

The case analysis of improving the comprehensive quality of medical students with innovative and entrepreneurial projects and competition based on PACS

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ABSTRACT

College students' innovation project and the competition has been an important part of medical education, has been an effective way to cultivate medical talents of high quality. Through researching the students who are in college students' innovation and entrepreneurship projects and the competition group in recent 6 years, the role of innovation and entrepreneurship programs and competition in improving the comprehensive quality of medical students based on PACS is explored, the conclusion is that the innovation and entrepreneurship projects and competitions are beneficial to improve the medical students' sense of responsibility, the competitiveness of employment, the ability to communicate, the formation of noble moral character, clinical thinking and good psychological quality.

Keywords: *PACS, college students' innovation and entrepreneurship project, competition, medical students' comprehensive quality*

1. INTRODUCTION

Medical students are a precious human resource for the national health industry, and improving the overall quality of medical students is beneficial to the development of my country's medical and health industry. Medical colleges are the cradle of cultivating and shaping high-quality medical talents^[1]. The college student' innovation and entrepreneurship training program, the national medical college clinical skills competition, imaging skills competition and other competitions are one of the important means to train high-quality medical students. The College Students' Innovation and Entrepreneurship Training Program was established by the Department of Education of Heilongjiang Province to promote talent training and innovative teaching methods in colleges and universities. It encourages college students to participate in scientific research, social practice and other innovative and entrepreneurial activities as soon as possible, and continuously enhance their entrepreneurial ability based on their innovative ability^[2]. The project leader is a college student who completes the project under the guidance of the teacher, and the Provincial Department of Education grants the fund. In order to respond to the call of the country and schools for the reform and innovation of talent training methods, the author and several teachers have conducted competitions and selection activities in different grades in addition to clinical teaching for the past 6 years,

using picture archiving and communication system (PACS). Set up a medical student innovation and entrepreneurship competition team, design learning content for students, guide students to apply for college student innovation and entrepreneurship training program projects, lead students to participate in various competitions, and have achieved excellent results in various competitions. The instructor was also awarded the title of excellent instructor in national and provincial competitions.

Qiqihar Medical College spent more than 2 million yuan to establish a PACS laboratory in the school, Now it has more than 10 servers, using 3 8610 switches as the core equipment, the export route is Ruijie NPE50-40, and the terminal is more than 100 Lenovo brand computers. Jusha Medical has more than 10 2M vertical screen displays. The system is connected to the PACS of the affiliated hospital and can synchronize all the cases in the affiliated hospital. The school opens the PACS laboratory every Wednesday afternoon, All students in the group will carry out targeted learning under the guidance of teachers to stimulate students' enthusiasm for independent learning and give full play to the guiding role of teachers. Teachers use the content of different research directions in PACS to guide students, and instructors of different research directions extract relevant content from their own scientific research and provide them for student research, find typical cases in PACS, and guide students in project design and implementation. Team members communicate and collaborate to complete innovation and entrepreneurship projects. The Skills Training Center is open to students in

the innovation and entrepreneurship competition team every weekend, and clinical teachers are used to train students' clinical practice skills. Regularly arrange for professors to give special lectures for group students, so that students can understand the development of medical technology, the advanced level at home and abroad, and stimulate students' enthusiasm for scientific research [3]. Through the follow-up survey of more than 30 students in the medical student innovation and entrepreneurship competition team during the past 6 years, they have learned that innovation and entrepreneurship and competition are the stage for displaying the scientific and technological innovation ability and comprehensive quality of medical students. In scientific and technological activities, medical students not only trained clinical diagnostic thinking, practical skills operation, and technological innovation capabilities, but also improved the overall quality of medical students.

2. IMPROVE THE SENSE OF RESPONSIBILITY AND EMPLOYMENT COMPETITIVENESS OF MEDICAL STUDENTS

Case: due to the medical students learning course, class time is tight, at ordinary times innovation entrepreneurship competition team of students will be able to overcome various difficulties, the use spare time to make their ideas into a creative project, has finished the intelligent digital X-ray machine system - oriented basic-level hospitals analog X-ray machine modification, breast special needle catheter angiography (patent no. 2016210524760), oral MDCT optimal selection of small intestine imaging contrast agent, MDCT children sinuses low-dose scanning feasibility study, and in the development of Chinese medical industry and innovation contest awards. The two students who designed and produced the intelligent digital X-ray machine system also participated in the college students' medical imaging technology clinical skills competition and won the personal excellence award. Through the exercise of the competition, the professional theoretical level and the enthusiasm for learning new knowledge have been improved. With the unremitting efforts of these two students, they finally passed the master degree of Jilin University; Two students who designed the optimized selection project of oral multi-slice spiral CT small bowel contrast agent also participated in the National Clinical Skills Competition of Higher Medical Colleges and won the national third prize. Therefore, after graduation, he successfully worked in Beijing Anzhen Hospital and Peking Union Medical College Hospital; A student who designed and researched a special needle for mammography, based on the love of medical devices and the love of invention and production, after graduation, he worked in the medical equipment technology research and development department of Shanghai United Imaging Medical Technology Co., Ltd.

Existing hospitals often need doctors with experience or development potential^[4], Medical students generally lack experience and are under great pressure to graduate. However, medical experience is difficult to be cultivated in the normal undergraduate education process. By participating in the innovation and Entrepreneurship competition team, students can receive professional knowledge training and scientific research training of clinical teachers in their spare time through PACS system, so as to cultivate students' clinical thinking and scientific research literacy, and stimulate students' sense of identity for the profession of doctors, their interest in curing diseases and saving people, and their love for scientific research^[5]. Some students have a desire to go to a better university to continue their studies. Some students have enhanced their medical experience and professional responsibility, improved their employment competitiveness, and showed their talents in the hospital recruitment process. Through follow-up surveys of graduates who have participated in innovation and entrepreneurship projects and various competitions in recent years, almost all students can achieve excellent results in the undergraduate or graduate studies. You can take on certain medical tasks in your work unit, and all have passed the practicing physician exam at one time, and 15 students have scores above 420. Their self-confidence, diligence and dedication demonstrated in their work have a good sense of social responsibility.

3. CULTIVATE THE INITIATIVE AND COLLABORATION OF MEDICAL STUDENTS IN LEARNING

Case: In the second semester of the junior year, a student became tired of learning and life, so he went through the study procedures and returned to school a year later. However, he still encountered many difficulties in the learning process in the future. Under the encouragement of classmates and counselors, he applied to join the innovation and entrepreneurship competition group. When looking up information in the PACS laboratory, the teachers and group students were eager to help him. The student's initiative and self-discipline have been significantly improved, and the ability to communicate with others has been significantly improved. He has studied hard in the process of competition selection and training. Practicing day and night in the skill training center, I won the second prize of individual in the 2016 National Medical College Clinical Skills Competition. In his senior year, he took the postgraduate entrance examination to continue his further study. He was admitted to the internal Medicine major of China Medical University with excellent results in the postgraduate entrance examination. The innovation and entrepreneurship competition team often includes aspiring and ideal students. They are active in group activities and actively communicate and collaborate with group members. However, these students often lack solid basic clinical

knowledge and study hard enough. They often lose the selection of seeded players before the competition. But after participating in the innovation and entrepreneurship competition group, they realized that a little cleverness is not enough. They need solid theoretical knowledge and a good learning method. In the future, their test scores will improve significantly and benefit a lot.

The initiative of learning is conducive to enhancing the personality development of medical students, and the collaboration of learning is conducive to enhancing the ability of mutual communication between medical students, and it is also conducive to the mutual tolerance of individual differences between students [6,7]. Under the guidance of clinical teachers, students use the PACS system to find cases, read documents, discuss with each other, and think over and over again. After learning clinical knowledge and gaining insights, he can complete various innovative and entrepreneurial projects and various competitions. Among the group members, students' learning initiative and collaboration complement and promote each other.

4. CULTIVATE MEDICAL STUDENTS TO EXPAND THEIR THINKING AND FORM A GOOD PSYCHOLOGICAL QUALITY

Case: One student in the innovation and entrepreneurship competition group did not become a doctor after graduation, but instead used the knowledge, skills and broad thinking of the students in the group to return to his hometown to start his own business. Starting from scratch, overcoming various difficulties, carrying forward the spirit of bearing hardships and standing hard work, established its own small dairy farm, used the medical knowledge learned to treat and prevent diseases in dairy cows, and formulated its own special veterinary drugs. He also often helps neighbors and villagers, and is called the local "little celebrity".

Medical students need to adapt gradually in the ever-changing era, and to establish a good learning outlook, they need to expand their thinking styles and form good psychological qualities. When selecting students, the innovation and entrepreneurship competition team fully considered that students should have a certain breadth of thinking and good psychological quality. In group activities, clinical teachers use typical cases in the PACS system to train students' independent thinking ability and expand their thinking [8,9]. After a period of training, the students changed their previous thinking patterns when thinking about problems, surpassed the limitation of professionalism, and looked at the essence through the phenomenon through discussion and analysis, so as to make correct judgments and comprehensively improve the comprehensive quality of students. Under a broad mindset, students' innovative and entrepreneurial ideas have been better stimulated, but this cannot be smooth sailing. There must be many obstacles. Students need to sum up their experience from failures, work hard to overcome and

finally win, in the whole process of research and development, it is conducive to developing a good psychological quality. Before each competition, clinical teachers will also provide psychological counseling to the contestants to dispel the worries of the contestants. After the contest, the students have a stronger psychological quality. For those students who are unsuccessful, they need to adjust their mentality and face greater challenges in the future. Teachers should help students recognize their shortcomings, summarize the reasons for victory or failure, strengthen students' confidence, and lay a solid foundation for better adaptation to society in the future.

5. CULTIVATE STUDENTS TO DEVELOP HIGH MORAL CHARACTER, GOOD COMMUNICATION SKILLS AND CLINICAL DIAGNOSTIC THINKING

Case: One student in the innovation and entrepreneurship competition team went to work in the medical department of the hospital after graduation. He often acts as a respondent in innovation and entrepreneurial projects. When responding to the PPT of the project, he is quick and fluent in thinking. After working in the medical department of the hospital, he has also handled many medical disputes. The comrades in the department have fully affirmed his communication ability. The projects of the Innovation and Entrepreneurship Competition team are all completed by everyone. There are also collective awards during the competition. Therefore, team members need to unite, work together, and help each other. Students need to have a spirit of collectivism and discuss problems when they encounter problems. , Need to communicate and communicate with each other. Clinical teachers use typical cases in the PACS system to let everyone discuss and train communication skills and clinical diagnostic thinking^[10], For example, a case of a lung cancer patient is retrieved from the PACS, a 50-year-old male with a cough and no sputum, a recent aggravation with blood in his sputum, and a history of smoking. Let the group of students analyze the clinical symptoms and signs. Then ask if you are a clinician, what imaging examination method should you choose for the patient. After the student answers correctly, call up the chest X-ray, and ask whether the chest X-ray is normal. If it is abnormal, please indicate the location, and please analyze the basic disease and cause , If you need to make a diagnosis, what other examinations should be done, and then CT data will be given for further analysis, combined with the medical history to consider the disease, leading to the imaging manifestations and differential diagnosis of central lung cancer, It is necessary to ensure that every student has the opportunity to speak, announce the results of the surgery after the discussion, gradually guide the students to form a clinical diagnosis thinking, and achieve good results in the competition, and the students have also trained their communication skills during the discussion. The clinical training teachers' sense of responsibility, attitude towards the world, and their role

as teachers also influence students subtly. Through group activities, students form individual characteristics, sound personality and noble morality, which is manifested as strong willpower, quick observation, high sense of social responsibility, and team spirit.

6. CONCLUSION

The advent of the era of science and technology poses greater challenges to the comprehensive quality of the new generation of medical students. Students not only need to have a complete medical professional knowledge system, but also need a sound personality, good psychological quality, mutual communication skills, innovative spirit, broad thinking mode, etc. The main job of medical schools is to cultivate high-quality medical talents. The instructor of the innovation and entrepreneurship competition team focuses on cultivating students' innovation and entrepreneurial abilities in the process of group activities, and at the same time, they must be good at combining the school's positioning and actual conditions to improve teaching methods and stimulate students' interest in scientific research and learning. Take initiative, develop good clinical thinking, and eventually cultivate high-quality medical graduates.

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