

# Exploration on the Construction of Innovative and Entrepreneurial Thinking and Practice Training System for Medical Undergraduates

## -- A Case Study of Innovation and Entrepreneurship Education in Jiujiang University School of Medicine

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### Abstract

It is a Herculean task for medical colleges and universities to cultivate innovative medical talents with both moral integrity and ability to respond to the call of the times. "Persistent focus, excellence, meticulousness, the pursuit of excellence" is a long-range objective of medical college students in their study, work and innovative growth. The cultivation of innovative medical talents has ushered in an unprecedented opportunities but also facing tough new challenges in the context of the reformed medical education, which is also an inevitable requirement for comprehensively raising the level of medical talents and promoting versatile, practical and adaptive medical talents to constantly comply with the society and the law of medical evolution to meet the challenges of the epoch. The prime target of cultivating students' innovative consciousness and capacity is to equip students with independent thinking and the emphasis on practice, capacity and innovation while forming a new mode of cultivating innovative medical talents with specialty characteristics of medical colleges and universities.

### Keywords

Medical science; Undergraduates; Innovative and entrepreneurial thinking; Practical training system.

### 1. Introduction

At present, there are some outstanding contradictions in the cultivation and development of innovative personnel in most medical colleges and universities nationwide, and the connection and coordinated development of theoretical guidance, innovative practice, achievement transformation and system guarantee are still not perfect yet. From the appeals of stimulating medical undergraduates' innovation consciousness and scientific research thinking, establishing medicos' innovation education system, constructing, managing and coordinating innovation team echelon, inspiring the "craftsman spirit" by tutors, strengthening independent scientific research and innovation practice ability, etc. From the perspective of individual growth and career development demands of college students, students are encouraged to actively participate in scientific and technological innovation teams, so as to accumulate rich experience and achievements in study, work and scientific research while laying a solid material foundation for future vocational ability, postgraduate entrance examination, promotion and long-term development. [1]

## **2. Investigation and Analysis of the Present Situation of Medical Undergraduates' Innovative and Entrepreneurial Thinking And Practice Training**

### **2.1. Present Situation of Cultivating Scientific and Technological Innovation Thinking Consciousness**

2.1.1 The school has set up basic courses such as literature retrieval and scientific research methods, but the popularity of specialized elective courses for scientific research and experimental methods is low.

2.1.2 Students' awareness of participating in scientific and technological innovation learning activities, scientific research activities and achievement transformation needs to be improved. In terms of innovative thinking, there is a lack of in-depth guidance, learning and practice opportunities, which leads to the high enthusiasm of most students, but they don't know where to begin.

### **2.2. Current Situation of the Construction of Scientific and Technological Innovation Mentor Team and Student Team**

2.2.1 The School has launched the dual-tutor initiative. The directors and the academic leaders have initially established the dual-tutor system to guide the corresponding students and promote cognitive gains of professional courses, innovation and entrepreneurship. At the same time, the college carries out cutting-edge lectures, lectures on discipline construction, lectures on innovation and entrepreneurship and other valuable scientific and technological academic exchanges to help students gradually cultivate their awareness of scientific and technological innovation and entrepreneurship from freshman year. Students can put forward their own ideas and ideas for innovation and entrepreneurship based on the knowledge they have learned in basic professional courses before implementing them under the guidance of their tutors in sophomore and junior years. [2]

2.2.2 Strong team of teachers, with the coverage rate of doctor, master and vice senior title above 80%, and a good foundation for the number and quality of the application and participation of scientific research and innovation projects by teachers with vocational high education and professional title. It mainly focuses on longitudinal scientific research and has a certain interspace for improvement in cultivating high-level innovative and entrepreneurial personnel.

2.2.3 Lack of sufficient incentive mechanism and team building management and coordination mechanism. As a result, the college, teachers, students and project teams can form a mode of collaborative development and collaborative operation.

2.2.4 The echelon strength of the student scientific research team is weak, which is mainly reflected in (1) the lack of guidance and the proportion of people actually participating in scientific and technological innovation activities; (2) The theoretical and practical ability of scientific research is low, and the experience ability to independently undertake and complete deep-seated research projects is insufficient; (3) There are faults in the echelon construction of student scientific research team, and the practical role of the old with the new has not been brought into play effectively; (4) Juniors and seniors are facing graduation and are less interested in innovation and entrepreneurship than before.

2.2.5 At present, some students have been participating in the teaching Forum of Basic Medical College, National Innovation Design Experiment Competition, Challenge Cup, Internet +, innovation Training Plan and so on, and have achieved good results under the guidance of the tutors. However, most students still lack in-depth understanding. The relevant policies issued by the college to encourage students to participate in innovation and entrepreneurship are still

being gradually improved, and efforts are being made to guide more students to participate in innovation and entrepreneurship education and practice activities and actively participate in innovation and entrepreneurship.

### **3. Influence of Long-term Incentive Mechanism of Scientific and Technological Innovation on Innovative and Entrepreneurial Thinking and Practice of Medical Undergraduates**

Medical undergraduates in our university have high enthusiasm for participating in scientific and technological innovation learning and practice activities. However, the educational effect of scientific and technological innovation achievements and the transformation rate of scientific research achievements are limited by unfavorable factors such as professional characteristics, limitations of personnel training system, disconnection between innovation theory and practice. The potential and power of medical college students' innovation ability, autonomous learning ability and scientific research ability still have a great space to expand. [3]

#### **3.1. Existing Resources and Incentive Mechanisms**

The college will also successively introduce incentive policies to give appropriate preference to students who actively participate in innovation and entrepreneurship in their comprehensive evaluation, and provide professional teachers for one-to-one guidance and corresponding financial support to ensure that students' innovation and entrepreneurship practice activities have certain continuity. At present, Jiujiang University has established a special school of innovation and entrepreneurship, which is planned to incubate, prepare and incubate in the next 1-2 years, so as to achieve better results in the provincial competition. If successful incubator projects are declared, each project will provide corresponding incubation expenses.

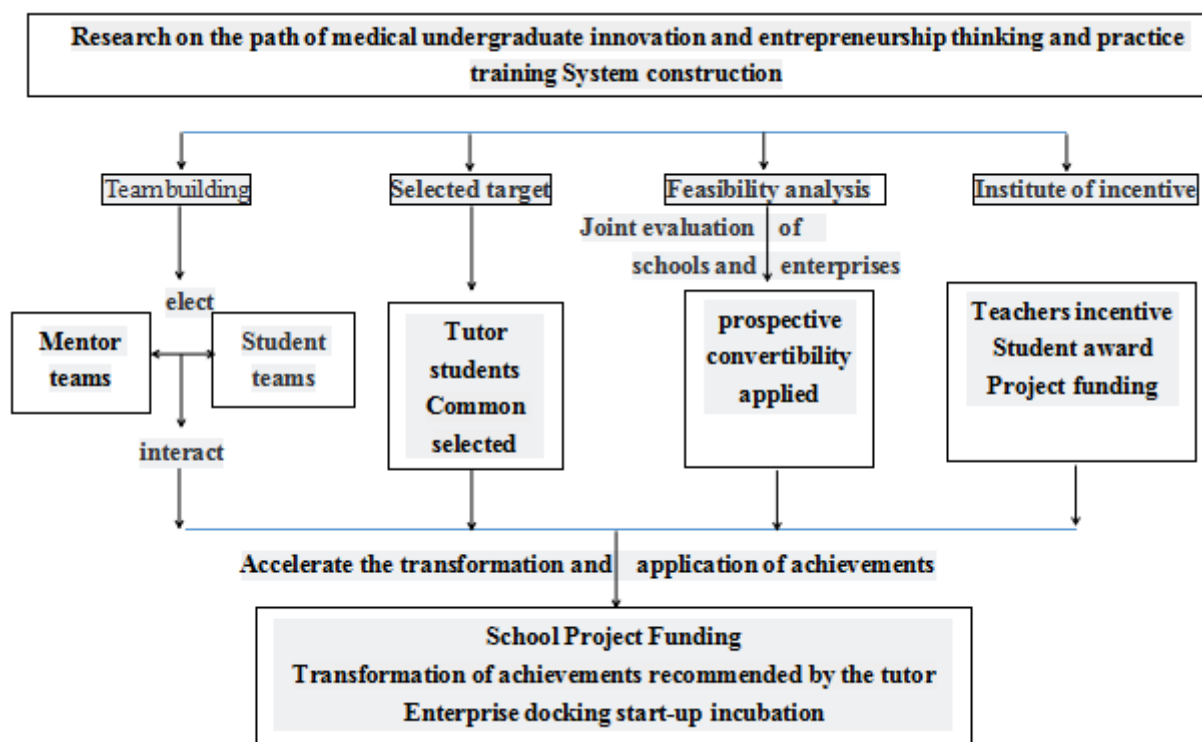
#### **3.2. Expected Resources and Incentive Mechanism**

3.2.1 Whether the personal performance and performance assessment of the instructor can give appropriate GPA scores, and whether the professional title evaluation can give policy incentives.

3.2.2 The results of the project are generally the results of publishing papers or applying for relevant patents and other forms of scientific research in the name of the students. Can more policy and financial support be given to the output, publication and transformation process of such results, and combined with the feasibility of the project, forward-looking, transformation, and applied encouragement in the form of appropriate scholarships for project directors or students in charge, in order to inspire and drive more aspiring young people to actively enrich their innovative and new entrepreneurial teams.

### **4. Path Research on the Construction of Innovative and Entrepreneurial Thinking and Practice Training System for Medical Undergraduates**

Innovation is the lifeblood of the reform and development of medical education in the new era. By clarifying the training objectives of innovative talents, creating a campus culture, integrating professional education, attaching significance to scientific research and innovation, building a practical platform, promoting the transformation and application of achievements, etc. The project progress and collaborative steps based on the architectural model of innovative and entrepreneurial thinking and practice training system for medical undergraduates, as shown in Figure 1 below.



**Figure 1.** Basic framework model of innovative and entrepreneurial thinking and practice training system for medical undergraduates

Based on the basic framework model of innovative and entrepreneurial thinking and practice training system for medical undergraduates, establish and improve the college's scientific and technological innovation mentor team, clarify the responsibilities of the mentor, and carry out targeted support for the student team under the guidance of the mentor to accelerate students' consciousness of scientific and technological innovation. Under the guidance and help of tutors and teams, medical students actively participated in and experienced the theoretical and practical process of topic selection, design, research, implementation and achievement transformation of scientific research projects, which not only stimulated their interest in scientific research and innovation activities, but also inspired them. Relying on teachers' scientific research projects, a practical training system that drives students to independently design and complete experiments is driven by staged results output, and aims to transform final results, accelerates the improvement of students' innovative thinking and ability in scientific research. [4]

## 5. Analysis of the Course Module of "Innovation and Entrepreneurship Ecosystem" under the Cultivation Goal of Innovation and Entrepreneurship Thinking and Practice

Taking the cultivation of scientific and technological innovation thinking consciousness and practical ability as the starting point, it promotes the comprehensive improvement of students' innovation and entrepreneurship theory and practical ability.

### 5.1. Course Module 1: Theory Learning and Guidance Phase

With the rapid development of medical science, it is very significant to pay attention to the development of basic theories, basic knowledge, basic skills, comprehensive quality and innovative thinking in medicine. Increase or set up graduation thesis design theory and practice

courses, guide and stimulate students' subjective initiative and potential for scientific and technological innovation theory and practice, enhance students' understanding of the value of scientific research theory and practice ability, and be able to independently undertake and complete in-depth research projects experience. The main contents can include: fundamental theoretical knowledge, case analysis of successful entrepreneurial at home and abroad, analysis of medical industry field and market development prospects, innovation and entrepreneurship motivation, value orientation, business plan and planning case design, marketing and market risk avoidance, interdisciplinary theory and practice knowledge, etc.

### **5.2. Course Module 2: Observation and Learning Stage**

Medicine is a life science. The educational model of medical schools has cultivated a rigorous, scientific, standardized thinking mode of medical students. At the same time, medical students have professional knowledge background and have technical barriers that cannot be replaced by others. This also is the natural advantage of medical students. If medical students want to innovative and establish a business, the core is to give full play to their unique advantages. To construct a good cooperative ecological model of "production, education, research and application", through field observation and learning, on the one hand, one can exercise one's professional skills, improve professional theories, and make full use of the double-qualified teachers; on the other hand, it can also apply theoretical knowledge to practice, strive to solve practical problems and create value for enterprises. Meanwhile, actively participating in innovation and entrepreneurship competitions such as "Internet +" and "Challenge Cup" can also provide convenient channels for medical students' personal innovation and entrepreneurship. In the competition, medical students are required to participate in project under the guidance of a mentor, product introduction, market analysis, financial analysis, risk control, team introduction and public defense so that the medical students' awareness of innovation and entrepreneurship will gradually be strengthened, their thinking will be more open, and to cultivate open, diverse and shared interconnected innovative thinking among medical students.

### **5.3. Course Module 3: Innovative Team Leads the Practice Stage**

On the premise of establishing and improving the new mentor team of scientific and technological innovation tutor team of the college, the college can carry out practical practice through platforms such as hospitals of Traditional Chinese Medicine, maternal and child Health care and other medical units and enterprises. For example, to form a preliminary understanding of the basic process and mechanism of hospital operation, observing the practice methods of medical entrepreneurship and innovation on the spot, or discovering practical insertion points to facilitate patients, improving medical efficiency and resolving doctor-patient conflicts during the process of volunteering, and form preliminary ideas and bluecharts for innovative and entrepreneurial through field understanding and practice, and master the basic processes and methods of the design, marketing and operation of basic processes and business plans, etc, to improve the comprehensive quality and ability of college students in entrepreneurship and innovation.

### **5.4. Course Module 4: Entrepreneurship Simulation and Practical Stage**

With the collaborative support of "classroom training + clinical practice + innovation incubation", simulated and participated in relevant innovation and entrepreneurship actual combat plans. Closely connect with hospitals at all levels and of various types, social and medical institutions, social service institutions, medical and health enterprises, and accelerate the R&D of scientific and technological innovation projects, as well as the application and application of their achievements, so that business startups and innovation will not only stay in theoretical learning, but also have practical significance.

## Acknowledgments

This paper is an empirical study on the Construction of Innovative and entrepreneurial Thinking and Practice Training System for Medical Undergraduates of Jiangxi Province, which is a general project of Jiujiang University. Project approval number: 2021-06-04.140.

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