

MECP Innovative and Entrepreneurial Talent Cultivation Model in Higher Education of China

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Abstract. This paper studies how to break down the barriers between entrepreneurship theory and practice, innovation and entrepreneurship management research and education in higher education. First, this paper comprehensively planned, designed and constructed a systematic, hierarchical and targeted advanced innovation and entrepreneurship education content system, and innovatively proposed the innovation and entrepreneurship teaching method of MECP mode. Then, this paper studies the deep integration of experimental teaching and case teaching in innovation and entrepreneurship education, and discusses the application of heuristic, participatory and research-based teaching methods in innovation and entrepreneurship courses. The MECP teaching mode for innovation and entrepreneurship education proposed in this paper has been implemented in Beihang University, and will continue to improve, with hope to provide some practical reference for China's innovation and entrepreneurship education in the new era.

1. Introduction

China's economic development is entering a crucial period of structural adjustment with transformation and upgrading, while old and new growth drivers are being transformed. A new round of technological and industrial revolution, such as the Internet, big data and artificial intelligence, is gathering momentum. China has entered a golden age of innovation and entrepreneurship.

As China's economy into the new normal, innovation has become a new engine to promote the development of the economy. Innovation and entrepreneurship education and cultivate the innovative entrepreneurs is the objective requirement of building an innovative country. However, innovation and entrepreneurship education has not been carried out in Chinese universities for a long time. The systematicness and effectiveness of innovation and entrepreneurship education need to be improved, and relevant teaching systems and methods are still in the process of practice exploration. Therefore, from the perspective of teaching, exploring heuristic, participatory practice teaching mode of innovation and entrepreneurship in universities is an effective way to carry out innovation and entrepreneurship talent training.

2. Teaching Methods of Innovation and Entrepreneurship Education

2.1. The State-of-Art of Innovation and Entrepreneurship Education

Entrepreneurship education in European and North American countries has been going on for a relatively long time. It provides us with a lot of useful practical experience, especially their effective education and teaching methods, is very worthy of our reference and absorption. It provides us with a lot of useful practical experience[1]. Especially their effective education and teaching methods, is very worthy of our reference and absorption. The entrepreneurship education in European and North American countries began to show the trend of strategy, globalization, lifelong, nationalization and systematization. Among them, Stanford University, Massachusetts Institute of Technology and Babson College in the United States have made a series of useful explorations[2]. In order to stimulate students' innovation and entrepreneurship motivation and inspiration, Stanford University

has implemented the curriculum system of interdisciplinary, combination of arts and sciences, and combination of theory and practice in the innovation and entrepreneurship education for years. In terms of teaching methods, it mainly adopts case teaching, supplemented by entrepreneur lectures and enterprise practice. MIT offers three kinds of courses, "theory course, practice course and project course" with diversified teaching methods, so as to promote the progress of knowledge and cultivate the leaders in science and technology field. Babson College has established a three-stage curriculum group of "discovery, exploration and specialization" focusing on cultivating students' entrepreneurial spirit with the mainly teaching method of experimental and practical teaching.

To sum up, the leading universities of international innovation and entrepreneurship basically take innovation and entrepreneurship spirit and quality as the training target, and use teaching methods such as case teaching, experimental teaching and practical teaching, which are often used in business schools, to complete the construction of multi-level and diversified innovation and entrepreneurship curriculum system.

2.2. The Evolution of Teaching Theme in Innovation and Entrepreneurship Education

Early entrepreneurship management studies mainly focused on the characteristics of entrepreneurs, and scholars tried to identify a series of characteristics that distinguish entrepreneurs from non-entrepreneurs [3]. However, some studies have proved that there is no fixed or overlapping feature of entrepreneurs [4]. Therefore, some scholars shifted their research focus to the perspective of entrepreneurial process. They focused on the study of a series of activities carried out by entrepreneurs in the context of the establishment of new enterprises[5]. However, the entrepreneurial process perspective takes entrepreneurship as a linear, staged process of new enterprise creation. If the innovation and entrepreneurship talent cultivating is carried out from the process perspective, cultivating students' specific execution ability in each entrepreneurial stage would be focused.

Today, when technological change and management mode encounter disruptive innovation, the start up business process perspective is seriously threatened. Some scholars shift their research focus to entrepreneurial thinking and methods[6][7]. Research on entrepreneurial thinking leads to the conclusion that specific thinking patterns are the source of competitive advantage and individual differences. In this perspective, the problem that scholars focus on is no longer whether an individual can become an entrepreneur, but how an individual can become innovative and entrepreneurial, how to create opportunities and act on opportunities. From the perspective of this research, entrepreneurship and innovation education can be promoted to a higher level, that is, innovation and entrepreneurship thinking and action spirit can be transmitted through entrepreneurship and innovation education, so as to support students' ability to create the future in the face of uncertain situation and limited resources. And this ability is exactly the demand of higher education in the new era.

2.3. The State-of-Art of Teaching Methods of Innovation and Entrepreneurship

Many scholars have studied how to deeply integrate theory and practice in the process of innovation and entrepreneurship education, so as to guide practice through theory, and then verify or improve theory through practice. Baron et al. made an in-depth study of entrepreneurial learning literature and introduced two learning methods, experiential learning and alternative learning[8]. Mueller et al. proposed that effective entrepreneurship education requires practice, which is rooted in theory, and this method emphasizes the deep integration of theory and practice[9]. At present, entrepreneurship education in top foreign universities is currently implementing this teaching method, and the methods of design thinking and lean startup are similar. Harvard, Stanford and other universities use case teaching as an alternative learning model for entrepreneurship education. Babson Business School puts forward the five-step experimental teaching method of "play, empathy, creation, experiment and reflection" as an effective model of experience learning for entrepreneurship education[10]. These universities have made great achievements in the field of entrepreneurship education.

From the above analysis, it is can seen that diversified teaching mode should be used in innovation and entrepreneurship education. The construction of heuristic, participatory practical teaching mode by using MOOC resources on the Internet and comprehensive using of project-based learning,

experimental teaching, case teaching and other advanced experiential teaching methods, is conducive to the realization of the organic integration of national innovation strategy and innovation and entrepreneurship education in higher education, which is very important and necessary to promote the transformation of innovative and entrepreneurial talent training mode and facilitate the transformation of innovative and entrepreneurial education.

3. MECP Innovative and Entrepreneurship Teaching Mode

3.1. Top-Level Design of MECP Mode

In Chinese innovation and entrepreneurship education for college students, what to teach and how to teach, has become the core of the current problems.

On the level of "what to teach", based on the existing research of entrepreneurship education content, it can be seen that the perspective of "behavioral cognition" and "methodology" of entrepreneurship education is consistent with the teaching content of today's entrepreneurship practice. In this perspective, focus on cultivating the students' innovation spirit, entrepreneurship method and action spirit, has the significant reference value not just for entrepreneurship education in colleges and universities, but also for other professional course teaching reform in higher education. Taking entrepreneurship education as the gripper, deeply integrating professional education and innovation and entrepreneurship education, is an effective way of comprehensive education teaching reform.

On the level of "how to teach", based on the perspective of "cognitive behavioral" and "methodology", matching with the adaptation of case teaching and experimental teaching methods, to achieve organic coupling of entrepreneurship theory and practice, to support each other, complement each other. Therefore, it will be accomplished that the organic combination and orderly supply of literacy, knowledge and ability which innovative activities need, which is also of great significance for supply side education reform of innovation and entrepreneurship education.

3.2. MECP Mode Innovation and Entrepreneurship Course Design

The innovation and entrepreneurship course in MECP mode adopts the four-in-one teaching mode of "MOOC-experimental teaching - case teaching - project cultivation". According to different innovation and entrepreneurship processes and levels, MOOCs, experiments and cases are designed and developed to meet the needs of students of different levels and types, as shown in Fig. 1.

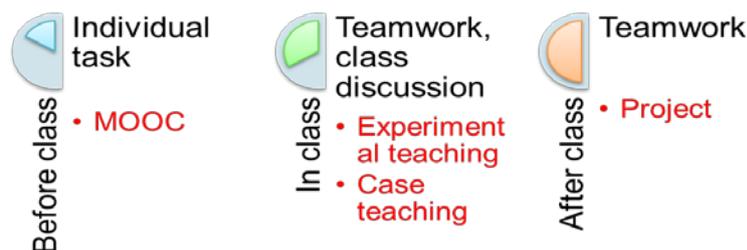


Figure 1. MECP mode innovation and entrepreneurship course design

(1) In terms of MOOC, based on the modular division of the innovation and entrepreneurship course system, a series of micro-MOOCs within 15 minutes are recorded for students to preview before class, and all knowledge points were made available to students through MOOCs before class, so that the time in class would be reserved for the case study and experimental teaching conducted by group cooperation.

(2) In terms of experimental teaching, design the Babson paradigm, local features innovation and entrepreneurship field experiments, each experiment including description, experimental targets, bill of materials, the preparation, basic knowledge, basic theory, experimental steps (including the schedule), key points, teaching tips. Multi-tier and diversified experiments will cover all aspects of innovation and entrepreneurship courses.

(3) In terms of case teaching, based on innovation and entrepreneurship practice of students or alumni, a series of Harvard paradigm, the local characteristics of long case are developed. Each case includes case body, the teaching goal, inspired questions, analysis methods, theoretical basis and analysis, key points, class plan, background information. These cases are suitable for the teaching of 90 minutes. In addition, in order to meet the requirements of case teaching of each module, some short cases are also developed to ensure the integration of case teaching and experimental teaching in each teaching module.

(4) In terms of project based learning, through the implementation of the innovation and entrepreneurship course in MECP mode, a number of typical innovation and entrepreneurship projects were found and cultivated to form a characteristic project library.

4. Implementation of MECP Mode in Beihang University

4.1. Implementation Path of MECP Mode

The implementation path of MECP innovation and entrepreneurship teaching mode in Beihang University follows the basic idea of "lean startup". Based on the well-known education model of "case teaching, experimental teaching and practical teaching" in the School of Economics and Management at Beihang University, the innovation and entrepreneurship courses using MECP mode has been implemented among undergraduate and MBA students.

Beihang University has offered courses such as "comprehensive cognition and practice of innovation and entrepreneurship", "innovation and entrepreneurship methodology" and "lean startup practice". The university will further open more compulsory and optional courses in innovation and entrepreneurship research methods, professional frontier, industry practice and other aspects to all students, as shown in Fig. 2.

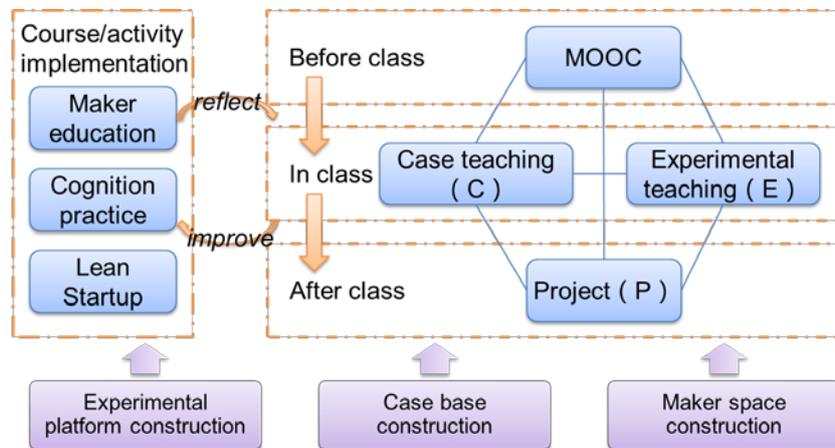


Figure 2. MECP mode implementing in Beihang University

Beihang University aims to help students understand the internal rules of entrepreneurial activities and the uniqueness of entrepreneurial activities, as well as the problems and development obstacles often encountered in the entrepreneurial process, by building a series of progressive, organic, scientific and reasonable innovation and entrepreneurship courses. To be specific, it mainly cultivates the following abilities and qualities of students:

- ✓ Cultivate students' initiative, teamwork and innovation consciousness;
- ✓ Strengthen the spirit of innovation and entrepreneurship, cultivate and exercise entrepreneurial skills such as opportunity identification, innovation, resource integration, team building and knowledge integration;
- ✓ Guide students to work with innovative and entrepreneurial thinking;
- ✓ Enhance the ability to analyze and solve problems creatively.

In line with the principle of implementation and continuous improvement, during the implementation process, we will continuously improve or develop the micro-MOOCs, teaching cases and experimental materials used in new courses to accumulate more landmark project achievements.

4.2. Effectiveness Analysis of MECP Mode Implemented in Beihang University

In order to acquire the effectiveness of the MECP mode and get some useful feedbacks from students, a questionnaire is designed and given to one undergraduate class of "innovation and entrepreneurship methodology" and two MBA classes of "lean startups" who have just finished the course. 138 questionnaires were distributed, of which 134 anonymous filled questionnaires are effective feedbacks.

In order to analysis the reason and general feelings of students taking this course, a few questions are designed as shown in Table 1, while the students' answers are presented in Fig. 3. From the questions and answers we can see that most students think there is great necessity to learn innovation and entrepreneurship courses while they are interested in this course; and after the course, most of them think it is a very helpful course and feel satisfied with MECP teaching mode.

Table 1. Questionnaire Design

No.	Question	Option A	Option B	Option C	Option D
1	Necessity to learn this course	Great Need	Need	Does not matter	No need
2	Your feeling about this course before leaning it	Very interesting	Interesting	General	No interest
3	Your evaluation for yours own performance in this course	Very satisfied	Satisfied	General	Not satisfied
4	Your feeling about MECP teaching mode	Very satisfied	Satisfied	General	Not satisfied
5	The help for your understanding about innovation and entrepreneurship	Very helpful	Helpful	General	Not helpful

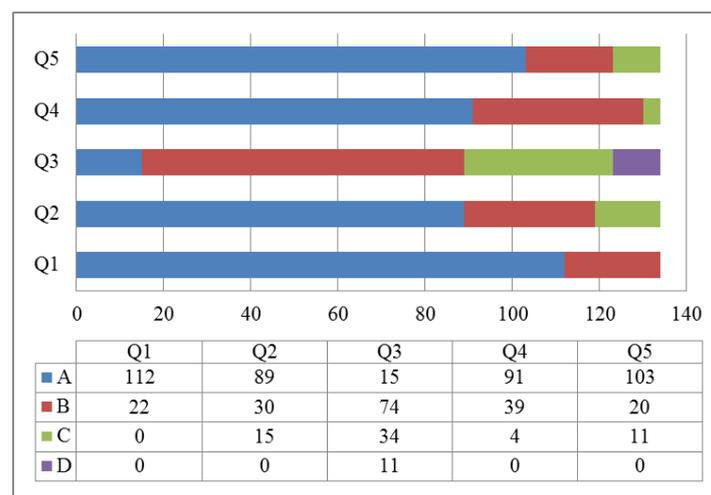


Figure 3. Questionnaire analysis

5. Summary

The new situation of world economic integration proposes new requirements for innovation and entrepreneurship education in universities. Cultivating talents with both professional skills and entrepreneurship thinking is the goal of universities, which can bring advantages in future competition. The MECP teaching method proposed in this paper takes cultivating the innovative spirit, accomplishment and comprehensive ability required by students' practical innovation and

entrepreneurship as the core, and constructs an integrated progressive innovation and entrepreneurship education mode that integrates theory and practice, organically connects teaching links, deeply integrates cases and experiments, and promotes project-based learning. Through the experience of teaching, students can understand and master entrepreneurship knowledge and skills in classroom. MECP teaching mode is of great theoretical value and practical significance in promoting the transformation of educational philosophy, teaching mode and talent training mode under the new situation of innovation and entrepreneurship, and facilitating the reform of innovation and entrepreneurship education.

6. References

- [1] Zhuo Zelin, Zhao Zhongjian. University-wide Entrepreneurship Education: American Experience and Implication for China [J]. *Research in Educational Development*, 2017(17):46-53.
- [2] Liu Lijun, Li Bin, Zheng Yan, et al. Entrepreneurship education in American first-class science and technology universities and the cultivation of innovative entrepreneurship talents in China [J]. *China Higher Education Research*, 2009(5):50-51.
- [3] Brockhaus R H S, Horwitz P S. *The Psychology of the Entrepreneur*[M]. The Art and Science of Entrepreneurship, Cambridge, MA: Ballinger, 1986.
- [4] Edelman L F, Manolova T S, Brush C G. Entrepreneurship Education: Correspondence between Practices of Nascent Entrepreneurs and Textbook Prescriptions for Success[J]. *Academy of Management Learning & Education*, 2008, 7(1):56-70.
- [5] Gartner W B. “Who Is an Entrepreneur?” Is the Wrong Question[J]. *American Journal of Small Business*, 1988, 13:461–467.
- [6] Shane S, Venkataraman S. The Promise of Entrepreneurship as a Field of Research[J]. *Academy of Management Review*, 2000, 25(1):217-226.
- [7] Shane S. Reflections on the 2010 AMR Decade Award: Delivering on the Promise of Entrepreneurship as a Field of Research[J]. *Academy of Management Review*, 2012, 37(1):10-20.
- [8] Baron R A, Henry R A. How entrepreneurs acquire the capacity to excel: insights from research on expert performance[J]. *Strategic Entrepreneurship Journal*, 2010, 4(1):49-65.
- [9] Mueller S , Brahm T , Neck H . Service Learning in Social Entrepreneurship Education: Why Students Want to Become Social Entrepreneurs and How to Address Their Motives[J]. *Journal of Enterprising Culture*, 2015, 23(03):357-380.
- [10] Neck H M, Greene P G. Entrepreneurship Education: Known Worlds and New Frontiers[J]. *Journal of Small Business Management*, 2011, 49(1):9-21.