Entrepreneurship Development in an Entrepreneurial University—Featured by a Procedure Focused on Building up Complex Capability

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Abstract. Cultivating entrepreneurship in universities are often translated by many Chinese universities simply as compiling and offering students a bunch of courses and programs for college students, while ignoring further research on what kind of capabilities are essentially needed for them to become more entrepreneurial. The paper first analyzes what complex capabilities that a college student, especially a graduate student who has established a solid fundamental knowledge base, should develop in order to be more entrepreneurial or become an entrepreneur in the future. Current graduate education in China cannot fully develop these entrepreneurial capabilities; therefore, this research proposes dedicated programs and courses according to the complex-capability network. A procedure covering five major steps named respectively as Preparation, Competence, Program and Courses, Teaching and Learning, and Evaluation (P->C->PC->TL->E) is designed, which is meaningful for enhancing entrepreneurship education in Chinese universities.

Introduction

Innovations turn to be the “golden key” for the economy development in the world nowadays. As an essential place of generating new ideas, teaching knowledge and technology, training skills and cultivating talents who can generate new ideas, knowledge and technologies, university not only has responsibilities for creations and innovations, but also is obligated to transfer knowledge more efficiently and effectively into products and solutions. Entrepreneurship is the process of starting a business, typically a startup company, offering an innovative product, solution or service. Entrepreneur perceives an opportunity and exploits the opportunity. The process of entrepreneurship includes designing actions to develop a business plan, acquiring the human, financial and other required resources, and being responsible for its success or failure [1]. Entrepreneurs and entrepreneurship are highly demanded to drive innovations for the society.

Literature Review

Generally speaking, entrepreneurial university is a higher education institute that can foster the creation of new ventures that is creative, innovative, and adaptive through the research and technology commercialization in response to market needs and societal issues. It refers to the university that can educate people from different backgrounds who can utilize strengths and resources at hand to creatively solve problems, adapt to change at the right timing of opportunity. First, university itself, as an organization, is entrepreneurial in terms of its vision and mission, mindset, governing structure and management regulations, etc. Second, the members of the university - faculty,
students, and employees make efforts of turning themselves into entrepreneurs. And third, the interaction of the university with the environment, the “structural coupling” between university and region, follows entrepreneurial patterns [2].

Savetpanuvong stated that Entrepreneurial University is an infrastructure in crafting entrepreneurs with intellectual, financial, and network resources [3]. Yu Qi believed that developing entrepreneurial education with higher quality can stimulate the internal driving force of knowledge innovation in universities and society, so as to enhance the knowledge factors’ contribution and intellectual capital thickness in economic growth [4]. Raja Kasim did an analysis of selected universities in Malaysia to determine the extent to which research university status, researcher roles and innovation performance could impact the development of entrepreneurship in the university [5]. Despo Ktoridou investigated the role of case-based learning (CBL) in relation to entrepreneurial skill development in multidisciplinary undergraduate courses at the University of Nicosia [6].

Methods

Turning students to be entrepreneurs is the major goal for an entrepreneurial university. Entrepreneurs are nurtured through formal education that focuses more on practice of venturing. A systematic approach is proposed and named as a five-step process “P->C->PC->TL->E” (Preparation, Competence, Program and Courses, Teaching and Learning, and Evaluation) in this paper.

![Five-key-step scheme for cultivating entrepreneurs in university.](image)

Firstly, it highly depends on full preparations made by both the university itself and each individual in it. Secondly, a competence framework needs to be developed by identifying core capabilities needed for students to set up their own business either in the university or in the future while entering the society. Thirdly, programs and courses are tailored, designed and arranged with the target of developing students’ abilities specified in the entrepreneurship competence framework. Fourthly, teachings and learnings are reengineered, with the focus on cultivating entrepreneurs. Finally, students’ entrepreneurship is evaluated by methodologies different from conventional universities.

**Step 1: Prepare a University and Individuals Ready for Developing Entrepreneurs**

The first step of the procedure is “Preparation”. University, as an organization, needs to get itself prepared both for entrepreneurial resources and management. Developing entrepreneurs means more business practices, more risks and more challenges, more interactions with market and business, most likely also more investment and payback for students and the university. Hence, apart from having entrepreneurial motivations and attitudes, an entrepreneurial university should prepare itself financially ready by seeking for various funding, which either comes from government programs and services that support entrepreneurs, entrepreneurship resources (e.g., business incubators and seed accelerators), entrepreneurship education, training and financing (e.g., loans, venture capital financing, and grants), or from any enterprises which operate within this entrepreneurship ecosystem. Giving-and-taking negotiations on the investment and benefits take place much more extensively and intensively between university and external partners, which requires the university be more open, approachable and accessible to the outside world for collaboration on venturing. A transparent and
effective working scheme should be implemented to ensure sufficient funding dedicated to cultivating entrepreneurs. Eventually, both university and the outside world would benefit from these efforts. On the other hand, faculties and students, as individuals in university are obliged to prepare themselves for an entrepreneurial university. Personal preparation includes changing the mindset to be willing to accept changes and risks, spend time on new learnings, make efforts to be more entrepreneurial, develop feasible entrepreneurial plan and commit themselves to it.

**Step 2: Define a Development Process for Enabling Students to be Entrepreneurs**

The core competence for an entrepreneur is investigated by following key questions. The first is about “who will venture. This needs providing students with the guidance on their career planning. The question of “can I venture” follows. Students should be equipped well with knowledge and skills, hence, their confidence level can be increased gradually. The third thing is mainly about “how to venture”. Theories learned need to be practiced, tested and validated in various venturing. Next to that is to review and examine enablers of venturing. Platforms and processes applied can be further filtered or improved [7]. Finally, it comes to the point that whether students would say “I will venture again” or not. The outcome of previous venturing, lessons and experiences obtained from the venturing really matters the answer a lot. The venturing could be painful and even a disaster, the key is guiding entrepreneurs to think and act in a positive and constructive manner, making them know what should be improved and how before starting the next venturing. Learning from previous failures and still being willing to take up the next venturing often distinguish real entrepreneurs from others.

![Structure of development process for entrepreneurial education.](image)

In order to solve above questions, a process for student entrepreneurs is validated. When students clarify motivations and make career plans of being entrepreneurs, they should learn technical knowledge and skills for venturing. Their confidence of venturing is being increased with knowledge and skills being accumulated both theoretically and practically. Next is to take actions and start their own business. Venturing process and platform should be provided and utilized for timing and monitoring the venture journey, subsequently, reducing chances of making mistakes. Building entrepreneurial practice platform such as innovative venture park either in campus or not, provides students contact with the enterprises and institutions. Having done it at least once, student can understand what the venture is about and what the dos and don’ts are. Such experience helps students to do better in the next venturing and enable them to have more confidence with determinations.

**Step 3: Formulate a Core Competence Framework and Design Dedicated Programs and Courses**

Entrepreneurship education is to increase students’ entrepreneurial awareness, stimulate entrepreneurial spirit and develop entrepreneurial ability according to the students’ subject professional characteristics and their own growth patterns. Apart from professional education,
building commercial network and interpersonal relations, specifying business model, maintaining an efficient management team, adapting to business environment, knowing market segmentation and having in-depth insights are among the most relevant factors for university entrepreneurs.

Aligning with the process illustrated in Figure 2, a primary core competence framework for entrepreneurs can be concluded accordingly in Figure 3. All these capabilities are organized around four dimensions, capabilities of understanding market and customers, inventing products or services meeting needs of market and customers, building a team and maintaining it for continuous venturing, and getting resources needed on board for venturing. All the capabilities are mixed together in a quite comprehensive and complex way, which comprises a complex-capability network. As an example, courses such as human resource management, decision-making, problem solving, risk management for developing leadership and team spirit, often should be on the list along the “Team” dimension.

![Complex-capability networks for entrepreneurship education.](image)

Furthermore, programs and courses are designed according to competence needed for the whole entrepreneurship education procedure by an entrepreneurial university. The programs and courses can be categorized as shown in Figure 4. Apart from Professional Education Program/Course generally provided by conventional universities, Generic Entrepreneurship Education Program/Course and Personalized Entrepreneurship Education Program/Course offer students a complete set of entrepreneurship education, both in theory and practice. The Generic Entrepreneurship Education is a kind of fundamental education cultivating students' entrepreneurial consciousness, and enhances their knowledge, ability and practice. For instance, courses of project planning, cost control and quality management enabling products and services timely to enter the market, are chosen as the important ingredients. The Personalized Entrepreneurship education is to identify each student's strength and specify his entrepreneurial capability spectrum, and offer further dedicated advices accordingly. Personalized education program and courses are available for the student to choose to perfect his entrepreneurship, either on communication skills, or on team working spirit, etc.

![Major categories of program and courses for entrepreneurial education.](image)
Step 4: Innovate Teaching and Learning for Implementing Programs and Courses

To a large extent, the mindset and methods for teaching and learning in an entrepreneurial university are different from conventional universities. Stanford University combines the entrepreneurship education with students' individual ability, professional skills and the external environment. Harvard University concerns about developing students' entrepreneurial awareness, pioneering spirit and entrepreneurial skills. Teachers play more coaching and guiding roles and inspire students to have their own ideas and drive them into business. Students are proactively applying their knowledge and skills into practice to make venturing as successful as possible. Venturing park, on-line stores, and other platforms become the battlefields to develop the business. Many teachers themselves may be lack of experience of setting up their own business to share with students. This adds difficulty to university to pursue for entrepreneurship education. More expertise exchanging between universities and the society on entrepreneurship education are demanded. Faculties of university are allowed to work outside on knowledge transfer or venturing while keeping their positions in universities, later bring their accumulating venturing experiences back to the university. Meanwhile, “Dual-mentor” system is adopted by introducing external experts as the second mentor for students. This has a potential significant impact on the way of teaching and learning in Chinese universities and will accelerate the development of entrepreneurship education.

Step 5: Evaluate Students’ Entrepreneurship Together with Externals

How to evaluate entrepreneurs in entrepreneurial university would be a new challenge to universities. Universities are encouraged to define evaluation standards, curriculum system and teaching contents with enterprises together. Externals not only participate implementing the whole cultivation process but also play significant roles in evaluating the outcome and quality of entrepreneurial education before graduates go into the society. The rate of employment (not self-employment) used to be one of the key indicators for a university on their graduates, but becomes less important for an entrepreneurial world. For an entrepreneurial university, higher rate of self-employment often means more venturing, more entrepreneurs. A survey based on a sample of 264000 graduates across the country has been done to study the employment status of college graduates in 2014. This covered students in 940 majors in 30 cities, provinces and regions. The results show self-employment of university graduates has been increased in the last three years, from 2.0% in 2012 to 2.3% in 2013 and 2.9% in 2014 [8]. It will not be surprising for an entrepreneurial university to take self-employment rate as its key performance indicator for evaluations. In addition, new strategies endorsing innovation and entrepreneurship in China create a favorable environment and offer more opportunities for students to establish their own start-ups.

Conclusion

Entrepreneurial education is not a complementary part, but the core of the education for an entrepreneurial university. The study interprets how to be an entrepreneurial university, mainly from the perspective of developing university students into entrepreneurs. The procedure of “P->C->PC->TL->E” provides universities, especially Chinese universities which are often lack of experiences and knowledge of entrepreneurial education, with a new and clear approach to carry on entrepreneurial education.

The nature of entrepreneurs demands more rapid changes for Chinese higher education; some of them are fundamental changes. Chinese university should change its mindset, recognizing entrepreneurship as the ability, actually complex capabilities, instead of a simple compilation of courses. The major task would rather be guiding students in building up capabilities and forming his personalized capability matrix rather than teaching students knowledge and training their skills. Therefore, this research has analyzed capabilities demanded respectively by four major aspects, market, team, product and solution, seeking for opportunities and relevant support. Hence, teaching and learning have been changed fundamentally. Apart from the ability of identifying problems,
students should be able to work out solutions based on their own unique combination of necessary capabilities to solve problems. To support this, courses and programs are designed and arranged accordingly, in the category of Professional Education Program/Course, Generic Entrepreneurship Education Program/Course, and Personalized Entrepreneurship Education Program/Course. These programs and courses nurture students and also enhance their individual development of being entrepreneurs. More importantly, universities take up responsibilities of making students be aware of main challenges and risks ahead, and inspiring them to tackle these challenges. When a student can apply his solution to solve a problem and also turns the solution as an accepted product and service in the market, he becomes a true entrepreneur. Both universities and the society should co-design Collaboration platform, working mechanisms, relevant rules and policies for venturing, including business opportunity identification, funding raise, risk and benefits sharing, bridging marketing, etc. The society should eventually be able to evaluate the success of the business and the entrepreneurs who makes the business.

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References