

A study on effect of entrepreneurship on entrepreneurial intention

Focusing on ICT majors

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Abstract

Purpose – The purpose of this study is to show effect of entrepreneurship on entrepreneurial intention. Currently, the long-term global economic crisis is accelerating, and the concerns for future uncertainties are spreading throughout our society. The ICT majors in Busan region are no exception so that business start-up is being considered as a new alternative to survive and grow in such uncertain environments at home or abroad. That is, business start-ups and entrepreneurship are being emphasized as a strategy that individuals can change not only one's own life but also the fate of a region and even the destiny of a country.

Design/methodology/approach – For this reason, the youth start-ups based on social networks and leadership have become the focus of our social concern along with the entrepreneurship that can actively cope with the ever-changing global environments. Thus, some of the major factors (i.e. innovation, enterprise and risk-taking) which should be considered when promoting the entrepreneurial intention of the ICT majors in Busan region have been researched, as well as the concept of entrepreneurship itself.

Findings – This demonstrates that young people will be able to successfully lead their start-up companies through their enterprising spirit, networks and leadership and learning with firm determination. Therefore, it is important to make such a network and leadership-based entrepreneurship become foundational in overcoming the long-term Korean economic depression; surviving in such an opaque situation; leading the growth and development of Busan region; and becoming the driving force for national growth, by developing the unique characteristics and strength of the students.

Originality/value – In this regard, this study will be useful for understanding the entrepreneurship of the ICT majors in Busan region more while contributing to the invigoration of a creative economy by studying the factors essential for the entrepreneurship and development of networks and leadership.

Keywords Leadership, Entrepreneurship, Entrepreneurial intention, Network

Paper type Research paper

1. Introduction

Currently, the concerns for uncertain future due to a long-term economic depression and global economic crisis are spreading throughout our society. Moreover, along with the trend in industrial scale downsizing and profit generation with a small manpower cost, concerns about the increase of youth unemployment due to jobless growth are deepening. According to National Statistical Office of Korea, the youth unemployment rate reached the highest



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record of 9.8 per cent in 2016. This was the value 0.6 per cent higher than the same rate in 2015. Many countries agree that the business start-ups are the solution for youth unemployment so that our government is also expending much effort in developing the policies to stop the increase in youth unemployment rate and create more jobs by instilling youth entrepreneurship and creating a positive atmosphere for business start-ups in this grave period of low economic growth. This method is important and also useful in maintaining steady economic and social growth. The young people at present are living in an era where a variety of new businesses are being continuously launched through internet media, and industries are developing according to the stretch of the imagination for contents and software. Thus, this study attempts to identify what factors of entrepreneurship affect innovative start-ups like ICT-based businesses that are quite effective in creating jobs.

2. Research background

2.1 Concept of entrepreneurship

Since the dawn of the twenty-first century, the importance of entrepreneurship started to be recognized as an element of promoting economic growth so that the researches for finding how entrepreneurship contributes to the growth have become active. The definitions mainly used for the studies related to entrepreneurship are as following: "Seizing an opportunity regardless of available resources" (Stevenson and Jarillo, 1986); "The way of inferring, thinking and behaving focusing on overall approach and specific leadership based on the importance of recognizing the opportunities" (Timmons, 1999); and "The spirit of challenge and adventure that commercializes the opportunities seized at risk" (Peter F. Drucker). Meanwhile, Hisrich and Peters (1998) described entrepreneurship as a discernment that an enterpriser considers necessary, rather than defining it as his/her psychological state. Song (2011) defines the term as an enterpriser's will to create a new business through management innovation by showing his/her challenging spirit. Park and Ahn (2016) explained to the young CEOs that entrepreneurship is an important factor in improving their business performances, and they need to expend the effort to cultivate their business competency. Although the definition of entrepreneurship varied depending on the situations which individual business, country or generation faced, the definition mainly used for recent studies is Miller's (1983) concept of definition which states that entrepreneurship is a behavior that re-combines or re-distributes resources with innovativeness, enterprising spirit and risk-taking mind to create a new value. The core of entrepreneurship is a positive energy that challenges or changes existing conventions by acutely responding to the changing environments with an innovative and creative mind. Cultivating entrepreneurship for young people will be effective in solving the problems concerning youth unemployment, low and falling economic growth rates while contributing to Korean economic growth.

2.2 Elements of entrepreneurship

There are varied opinions about the elements of entrepreneurship among the scholars. Schumpeter (1939) defined entrepreneurship as the driving force of modernization having the characteristics such as innovation-seeking spirit, pro-activeness and risk-taking tendencies. Lassen *et al.* (2006) distinguished the characteristics of entrepreneurship as autonomy, adventurousness, innovativeness and future-orientation. Based on the recent detailed and systematic researches conducted for the nature of entrepreneurship, the definition of entrepreneurship by Miller (1983), who has claimed that the elements such as pro-activeness, innovativeness and risk-taking consist entrepreneurship, became the dominant view. Thus, this study also considers these three characteristics as core elements.

2.2.1 Innovativeness. Van de Ven (1992) defined that innovativeness, which can be regarded as the most critical element of entrepreneurship, is an organizational and cultural management to recognize the necessity of new ideas and behaviors, while Lumpkin and Dess (1996) maintained that it is a crucial element for promoting new products and services, novel experience, technological leadership, R&Ds for new methods and creativeness. Meanwhile, Lee (1999) argued that innovativeness is one that an organization emphasizes the technological innovation or actively conducts product designing, market survey as well as product advertisement through product or market innovation based on process innovation and experimental management technique. Kang (2011) suggested that innovation is one of the elements of entrepreneurial strategies which can be an important means of promoting investments for consistent development of new technologies and improvement of products to gain a competitive advantage. Therefore, with all of these definitions and contentions, innovativeness should be considered as a critical element of entrepreneurship with which companies can adapt themselves to the rapidly changing environment in the age of forth industrial revolution.

2.2.2 Risk-taking. Risk-taking is one's or organization's desire to actively capture and pursue opportunities in an uncertain environment accepting the risks involved. Jung (2015) defined this term as a risk preferring decision-making behavior in an uncertain environment.

While the entrepreneurs with low risk-taking tendency try to avoid risks or make decisions cautiously, ones with high risk-taking inclination tend to make decisions faster to capture opportunities (Bin and Park, 2002). Meanwhile, Sexton and Bowman-Upton (1986) maintained that risk-taking indicates the degree of entrepreneur's will or tendency to boldly challenge uncertainties or enjoy them. Risk-taking is meaningful only if an entrepreneur is proactive in seizing an opportunity, not just accepting the risks.

2.2.3 Pro-activeness. Pro-activeness is a future-oriented disposition that allows an entrepreneur to forecast future when he is supposed to make a decision strategically. The entrepreneur takes active behaviors after forecasting future opportunity and market demands. Lumpkin and Dess (1996) maintain that pro-activeness means a company preoccupying the market opportunity or holding a predominant position in the market. Thus, with pro-activeness, companies develop new products and attempt to find new opportunities in a highly uncertain environment or actively endeavors to secure a leading/discriminative position in a newly created market (Kim, 2015). Covin and Slevin (1991) claimed that pro-active entrepreneurs compete more aggressively than the others. This means that they are not just simply counteracting their competitors but also consistently trying to introduce some new products/services development and management techniques into their companies. That is, pro-activeness can be defined as a tendency or behavior of actively participating in the market changes one step ahead of their competitors (Kim, 1994).

2.3 Leadership

It is possible to say that leadership is an important element in many success factors for start-ups and their continuous growth, but it is not easy to define them with a few words and its definition varies depending on the approaches taken individual researchers. Bass (1990) considered leadership as an interaction process among the group members to structure or restructure their perceptions and expectations. Meanwhile, Northouse (2013) defined leadership as a process where an individual attempt to affect group members to achieve their common goal. However, Katz and Kahn (1978) defined it as one's influence that allows to produce more results than the results obtained from just carrying out everyday orders. A strong leadership that leads to harmonious and organized business activities is essential to

achieve more than expected. This study attempts to analyze and substantiate the impact of a strong leadership on the entrepreneurial intentions and the success of start-ups.

2.4 Network

In a complex information-oriented society like present, it is not easy for small-scale companies to satisfy economic demands while maintaining their competitiveness just by themselves, as they often lack some of the necessary resources. Creative ideas and networks are essential for achieving a successful business performance.

Huggins and Johnston (2010) claimed that it is indispensable to use some of the external resources to surmount the difficulties in start-up businesses caused by the lack of internal resources. Similarly, Choi (2010) supported this by suggesting that start-ups will be able to optimize their performance by using the resources they lack by establishing some external networks. According to Jang (2013), the network activities that can be regarded as the personal and social activities of an entrepreneur refer to the behavior of using external resources for his/her start-up process depending on his/her internal capability. The importance of networks and their roles are being emphasized in many types of research conducted for start-ups. Thus, this study also attempts to identify how network establishment and their activities affect the entrepreneurial intention of ICT majors in Busan area.

2.5 Entrepreneurial intention

The concept most widely used to understand the phenomena associated with the establishment of a business is entrepreneurship. Analyzing the definition of entrepreneurship found in Morris's (1998) studies, it was possible to find that entrepreneurship has been often emphasized when one plans to establish a company. Yoon (2004) considered entrepreneurial intention as the first step in establishing one's business and a positive attitude and experience toward business start-up should be preceded prior to actually making a decision to start his/her business. Krueger *et al.* (2000) defined entrepreneurial intention as an individual's effort to start his/her business so that without it, one would not be able to proceed further. Considering that starting a business can be fulfilled through calculate and intentional activities, the first step, entrepreneurial intention, is essential for understanding overall phenomena involved in business start-up, as it is a key element in determining the early characteristics of start-ups (Bird, 1988; Katz and Garter, 1988). Shapero (1981) claimed that the roles of entrepreneurs with entrepreneurial intentions are important for the nation, region or organization to have their power of recuperation to ride out economic downturns and self-reforming traits. Therefore, it is important for our society to contribute to continuous economic growth by inculcating a positive perception in the minds of students with entrepreneurial intentions to promote and activate start-ups and let the ones with potentials to challenge and succeed.

3. Research method

To study the magnitude of influence factors of entrepreneurship of Busan-area ICT majors over their entrepreneurial intentions, we have randomly extracted the samples from the ICT majors in Busan area during the period from November 1, 2016 to February 15, 2017. A five-point scale was used for the survey. A total of 250 questionnaires were distributed, and 147 (71.70 per cent) of them were collected eventually, excluding unreliable responses. For the empirical analysis of influence factors, the SPSS 23.0 program was used. Based on the study model shown in Figure 1, a series of hypotheses were developed to deduce the influence factors and put to verification afterward.

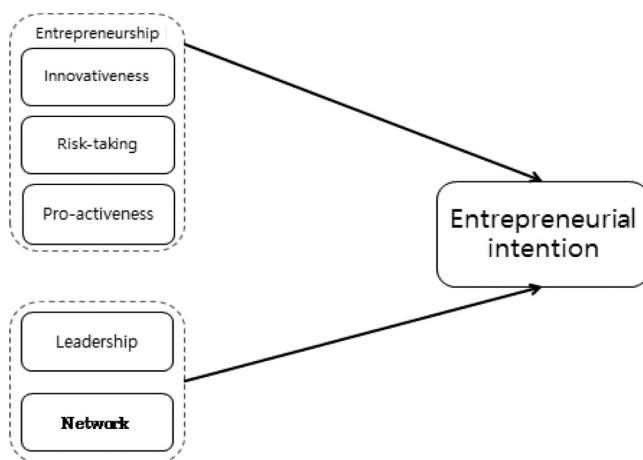


Figure 1.
The study model

4. Result of empirical analysis

In this study, the effect of the independent variables, entrepreneurship, leadership and network promotion factors on entrepreneurial intention were analyzed using Pearson's correlation analysis. The result of the analysis shows that the correlation coefficient between network and entrepreneurial intention is very high, and overall, the measurement factor has a positive (+) relationship [Table I](#).

A multiple regression analysis was used in this study to verify the effect of facilitating factors of entrepreneurship on the entrepreneurial intention (dependent variable). Here, independent variables were also included for analysis (i.e. simultaneous input).

From the results obtained from the multiple regression analyses performed against all the respondents, the applied regression equation was effective in explaining the dependent value, as the overall explanatory power for activation of entrepreneurial intention was 49.4 per cent, *F*-value of analysis model was 38.352 and *P*-value 0.000. Also, as the variance inflation factor (VIF) showed the maximum value of 1.616 while minimum tolerance was 0.619, it was determined that there was no multicollinearity problem. Specifically, the factors such as pro-activeness in entrepreneurship, leadership, and network were analyzed to the statistically significant variables at $P = 0.05$. However, innovativeness and risk-taking factors were excluded at this level. Observing the relative effect of each independent variable on entrepreneurial intention through a standardized regression coefficient, the pro-activeness in entrepreneurship was most influential ($=0.603$) from the positive (+) side [Table II](#).

For the study, some hypotheses for the influential factors of entrepreneurship which should be considered to promote the entrepreneurial intentions of ICT majors in Busan area have been developed and put to empirical analysis using a statistical technique. First, as for the verification by regression analysis, *H1*, which assumes that entrepreneurship will give a positive influence on entrepreneurial intention was partially accepted compared to leadership which was fully accepted. Innovativeness and risk-taking in *H1-1* and *H1-3*, respectively, were rejected as they did not have a positive influence, whereas pro-activeness (*H1-2*) was accepted. Such results are quite the contrary to the results presented in Hwi-Yeol Choi's (2016) study where he concluded that innovativeness and risk-taking tendencies had a significant influence on entrepreneurial intention while pro-activeness did not. This may

Table I.
The correlation
analysis for the effect
of entrepreneurship
over entrepreneurial
intention

	Innovativeness	Pro-activeness	Measurement factors		Leadership	Network	Entrepreneurial intention
				Risk sensitivity			
<i>Innovativeness</i>							
Pearson correlation	1						
Significance probability							
(two tailed)							
N	147						
<i>Pro-activeness</i>							
Pearson correlation	0.528**	1					
Significance probability							
(two tailed)	0.000						
N	147	147					
<i>Risk sensitivity</i>							
Pearson correlation	0.150	0.396**		1			
Significance probability							
(two tailed)	0.070	0.000					
N	147	147		147			
<i>Leadership</i>							
Pearson correlation	0.306**	0.580**		0.340**	1		
Significance probability							
(two tailed)	0.000	0.000		0.000			
N	147	147		147	147		
<i>Network</i>							
Pearson correlation	0.240**	0.499**		0.255**	0.525**	1	
Significance probability							
(two tailed)	0.003	0.000		0.002	0.000		
N	147	147		147	147	147	

(continued)

	Innovativeness	Pro-activeness	Measurement factors Risk sensitivity	Leadership	Network	Entrepreneurial intention
<i>Entrepreneurial intention</i>						
<i>Innovativeness</i>						
Pearson correlation	0.369**	0.646**	0.296**	0.530**	0.678**	1
Significance probability (two tailed)	0.000	0.000	0.000	0.000	0.000	
Pearson correlation	147	147	147	147	147	147
Note: **The correlation is significant at 0.01 level (two tailed)						

Table I.

have resulted from the fact that his survey was conducted for the general college students rather than for the ICT majors. The difference is that this study has targeted the ICT majors who have sufficient knowledge and experience that the high-tech industries involving artificial intelligence, robotics or other cutting-edge technologies can lead to a social innovation after being internalized as a foundation of our current society. It is true that the knowledge associated with the 4th Industrial Revolution and in their potentials also contributes to such an innovation. Thus, this study has empirically proven that both innovativeness and risk-taking are not that influential, at least for the ICT majors in Busan area.

Meanwhile, *H1-1* was accepted such that it is possible to determine that pro-activeness of entrepreneurship has a positive influence on entrepreneurial intention. This result is consistent with most other research results which concluded the same (Yoon, 2012b; Park and Kim, 2009; Yoon, 2012a; Kim, 2016). Pro-activeness can be considered as the tendency that actively solves problems by positively dealing with changes and pursues something distinctively novel to find new opportunities. The above result also means that pro-activeness is necessary for all the business founders for them to occupy a dominant position in a fluid and rapidly changing market on the threshold of the 4th Industrial Revolution.

Next, for the *H2*, the studies on correlations between leadership and entrepreneurial intention are quite insufficient in the ROK. Yoo (2014a, 2014b) and Kang and Ha (2015) are the typical researchers who claim that leadership has a significant influence on entrepreneurial intentions. Likewise, this study accepted the hypothesis that assumes the same.

Finally, as for the *H3*, most of the researches conducted for entrepreneurial intention find that network(s) do have a positive influence on entrepreneurial intention (Burt, 1992; Yoo, 2012; Yoon, 2004) also maintains that the network environments are essential for producing a large number of start-ups. These researchers verified that various types of networks actually stimulate entrepreneurial intention. As these precedent studies, the hypothesis in this study which made the same assumption was accepted. This means that a practical and operational network(s) are vital to students' business success. It is also true that entrepreneurial intentions can be highly inspired when the student business founders themselves endeavor to understand and perceive various aspects of start-ups by actively participating in a variety of experimental environments or network/leadership activities with a positive mind and attitude (Table III).

5. Conclusion and policy proposal

Current young people in the Republic of Korea (ROK) are in the midst of the 4th Industrial Revolution which goes beyond the information-oriented society. This new era focuses on a

Table II.
The result of
regression analysis
for the influence
factors on
entrepreneurial
intention

Category	Non-standardized coefficient		Standardized coefficient		<i>t</i>	Significant	Multicollinearity statistic	
	B	Standard error	β				Tolerance limit	VIF
Entrepreneurship								
Innovativeness	0.044	0.077	0.043	0.567	0.572	0.717	1.394	
Pro-activeness	0.519	0.070	0.603	7.455	0.000	0.619	1.616	
Risk-taking	0.036	0.049	0.051	0.735	0.464	0.839	1.192	
Leadership	0.526	0.066	0.551	7.968	0.000	0.724	1.381	
Network	0.227	0.065	0.241	3.480	0.001	0.724	1.381	
<i>R</i> 0.708	<i>R</i> ² 0.501		<i>R</i> ² _{adj} 0.494		<i>F</i> 38.352	Significant.	0.000	

variety of novel ideas including artificial intelligence and advanced robotics. The ROK government and most Korean universities should foster intelligence information industry to respond to the requirements of this era and enhance global competitiveness of start-ups by promoting an appropriate start-up ecosystem to create more jobs. Many developed countries around the world view creating quality jobs as the most important measurement for conflict resolution and income imbalance. Developed countries such as the EU, America, Japan and as well as emerging countries such as China are pursuing on the development of existing industries and the creation of new industries as core policies (Ministry of Science, ICT and Future Planning, 2014) based on ICT development. The Korean government also needs to make efforts, basing on ICT, to expand the employments and also the number of young entrepreneurs who have a proper entrepreneurship or a challenging spirit to contribute to the national economy. Thus, a study was conducted to determine what factors of entrepreneurship promote the entrepreneurial intention of ICT majors in Busan area. Also, an empirical analysis was performed by deducing the factors that need to be considered to activate the entrepreneurial intention in the universities. The existing factors that affected the entrepreneurial intention of university students were mostly structurally defined ones such as entrepreneurship education, support policies for start-ups and relevant educations which would drive the students to pursue start-up businesses. However, these factors, or impact categories, were often theoretical and indoctrinating that they were somehow ineffective as a base for creating jobs for college students or realizing the creative economy. For this reason, the importance of entrepreneurship which can give a positive impression to these people's entrepreneurial intentions has been studied and verified not only in prior treatises (Byong Geun, JO 2013, KIM, 2016 etc.) but also in this research paper.

In the study, pro-activeness of entrepreneurship was found to be most influential to students' entrepreneurial intentions. In Finland, innovative entrepreneurs are deliberately cultivated based on the saying, "entrepreneurs are not born but are trained through education". This means that without entrepreneurship education, students' entrepreneurial spirit cannot be cultivated (Park, 2010). This paper also considered that efforts to review the means to foster pro-activeness at the practical level and expanding them are critical to improving the entrepreneurial intentions of the students. It has been also verified that the substantive indirect experiences such as leadership and network activities are highly influential to the entrepreneurial intentions of ICT majors. Existing studies (Yoon, 2004; Yoo, 2012) showed that establishment of networks from which the students can receive help while they are preparing for their start-ups or afterward are significantly important to the improvement. This study also proves that, which is focused on ICT departments in Busan, the student with high pro-activity and enhanced leadership actually respond more effectively to the difficulties or the fluidal variables during their start-up preparations than those who received the lecture-oriented start-up education. Therefore, entrepreneurship education that will boost pro-activity and practical experience which can lead to actual start-ups are essential, in addition to well-trained leadership

Table III.

Verification result of
hypothetical
influence factors of
entrepreneurship on
entrepreneurial
intention

Hypothesis	Accept/reject
H1. Entrepreneurship will have a positive influence on entrepreneurial intention	Partially acceptable
H1-1. Innovativeness will have a positive influence on entrepreneurial intention	Rejected
H1-2. Pro-activeness will have a positive influence on entrepreneurial intention	Accepted
H1-3. Risk-taking will have a positive influence on entrepreneurial intention	Rejected
H2. Leadership will have a positive influence on entrepreneurial intention	Accepted
H3. Networks will have a positive influence on entrepreneurial intention	Accepted

and well-organized networks. The government and relevant authorities should focus on providing more diverse educational programs to invigorate youth start-ups, and we expect that this study will be useful for that purpose.

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