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EURASIA Journal of Mathematics Science and Technology Education
ISSN: 1305-8223 (online) 1305-8215 (print)
2017 13(8):5629-5636
DOI: 10.12973/eurasia.2017.01016a



Research on Cultivation Scheme Based on TPB of Entrepreneurial Talents in Chinese Local Application-Oriented Universities

Zou Bo

Business School of Anyang Normal University, Anyang, Henan, 45500, China

Received 26 April 2017 • Revised 10 June 2017 • Accepted 27 July 2017

ABSTRACT

It is necessary to cultivate innovative and entrepreneurial talents in colleges and universities to meet the needs of constructing innovation-oriented country, which is also an important breakthrough in the realization of higher education reform in Chinese universities. According to the problems in the process of current entrepreneurial talent cultivation in Chinese local application-oriented universities, based on TPB behavioral theory and the sample data of 378 college students in 3 universities, combined with insufficient entrepreneurial spirit, weak entrepreneurial awareness, weak innovation skills and other major puzzles that met in the process of entrepreneurship by students, the paths of attitude towards entrepreneurial action, entrepreneur's subjective norm and perceivable behavioral control to influence students' entrepreneurial intention were simulated. According to the results of analysis, it proved that the training of students' entrepreneurial consciousness should be strengthened, practical teaching in the process of entrepreneurship education should be highlighted, and the policy support for students' entrepreneurial activities should be strengthened in order to improve, and realize the improvement of the training quality of innovation and entrepreneurship talents in Chinese local application-oriented universities with the organic combination of innovation education and science and technology education.

Keywords: theory of planned behavior (TPB), entrepreneurship education, entrepreneurial intention

INTRODUCTION

With the establishment of Chinese government's target in 2012 for becoming an innovation-oriented nation in 2020, the demand for innovative and entrepreneurial talents in all walks of life is booming in China. The training course of innovation and entrepreneurship of innovative and entrepreneurial talents has become an important part of personnel training in various institutions of China. At present, the various institutions in China are at a critical stage of transformation and development with their final purpose to cultivate compound innovative and entrepreneurial talents who can not only master the skills needed in practical job, but also have the extension ability of future career in order to meet the needs of social economic development. As an important part of higher education in China, local application-oriented universities have to face more tough challenges in the process of cultivating innovative and entrepreneurial talents. On the one hand, local application-oriented institutions need to face the problems of insufficient resources and relatively weak foundation of scientific research and education; on the other hand, they have to complete the establishment of transformation target for adapting to the social economic development and higher education system of "integrating production with education". Therefore, according to the effective

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Correspondence: Zou Bo, *Doctor of management, associate professor in Business School of Anyang Normal University located in No.436, Xiangge Avenue, Anyang, Henan, China. Tel: +86-371-3300046.*

✉ aynu_bo@163.com

State of the literature

- It is necessary to cultivate innovative and entrepreneurial talents in colleges and universities to meet the needs of constructing innovation-oriented country. As an important part of higher education in China, local application-oriented institutions should construct the training system of innovative and entrepreneurial talents in line with their own characteristics, which has become a problem that cannot be avoided in the current educational reform of local application-oriented institutions in China.
- The entrepreneurial behavior of college students is a complex and rational planning decision behavior which is influenced by many factors. This study based on TPB theory assumes that the entrepreneurial intention of college students can be produced through entrepreneurship education, and the formation of college students' entrepreneurial intention can be studied by using the three variables including attitude towards entrepreneurial behavior, entrepreneurs' subjective norm and perceivable entrepreneurial behavior control.
- Finally, according to the analysis results of influence path simulation, it proved that the training of students' entrepreneurial awareness should be strengthened, practical teaching in the process of entrepreneurship education should be highlighted, and the policy support for students' entrepreneurial activities should be strengthened in order to improve the cultivation quality of innovative and entrepreneurial talents in Chinese local application-oriented universities.

Contribution of this paper to the literature

- There have been a lot of researches on the cultivation of entrepreneurial talents in foreign countries, but there are relatively few studies on the cultivation of entrepreneurial talents in China because entrepreneurship education has not been carried out in China for a long time.
- The present studies on entrepreneurship education in China are mostly the qualitative research and simple descriptive statistical research on the textual content of the existing entrepreneurship literatures, which is difficult to objectively and accurately analyze the current entrepreneurship education in China, especially the analysis of entrepreneurship education system in local application-oriented universities. On the basis of TPB theory, there are few researches on the actual cultivation of entrepreneurial talents in local application-oriented universities in China from the angle of entrepreneurial intention.
- This study combined the current situation of entrepreneurial talent cultivation in Chinese local application-oriented universities to construct the path model of influencing factors of college students' entrepreneurial intention with the TPB theory as the main line of research. The formation process of college students' entrepreneurial attitudes was analyzed from the perspective of the inherent psychological characteristics of college students, which will provide academic reference for the improvement of talent training program in local application-oriented universities in China.

combination with actual situation of local application-oriented universities in China, how to construct the training system of innovative and entrepreneurial talents in line with the characteristics and advantages of various universities to cultivate the entrepreneurial talents who can meet the needs of regional economic development and achieve the goal of building an "innovation oriented country" proposed by the Chinese government has become a problem that cannot be avoided in the educational reform of local application-oriented institutions in China (Yao, Zhang, Zhou & Shi, 2017).

HYPOTHESIS AND CONSTRUCTION OF MODEL

Selection and Hypothesis of Model

The entrepreneurial behavior of college students is a complex and rational planning decision behavior which is influenced by many factors. Theories of TPB (Theory of Planned Behavior) and TRA (Theory of Reasoned Action) with the consistency between intention and behavior as hypothetical premise, hold that the production of individual intention and subsequent behavior can be objectively explained and predicted according to the three basic elements including the attitude towards specific behavior, subjective norm and perceived behavioral control (Ajzen, 1991). Therefore, TPB theory is applicable to the research of entrepreneurial talents training in Chinese local

application-oriented universities (Zhang, 2016). However, the college students are inevitably affected by age, social experience, professional knowledge, risk perception and other factors when generating entrepreneurial intention and starting entrepreneurial activities (Shu, 2016), so the study based on TPB theory assumes that the entrepreneurial intention of college students can be generated through entrepreneurship education, and the formation of college students' entrepreneurial intention can be studied by using the three variables including attitude towards entrepreneurial behavior, entrepreneurs' subjective norm and perceivable entrepreneurial behavior control, that is to say, the entrepreneurial behavior of college students can be explained as that the intention of individual entrepreneurship behavior will be enhanced when the individual subjective norm agrees with entrepreneurial behavior; if the set entrepreneurial goal is attractive to the individual, the individual intention to start entrepreneurial behavior will be stronger; if the controllability of individual perceived entrepreneurial behavior is higher, the individual intention to implement entrepreneurial behavior will be also stronger. Based on the above discussions, the following hypotheses were proposed in this study:

Hypothesis 1: College Students' attitude towards entrepreneurial action is positively related to entrepreneurial intention

In TPB model, attitude refers to the individual evaluation of specific behavior, which also can be interpreted as the individual attitude towards the specific behavior after conceptualization. The results of relevant empirical researches showed that the attitudes of entrepreneurs towards entrepreneurship are influenced by entrepreneurial achievement expectation, evaluation of entrepreneurial risk and entrepreneur's own quality, that is to say, attitude and intention have significant influence relationship (Carr & Sequeira, 2006). Therefore, college students' attitude towards entrepreneurial behavior can be understood as the entrepreneurial individual subjective evaluation of implementing entrepreneurial activity as the specific planning behavior, which can be positive or negative.

Hypothesis 2: Subjective norms of college students' entrepreneurship are positively related to entrepreneurial intentions

The subjective norm refers to the external pressures perceived by an individual regarding the implementation of a specific behavior, which mainly come from the important person or group closely related to the individual (such as family, relatives, friends, etc.), and the impacts of these important individuals and groups on individuals are not only reflected in the important role in individual specific behavior, but also the degree of individual compliance with the opinions held by these important individuals or groups cannot be ignored (Krueger & Carsrud, 1993). Therefore, the subjective norms of college students can be interpreted as the various external social pressures coming from the important relationship with entrepreneurial individual before the generation of entrepreneurial intention or in the process of generating entrepreneurial intention, and these external pressures will directly affect the formation of college students' entrepreneurial intention. The study of Kolvereid et al. (2006) also explicitly made the conclusion that the subjective norms play a significant role in intention (Kolvereid & Isaksen, 2006).

Hypothesis 3: College Students' perceived entrepreneurial behavior control is positively related to entrepreneurial intention

Perceived behavior control is the perception degree of the individual to control the execution of the specific behavior, which can be interpreted as the difficulty perceived by the individual to implement the specific behavior, and reflects the individual evaluation of executing or refusing to perform the specific behavior. The study of Ajzen (1991) showed: When the individual believes that he has the ability to execute the specific behavior, or has more related resources and opportunities, thus the perceived behavioral control is stronger, and the intention to execute this behavior is stronger (Ajzen, 1991). Therefore, the perceived entrepreneurial behavior control of college students can be explained as the cognition about the difficulty in entrepreneurial activities prepared to be implemented by college students, including the perception level of difficulty in obtained or available ability, technology, opportunity, funds and other resources related to the implementation of specific entrepreneurial activities before students' entrepreneurial activities, which are mainly affected by individual quality, external policy environment, venture capital planning, expected market prospect and other factors.

Table 1. Sample data description

Structure	Gender		Grade				University		
	Male	Female	Freshman	Sophomore	Junior	Senior	University A	University B	University C
Number of students	225	157	103	57	139	83	115	165	102
Proportion	58.9	41.1	26.96	14.92	36.39	21.73	30.10	43.19	26.71

The intention reflects the motivation of the individual to put the conscious plan or decision into action, and college students' entrepreneurial intention can be interpreted as the subjective attitude of entrepreneurial individual towards the specific entrepreneurial activity, namely, the attitude or behavior tendency of potential entrepreneurial individual to entrepreneurial activities.

Armitage & Conner(2001) analyzed the empirical research results in 48 articles of TPB model in psychology and other fields, and the results showed: the average value of correlation coefficient between intention and behavior is 0.47 with the explanatory power of 22% (Armitage & Conner, 2001), and the studies of Randall & Wolff (1994) and Notani (1998) also showed that the correlation coefficient between the two is between 0.45 and 0.62, indicating that the behavioral intention can predict the actual behavior very well (Randall & Wolff, 1994; Notani, 1998), that is to say, the intention of specific behavior can induce specific action, so this study is limited to explore the formation mechanism of college students' entrepreneurial intention.

Research Sample and Hypothesis Test

Sample Characteristics

In this study, the investigation in form of questionnaire research was conducted on 400 college students from three universities in central China who have been trained in entrepreneurship courses and obtained credits in related courses of entrepreneurship education, among which: The 4 items about students' attitude towards entrepreneurial actions mainly referred to the measurement indexes used by Carr et al. (2006) and others scholars in previous studies (Carr & Sequeira, 2006); the 4 items about students' subjective norms referred to the measurement indexes used by Fayolle et al.(2006) and Souitaris et al.(2007) and others scholars in previous studies (Fayolle & Lassas,2006; Souitaris & Al-Laham,2007); the 4 items about students' perceived entrepreneurial behavior control referred to the measurement indexes used by Kolvereid et al. (2006) and others scholars in previous studies (Kolvereid & Isaksen, 2006); the 4 items about students' entrepreneurial intentions mainly referred to the measurement indexes proposed by Timmons(1997) and other scholars(Timmons, 1997); all the sixteen items adopted likert five-point scale, and finally, 382 valid questionnaires were recovered.

Reliability and Validity Test

In this study, reliability levels of each research variable were determined by using SPSS15.0, whose results showed: Reliability among research variables is better with higher reliability level (Cronbach $\alpha > .83$). On this basis, the principal components analysis was used to extract and analyze the factors, whose results showed: KMO=0.739, Bartlett's sphericity test=865.32 and $p=0.000$, which conformed to the basic conditions of factor analysis, and then maximum variance orthogonal rotation method was used for factor analysis. The results showed that the load value of each measurement factor is more than 0.70, which has obvious single dimensionality and factor decidability. The results of reliability and validity test were arranged in **Table 2**.

Table 2. Reliability and Validity Test

Concept for research	Measuring project	Coefficient of load	Cronbach α Value
Attitude towards behavior	BT ₂	.797	0.943
	BT ₃	.882	
	BT ₄	.917	
	BT ₁	.929	
Subjective norm	SUB ₂	.843	0.885
	SUB ₄	.880	
	SUB ₃	.909	
	SUB ₁	.857	
Perceived entrepreneurial behavior control	CON ₁	.803	0.931
	CON ₂	.939	
	CON ₃	.940	
	CON ₄	.952	
Entrepreneurial intention	EI ₂	.916	0.926
	EI ₃	.933	
	EI ₄	.961	
	EI ₁	.978	

Table 3. Analysis Results of Certainty Factors of Research Variables

	Items	X ²	df	p	GFI	AGFI	RMR	CFI
Attitude towards behavior	4	30.328	2	.000	.965	.855	.069	.969
Subjective norm	4	25.425	2	.000	.901	.825	.053	.926
Perceived entrepreneurial behavior control	4	27.156	2	.000	.922	.849	.062	.938
Entrepreneurial intention	4	.000	0	1.000	1.000	1.000	.000	1.000

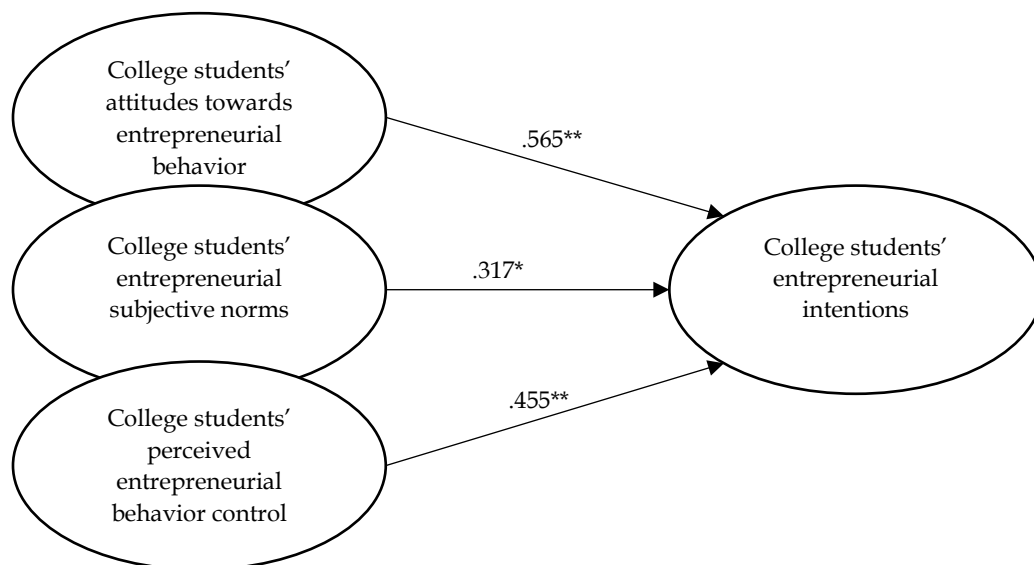
Table 4. Evaluation Results of Overall Measurement Model of Variables

Concept for research	Attitude towards behavior	Subjective norm	Perceived entrepreneurial behavior control	Entrepreneurial intention
Attitude towards behavior	1.000			
Subjective norm	.237**	1.000		
Perceived entrepreneurial behavior control	.148*	.087	1.000	
Entrepreneurial intention	.513**	.207**	.509**	1.000

*<0.05, **<0.01

In this study, confirmatory factor analysis(CFA)was used to test the fitting of research model and the results showed that the index values of fitness of model are all ideal (GFI \geq 0.90, AGFI \geq 0.80, RMR \leq 0.05 and CFI \geq 0.90), indicating the hypotheses of the research model fit well with the sample of survey data. The analysis results were arranged in **Table 3**.

Then, AMOS5.0 was used to measure and analyze the hypotheses in the research model. The results showed that the variables were distinguished significantly (p<.05, p<.01), and the discriminant validity of the model was better. Finally, the data were arranged in **Table 4**.



*0.01 < p < 0.05, **p < 0.01

Figure 1. Research model

Model Checking of Structural Equation

In order to verify the hypothesis and the causal relationship between the research variables, AMOS5.0 software was used in this study to validate the hypothesis of the research model, and measure the values of simulated paths between hypotheses so as to determine the fitting degree of the model. The results are shown in **Figure 1**. The values of the fit indexes of model and data samples are shown with good overall performance.

CONCLUSION AND ENLIGHTENMENT

The college students' attitude towards entrepreneurial behavior is positively related to and has the most obvious impact on entrepreneurial intention (path coefficient=0.565), indicating college students' own evaluation of entrepreneurial activities, that is to say, college students' subjective evaluation of entrepreneurial activities has the most obvious impact on the formation of entrepreneurial intention. At present, college students in China generally do not have the strong consciousness of innovation and entrepreneurship with little enthusiasm in innovation and entrepreneurship, and their understandings of innovation and entrepreneurship still stay in the helpless choice of having to start a business after the unsmooth employment, the study in school or the unavailable employment opportunities. College Students' understanding of innovation and entrepreneurship education courses only stay in textbooks, more often than not, just for credits, and they are not aware of the importance of the cultivation of innovation and entrepreneurship consciousness. Moreover, many local application-oriented institutions in China belong to the newly-built universities, whose goal and mode of talent training need to be improved, especially the understanding of innovative and entrepreneurial talent cultivation, and the generally existing problem that their experience of innovation and entrepreneurship education is not deep enough, causing that the supports for innovation and entrepreneurship education provided by these local application-oriented institutions are not fully available and stay at the level of oral propaganda. Therefore, in the process of setting up innovation and entrepreneurship education for college students, local application-oriented institutions in China should not only achieve the training of innovative consciousness, innovative spirit, innovative thinking and innovation ability, but also take into account their own characteristics and external environment to follow the general law of innovative talent cultivation. Specifically solve the current problems including college students' weak innovative and entrepreneurial consciousness, and little enthusiasm of participating in innovative and entrepreneurial activities. Local Application-oriented Institutions can try to vigorously publicize the significance of

innovation and entrepreneurship, various supporting policies, initiatives to support innovation and entrepreneurship and other related information through the school community, WeChat public number, microblog and other channels; students' enthusiasm for innovation and entrepreneurship also can be enhanced by holding academic salon and academic lectures on innovation and entrepreneurship; according to the set disciplines and majors in school as well as the contents of teaching program, some rules and regulations such as credit recognition, bonus points obtained from the award and others related to innovation and entrepreneurship course can be formulated to encourage students to actively participate in various activities related to innovation and entrepreneurship so as to mobilize the enthusiasm of students to participate in innovative and entrepreneurial activities, and students' evaluation of entrepreneurial activities can be improved through various means, thus making passive entrepreneurship transform into active entrepreneurship.

Subjective norms of college students have a significant impact on entrepreneurial intentions, indicating that college students are influenced by the surrounding important people when generating entrepreneurial intention or deciding whether or not to start entrepreneurial activity. However, college students have relatively few opportunities to contact with successful entrepreneurs and learn about the entrepreneurial successful stories because of their relatively simple social relations (Chang & Long, 2017), so the local application-oriented institutions should pay attention to the introduction of human resources, and actively invite the successful people off campus engaged in businesses, government, financial investment and entrepreneurship as part-time teachers to join the ranks of innovation and entrepreneurship teachers. Based on the establishment of special and part-time teachers, the system of required and elective courses was set up to integrate the related courses of various subjects so as to improve the comprehensive quality of students through the curriculum. In the teaching design, practice innovation activities in class should be actively expanded to further enhance the proportions of case analysis and simulation exercise, and to improve students' actual operation ability of innovation and entrepreneurship in the modular approach, thus resulting in the organic integration of innovation and entrepreneurship courses and specialized curriculum system.

College students' perceived entrepreneurial behavior control has more influence on entrepreneurial intention after the attitude towards entrepreneurial action, indicating that college students as the "rational person" attach great importance to individual entrepreneurial ability and external entrepreneurial conditions that influence entrepreneurial activities, and before the implementation of entrepreneurial activities, the entrepreneurial intention to start entrepreneurship activities will be formed only after the students' subjective evaluation on the obtained or available internal and external resources related to the implementation of specific entrepreneurial activities (Huang, Liu & Zhang, 2016). However, the students are mostly in the lack of confidence before the entrepreneurial activity, and even though some students have the idea of innovation and entrepreneurship, they have to give up due to the insufficient policy support for entrepreneurship and innovation without appropriate guidance and help. Therefore, in the process of entrepreneurial talent cultivation, local application-oriented universities in China should provide the support in entrepreneurial field, venture capital, enterprise management and other aspects for the students with entrepreneurial intentions through the establishment of innovation and entrepreneurship center, business incubator center and other specialized agencies, and actively publicize all kinds of preferential policies and support measures of the Chinese government to support college students in innovation and entrepreneurship. The difficulty of college students' entrepreneurial and innovative activities needs to be reduced in all directions, angles and modes so as to strengthen their self-confidence in entrepreneurial activities.

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