

Analysis of the entrepreneurial ability of college students in a network environment

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ABSTRACT: With increasing employment pressure in China, independent entrepreneurship has become a trend for college students. As Internet technology is developing continuously, how to develop the ability of college students in a network environment is an important topic. In this article is presented a thorough analysis of the concept and constituent factors of the entrepreneurial ability of college students, so as to provide a theoretical basis. Through research and analysis of the entrepreneurial ability and motivation of college students in the network environment, the positive and adverse factors influencing entrepreneurial ability in the network environment were determined. Finally, a strategy was proposed to enhance the entrepreneurial ability of college students, which has great significance for expansion of such ability.

INTRODUCTION

With the continuous development of the market economy in China, the employment of college students has undergone great changes. Independent entrepreneurship has become an important employment goal for college students [1]. However, the students find it difficult to find employment with independent entrepreneurial organisations following the expansion of university enrolments from 1998. The employment rate for college students has decreased year by year. The problem of full employability of college students has become a national concern [2]. According to the Chinese College Students Employment Report 2012 produced by the MyCOS (My China Occupational Skills) Institute, the employment rate for college students who graduated in 2011, six months after graduation, was 90.2%; which was slightly higher than for the 2010 graduates, where the figure was 89.6% [3][4]. However, the unemployment rate of 9.8% shows that the employment of college students is still an important problem. Meanwhile, with the support of the Government, independent entrepreneurship has been encouraged as a goal for college students and has increased, from 1.2% of college students who graduated in 2009 to 1.6% of college students who graduated in 2011. Moreover, the proportion (2.2%) of entrepreneurial students who graduated from higher vocational colleges in 2011 was about twice that of undergraduate students (1.0%).

In 2002, a Notice of Further Deepening the Opinions on the Problem of Ordinary High School Graduates Employment System Reform, which was forwarded by the General Office of the State Council, clearly proposed encouraging and supporting entrepreneurial college graduates. It is also indicated in the Report of the 17th National Congress of the CPC (Communist Party of China) that expanding employment through entrepreneurship be implemented as a development strategy [5-7]. Entrepreneurial ability of college students is closely related to later entrepreneurial success. Internet technology is developing continuously and the network environment provides more entrepreneurial opportunities for college students, which promotes their entrepreneurial abilities. Therefore, research on the entrepreneurial ability of college students in a network environment has significance in expanding the entrepreneurial ability of college students [8-10].

ANALYSIS OF ENTREPRENEURIAL ABILITY

The Concept of Entrepreneurial Ability

Entrepreneurial ability is generally defined as in particular conditions, people find the entrepreneurial motivation and, then, they integrate resources related to entrepreneurship, thus, forming a more valuable ability that is the ability of entrepreneurs to realise entrepreneurial transformation processes, which is also called entrepreneurial ability. Some scholars study it from the perspective of psychology and define it as a psychological activity with strong integrity and creativity, and which has the mental activity of human's brain at its core. Meanwhile, from the perspective of what entrepreneurial ability constitutes, it is also defined as an ability to transform the deliverables and market ideas of others

to realise the production of the deliverables. Entrepreneurial ability basically includes the application of professional knowledge, innovative ability and social ability. While professional skills constitute the premise of entrepreneurial ability, innovation ability is the basis and social ability is the core of entrepreneurial ability.

Factors Composing Entrepreneurial Ability

According to entrepreneurial theory, entrepreneurial ability is composed of three parts: entrepreneurial motivation, entrepreneurial behaviour (opportunity recognition, decision making, resource access and management ability), external conditions (human resources, capital, policy and information). Holtz-Eakin et al think that the most important factor for entrepreneurship is capital, which indicates a focus on entrepreneurial external conditions [11], while Amar V. Bhide opines in the *Origin and Evolution of New Enterprise* that *for most entrepreneurial people, the biggest challenge ...is not the fund raising, but the entrepreneurial wisdom and power when they have not enough money* [7]. Therefore, he focuses more on entrepreneurial behaviour.

ENTREPRENEURIAL ABILITY OF COLLEGE STUDENTS IN THE NETWORK ENVIRONMENT

Research Questionnaire and Background Theory

Research was carried out on 500 mechanical engineering major students from one college, taking seven subject categories, i.e. arts, science, engineering, fine arts, agronomy, management and sports. The research was based on a questionnaire; 500 questionnaires were sent out and 407 were returned, for a completion rate of 81%. The questionnaire, *Research Questionnaire of Entrepreneurial Ability of College Students* was developed by the college students' entrepreneurial ability research group. The questionnaire consisted of four parts, totalling 24 questions viz. Part 1 had 12 questions covering personal information such as gender, family structure, family income, occupation of parents, academic performance and career aspiration. Part 2 was a self-test of entrepreneurial ability and included 14 questions, such as entrepreneurial motivation in the network environment and positive and adverse factors of the network environment on entrepreneurship, as shown in Table 1.

Table 1: Entrepreneurial motivation of college students in the network environment.

Assessment system	Index of the 1st Class	Index of the 2nd Class	
Entrepreneurial ability in the network environment	Entrepreneurial motivation A1		
	Entrepreneurial behaviour A2	Opportunity recognition A21	
		Decision making A22	
		Design ability A23	
		Resource access A24	
		Enterprise management ability A25	
	Entrepreneurial external condition A3	Manpower A31	
		Capital A32	
		Policy A33	
		Policy A34	
		Information A35	
	Impact of the network environment on entrepreneurship A4	Positive impact factor A41	
		Adverse impact factor A42	
		Influence of the network on entrepreneurship direction A43	
Influence of the network on entrepreneurship direction A44			

This research on entrepreneurial motivation in the network environment is based on Maslow's Motivation Theory, which is also called the Five Demand Hierarchies Theory, and was published in *Psychological Review*, as a theory of human motivation [12]. According to Maslow, human motivation is divided into five hierarchies: physiology, safety, social contact, respect and self-realisation. The comprehension of entrepreneurial motivation is important.

Entrepreneurial motivation research also makes reference to the entrepreneurial motivation theory of Erkkö Autio, which is based on Maslow's Theory [13]. In this theory, entrepreneurial motivation is divided into four elements: survival, accumulation, self-realisation and employment. The ERG Demand Theory of Clayton Alderfer is based on Maslow's Theory of Motivation, but it includes practical experience [14]. In this theory, human demand is divided into existence, relatedness and growth (ERG), replacing five elements by three.

According to the existing national conditions, Chinese scholars Zeng Zhaoying and Wang Chongming divide entrepreneurial motivation into *existence demand* and *making career achievements*, in a Survey and Analysis of Entrepreneurial Motivation of Chinese Entrepreneurs [15]. The questionnaire was based on the application of the relevant theories to the entrepreneurial situation of college students, as shown in Figure 1.

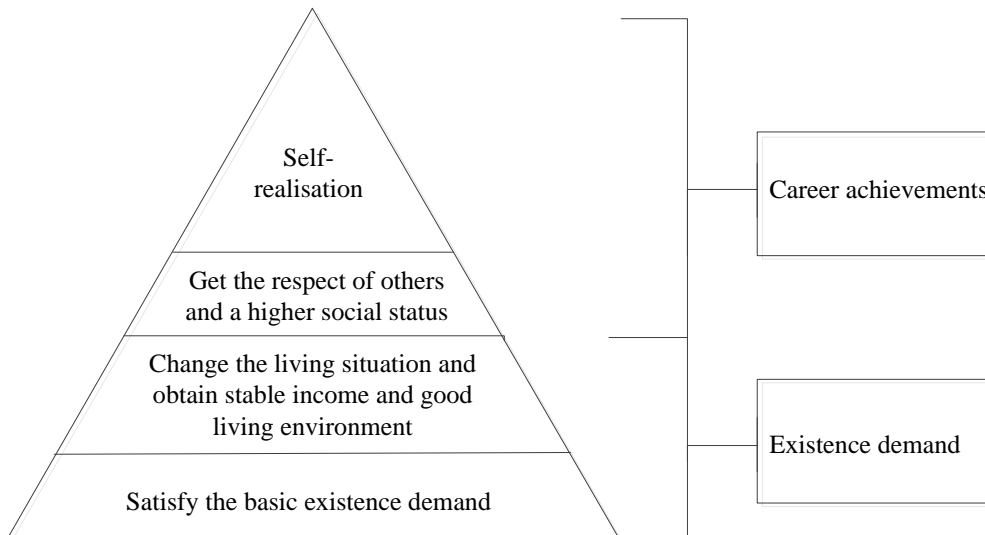


Figure 1: The satisfaction status for the teaching modes.

RESULTS OF THE QUESTIONNAIRE

The research questionnaire is divided into: meeting the needs of basic existence; improving the living situation, seeking a stable living and high income; getting higher social status and others' respect; and self-realisation. The former two kinds of motivation belong to *existence demand* and the latter two kinds of motivation belong to *making career achievements*. In the research, the proportion of entrepreneurial college students who fall into the category of *existence demand* was 48.2%, while the proportion falling into the category, *making career achievements*, was 51.8%.

The data were analysed using SPSS (Statistical Package for the Social Sciences) 16.0. A Chi-squared test was conducted, with a significance value $\alpha = 0.05$ and the critical value was 9.48. The formula for the Chi-squared test is:

$$x^2 = \sum \frac{(f_0 - f_e)^2}{f_e} \quad (1)$$

The gender difference statistic was -0.120, which is significantly less than 0.05, so the correlation is significant. Meanwhile, in the research on the correlation of family income and entrepreneurial motivation, the family income statistic was -0.262, which is significantly less than 0.05 and is highly significant. This is an important factor in influencing entrepreneurial motivation. The academic performance statistic was 0.053 and the grade statistic was 0.610; neither is significant. Results are shown in Table 2.

Table 2: Correlation analysis of entrepreneurial motivation.

Assessment system	Gender	Family income	Academic grade	Performance	Profession
Correlation statistics value of entrepreneurial motivation	-0.120*	-0.262**	0.053	0.610	0.232

Most entrepreneurial motivation of females is *existence demand*, with the proportion *meeting the basic existence demand* and *improving the living situation* at 67%. The proportion of *obtaining the others' respect and getting higher social status* is only 33%. However, 69% of males fall into the category *making career achievements* in terms of *obtaining the others' respect and getting higher social status* and *self-realisation*. The proportion of males falling into the category *meeting the basic existence demand* and *improving the living situation* was only 21%. For college students whose family income is more than 3,000 Yuan per month, the proportion of *making career achievements* was 62% and the proportion of *meeting the basic existence demand* was only 38%.

Effect of the Network Environment on Entrepreneurship Direction

The entrepreneurship investigation in 2002 and 2003 for college students mainly focused on catering services and traditional retail. However, with the growing popularity of Internet technology in recent years, the direction for student entrepreneurs has been greatly affected. The investigation of entrepreneurship direction was conducted for 500 college students and the subsequent analysis revealed that industries related to network engineering technology (e-commerce, games development, location based services (LBS), accelerated parallel processing (APP), etc) accounted for the entrepreneurial orientation of 175 students or 35%; followed by 95 students choosing catering services or 19%. The proportions for traditional retail, manufacturing, agriculture, and others were 16%, 10%, 12% and 8%, respectively.

The entrepreneurship of college students has broken away from the traditional industries and taken e-commerce related to network engineering technology as the new direction. Currently, the Internet B2B, C2C and B2C platforms (B means business, C means customer) are mainly chosen by many college students to realise the juxtaposition of traditional retail and information technology. Network engineering technology can reduce entrepreneurial costs, expand business scope and, thus, lower the threshold and become a shortcut to entrepreneurship.

Regarding college students choosing the entrepreneurship of catering services, the O2O (on-line to off-line) platform will be used to *buy on-line, consumer off-line*; thereby, enhancing business efficiency and brand awareness. The students who choose manufacturing and agriculture for entrepreneurship use the network engineering technology as an important sales channel for the products and as a purchasing channel for raw materials which, in turn, achieves the vertical integration and optimisation of enterprises. The breakdown of entrepreneurship direction is shown in Table 3.

Table 3: Entrepreneurship direction.

		Frequency	Percent	Valid percent	Cumulative percent
Valid	Agriculture	40	8.0	8.0	8.0
	Industries related to network engineering technology	175	35.0	35.0	43.0
	Manufacturing	50	10.0	10.0	53.0
	Catering services	95	19.0	19.0	72.0
	Traditional retail	80	16.0	16.0	88.0
	Others	60	12.0	12.0	100.0
	Total	500	100.0	100.0	

Positive Influence Factors on Entrepreneurial Ability in the Network Environment

Network environment in education is a virtual reality world used to build a learning environment affecting the motivation of learners, interpersonal relationships and teaching strategy. Therefore, it is a combination of network resource and network tool. Nowadays, with multi-media, intelligent information processing and environmental virtualisation, the network environment provides a platform for the entrepreneurship of college students. The employability of college students is a top priority for various colleges and universities. All industries have a great many graduates and there are few posts available for college students. Therefore, encouraging the entrepreneurship of college students is of great significance.

Compared with a real environment, the network environment has unique advantages by which to promote the entrepreneurial ability of college students. The Internet provides huge and diversified information resources, across regions and globally. There is a wide variety of information input and retrieval modes, as well as abundant scientific research and creative support tools for college students. The entrepreneurial ability of college students can be inspired by the network.

The impact of the network on the entrepreneurship of college students is in terms of *information acquisition, network communication technology, increased entrepreneurial channels, and providing professional entrepreneurial guidance*. Among these, 36% of students think that *information acquisition* is the major impact of the network on the entrepreneurial ability of college students. About 28% of college students selected *increased entrepreneurial channels*, 21% of college students selected *effective network communication technology*, and about 15% of college students selected *providing professional entrepreneurial guidance*. The results are shown in Figure 2.

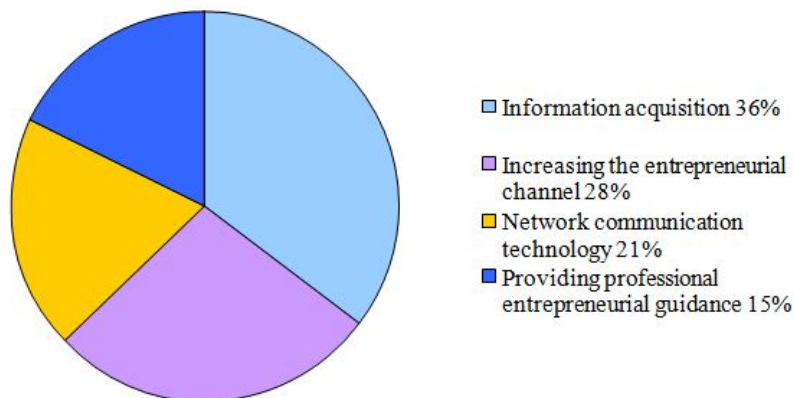


Figure 2: Positive influence factors on the entrepreneurship of college students in the network environment.

The network environment is convenient for college students by which to obtain entrepreneurial-related information. The information transmission capacity and speed of the network is far greater than other kinds of traditional media. The use of information resources can stimulate the entrepreneurial interest of students, cultivate research into the entrepreneurial process, widen their vision and provide an atmosphere for developing the entrepreneurial ability of college students.

There is a variety of modes for information resources in the network environment, including voice, images, video, animation and text. Compared to theory in a textbook, it is clearer, specific and intuitive. College students can select the network information resources independently and save the entrepreneurial information, which they are interested in. Meanwhile, entrepreneurial advantages and disadvantages including investment, rate of return, feasibility and other related problems can be investigated using various analysis tools provided on the Internet. This is not only the process of entrepreneurial knowledge accumulation for college students, but also the process for stimulating their entrepreneurial potential.

College students should be provided with diversified entrepreneurial channels in the network environment. For example, the operation of moving the traditional shop to the Internet provides a reference for college students. The on-line store can not only save the storefront fee and counter fee, but also promote the development of a supporting logistics enterprise. The most popular shopping Web sites in China include: Taobao, Jingdong Mall, Amazon and Dangdang. The profits of these Web sites are worthy of consideration by college students. The comparative analysis of the network environment provides channels for college students in the entrepreneurial process, so as to promote the entrepreneurial ability of college students, develop innovation ability and activate their entrepreneurial enthusiasm.

Negative Influence Factors on Entrepreneurial Ability in the Network Environment

The network environment provides many convenient factors to students in the entrepreneurial process. However, there is fierce competition, since the requirements to set up on the network are minimal, the entrepreneurial success rate is low. There is much false information, which influences the accuracy of information acquired by college students. There is a lack of effective supervision of the network environment and, there is no related legal system in China. Finally, there is a lack of an open network platform.

In the research about the negative factors, 33% of the students chose *entrepreneurial success rate is low*, 28% chose *lack network integrity*, 20% chose *lack effective supervision on the network environment*, and 19% chose *lack an open platform*. Therefore, entrepreneurial problems facing college students in the network environment include *entrepreneurial success rate is low* and *lack network integrity*. The results are shown in Figure 3.

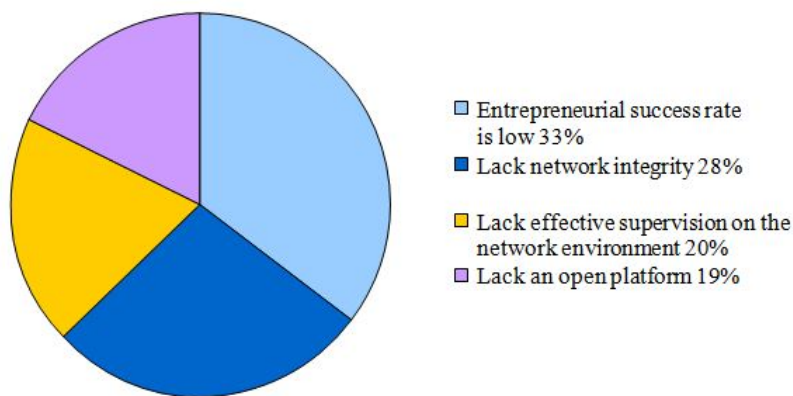


Figure 3: Adverse factors on the entrepreneurship of college students in the network environment.

Low entrepreneurial success rate: the rapid development of e-commerce encourages many college students to believe that network enterprises have *low requirements, low risk, low cost* and a *high success rate*. In fact, this is an illusion. Entrepreneurship through the network will gradually resemble the traditional business model and the cost advantage will not exist. With expansion, there will be large investments in personnel, running costs and other related investments and so the cost is likely to be higher than that of traditional business. For college students, the lack of e-business knowledge and business management experience in the competitive network market, may make the profit less than that of traditional business, leading to a low entrepreneurial success rate.

Lack of network integrity: there is much false and distorted information on the network. The network entrepreneurial environment has great impact on network entrepreneurial activity. Integrity and popularity are the keys to the success of the network business. However, there are false transactions, fraud, malicious sales and other phenomena in the existing network business, which cause disorder in the network market. Secondly, as an important way for college students to obtain information, they are particularly vulnerable to false information. Due to false information college students make

wrong decisions and judgments in the entrepreneurial process, which ultimately leads to entrepreneurial failure. Therefore, the lack of network integrity is one of the bottlenecks for entrepreneurial success of the network.

A STRATEGY TO ENHANCE THE ENTREPRENEURIAL ABILITY OF COLLEGE STUDENTS IN THE NETWORK ENVIRONMENT

Entrepreneurial ability of college students is affected not only by the broad social network environment, but also by the subjective factors of college students. For example, China's traditional education system emphasises teaching, but often ignores the subjective consciousness of the student. The focus is on theoretical knowledge, but ignored is the cultivation of students' practical skills. The importance of the examinations makes the students study for the test rather than following their own interests. College students lack the spirit to bear hardship and do hard work, as well as entrepreneurial consciousness and competitiveness.

The cultivation of entrepreneurial ability of college students is a long-time process, and it is not achieved overnight. In order to enhance their entrepreneurial ability in the network environment, a number of aspects should be considered.

Combination of Virtual Network and Reality

Conduct network quality education, so as to improve the entrepreneurial ability of college students. In the network environment, there are a variety of entrepreneurial educational lectures, knowledge contests, simulation of entrepreneurship and entrepreneurial design schemes. These kinds of activity can be conducted among college students, so as to enable them to experience the entrepreneurial process, encourage them to self-challenge and self-educate, and so stimulate their entrepreneurial ability.

Cultivation of the Professional Skills of College Students

Connect network science and technology activities with the actual situation of college students, so as to cultivate their professional skills. In the network environment, there is a lot of participatory professional entrepreneurship information. College students can participate through the network, and the combination of theory with practice can promote the development of personality factors including interest, motivation and determination; thus, enhancing the entrepreneurial ability of the students in terms of observing, thinking and practical abilities.

Integration of Various Resources in the Network Environment

Unfavourable factors must be eliminated in the network environment, so as to create a good entrepreneurial and practical atmosphere, and so promote entrepreneurial ability. Part of the resources provided in the network environment is of no practical value and includes false information. Therefore, a strict network supervision system is required to filter the false information and to crack down on counterfeit goods, so as to ensure the integrity of the network environment; thus, laying a foundation for entrepreneurial activities by college students.

Development of a High Quality Network Entrepreneurship Platform

The employment situation for college students in China is becoming more and more serious. Therefore, independent entrepreneurship of college students becomes an important way to improve their employment prospects. The development of a good network entrepreneurship platform is the basis by which to promote independent entrepreneurship of college students in China and it is an important channel for expanding employment.

In the process of developing a high quality network platform, a legal system should be developed for regulation of the electronic purchaser network environment, and to focus on the balanced relationship between regulation and the encouragement of innovation. It is necessary to not only recognise the necessity of regulating e-commerce, but also to fully realise its potential. Thus, a loose, but orderly legal environment is required for the development of network entrepreneurship.

CONCLUSIONS

A thorough analysis of the concept and constituent factors of entrepreneurial ability was undertaken and provided a theoretical basis for this article. Through research and analysis of the entrepreneurial ability and motivation of college students in the network environment, the positive and adverse factors influencing entrepreneurial ability in the network environment were determined. Finally, a strategy was proposed for enhancing the entrepreneurial ability of college students, which has great significance for the expansion of such ability in college students.

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