

Entrepreneurial Learning and Entrepreneurial Networks: Explorative Learning and Exploitative Learning, Formal Network and Informal Network

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Abstract

Entrepreneurial learning is the reaction to others' behavior under specific network and entrepreneurial process. Entrepreneurial network has been built during the growth process of new enterprise. Although entrepreneurial learning is an important mean to transform and utilize the tacit knowledge contained in entrepreneurial network, little research has focused on how different entrepreneurial learning (explorative learning and exploitative learning) would impact the relationship between the two typical entrepreneurial networks (formal network and informal network) effects on the growth performance of new ventures, which resulted that it's unable to guide entrepreneurship practice well. This paper analyzes formal and informal entrepreneurial network's impact on new venture growth performance along with explorative and exploitative entrepreneurial learning's influence on that process. Empirical tests found that both different types of entrepreneurial network and entrepreneurial learning have a positive impact on the growth performance of new ventures, and explorative learning help to the positive impact of formal entrepreneurial network effectively on growth performance of new ventures.

Keywords: Entrepreneurial Learning, explorative learning, exploitative learning, formal network, informal network

Introduction

Entrepreneurial network contains a lot of tacit knowledge, which are key factors for new venture existence (Hoang and Antoncic, 2003) and growth (Marie, 2008). However, the past studies also found that it was not a simple linear relationship between entrepreneurial networks and entrepreneurial performance (Cooper, 1994; Watson, 2007), whether entrepreneurial network can promote new venture growth depends on entrepreneurial learning (Susanna and Nicol, 2010). Different forms of entrepreneurial learning (explorative learning and exploitative learning) may have different effects on the impact of entrepreneurial network on new venture growth performance, while previous studies pay less attention to it. The past studies regarded the entrepreneurial network as a whole constructs, and ignored its internal structure (Lechner and Dowling, 2003). Meanwhile, the theoretical finding for how to balance the two learning types is not yet uniform. In order to explore the difference between explorative learning and exploitative learning in reading and using tacit knowledge, we explore their effects on new venture growth from the perspective of two kinds of network, and put emphasis on different effects under two types of entrepreneurial learning. The results may improve new enterprise growth theory and provide some guidance for enterprise practice.

Literature review

The growth of enterprise can be read by the expansion of business scale, improvement of their overall quality and constantly enhancing in viability and competitiveness. Its essence is the interactive process of the expansion of the organization, accumulation of knowledge and institutional construction. A new enterprise's growth is a dynamic learning process, which depends on the environment, the growth process need to get valuable resources through the network activity, help businesses establish credit, obtain recommendations, and access to information, channels and customers, build a positive corporate image, and promote the implementation of innovative. At last it can improve competitive advantage of the business (Zhao and Aiam, 1995). Therefore, entrepreneurial learning and networks are important means to help new enterprises overcome the defects of the new entrants (liability of newness), and to promote its rapid growth.

Entrepreneurial Networks and New Venture Growth

Entrepreneurial network has been built during the growth process of new enterprise (Hoang and Antoncic, 2003). Former researches indicate that the relationship network can provide support and critical supplement for enterprise decision, and entrepreneurs can get more resources, information and moral support through personal networks (Bratkovic, Antoncic and Ruzzier, 2009), and the network can also provide rich and effective

information which is conducive to the development of new products and the improvement of growth performance (Lavie, 2007). There are formal and informal entrepreneurial networks. The specific role of the entrepreneurial network will vary due to the differences in network type. The establishment of formal entrepreneurial network is based on business contacts and interests. Formal entrepreneurial network relies on its organization, including suppliers, competitors, government departments, and intermediaries network relationships. Informal entrepreneurial networks based on trust, which established on the basis of similar background or common language, including friends, colleagues, etc. (Littunen, 2000). Information sharing among the members of informal networks can enable enterprises to obtain more reliable information and tacit knowledge. The tight link among the members of the network can enhance the emotion and trust, and thus provide more emotional support for entrepreneurs and key information, in turn, promote the growth performance of new ventures.

Because of the different backgrounds and network relationships among members of formal network existing as a weak link, enterprises can get more heterogeneity information, communication and exchange among suppliers, intermediaries, government departments enable enterprises to gain more business support, which can reduce the risks and uncertainties, make up for the newly created disadvantage, and promote business growth. Based on the above analysis, we hypothesize that:

Hypothesis 1a: Formal entrepreneurial network has a positive impact on the growth of new enterprises.

Hypothesis 1b: Informal entrepreneurial network has a positive impact on the growth of new enterprises.

Entrepreneurial Learning and New Venture Growth

Entrepreneurial learning is a process of accumulating and creating knowledge that related to entrepreneurial activities (Rae, 2006), it is also the process to better decision-making by using the knowledge (Minniti and Bygrave, 2001). Entrepreneurial learning helps new enterprises survive and grow. It also maintains a competitive edge in the fierce competition. It can bring the long-term benefits to the enterprise, and standardized learning contributes to the promotion of internal management capacity. Learning can be divided into explorative learning and exploitative learning. The nature of exploitative learning is to improve and expand the enterprise's existing technologies and capabilities (Rothaermel and Deeds, 2004), while explorative learning can extend the areas of the market and develop new products through new, diverse, non-redundant knowledge. This article holds that exploitative learning is a low-risk way to enhance the technological level and deepen the business operations. Its implementation requires an in-depth understanding rather than a wider field of information, including less adventurous composition. So exploitative learning is a low-risk way to enhance the technological level and deepen the business operations. While explorative learning is characterized by innovation and risk, its implementation can contribute to product innovation, and enable enterprises to expand the company market share and maintain our competitive edge in the fierce market competition, achieving rapid growth. Based on the above analysis, we propose the following assumptions:

Hypothesis 2a: Exploitative learning has a positive impact on the growth of new enterprises.

Hypothesis 2b: Explorative learning has a positive impact on the growth of new enterprises.

Entrepreneurial Networks, Entrepreneurial Learning and New Venture Growth

The conduct of entrepreneurial activity is carried out in the interaction of entrepreneurs and members of the network (Cope, 2005). Entrepreneurial learning is the reaction to others' behavior under specific network and entrepreneurial process (Holman, Pavlica & Thorpe, 1997). According to Schulz (2001), the exploitative learning is a deterministic process as well as a result. Explorative learning is a complementary way that acquire new ideas and innovation from the complex and ever-changing environment. However, accompany with high-yield business, explorative learning also brings high-risk. If enterprise over-reliance on this approach, it may make companies cannot absorb the knowledge that they owned. The learning style will affect the relationship between entrepreneurial network and learning effects (Rowley, 2000). Based on this and the preceding analysis, this article argues that trust-based informal networks can get a lot of reliable information which the implementation of exploitative learning needs. So the exploitative learning has a comparative advantage in the effect of informal network on growth performance. Adopting low-cost exploitative learning will be more conducive to the conversion of tacit knowledge. Informal entrepreneurial network affect growth performance through exploitative learning, while formal network can enable entrepreneurs to obtain heterogeneous information from multiple sources, which meet the demand of exploitative learning. So for formal network, explorative learning has a comparative advantage, which will be more efficient for enterprise to use and transform the knowledge contained in formal network through explorative learning.

Hypothesis 3a: Exploitative learning is more conducive for informal networks to generate positive impact on the growth of new enterprises.

Hypothesis 3b: Explorative learning is more conducive for formal networks to generate positive impact on the growth of new enterprises.

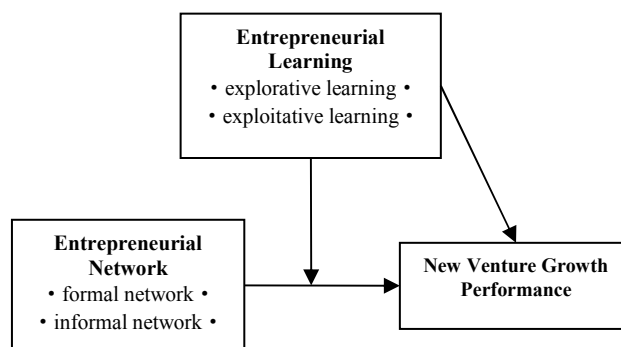


Fig. 1. Theoretical model.

Research and design

Data Collection and Sample Characteristics

TABLE I

CONFIGURATION OF SAMPLE

Item	Category	Frequency	Percentage
Industry	Agricultural byproducts processing industry	4	3.0%
	Manufacturing	42	31.6%
	Bio-medicine	4	3.0%
	Construction industry and real-estate	8	6.0%
	Transportation, storage and post	3	2.3%
	Finance	8	6.0%
	Wholesale and retail	20	15.0%
	IT industry	24	18.0%
	Services	6	4.6%
	Else	14	10.5%
Firm age	1-2 years	23	17.4%
	3-4years	29	21.8%
	5-6years	45	33.8%
	7-8years	36	27.0%
	1-20	23	17.3%
Firm size	21-50	27	20.3%
	51-200	43	32.3%
	201-500	19	14.3%
	501-1000	9	6.8%
	above	12	9.0%
Total		133	100%

Learned from McDougall, Robinson (1990) and Zahra (1993), we defined enterprises established within eight years as new ventures. The data was collected by questionnaires. 130 effective questionnaires in total were obtained. The number of valid questionnaires is 5 times greater than the research variables, which meet the requirements of the effective research. From the sample enterprises, we can see that the age distribution of the sample companies is relatively uniform. Company size is mostly concentrated in less than 200 people. These samples involved in the manufacturing, bio-medicine, transportation, finance, IT industry and services. Overall, the distribution of the samples is extensive, and there exists no concentration phenomenon, so the sample data are representative.

Research Variable and Measurement

The variables of this study include entrepreneurial network, entrepreneurial learning and new venture growth. Entrepreneurial networks include formal networks and informal networks. According to Kiong & Yong, (1998), we use the degree of tightness between entrepreneurs or new ventures and their friends, relatives and colleagues to measure informal networks, and the degree of tightness between entrepreneurs or new ventures and government departments, industry associations to measure the usage of formal networks. The scale of entrepreneurial learning referenced the scale which designed by Atuahene-Gima (2003) and Jiang Chunyan (2006). Using new ventures' degree of involvement on the current areas of market, product information research

and accumulation to measure the exploitative learning, and the degree of familiar on the market of new and high-risk areas, product information, accumulation and involvement to measure explorative learning. Measurement of the growth performance of new venture referenced the research results of Ding Yuefeng (2006) and Geng Xin(2008), using market share growth, “sales growth”, “profit growth”, “the growth of the number of employees” and “the increase of overall competitiveness” to measure. In addition, we take firm size and industry as control variables.

Results

Reliability and Validity

We use Kaiser-Meyer-Olkin and Bartlett Sphere Test to test questionnaires’ reliability and validity. The results show that the KMO of all variables are all above 0.75, and the Bartlett sphere test result is significantly different from zero, which are fit for factor analysis. And using the principal component analysis method to analysis factor loadings, the results show that the questionnaire validity is good. Factor analysis of the entrepreneurial network has collected 71.2% of the variation. According to its meaning; the two factors are named as the informal networks and formal networks. Similarly, Entrepreneurial learning extracted two factors defined as explorative learning and exploitative learning. The new venture growth extract a factor named as the growth performance.

TABLE II
 THE RELIABILITY AND VALIDITY TEST

Variables	Index	Factor loading		α
Informal network	EN01	0.741	0.221	0.732
	EN02	0.877	0.223	
	EN03	0.668	0.358	
	EN04	0.154	0.766	
	EN05	0.220	0.817	
Formal network	EN06	0.484	0.748	0.905
	EN07	0.393	0.782	
	EN08	0.338	0.839	
Exploitative learning	EL01		0.927	0.870
	EL02		0.931	
	EL03		0.910	
	EL04		0.370	
Explorative learning	EL05		0.007	0.718
	EL06		0.177	
Growth performance	GP01			0.788
	GP02			0.877
	GP03			0.851
	GP04			0.796
	GP05			0.782

Data Analysis and Explanation

Comparing the mean score of the two kinds of entrepreneurial learning of sample enterprises, we divide the sample into two groups (explorative learning and exploitative learning), using a linear regression method to study the impact of different types of entrepreneurial network on new venture growth performance.

TABLE III
 THE REGRESSION RESULTS ^a

Groups Model	Exploitative learning		Explorative learning		Both	
	M 1	M 2	M 3	M 4	M 5	M 6
Age	-0.018	-0.293 *	-0.308 **	-0.286 *	-0.316 **	-0.176
Size	-0.006	-0.039	0.032	0.098	0.063	0.121
Industry	0.062	-0.080	0.041	0.052	0.037	0.020
Formal network	0.308 *		0.805 ***		0.512 ***	
Informal network		0.424 **		0.401 **	0.319 **	
Exploitative learning						0.414 ***
Explorative learning						0.521 ***
F	5.13	10.76	11.47	10.54	15.27	11.61
Sig. of F	0.028	0.002	0.000	0.002	0.000	0.000

^a Dependent variables: growth performance

* Correlation is significant at the 0.05 level.

** Correlation is significant at the 0.01 level .

*** Correlation is significant at the 0.001level.

We can see that the two types of entrepreneurial networks (formal networks, informal networks) both have positive significant impact on new venture growth (Hypothesis 1a, Hypothesis 1b are proven). So no matter emotional trust-based informal networks or formal network based on the interests of cooperation, maintaining extensive and close network relationships are conducive to the growth of new ventures. Form two sets of regression coefficients, the formal network had the greater the impact on new venture growth, we think that knowledge and information in formal network play a greater role in new venture growth. The two types of entrepreneurial learning also had a positive significant impact on new venture growth (Hypothesis 2a, Hypothesis 2b are proven). However, the comparison of two sets shows that explorative learning has played a more significant role of new venture growth. Therefore, the behavior of a series of enterprise with characteristic of innovation can better and faster promote the new venture growth. From the comparison of the standardized regression coefficients, we find that the standardized regression coefficient of exploitative learning is greater than explorative learning. But the regression coefficients under the two learning styles have no significant difference in the statistical sense, the hypothesis 3a is not proven. On the contrary, the hypothesis 3b is proven. We think that explorative learning is more conducive for formal network to produce a more positive impact on the growth of new ventures.

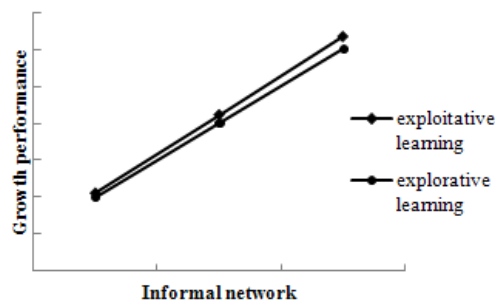


Fig.2a. The regulating action of entrepreneurial learning on informal network.

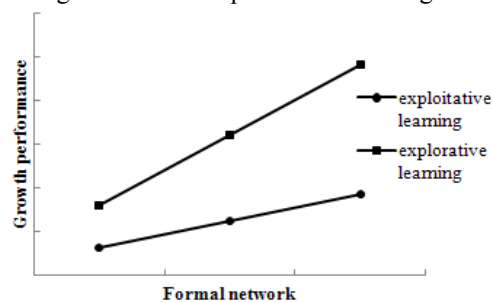


Fig.2a. The regulating action of entrepreneurial learning on formal network.

Figure above shows that entrepreneurial learning has a more obvious effect on the regulatory impact

that the network has on new ventures. That is to say, numerous heterogeneous information implied in the formal network require further innovation and transformation before it can be applicable internal knowledge of the business growth. Therefore, exploratory learning does better in promoting the achievement of performance.

Conclusion and recommendation

Based on the theoretical analysis of how entrepreneurial networks and entrepreneurial learning affect the new venture growth, we have made an analysis on how the two types of entrepreneurial networks and two types entrepreneurial learning impact the new venture growth, and we also discussed the regulation of entrepreneurial learning. Empirical tests found that both emotion and trust-based informal networks and formal networks which based on the interest and cooperation have a positive impact on the growth of new enterprises, exploitative learning and explorative learning also have a positive impact. Explorative learning characterized by innovation is more conducive to the growth of new venture. The test results of regulation show that explorative learning is more conducive for formal network have a positive impact on growth performance of new venture, while comparative advantage of entrepreneurial learning is not obvious for informal network to have a impact on growth performance. The reason maybe that the two ways of entrepreneurial learning in informal entrepreneurial networks on growth performance has certain advantages, and the final result does not show that entrepreneurial learning has a comparative advantage. Both of the new venture and its entrepreneurs should actively expand the scale of the network of individuals and organizations. At the same time, they should closely contact with the members of the network relationships, enhance the communication and trust between them and promote the flow of the knowledge. Besides these, they should also enhance the understanding of the importance of the formal network and transform and use its knowledge and information through various means positively. In the utilization of the network, we can use the information in an informal network by exploitation learning. However, in the process of development and utilization of form networks, in the view of the complexity of the transformation from formal network to growth performance, this study supposes that we should take advantage of exploratory learning and supplemented by exploitation learning. Thus, on one hand, we can avoid the problem of high cost and diseconomy cost by completely implementing two kinds of entrepreneurial learning at the same time. On the other hand, through encouraging continuous entrepreneurial learning, we can alleviate the embarrassing position that new venture's growth speed become more and more slowly with the passage of time.

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