

Exploration and Practice of Innovative and Entrepreneurial Talent Training Model in Medical Colleges under the Background of “New Medicine”

Ya Li^{1,2}, Yu Cai^{2*}, Yuanyuan Jia^{1,2}, Xuekun Zhou^{1,2}, Siqi Wang^{1,2}

¹The First Affiliated Hospital of Xi'an Medical University, Xi'an 710000, Shaanxi Province, China

²Xi'an Medical University, Xi'an 710000, Shaanxi Province, China

*Corresponding author: Yu Cai, jxzlzk@126.com

Copyright: © 2024 Author(s). This is an open-access article distributed under the terms of the Creative Commons Attribution License (CC BY 4.0), permitting distribution and reproduction in any medium, provided the original work is cited.

Abstract: Innovation and entrepreneurship education has become one of the important directions of higher education reform, but innovation and entrepreneurship education in medical colleges generally lags behind other discipline universities or comprehensive universities. Actively exploring the training mode of innovation and entrepreneurship talents is of great significance for cultivating innovative medical talents needed by the country and society. At present, innovation and entrepreneurship education in higher medical colleges is facing many challenges, the most important of which include the lack of concept in innovation and entrepreneurship education, medical students' weak awareness of innovation and entrepreneurship, and poor construction of innovation and entrepreneurship teaching staff. To address these challenges, we will introduce incentive measures for innovation and entrepreneurship education at the college level, and improve the guarantee and incentive mechanisms for innovation and entrepreneurship education; create an “Innovation and Entrepreneurship Education Platform” for teachers and students to exchange ideas on innovation and entrepreneurship; start building a high-quality team of innovation and entrepreneurship teachers, promote the continuous improvement of the quality of innovation and entrepreneurship education, and ensure the quality of medical talent training.

Keywords: New Medicine; Innovation and entrepreneurship education; Talent cultivation

Online publication: December 2, 2024

1. Introduction

Medical education carries the mission of cultivating medical and health talents and is closely related to the health of the whole nation. The purpose of medical education is to cultivate qualified medical talents, provide high-quality medical and health talent resources for society, and meet the health needs of the people^[1]. In September 2020, the General Office of the State Council issued the “Guiding Opinions on Accelerating

the Innovative Development of Medical Education” (Guobanfa [2020] No. 34), proposing to “place medical education in an important position related to the priority development of education and health care, based on the basic national conditions, guided by service needs, taking the construction of new medicine as the starting point, focusing on innovating institutional mechanisms, classifying and cultivating research-oriented, compound and application-oriented talents, comprehensively improving the quality of talent training, and providing strong talent guarantee for promoting the construction of a healthy China and safeguarding people’s health” [2]. This major deployment has sounded the horn for the construction of a new medical system in China in the new era.

At the National Education Conference, the General Secretary also stressed that innovation and entrepreneurship education should run through the whole process of talent training, cultivate creative talents with creative education, and create an innovative country with creative talents. Therefore, this article aims to explore the improvement path of innovation and entrepreneurship education in medical colleges and universities under the development background of “New Medicine,” with innovation and entrepreneurship education as the starting point, in order to effectively promote the reform of medical college education and talent cultivation, and assist in the construction and development of “New Medicine.”

2. Current research status domestically and internationally

Innovation and entrepreneurship education aims to cultivate talents with basic entrepreneurial qualities and innovative personalities and is essentially a practical education [3]. Innovation and entrepreneurship education has developed relatively early in foreign countries, especially in the United States, with the emergence of well-known entrepreneurship research centers such as Baisan Business School and Binzhou University [Stanford University]. In addition, there are also models such as the “engineering alternation” model at the University of Cincinnati, the “entrepreneurship practice” model at the Benson School of Business, the “school-enterprise cooperation” model at Harvard University, and the “entrepreneurship incubator” model at Rensril Institute of Technology. Currently, innovation and entrepreneurship education in American universities has achieved scale and systematization, and its theoretical research and exploratory practice are at the forefront of the world. The entrepreneurship rate of college students has also exceeded 25% [4].

Although China’s innovation and entrepreneurship education started late, the government attaches great importance to it and has issued a series of documents in recent years to promote medical education reform and implement the Excellent Doctor Education and Training Program. In September 2018, the “Opinions on Strengthening Medical Education Collaboration and Implementing the Excellent Doctor Education and Training Plan 2.0” [5] placed the cultivation of innovative abilities in medical talents in an important position. In September 2020, the “Guiding Opinions of the General Office of the State Council on Accelerating the Innovative Development of Medical Education” [6] was issued, requiring the new medical science to lead the innovation of medical education. By 2030, it is proposed to establish a medical talent training system with Chinese characteristics and higher levels, significantly improve medical research and innovation capabilities, and significantly enhance the ability to serve the healthcare industry.

Medical education is an important cornerstone of the development of the healthcare industry and holds a significant position in the national economy and people’s livelihood. Improving the innovation ability of medical students is not only an important goal of talent cultivation in higher medical colleges but also an effective way to promote the construction of new medicine [7]. It is of great significance to actively explore the

training mode of innovation and entrepreneurship for cultivating innovative medical talents needed by the country and society.

3. The necessity of strengthening the cultivation of innovative and entrepreneurial abilities among medical students

3.1. Effectively enhancing students' comprehensive strength

Faced with the call for “mass entrepreneurship and innovation,” skill cultivation has become the top priority of education. Universities should closely follow the national policy direction, strengthen the connection between students and social needs, improve students' professional quality and social adaptation, and meet the quality requirements of units for talents. Medical students, as members of future innovation and entrepreneurship, play an important role in promoting the development of China's future medical industry and therefore must enhance their awareness of innovation and entrepreneurship ^[8]. In general, strengthening the cultivation of medical students' innovation and entrepreneurship abilities is to focus on enhancing their innovation and entrepreneurship skills, social responsibility, and other aspects, improving their comprehensive awareness, psychological quality, etc., cultivating positive undergraduate and professional research awareness, and striving to build contemporary medical students into a new generation of professional talents with strong practical innovation abilities and high competitiveness ^[9].

3.2. Promoting employment

According to the latest news released by the Ministry of Human Resources and Social Security, the number of college graduates in 2023 has reached a historic high of 11.58 million, and China will usher in the most difficult employment season. The main reason for this awkward situation is that many universities currently use traditional and single methods of nurturing students, and a large number of students gradually do not meet the requirements of the unit for talent ^[10]. If many medical students have not yet mastered medical knowledge and lack real clinical practice after graduation, they can only enter primary hospitals and meet the requirements through standardized training before officially entering the profession. In addition, due to the size of the hospital and other reasons, there are currently too many vacancies in various departments of most hospitals, and the previous employment concepts and methods are difficult to provide suitable positions for a large number of medical students. Therefore, medical colleges can provide medical innovation and entrepreneurship education to medical students, cultivate their entrepreneurial abilities, and alleviate employment pressure to some extent ^[11].

4. Constraints on the cultivation of medical students' innovation and entrepreneurship abilities

4.1. Lack of concept in innovation and entrepreneurship education

At present, the connection between innovation and entrepreneurship education in medical colleges and medical professional education is lacking: traditional teaching is still the main focus of the curriculum, and innovation and entrepreneurship elements are limited. Only the cultivation of innovation ability is emphasized in professional education, and entrepreneurship education is ignored; only conducting theoretical training on innovation and entrepreneurship is insufficient in cultivating students' innovative spirit and creativity; the cultivation of innovation and entrepreneurship mainly relies on training and selection to

participate in various competitions, but the results are not ideal ^[12].

4.2. Medical students' weak awareness of innovation and entrepreneurship

Due to the long class hours and heavy academic tasks of medical students, their employment goals are mainly stable institutions such as hospitals and health institutions. Students generally believe that innovation and entrepreneurship refer to the behavior of a few outstanding students engaging in technological innovation, participating in competitions and winning awards, or engaging in individual commercial activities. Therefore, the majority of students have a weak awareness of innovation and entrepreneurship, lacking interest and motivation in innovation and entrepreneurship. We have created an "Innovation and Entrepreneurship Education Platform" to provide a one-stop experience of "double innovation" resources. By combining extracurricular activities, scientific research training, subject competitions, and the infiltration of the campus cultural environment, we aim to cultivate students' innovative spirit, entrepreneurial awareness, innovative and entrepreneurial abilities, and entrepreneurial practices, in order to stimulate their inspiration and enthusiasm for innovation and entrepreneurship and improve the implementation effect of innovation and entrepreneurship education.

4.3. Weak construction of innovation and entrepreneurship teaching staff

At present, the innovation and entrepreneurship teacher team in medical colleges mainly faces problems such as insufficient overall quantity, low level of specialization, and unreasonable structure. For medical colleges, due to the vast majority of teachers having a medical background and limited experience in innovation and entrepreneurship, their enthusiasm for exploring innovation and entrepreneurship education is also low, which has become a shortcoming in the development of innovation and entrepreneurship education in medical colleges. Therefore, it is necessary to make full use of excellent faculty and outstanding resources and form a team of innovation and entrepreneurship guidance teachers. At the same time, we will carry out special training on innovation and entrepreneurship education concepts and teaching abilities for innovation and entrepreneurship guidance teachers, and build a high-quality team of innovation and entrepreneurship teachers.

5. Implementation path for cultivating innovative and entrepreneurial abilities of medical students

5.1. Introducing incentive measures for innovation and entrepreneurship education at the college level and improving the guarantee and incentive mechanism for innovation and entrepreneurship education

In order to further stimulate the innovative spirit and entrepreneurial awareness of general medical students, and vigorously cultivate excellent innovation and entrepreneurship projects, the "Incentive Measures for Innovation and Entrepreneurship Education of the First Affiliated Hospital of Xi'an Medical University" have been formulated. The participation situation will be included in the year-end performance evaluation, teacher title evaluation, and excellence evaluation, and the relevant reward policies for students and guidance teaching teams will be clarified.

5.2. Building an "Innovation and Entrepreneurship Education Platform" to provide a platform for teachers and students to exchange ideas on innovation and entrepreneurship

The hospital developed the "Teacher Development and Teaching Evaluation Service Platform" in the ear-

ly stage, which includes two major sections: “Teacher Development” and “Teaching Evaluation,” and has achieved information-based teaching evaluation and teacher management. On the Teacher Development and Teaching Evaluation Service Platform, we further integrate and share innovation and entrepreneurship resources through the “Innovation and Entrepreneurship Education” section, creating a comprehensive entrepreneurship education platform that combines “double innovation training,” “double innovation competition,” and “double innovation incubation” to provide specialized training and guidance for students to carry out scientific research and technological development activities, attracting students to engage in exploratory learning and innovative practice.

This platform includes the following six major sections:

- (1) Information section: This includes innovation and entrepreneurship competitions, introduction of major innovation projects, latest competition and project application information, related policies, incentive mechanisms, etc.
- (2) Case section: Excellent case exhibitions such as entrepreneurship and innovation competitions, annual innovation conferences, and “Green and Red” exhibition boards.
- (3) Honor list: The list of awards and project proposals received by the college over the years, as well as outstanding achievements in innovation and entrepreneurship.
- (4) Teacher-student communication section: This includes establishing guidance teacher database, student database, and enterprise database, creating a “double maker” cloud community, and achieving barrier-free communication between teachers and students, students, teachers, teachers/students/enterprises (bases).
- (5) Academy-level cultivation section: This involves developing an academy-level “innovation and entrepreneurship training management system” and “innovation and entrepreneurship competition management system.”
- (6) Course section: This involves exploring innovative and entrepreneurial education course resources with professional characteristics, and linking to high-quality course resource websites such as Chinese university MOOCs.

5.3. Cultivating innovative and entrepreneurial talents at the hospital level through the “Innovation and Entrepreneurship Education Platform”

5.3.1. Establishing a team of innovation and entrepreneurship guidance teachers to promote the continuous improvement of the quality of innovation and entrepreneurship education

It is necessary to make full use of excellent faculty and outstanding alumni resources to form a team of innovation and entrepreneurship guidance teachers. Through the early development of the “Clinical Teacher Online Learning Platform,” a series of innovation and entrepreneurship education concepts and specialized training for “double innovation” guidance teachers will be carried out to enhance their learning abilities, creating a high-quality team of innovation and entrepreneurship teachers and promoting the continuous improvement of the quality of innovation and entrepreneurship education.

5.3.2. Conducting a series of innovation and entrepreneurship education activities through the “Innovation and Entrepreneurship Education Platform”

We actively guide teachers and students to utilize platform resources to expand the space and forms of innovation and entrepreneurship education. Through one-stop services such as project guidance, home support, and policy consultation, we open up channels for students’ innovation and entrepreneurship and continuous-

ly improve their entrepreneurial abilities.

6. Conclusion

In short, local medical colleges should actively respond to the national innovation-driven development strategy, deepen the reform of innovation and entrepreneurship education in higher education institutions, establish the educational concept of developing innovation, adhere to the principle of educating people, and integrate innovation and entrepreneurship education into the talent cultivation of the school. In the future, we will focus on the construction of professional connotations, the quality of medical education, and the cultivation of talents and skills, accelerate the innovation of medical talent training models, and continuously improve the quality of higher medical education and the level of innovation and entrepreneurship education.

Funding

- (1) 2024 Innovation and Entrepreneurship Education Reform Special Project of Xi'an Medical University "Research on the Construction of Innovation and Entrepreneurship Talent Training Model Based on the 'Innovation and Entrepreneurship Education Platform'" (2024CCJG-01)
- (2) 2024 Education and Teaching Reform Research Project of Xi'an Medical University "Research on the Cultivation System of Applied, Composite, and Innovative Talents in General Medicine under the Background of New Medicine" (2024JG-04)

Disclosure statement

The authors declare no conflict of interest.

References

- [1] Clinical Medicine Professional Certification Working Committee of the Ministry of Education, 2018, Chinese Undergraduate Medical Teaching Standards - Clinical Medicine Major (2016 Edition), Beijing University Medical Press, Beijing.
- [2] The General Office of the State Council, 2020, Guiding Opinions of the General Office of the State Council on Accelerating the Innovative Development of Medical Education (Guobanfa [2020] No. 34), viewed October 15, 2024, http://www.gov.cn/zhengce/content/2020-09/23/content_5546373.htm
- [3] Shi L, Li J, 2021, Innovation and Entrepreneurship Education in Higher Education Institutions: Connotation, Challenges, and Path Optimization. *Heilongjiang Higher Education Research*, 39(02): 100–104.
- [4] Lei J, 2007, Analysis of the Development of Innovation and Entrepreneurship Education at Home and Abroad. *China Youth Science and Technology*, (02): 26–29.
- [5] Ministry of Education, 2018, Opinions on Strengthening the Collaboration between Medical Education and Implementing the Excellent Doctor Education and Training Plan 2.0 (Jiao Gao [2018] No. 4), viewed October 15, 2024, http://www.moe.gov.cn/srcsite/A08/moe_740/s7952/201810/t20181017_351901.html
- [6] The General Office of the State Council, 2020 Guiding Opinions of the General Office of the State Council on Accelerating the Innovative Development of Medical Education (Guobanfa [2020] No. 34), viewed October 15, 2024, http://www.moe.gov.cn/jyb_xxgk/moe_1777/moe_1778/202009/t20200923_490164.html

- [7] Bai M, Jin C, Chang H, et al., 2022, Exploring the integration of specialized and innovative medical talent cultivation through the empowerment of ideological and political education in the context of new medicine. *Journal of Hebei North University (Natural Science Edition)*, 38(06): 55–57.
- [8] Yang J, Wang H, Chen X, et al., 2022, Research on the integration of innovation and entrepreneurship education into the training of general practitioners in medical colleges and universities. *Journal of Traditional Chinese Medicine Management*, 30(12): 25–26.
- [9] Xu C, Ji M, 2023, Research on the Current Situation and Strategies of Innovation and Entrepreneurship Education in Medical Colleges under the Background of New Medical Sciences. *Health Vocational Education*, 41(15): 9–11.
- [10] Wu Yu, 2015, The dilemma and path selection of innovation and entrepreneurship education reform in universities. *Educational Exploration*, (11): 63–66.
- [11] Xiao Z, 2019, Research on Innovation and Entrepreneurship Education in Vocational Colleges under the Background of “Double Creation.” *Modern Commerce and Industry*, 40(19): 70–71.
- [12] Guo J, Yuan Y, Yuan L, 2021, Exploration of Talent Cultivation Model for Deep Integration of Innovation and Entrepreneurship Education and Medical Education in the New Era. *Journal of Nanjing Medical University (Social Sciences Edition)*, 21(03): 296–299.

Publisher’s note

Bio-Byword Scientific Publishing remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.