

Second, systematically explore and integrate ideological and political elements. In the construction of ideological and political elements in the Medical Microbiology curriculum, colleges and universities should set up a special teaching team for curriculum-based ideological and political education. Through collective lesson preparation and other methods, the team should deeply explore the content of ideological and political elements related to this curriculum, and then classify them into four modules ^[7]: "scientific spirit and innovation, professional ethics and responsibility, patriotism and self-confidence, and global perspective and care." At the same time, teachers should also systematically sort out the chapter structure and development process of the Medical Microbiology curriculum, and then match and connect the ideological and political elements of different modules with the curriculum knowledge points. In this way, a systematic ideological and political resource system is established, and a mapping relationship between knowledge points and ideological and political points is formed.

Third, revise the syllabus and teaching plans. After the establishment of the mapping relationship between knowledge points and ideological and political points, teachers should further improve the syllabus and teaching plan design of the Medical Microbiology curriculum. On the one hand, it is necessary to clarify the ways and expected effects of integrating different types of ideological and political elements into each chapter; on the other hand, it is necessary to optimize the design of teaching plans and establish a teaching paradigm that is fully covered, multi-carrier, and hierarchical.

3.2. Innovating teaching methods and carriers to promote in-depth integration

First, apply the case teaching method and the project-based teaching method. The construction of curriculum-based ideological and political education should aim to serve curriculum teaching. It is necessary not only to give play to its advantages of stimulating interest and being problem-oriented, but also to avoid ideological and political elements overshadowing the main content of the curriculum, which would adversely affect students' curriculum learning efficiency. To this end, teachers can create ideological and political carriers through cases or projects related to Medical Microbiology knowledge. While explaining, presenting, and elaborating on curriculum knowledge, they can explore the ideological and political elements contained therein, so as to achieve better teaching effects. For example, when learning the curriculum module related to "pathogen investigation", teachers can create a case of "MRSA infection outbreak" and organize students to carry out a simulated pathogen investigation project. This can not only help students master the knowledge points and skills of this course, but also help them develop ideological and political literacy, such as public health safety, doctor-patient communication, and ethical decision-making, thus achieving the teaching effect of in-depth integration ^[8].

Second, adopt situational simulation and role-playing teaching methods. In addition to case and project carriers, teachers can also use situational and role-playing activities as carriers for the integrated teaching of ideological and political elements in the Medical Microbiology curriculum. For example, in the teaching activities of the course related to "response to public health emergencies", teachers can create a live scene of a "press conference" and require students to play the role of the person in charge. While communicating with the news media, students explain the causes of the incident and the countermeasures. They can even use a simulation system to simulate the transmission of pathogens, so as to enhance students' communication and expression skills, sense of social responsibility, and ability to respond to emergencies.

Third, build an online-offline collaborative education platform. Teachers can also infiltrate ideological and political elements through online platforms. For instance, they can offer special micro-courses to tell students about content related to "medical history stories" and "cutting-edge Medical Microbiology technologies." They can also set up new media platforms and expand the scope of ideological and political education by producing videos such as "biographies of Medical Microbiology scientists" and "daily popular science on Medical Microbiology" ^[9].

3.3. Expanding the dimensions of practical teaching to achieve the unity of knowledge and practice

First, enhancing the ideological and political education effect of experimental courses. In the experimental courses of Medical Microbiology, teachers should not only emphasize the culture of "seeking truth" and require students to use real experimental data, but also strictly standardize students' experimental operation methods and procedures. Through this, students' awareness of biosafety can be infiltrated, and their respect for life and professional ethics can be gradually improved ^[10]. In addition, teachers should also use methods such as demonstration experiments and video demonstrations of common mistakes in experimental operations to help students further understand the importance of experimental safety. In this process, students' teamwork and communication skills are strengthened, enabling them to complete experimental tasks together with mutual assistance.

Second, launching the second classroom and social practice activities. For the construction of ideological and political elements in the Medical Microbiology curriculum, on the one hand, teachers can establish a

second classroom. Through activities such as campus student clubs, visits and studies at centers for disease control and prevention, and exchanges with vaccine research institutes, students can gain knowledge and literacy related to Medical Microbiology outside the classroom. On the other hand, project activities such as “investigation of microbial distribution on campus”, “survey on the awareness of antibiotic use”, and “promotion of infectious disease prevention and control” can be carried out on campus. These activities guide students to acquire knowledge, develop abilities, and make contributions in practice, thereby internalizing their sense of professional mission^[11].

3.4. Constructing a diversified evaluation system to ensure the effectiveness of reform

First, adding ideological and political evaluation dimensions. Teachers should incorporate the performance and development of students’ ideological and political literacy into the evaluation system of the Medical Microbiology curriculum. They can assess students’ ideological and political literacy through indicators such as their performance in classroom learning, participation in team activity discussions, perspectives in case analysis, scientific attitudes reflected in experimental reports, and enthusiasm for participating in social practices.

Second, adopting diversified evaluation tools and carriers. In addition to examinations and experiments, teachers can also conduct evaluations through forms such as classroom observation records, students’ reflection journals, group review results, project research reports, and students’ defense conclusions, so as to objectively present students’ values, emotional attitudes, and levels of knowledge and skills^[12].

Third, establishing a feedback and continuous improvement mechanism. Teachers can also regularly collect the teaching effects of ideological and political elements in the Medical Microbiology curriculum and students’ feedback through methods such as questionnaires, student interviews, and teaching supervision observations. Based on relevant data, they can identify practical problems and then establish a high-quality curriculum-based ideological and political teaching paradigm with continuous improvement by adjusting teaching strategies and methods.

4. Conclusion

To sum up, promoting the reform of the Medical Microbiology curriculum under the “grand ideological and political” pattern is an important measure for colleges and universities to implement the fundamental task of fostering virtue through education. This reform not only requires teachers to change their own concepts and cognitions, but also needs to deepen the reform from four dimensions: objective reconstruction, content integration, method innovation, and evaluation guarantee. By doing so, it can solve the problem of “separation between ideological and political education and professional education”, fully integrate ideological and political education into the whole process of medical professional education, and realize the mutual promotion and complementarity of “fostering virtue” and “cultivating people.”

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