

Exploration on Education Practice Based on Employment and Entrepreneurship in Higher Institutes of China

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Abstract. Promoting education for college students based on entrepreneurship is not only the objective requirement of the development of higher institutes themselves, but also the urgent demand of China's economic and social development. At present, however, it is necessary to redesign the curriculum system and update the way of teaching due to the problems of unpractical educational theories and backward educational contents in higher institutes. In this thesis, studies are made using questionnaires based on information processing theory and model of the combination of work and learning. 344 effective questionnaires are collected. Besides, by comparison with the successful cases of Stanford, three major factors limiting the development of education based on entrepreneurship in Chinese higher institutes are discovered, namely, lack of practice for social practice, great learning and academic pressure of students and unpractical teaching contents. Therefore, trans-level learning model is put forward and is divided into three levels of theory, practice and innovation, so that students can receive information from various perspectives. Through targeted education on employment and entrepreneurship, as well as target-based learning plans, students' awareness of employment and entrepreneurship are adopted so that the information acquired can be integrated to improve students' core competitiveness.

Keywords: Employment and entrepreneurship orientation · Curriculum reform · Talent cultivation

1 Introduction

Employment and entrepreneurship-oriented education (EEOE) is an education idea and practice formed in order to meet the needs of socio-economic development and education development. From the perspective of the form of socio-economic development, the rise of knowledge-based economy has increasingly presented a country's core competitiveness as cultivation, allocation and regulation of human resources and knowledge achievements. Knowledge cannot promote the development of economy unless high-quality innovative and entrepreneurial talents serve as a basis. In this context, China has laid increasing emphasis on the cultivation of innovative and entrepreneurial talents. In April 2002, the Chinese Ministry of Education started an entrepreneurship education experiment in 9 universities including Tsinghua University,

Beihang University, Renmin University of China, Shanghai Jiao Tong University, Xi'an Jiaotong University, Heilongjiang University, Nanjing University of Finance and Economics and Northwestern Polytechnical University. *An Opinion on Vigorously advancing Innovation and Entrepreneurship Education in Higher Learning Institutions and College Students' Self-employment* issued in 2010 requires developing innovation and entrepreneurship education in colleges and universities. Innovation and entrepreneurship education is developed in order to provide strong talent and intellectual support for implementing the strategy of “improving independent innovation ability to make China an innovative nation”, “expanding employment by starting a business”, and “accelerating the transformation of economic growth pattern” put forth by the Party Central Committee.

From the perspective of the trend of higher education reform and development, the sustainable development of higher education includes both scale development and quality improvement, and the major task of higher education development will be to improve quality in the future. China has listed innovation and entrepreneurship education on the *Outline of National Medium- and Long-term Program for Education Reform and Development*, and integrated it into the whole process of talent cultivation. Its core is to cultivate college students' innovation spirit and entrepreneurial competence, reform the talent cultivation pattern and education context, and combine talent cultivation, scientific research and social work together closely to gradually set knowledge orientation before competence and quality orientation to improve the quality of talent cultivation.

2 Theoretical Basis

Due to the difference in history of education between various countries, they have distinct talent education and cultivation patterns. But they also have something in common since they are in the process of development in the same historical period. Talent cultivation is combined with business, course learning is combined with future career, employment and entrepreneurship serve as orientation, full use is made of different on- and off-campus educational environments and resources, and classroom teaching-based school education is combined organically with off-campus work that can help directly gain hands-on experience in the whole process of student cultivation to train real professional and entrepreneurial talents in practice in a bid to advance the combination of working with learning in German which implements “the dual system”, Britain which advocates “the alternation of working and learning”, and America which develops “the cooperative education”. This reflects the essence of EEOE.

Based on the extension and development of information processing theory and work-integrated learning model, we proposed an inter-hierarchy learning model (see Fig. 1), which consists of three hierarchies: theory hierarchy, practice hierarchy and innovation hierarchy. The theory hierarchy consists of specialized course learning, theoretical knowledge accumulation and scientific research exploration; the practice hierarchy involves co-cultivation by enterprises and society, exercise of students' ability to solve problems using knowledge for their career, creative study and application, and mastery through a comprehensive study. The fusion of theory hierarchy

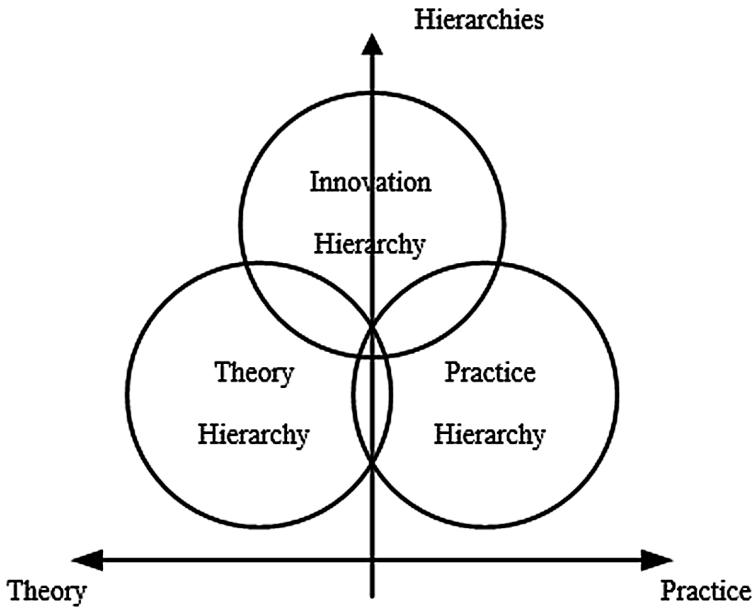


Fig. 1. Inter-hierarchy learning model

with practice hierarchy helps promote students to transform their learning of low-level theories and practice in work into high-level innovations, aimed at imparting knowledge to students from various angles, teaching them for a concrete target through specific employment and entrepreneurship education, and developing their consciousness of employment and entrepreneurship, so that they could integrate the information acquired together, and achieve a thorough mastery of the information, to have their core competence enhanced, so as to realize the goal of EEOE.

The concept of entrepreneurship education was proposed by the UNESCO at the “International Conference of Education for the 21st Century” held in Beijing in 1989. The “third passport of learning” was proposed in the “Educational Philosophy of the 21st Century” in the conference report, which is known as entrepreneurial ability passport demanding to raise the status of entrepreneurial ability-oriented education passport to equate it with the current academic and vocational education passport (Wang and Liu 2009). Actually, the practice of entrepreneurship education has developed for decades in developed countries in Europe and America. In 1947, entrepreneurship course was offered at Harvard Business School. In 1953, “entrepreneurship and innovation” course was offered by Drucker at New York University, seeing the rise of entrepreneurial education aimed at developing students’ self-employment ability in America. In 1968, the first entrepreneurship major was created for undergraduates at Babson College. In 1971, the first MBA entrepreneurship major was created at University of Southern California, raising college entrepreneurship education to a new level (Liu 2010). In the 1980s, entrepreneurship education began to break the boundaries of business school and be offered to the students

majoring in all subjects, becoming one of the academic sectors developing the most rapidly at the stage of higher education in America.

As a selective course of general education offered to the students majoring in all subjects, and an important part of comprehensive quality education at higher learning institutions, public elective curriculum shoulders the heavy task of improving students' comprehensive qualities, widening the scope of their knowledge, optimizing the structure of their knowledge, promoting their personality development, and training innovative talents. All higher learning institutions at home and abroad make the most of public elective curriculum teaching. In the early 20th century, Harvard, Yale and other relevant well-known foreign universities started to explore interdisciplinary public elective curriculum education for postgraduates by combining theory with practice. Our university has gradually strengthened the efforts to offer public elective curriculum in recent years. Our university gives full play to its superiority as a comprehensive university to offer public elective curriculum to all students, particularly postgraduates for whom the courses in various fields such as natural sciences, humanities and social sciences have been provided. Also, it has been stipulated that every postgraduate must earn a certain amount of credits before graduation. From the perspective of the current implementation effect, the public elective curriculum offered has fully tapped the potential of the teachers and students, promoted the students' personality development, improved their humanistic qualities, scientific qualities, physical and psychological qualities, and driven the deepening of quality education. But at present, lots of problems have arisen in the implementation of public elective curriculum in our university, such as unitary teaching pattern, serious absence of students, doing coursework or fiddling with mobile phone in class, some teachers' inadequate attention to the teaching quality, the low depth and breadth of public elective curriculum content, and lack of practical guidance on employment and entrepreneurship. On that basis, this study conducted a questionnaire survey in Beihang University, one of the 9 pilot universities for entrepreneurship education, aimed at understanding the development status of EEOE at home, and exploring the issues restricting the development of EEOE, to provide suggestions and references for future EEOE.

3 Method

To study the current status of EEOE at colleges and universities, we employed questionnaire analysis and case comparison analysis.

On the basis of research literature, this paper designed a "questionnaire for surveys on the current status of EEOE at colleges and universities". The main content of the questionnaire consists of 2 parts: Part 1 presents basic information, including students' gender, specialty and grade. Part 2 presents surveys on the current status of EEOE, specifically including three aspects: first, undergraduates' awareness of EEOE; second, the implementation status of EEOE in colleges and universities; third, undergraduates' demand for EEOE. After the preliminary design of the questionnaire, we randomly selected 30 undergraduates for a pilot survey, and then modified the questionnaire in accordance with the pilot survey result based on experts' comments, finalizing a questionnaire. 400 questionnaires were distributed, and 371 were collected, 344 of

which were valid questionnaires, with a valid collecting rate of 86%. 33.14% of the respondents were female students, and 66.86% were male students.

4 Data Analysis

4.1 Undergraduates' Awareness of EEOE

The undergraduates have high awareness of EEOE, high attention to it and high enthusiasm for it. Undergraduates' understanding and cognition of EEOE is a subjective factor influencing EEOE, thus only when undergraduates have a strong identification with EEOE and correct views on its values will it be able to be implemented effectively. This paper designed two items as points of observation of undergraduates' awareness of EEOE: the first is that attention is paid to EEOE. The vast majority of the students thought that EEOE was very important for them. 64.83% students selected "high importance", 31.1% selected "importance", and only 0.58% selected "unimportance" or "extremely unimportance", showing that the vast majority of the students think much of employment and entrepreneurship-oriented courses (EEOCs), and have a correct awareness of EEOEs. The second is whether they take an active part in EEOCs. 84.3% students expressed their willingness to select EEOC, and 12.5% said they might consider selecting EEOCs according to specific conditions, indicating that the undergraduates have a great demand for EEOCs, and regard them as important to their career development. But meanwhile, we have found that there are not many EEOEs offered in the university that just cover limited fields, most of which are nothing more than introduction or science popularization courses, such as Introduction to Entrepreneurship, A General Theory of Entrepreneurship, Guidance on Entrepreneurship and Employment, Career Planning and Human Resource Management, while only a few courses involve students' concrete needs contain key points, such as Robot Innovation and Entrepreneurship, Speech and Eloquence, and Lecture on Medical Equipment Creation.

4.2 The Implementation Status of EEOE in Colleges and Universities

There are major barriers to the development of EEOE in colleges and universities. For instance, EEOE is unvalued and inferior to professional education, there is a lack of social practice platforms, students are under great pressure from learning and scientific research, and teaching content is disconnected from students' actual needs. The attention from colleges and universities is prerequisite to the implementation of EEOE. According to the survey of "the university's emphasis on EEOE", despite the constant advancement of EEOE in recent years, the university's emphasis on EEOCs has significantly increased. 62.2% students selected "high emphasis" and "emphasis". Yet a considerable number of students (32.85%) thought that the university did not lay much emphasis on EEOE. So, the university should still place more emphasis on EEOE by carrying out more work. To "the result of EEOC learning", the students made extreme reactions. 58.14% of them said they had learned a lot, while 41.86% thought they just gained a little or nothing. This shows that there is still big room for improvement of the

EEOCs, so it is imperative to further classify the courses in line with different students' needs, and promote objective-oriented teaching. Considering the extreme effects of EEOE in higher learning institutions, we further researched the "factors influencing the effects of EEOE". See below for the first three factors: lack of social practice platforms (58.43%), great pressure on students from learning and scientific research (52.33%), and teaching content's disconnection from student's actual needs (47.97%). It is also proposed in *A Third Evaluation Report on Higher Education* to strengthen the construction of practice bases for college students, and deepen the reform of the credit management system, to give students a more flexible, larger free space, and educate them in accordance with their actual needs, so that they could achieve personalized development.

4.3 Undergraduates' Demand for EEOE

Undergraduates have diverse needs for EEOE, thus goal-oriented personalized education that meets students' actual needs is more popular. Undergraduates' demand for EEOE is a basis for higher learning institutions to design EEOE patterns and schemes, and only the EEOE pattern that meets student demand may be popular with students, avoid becoming a mere formality, and realize the implementation of EEOE. In terms of "development form of EEOE", the related courses account for 75.87%, much higher than other options, and individualized guidance on employment and entrepreneurship ranks the second, account for 59.3%, suggesting that setting of EEOCs based on a clear goal for individualized guidance on employment and entrepreneurship is an ideal way for universities to develop employment and entrepreneurship education. We further surveyed the "content of EEOCs". The options in the order of demand are interview skills (88.95%), social manners (66.86%), speech and eloquence (66.57%), and entrepreneurial orientation selection (63.08%). As can be seen, undergraduates' demand for EEOE has shown a trend of diversification, but the contents meeting their demand are rarely mentioned in the current EEOE. So, higher learning institutions should offer goal-oriented courses in line with student demand to give guidance on employment and entrepreneurship.

5 Case Comparison

EEOE reached maturity in the higher learning institutions abroad, each of which has formed a distinct system, achieving good education achievements. Taking Stanford University for example, it offers representative EEOE. The following is an analysis on Stanford's "industry-university-research integration-based" education pattern based on the three major issues in EEOE in Chinese universities.

5.1 Lack of Social Practice Platforms for EEOE in Chinese Universities

The Silicon Valley has to be referred to since Stanford University is mentioned. Stanford University promoted the birth of the Silicon Valley model in the early days, so

it is honored as the “cradle” of the Silicon Valley. They not only support each other in technology and personnel, but also cooperate with each other and help each other forward in the field of culture and education. The development of Stanford University promoted the birth of the Silicon Valley, and since then the Silicon Valley has given a boost to the prosperity of Stanford University. Stanford University provides the Silicon Valley with educational and technical support. In return, the prosperous Silicon Valley provides a good platform for Stanford University. Both of them interact with each other benignly (Lenoir et al. 2004).

Stanford University founded Stanford Research Park on a piece of idle land in 1951, setting a precedent for university-based hi-tech development in America. It is the embryo of the Silicon Valley. For instance, HP founders William Hewlett and David Packard are graduates of Stanford, and the first entrepreneurs in the Silicon Valley. Such enterprises born of Stanford have served as chief cornerstones of the Silicon Valley in the past few decades. The development of Stanford University is closely associated with that of hi-tech companies, and the technologies from the former can be transformed into products quickly in the latter. The demand and development of the Silicon Valley also promotes the development of Stanford University greatly.

It is due to lots of human, technological and information resources from Stanford University that the high-tech enterprises in the Silicon Valley have made persistent innovations, having their quality constantly improved. When making use of these resources for its own development, the Silicon Valley provides a platform for the teachers and students of Stanford University to do practice. The teachers and students keep taking part in practice on this platform, where they apply their theoretical knowledge to practice to further improve the teaching level. Both sides cooperate with each other and benefit together, creating a “win-win” situation (Nelson and Byers 2005).

5.2 Great Pressure on Chinese Undergraduates from Specialized Course Learning and Scientific Research

The courses are set in order to develop students’ entrepreneurial competence in an all-round way. Stanford University allows the students to select other specialized courses according to their own interest beyond the boundary between liberal arts and sciences. Stanford University focuses particularly on teaching the students basic courses by regarding basic education as important as specialized education. That’s why entrepreneurship education, which comes under the category of specialized education, permeates basic education. While receiving basic education, the students can receive entrepreneurship education. In this way, the students have their awareness of entrepreneurship education enhanced unknowingly, and theoretical foundation consolidated. Entrepreneurship education focuses more on improving students’ practical abilities in Stanford University. The university simulates the founding of a company, where all students can learn all courses in company founding and operation freely, such as business planning, resource integration, and business proposal. This, on the one hand, meets the students’ demand for entrepreneurship education, and on the other hand, enhances their practical abilities.

The curriculum system is relatively perfect. The courses offered at Stanford University have to do with curriculum education and non-curriculum education. The Center for Entrepreneurial Study established at the business school is responsible for entrepreneurship education throughout the university. Various types of courses are offered in the well-established system, among which *Entrepreneurship Management*, *Entrepreneurship and Venture Investment*, and *Investment Management and Entrepreneurial Finance* are popular with the students. These courses have greatly raised the students' enthusiasm, and significantly improved their practical abilities and independent thinking capacities since teacher-student interaction prevails over cramming teaching in class. Non-curriculum education has been an effective supplement to curriculum education. With credits as a standard, Stanford University requires the students to attend a lecture on entrepreneurship education weekly to earn credits, so as to broaden their entrepreneurial knowledge. It encourages the students to participate in various scientific research projects, and does all it can do to help them participate in scientific research and off-campus collaborative projects, to promote them to do practice and develop their practical abilities.

5.3 Disconnection of EEOCs from Students' Actual Needs in Chinese Colleges and Universities

All-inclusive entrepreneurship courses are offered and lessons are given flexibly at Stanford University. The traditional text teaching does not prevail alone, while case analysis, project teaching and practical learning are adopted in class to help the students thoroughly understand entrepreneurship education, arouse their interest in entrepreneurship education, and improve their comprehensive ability. There is highly practical content in the entrepreneurship courses. For instance, *Entrepreneurship and Social Development*, *Entrepreneurial Opportunity Assessment*, *Strategic Management of Technological Innovation*, and *Entrepreneurial Spirit and Venture Investment* focus on helping students gain practical managerial experience. For another example, *Private Securities Investment*, *Financial Problems in Venture Investment*, *Environmental Entrepreneurial Spirit*, *IPO Management: Control System*, and *Financial Intermediation and Fund Market* focus on the study and research of economic, financial and market operation theories.

Besides, Stanford University's curriculum system is highly stratified. Stanford hi-tech entrepreneurship program is offered in the College of Engineering to promote hi-tech entrepreneurship education to enhance the entrepreneurial skills of all undergraduate and postgraduate majors. The entrepreneurship education courses offered to undergraduates, including some introductory courses such as *Introduction to Entrepreneurship* and *Management of Hi-tech Venture Enterprises*, are aimed at developing their awareness of entrepreneurship. The university offers different courses to different student groups. In detail, it offers basic courses such as *Lecture on Enterprise Ideology Leadership* to the undergraduates, profound courses such as *Global Entrepreneurial Marketing* to the postgraduates, and entrepreneurship seminar courses to the doctoral students.

Besides, Stanford University gives lectures on “Enterprise Ideology Leadership” concerning the entrepreneurial technology program weekly, at which successful entrepreneurs, hi-tech company leaders and venture capitalists are invited to teach a lesson based on their own experience, and interact with the students. Those listening to the lectures will earn credits. The founders of cloud storage service provider Dropbox, streaming media service provider Spotify and other relevant rising hi-tech companies were invited to communicate with the students.

In Stanford University, most students have many opportunities to practice after accomplishing routine learning tasks. Both professors and students can do a part-time job in the company they founded or another company, so as to transform their research achievements into a product more quickly to achieve a practical effect. All these measures give the students a more flexible, larger free space, and make education more fit for the students’ needs by carrying out education pointedly to help them achieve personalized development. This “industry-university-research” integration-based education pattern has formed a benign cycle between enterprises, teachers and students, with the three parts helping each other forward, finally promoting the development of the society.

6 Discussion and Conclusions

6.1 Strengthening University-Industry Cooperation, and Building a Practice Platform for EEOE

EEOE features the combination of theory with practice and highlights practicability. Creative thinking, creative spirit and entrepreneurial awareness cannot promote innovation and entrepreneurship unless in practical activities. Therefore, EEOE should be developed in practical activities in many forms such as offering EEOCs, giving individualized guidance on employment and entrepreneurship, implementing project practice, and holding entrepreneurial competitions. For the implementation of EEOE in higher learning institutions, the industrial community should offer support and take a part. Taking America for example, the industrial community has provided great talent support, practice sites and internship positions for EEOE. In return, the EEOE offered at universities has given birth to a great number of world-renowned enterprises, such as HP, Google, Yahoo, Cisco and other relevant hi-tech companies founded in the entrepreneurial atmosphere at Stanford. These innovative hi-tech enterprises have brought vitality into the development of “the Silicon Valley”, seeing a sound interaction between entrepreneurship education and industrial development in America. Chinese colleges and universities should energetically explore an industry-university integration-based EEOE pattern by reference to the successful experience of other countries, build a practice platform for employment and entrepreneurship, and establish a mechanism of interaction between government, universities and high-tech industry parks to promote the construction of practice bases for employment and entrepreneurship, as well as the bases for business incubation. By practicing in high-tech industry parks, students can study a lot of entrepreneurial cases in person, and receive more direct operational guidance from business people, to have their

horizon broadened, mind widened and interest in entrepreneurship aroused. Entrepreneurial support, including equipment, capital and site, can be offered to students in the bases for business incubation. Besides, professional consulting services can be offered, so that employment and entrepreneurship-oriented education could be well implemented.

6.2 Designing a Scientific, Rational EEOC System

EEOE involves the fusion of multi disciplines, so a curriculum system needs to be designed from an interdisciplinary perspective. To design a curriculum system for EEOE, we should first consider how to effectively integrate the idea of employment and entrepreneurship into the professional teaching system to make innovative spirit and entrepreneurial competence one of the directions of professional teaching. In terms of specific implementation, importance should be attached to the complementarity of disciplines and the characteristics of course teaching, and emphasis should be laid on the organic combination of theoretical courses with practical courses to set up a highly specific, operable, multifarious EEOE curriculum system. Compared with the European and American universities, Chinese universities do not have a rational employment and entrepreneurship-oriented education curriculum system, but one beset with problems such as single curriculum form, insufficient number of curriculum, and broad curriculum classification. Compared with Stanford University and California University at Berkeley (21 and 23 entrepreneurship courses offered respectively), Chinese colleges and universities offer EEOE courses that have defects, such as broad curriculum classification (10 courses at most), and insufficient support for training for different types and levels of students (Li and Li 2013). Teaching methods, means and textbooks are important parts of the EEOE curriculum system.

6.3 Promoting EEOE to Be Efficiently Combined with the Specialized Education System

At present, EEOE is being marginalized in Chinese higher learning, and most higher learning institutions have put it under the category of technical economic disciplines or business management disciplines, while many others just position entrepreneurship education ambiguously. EEOE is commonly separated from specialized education in the colleges and universities. Even though a lot of colleges and universities have begun to think much of entrepreneurship education, particularly some have integrated the content of entrepreneurship education into talent cultivation and used it to motivate teachers and students, employment and entrepreneurship education hasn't been included in the discipline construction planning and quality evaluation system yet.

The marginalization of employment and entrepreneurship education has led to a difference in the implementation standard for EEOE between various universities, and this is inimical to the development of EEOE. Therefore, the educational administrative department should actively promote EEOE disciplines and courses to be offered, to define the status of EEOE. Meanwhile, EEOE thoughts and knowledge should be

gradually integrated into specialized education. Teacher team reconstruction, curriculum setting and student cultivation should be carried out under the unified employment and entrepreneurship-oriented educational framework. EEOE should be able to develop students' innovative spirit, entrepreneurial competence, and comprehensive quality throughout educational administration to meet their actual needs and serve their future career development, so that they could benefit from it.

It is an arduous task to conduct EEOE for students to cultivate their consciousness of employment and entrepreneurship and fashion them into comprehensive talents with solid professional knowledge, employability and entrepreneurial spirit. So, this cultivation program is a complex systematic project, for which not only teaching forces but also social support is required, and a well-established system may be able to ensure a good entrepreneurial environment and encourage college students to do pioneering work bravely. Especially, the higher learning institutions must advance with times, change their backward educational concept, reform their talent cultivation pattern, and conduct goal-based EEOE for students, so that EEOE could be more in line with students' actual demand and development needs.

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