Effects of Foreign Students' Entrepreneurship on Start-up Recognition and Intention

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Abstract

This study aims to investigate the effects of foreign students' entrepreneurship on start-up recognition and intention. Due to the expanded policy of attracting foreign students with current Korean wave, it has rapidly increased the number of foreign students in Korea. The number of foreign students in Korea has increased from 50,000 up to 100,000 in 2012. Approximately half of number was resided in Seoul capital, surrounding satellite cities and followed by Kyeongsang, Chungcheong and Jeolla province regions. In this study, we examined the correlation of entrepreneurship with start-up recognition and intention of foreign students living in Daejeon city. The research model was constructed with entrepreneurship and start-up intention as independent and dependent variable, respectively, and start-up recognition as a moderating variable. Furthermore, the entrepreneurship of foreign students as independent variable contains innovativeness, pro-activeness, risk-taking and social responsibility. In the survey, we collected 119 responding foreign students belonging to KAIST, Chungnam National University and Hanbat National University and analyzed the correlations of these variables with 116 significant answers. To validate the hypotheses, linear regression analysis tool in SPSS program was used. As a result of the survey, entrepreneurship components such as innovativeness, pro-activeness, risk-taking and social responsibility affected start-up intention positively. In addition, start-up recognition as a moderating variable affected positively between entrepreneurship and start-up intention. However, it has the limitation to generalize the overall correlation of entrepreneurship with start-up recognition and intention for foreign students living in Korea because the survey was only performed in restricted Daejeon city area. Nonetheless, this study can be useful for understanding the foreign students's trait for entrepreneurship and planning the adequate entrepreneurship education.

Keywords: Foreign Students' Entrepreneurship, Start-Up Recognition And Intention.

1. Introduction

The present research aims at investigating whether the entrepreneurship of domestic foreign students affects start-up recognition and intention. For this, the current study was adopted to the foreign students residing in Daejeon city. And this study was focused on the possible correlation of their entrepreneurship with start-up recognition and intention by survey. The foreign students act potentially as a channel of various fields such as culture, art, industry

of foreign countries. In particular, the foreign students have high potential as future business partner so that the survey will be very informative to understand their entrepreneurship towards start-up intention. In addition, we examined the possibility of start-up recognition as a moderating variable between entrepreneurship and start-up intention. Thus, this survey gives an useful information on foreign students' entrepreneurship with start-up recognition and intention and, ultimately, it provides a helpful guideline of the start-up education program in Korea. For the analysis of the effect of entrepreneurship of foreign students on start-up recognition and intention, the present study was based on the theoretical and substantial research methods. Theoretical study conveys the ranges of entrepreneurship, start-up recognition, intention to build the research model and several hypotheses. Substantial study contains the survey based on the previous researches and applies to the foreign students, and ultimately, to validate the set-up hypotheses.

2. Theoretical Background

2.1. Status of global foreign students

  Due to the expanded policy of attracting foreign students with current Korean wave, it has rapidly increased the number of foreign students in Korea. Main purposes for foreign students to come to Korea for study are classified into Korean language study, degree courses, and other training courses as a position of exchange student, visiting student, etc. Degree courses are divided into master and Ph.D courses. Since the number of Korea students has been recently decreased, Korea has been faced on the weakened competition in domestic education. To overcome this, Korea ultimately has to prepare the educational system joining in global society. They are searching for various solutions; one of them is the expansion of foreign students coming into Korea. This policy can be an alternative for global education system and reinforcement of international competition in knowledge-based society. The Korea government was preparing six detailed action plans and established cooperation system within national universities for the activation of coming foreign students into Korea (Park, 2009).

First, as the expansion of business for inviting foreign students, the mutual invitation program of their own country was directly shifted to invite the superior smart foreign students abroad. Target invitation countries were expanded in the center of strong Korean wave-moving countries, including the developing countries such as Brazil, Russia, India, and China.

Second, it is to strengthen the advertisement of studying in Korea. The government has prepared 'Introductory system of studying in Korea' since 2003, and established the homepage for the advertisement of studying in Korea, serving in Korean, English, Chinese, Vietnamese, Japanese and Russian languages. In addition, through the Exhibition of Studying Abroad and the connection to Korean cultural festival, the government hosts the Commission of International Relationship and make full use of the emblem, 'Dynamic Korea'.

Third, it is to provide and utilize the Korean language and culture. Due to the worldwide expansion of Korean wave, the Korean Laguage Ability Test has been conducted in 16 countries in 2004, increasing 18 countries in 2005. In addition, utilizing KOSNT (Korean Language Study on the interNET), it is provided to foreign countries by the development of Korean language contents.

Fourth, it is to formulate and activate the international network. In foreign countries concentrated in the need of studying in Korea, it has expanded the Korea Advertisement Room and Korea Education Institute and kept the advertisement of good Korean images. It is opening the Korea Education Room mainly in China, Philippines, Indonesia, Thailand and New Zealand and letting the person in charge of studying abroad and the dispatched person encourage actively the foreign students into Korea for studying.

Fifth, it is to improve the living environment for foreign students. To reduce the difficulty in the language trouble of foreign students, it has expanded and established the overall welfare for foreign students. This includes the opening of the exclusive course of foreign languages in each university, the setting and supporting of Korean language course program, and the preparation of 'Koreanology English lecture' as subsidiary management of academic affairs for forein students.

Sixth, it is to establish the efficient administration support system. It is the management support service to provide the whole procedure systematically from immigration to employment. For example, it is the simplified procedure for issuing the certification of studying abroad. For the enhancement of foreign students into Korea, the government has reformulated the organization in charge and the Consultative Committee of Private-Government-Industry and

provided the support of employment for foreign students.

According to the statistics of global foreign students collected in Apr-1-2010 by Ministry of Education, Science and Technology, a total number of foreign students was estimated 83,842. This number included the students belonging to college, university, graduate university, and cyber college. The number of foreign student in 2006 and 2007 was increased 45% and 51% compared to each last year, respectively. However, the increasing rate showed the lowering tendency from 30% to 11% during 2008 to 2010 (Table 1).

Table 1: The yearly status of domestic foreign students

Year	2005	2006	2007	2008	2009	2010
Number of foreign students	22,528	32,557	49,270	63,952	75,850	83,842
Increase rate compared to previous year (%)		44.5%	51.3%	29.8%	18.6%	10.5%

Source: Ministry of Education, Science and Technology (2010)

According to the types of studying abroad, the self-expense students occupied 71,843 corresponding to 85% in 2010. The number of students by university and government invitation, etc, and their own country-dispatch occupied the remaining 15% (Table 2).

Table 2. : he status of domestic foreign students by types of studying abroad

Types \ Year	2009	2010	Balance (%)
Self-expense students	64,271	71,843	7,572 (11.8%)
Government-invited students	1,629	1,942	313 (19.2%)
University-invited students	6,634	8,091	1,457 (22.0%)
Their own country-dispatched students	503	493	-10 (-2.0%)
etc	2,813	1,473	-1,340 (-47.6%)
Sum	75,850	83,842	7,992 (10.5%)

Source: Ministry of Education, Science and Technology (2010)

According to the regional status of domestic foreign students, Asian students was 71,838, occupying 86% and the rate of students from South, North America, Africa, Europe and Oceania occupied 14% (Table 3).

Table 3: The regional status of domestic foreign students

Continent	Asia	Afra	Oceania	North America	South America	Europe	Sum
Number of students	71,838	1,579	1,376	2,302	5,156	1,591	83,842
Rate	85.7%	1.9%	1.6%	2.7%	6.1%	1.9%	100%

Source: Ministry of Education, Science and Technology (2010)

The number of student resided in Daejeon city was 4,215, in which the number students attending in Paichai and Chungnam National University was over 1,000 and those in Woosong and Kunyang University was approximately 600 and those in Hanbat National University was 268 (Table 4).

Table 4: The status of foreign students attending in advanced education organization

University	Courses					Sum
	KLS*	Under-graduate	Master course	Ph.D. course	etc	
Kunyang	45	518	29	-	15	607

Daejeon	49	89	15	4	60	217
Paichai	179	626	142	25	128	1,100
Woosong	9	390	162	5	74	640
Chungnam National	218	343	295	119	80	1,055
Hannam	72	115	76	22	43	328
Hanbat National	70	165	9	2	22	268
Sum	642	2,246	728	177	422	4,215

*KLS: Korea Language School

Source: Ministry of Education, Science and Technology (2010)

2.2. Entrepreneurship

The concept of entrepreneurship is basically the pursuit of profit and the fulfillment of social responsibility. Therefore, the entrepreneurship is the idea and a management philosophy of social respect and enterprise growth and development by business officers or managers. It is not easy to simply define 'entrepreneurship' in a single word. Despite the era or certain circumstances, the essence of spirit about entrepreneurship is not changed a lot in present or past. Since the enterprise is the organization for the pursuit of profit and the operation of currency, the production of profit is the best purpose of the enterprise for the survival and the development of enterprise. Spontaneously, the enterprise has the social responsibility for return a part of profit to society. Therefore, the enterpriser operating the enterprise can be existed by two premises. The criteria responsible for entrepreneurship include the determination of distribution of resources in the respect of economization, maximization and efficiency. Good entrepreneurship should contain three meaning as follows. First, it is required of playing a leading role. Second, it is required of the reorganization of resources utilization, social recognition and the decision of circumstances about economic mechanism and special deal. Third, it is required of the acceptance of risk and fail (Hirsh and Peters, 1985).

The representative scholar related to entrepreneurship is Joseph Alois Schumpeter from United States of America. Schumpeter defined the novel production method and novel item development as a technological innovation. He considered the enterpriser with an idea of creative destruction through innovative technology as the innovators. Thus, 'entrepreneurship' was defined as a behavioral style to adapt creatively to environmental change by enterpriser with slogan by 'The enterpriser is innovation' (Min, 2001). In addition, Hirsh and Peters described taking the lead as entrepreneur's trait, organization of the resources utilization, economic institutionalization, hands-on calculation and the acceptance of risk and fail. In addition, Donal and Richard's 'entrepreneurship' was classified into the development of enterpriser's plan, enterpriser's venture company leading, the growth and development of enterpriser's venture and the facing issues of entrepreneurship (Donald and Richard, 1995).

Basic properties raised by many scholars are innovativeness, risk-taking, alertness, proactiveness and these combination are suggested to be realized. Many scholars have been interested in its important meaning about entrepreneurship but have not provided new definition in the historical background but had the exclusive tendency (Ronen, 1988). Provided by the presented proeprties of entrepreneurship, even with some discrepancies, includes 'innovativeness', 'pro-activeness', 'risk-taking' and 'social responsibility' in common. By the concrete explanation, Schumpeter considered entrepreneurship as a simple trait focused on 'innovativeness' (Schumpeter, 1934). Thereafter, Drucker and Kirzner emphasized 'alertness' as another simple trait (Kirzner, 1973). However, innovativeness, pro-activeness and risk-taking as an entrepreneurship trait were presented by Kets de Vries (2007), Miller (1983) and Covin-Slevin (1991), and Zahra (2991). Jong-Kwan Kim considered four components as key concepts of entrepreneurship in which social responsibility presented by Drucker and Kirzner was added to three concepts in entrepreneurship (Kim, 1994).

The scholar who recognized historically and concretely entrepreneurship was A. H. Cole. According to Cole's opinion, entrepreneurship is commonly defined as 'function' or 'action' as well as commonly implied as an enterpriser's trait. Therefore, he considered entrepreneurship as an idividual enterpriser's function or action and further as collectively enterprisers' ones (Cole, 1959). After Schumpeter, most of scholars accepted the definition of entrepreneurship including innovativeness, alertness, pro-activeness, and risk-taking. These aspects depends on the

post-entrepreneurship research approach including acquired, adaptive orientation, and innovation-centered study after Schumpeter (Kim, 1998).

Based on the literature mentioned above, the property of entrepreneurship can be summarized as innovativeness, pro-activeness, risk-taking, and social responsibility. Innovativeness is first introduced by Schumpeter, in which innovativeness is the tendency towards research development in industry, new product and new item packaged by new service and, in general, technological improvement. In addition, innovativeness is defined as the change of productive function and its own change is a fundamental of innovation itself rather than the change of value. Drucker was also recognized the innovation as a special implement and considered as a tool for searching the change as an opportunity of different business and service. Hisrich described the degree of innovation uniqueness as three types of innovation: breaking innovation, technological innovation, and ordinary innovation according to the numbers of innovation introduced to innovatory creativity and marker (Hisrich, 1986).

Pro-activeness is defined as an active action participating forward in market change in advance of competitors' reaction. Proactive enterprise reacts just in a forward step, rather tries to introduce new item, new service and administrative technology. Many studies recognized the pro-activeness as an important trait of entrepreneurship.

Risk-taking prefers low-level project with lower or higher expected rated of return to high-risk project, containing the desire pursuing the opportunity bravely and actively. This definition was taken over Cantillen who redefined the enterprisers as the person for profit production with sensibility and predictability. This notion was supported by many scholars, however, excluded only by Schumpeter. However, in the center of many behavioral scientists, variable researches were conducted that risk-taking is theoretically and substantially consisted as a critical trait of entrepreneurship.

Social responsibility stands on the time of reinforcing the competition for the survive of enterprises in internal and external environmental changes. In particular, strong entrepreneurship is required of keeping a leading price and item quality competition superior to the new technology race. Social responsibility was estimated as a responsibility and appropriateness of enterprisers' social activity.

A variety of studies on entrepreneurship were performed by many behavioral scientists and management scholars as an empirical experiences (Wortman, 1987). Leibenstein stressed that the market functioning entrepreneurship exists in inefficency and the roles of enterperises are required in this process (Leibenstein, 1969). Scholhammer divided entrepreneurship into five types: administrative, opportunistic, imitative, acquisitive, and incubative entrepreneurship in previous business organizations (Scholhammer, 1982). MaMillan, Block and Narashima classified the entrepreneurship into internally and externally orientated entrepreneurship (MacMillan et al., 1986). These types of entrepreneurship has not adopted with confusion but it is expecting to arrange the practice of entrepreneurship by various conference activity in near future.

2.3. Recognition of Start-up

Start-up means the initiation of uncertain type of new business. According to the medium-small business start-up support law revised on March, 2001, start-up is defined as the establishment of new medium-small business company. The concept of start-up was defined by Schumpeter (1934): start-up means the creative action of new opportunistic and challenging business by the means of resources recollection, wealth redistribution, and amplification opportunity of wealth by enterprisers. Peter Drucker (1985) defined start-up as an innovative behavior of new wealth production by putting in th previous resources. Vesper conceptualized the start-up in a initial step for all kinds of start-ups irrespective of growth potential and size (Vesper, 1985).

Nowadays, worldwide economy is rapidly shifting to knowledge-based society by accelerating specialization and diversification; likewise, large-scale company orientation is changing to medium-small size business companies or venture companies. The start-up in Korea boomed up in 1997 when this time was faced on IMF crisis and knowledge-based venture companies were increased with competitive small-scaled technologies and ideas. Accompanied by government, special treaty law about the encouraging venture companies was enacted and helped to support the venture enterprisers-oriented policies and institutions. The importance of start-up means the production of wealth as personal aspect and the positive reinforcement of international competition as national aspect (Kim et al., 2005). Park (2008) insisted that start-up provides the positive benefits such as motivation, job-sharing, economic development and start-up society' is required of adapting the future industry system.For the initiation of start-up, it is required of 'business idea' as a business motive, founder to begin the business with restricted management resource, and capital for providing management resource and technological development

(Hwang, 2006). In addition, there was a report about the components of start-up including personal resource like founder and material resource like start-up idea item or service, start-up capital (Kim et al., 2005). According to Jeong-Yeon Kim's study, considering on the components of start-up, there were classified into founder, start-up capital and start-up idea which indicate the founder's character, the ability to provide and manage the capital, and the capability of start-up idea development and technology, respectively (Kim, 2007).

2.4 Intention of start-up

Start-up is the job creating new organization followed by the procedure of foundation of legal body. Considering on this view of point, the enterpriser's intention of foundation plays the most critical role of the company foundation. Intention of foundation is the key concept of understanding start-up procedure for the establishment of new organization (Veciana et al., 2005).

In addition, the intention of foundation can be revealed by entrepreneurial even model (Shapero, 1982). Shapero understood that the procedure of foundation is the interaction event in creativity, ability, management, self-control and between the risk components. Moreover, the intention of foundation can be explained by prospensity to act, perception of the desirability, and perception of feasibility which are felt by the founder's possibility. These factors act as the determining ones which helps to understand the intention of start-up.

Besides that, the intention of foundation can be defined as thoery of planned behavior by concrete plan and proposed behavioral promise (Ajzen, 1991). According to planned behavioral model, the behavior is the planned result and recognitive procedrue. Likewise, the intention is considered as the correct and expectable variable to transform the planned behavior to the reality. Therefore, as the variable to explain the intention of start-up, it is concentrated on the recognized bahaviore- controling ability, subjective norm, and behavioral intention for the behavor of decision maker's goal. Robinson and colleagues defined that the intention of foundation is explained by personal property and population-statistical property, in which the indention of foundation is defined as entrepreneural attitude orientation (Robinson et al., 1991). Intention of foundation is expressed by four psychological properties such as feeling of achievement, self-effectiveness, self-control, and feeling of innovation, and the interaction among three emotional attitudes such as emotional recognition, expression and effort.
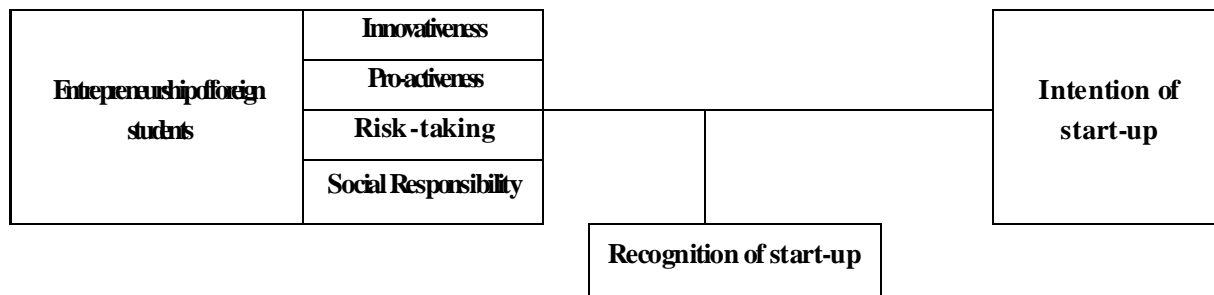
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┌─────────────────────┐  ┌─────────────────────┐                    ┌──────────────┐
│                     │  │   Innovativeness    │                    │              │
│ Entrepreneurship of │  ├─────────────────────┤                    │ Intention of │
│   foreign students  │  │    Pro-activeness   │                    │   start-up   │
│                     │  ├─────────────────────┤                    │              │
│                     │  │     Risk-taking     │                    │              │
│                     │  ├─────────────────────┤                    │              │
│                     │  │ Social Responsibility│                   │              │
└─────────────────────┘  └─────────────────────┘                    └──────────────┘
                                    ┌──────────────────────┐
                                    │ Recognition of start-up │
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Figure 1: Research model

3. Planning of Research

3.1. Design of research model

Based on the previous studies, this part is to validate the effects of entrepreneurship of foreign students on the intention of start-up by the recognition of start-up. As shown in Figure 1, the research model is given. The present study is to understand the correlation between recognition and interest of foundation of foreign students resided in Daejeon city. In addition, the present study will provide the useful information to make tailored start-up education

program for future international business officers.

3.2. Establishment of hypotheses

In the present study, the following hypotheses will be setting up on the basis of previous related reports.

Hypothesis 1: The entrepreneurship (innovativeness, pro-activeness, risk-taking, social responsibility) of foreign students will affect significantly the intention of start-up.

Hypothesis 1-1 Innovativeness will affect significantly the intention of start-up.
Hypothesis 1-2 Pro-activeness will affect significantly the intention of start-up.
Hypothesis 1-3 Risk-taking will affect significantly the intention of start-up.

Hypothesis 1-4 Social responsibility will affect significantly the intention of start-up.

Hypothesis 2 The recognition of foreign students will moderate significantly between entrepreneurship and intention of start-up.

Hypothesis 2-1 The recognition of intention will moderate significantly between innovativeness of entrepreneurship and intention of start-up of foreign students.
Hypothesis 2-2 The recognition of intention will moderate significantly between pro-activeness of entrepreneurship and intention of start-up of foreign students.
Hypothesis 2-3 The recognition of intention will moderate significantly between risk-taking of entrepreneurship and intention of start-up of foreign students.
Hypothesis 2-4 The recognition of intention will moderate significantly between social responsibility of entrepreneurship and intention of start-up of foreign students.

3.3. Operative definition of measurable variables

In the design of research model, the independent variables include four key components such as innovativeness, pro-activeness, risk-taking, and social responsibility. The depending variables correspond to behavioral trait, recognized desirability, and recognized feasibility in the intention of start-up. Herein, the recognition of start-up was used as a mediating variable. Operative definition of variables is three big constituent concepts including entrepreneurship, recognition of start-up, and intention of start-up. Entrepreneurship as an operative definition is the subjective property which includes innovativeness, pro-activeness, risk-taking, and social responsibility. The survey of entrepreneurship consists of six parts with a total of 24 questions. Recognition of start-up is to improve the knowledge of foundation, in which the recognition of foundation includes the factors to affect individuals, organizations and nation. This can be mediating variable to depends on the intention of start-up. Measurement items are about social environment and national economy trait, including 6 questions. Finally the intention of start-up is reflected by the individual intension trait acting on the establishment of new organization, of which intention of start-up corresponds to behavioral property, recognized desirability, and recognized feasibility, including 4 questions in survey.

3.4. Sample survey and statistical analysis

In the present study, the key factors such as entrepreneurship, recognition and intention of start-up by foreign students were used as the measurement items. With the obtained measurement items, the confidence of the correlations bet

ween variables was estimated by SPSS 12.0 OK for Window version. Purification of collected data and validation of simplicity were performed by data confidence and feasibility analyses.

4. Substantial Analysis

4.1. Measurement method of variables and tools

The present study aims at examining the effects of entrepreneurship (innovativeness, pro-activeness, risk-taking, and social responsibility) of foreign students as potential future founder in Dajeon city on the recognition and intention of start-up.
With the research model designed by the basis of theoretical background of related previous documents, the above hypotheses w as set-up for the effects of entrepreneurship on recognition and intention of start-up and for the validation. The proposed hypotheses was based on the previous study that the entrepreneurship affects positively the management outcomes (Miller, 1983; Zahra & Covin, 1995; Matsuno et al., 2002).
Survey is about the questionnair of entrepreneurship, recognition and intention of start-up, in which the survey was a pplied to collect foreign students living in Daejeon by email. The collected data will be analyzed by statistical analys is tool, SPSS version 12.0.

4.2. Research object and sample survey method

In the present study, aimed at the foreign students living in Daejeon metropolitan city, survey was performed during one month since 2012, October. Enquette contains entrepreneurship with innovativeness, proactiveness, risk-taking, and social responsibility, recognition and intention of start-up. Response of each question item was given into Likert five-level scale (1: very low-Disagree completely, 2: slightly low, 3: common, 4: slightly high, 5: very high-Agree). Among a total of 119 respondents, 116 surveys were used for statistical analysis because 3 respondents are not students (etc group). The survey was formed into structurally organized questions which was sending and automatically collecting by email and smart-phone, finally automatically arranged the result in Google document. A total of those surveyed were 116 persons, in which the surveyed persons were 81 males and 18 females. The proportion of male was 4.5 fold higher than that of female.
In the distribution of nationality of those surveyed, 21 Chinese recorded top followed by Bangladeshi (15), Indonesia (14), Vietnam (10) and so on. A total of foreign students from 25 different countries in 6 continents were responded to the survey. In the distribution of age ranges of those surveyed, most of respondents were mainly revealed in twenties because those surveyed are graduate or undergraduate students in the range of 20～29. In the staying period of those surveyed in Korea, those who stayed for 1～5 years were most frequently observed in the survey. In marital status of those surveyed, most of respondents were revealed in unmarried condition because many foreign students were aged in 20s.

4.3. Analysis method of data

Prior to the validation of the hypotheses given by research model, the component analysis was first conducted for verifying the feasibility of concepts of constituent survey. Furthermore, the confidence of the respondents of survey was estimated by using the parameter, Cronbach's alpha, in the point of internal component consistency.

4.3.1. Analysis of confidence

Confidence is the necessary but not sufficient condition for guaranteeing the validity. In other word, high confidence does always not mean high validity. When the confidence of parameter was applied to measure the similar parameters several times or one parameter was measured repetitively, the outcome will be correlated to consistent

result. In the present study, the internal consistency was identified for higher confidence by excluding the interrupting items from the measurement parameters for measuring the same concepts in confidence analysis. Internal consistency indicates that the items measured are consistent or identical when one factor was measured in several items. Internal consistency can be estimated between items examined: higher correlation among the items, higher internal consistency. To identify the internal consistency, the correlation between one factor belonged to one items and other vice versa can be calculated by dividing the several factors in items. Likewise, this method is called as bilateral division method in which several values can be come out according to the bilateral division ways. To solve these problems, parameter Cronbach alpha was developed and used in the present study.

The validity is a concept to measure and to measure whether the value was accurately estimated. Thus, for the measurement of special concept or trait, it states that the developed measurement tool corresponds to the trait of the concept. In the present study, factor analysis was used to validate whether the measurement tool reflects the conceptual validity. In the case of multiple variables in complicated and inter-correlated status, several components representing their correlation were suggested to point out in common components, in which the part of common components are included in individual variables and the part of individual components in common variables. The parameter Crombach alpha represents the measurable parameter for the object in a scale; nearer to value 1, higher the confidence. When the parameters composed of several intems in a concept are used, it is to calculate the available repetitive confidence and the average of these items. In general, the range of 0.8 to 0.9 is considerable; the range of 0.6 to 0.7 is acceptable. However, when the value is less than 0.6, it is considered the internal consistency as lack.

In the statistical analysis of present study, the values of Cronbach alpha are calculated as 0.757 in innovativeness and 0.857 in risk-taking. Thus the analytical data showed overall the internal consistency. In the present study, the major components extraction was used with principal component extraction method. For more clarity of components meaning, factor orientation method was used with Varimax. The analysis result of confidence was presented in Table 5.

Table 5: Result of confidence analysis

variable		before removal	after removal	Cronbach's α
Entrepreneurship of foreign students	innovativeness	6	5	0.757
	pro-activeness	6	4	0.797
	risk-taking	6	5	0.854
	social responsibility	6	4	0.798
Recognition of start-up		6	6	0.836
Intention of start-up		4	4	0.848

4.3.2. Analysis of validity

The present study was verified the validity using the analysis of causing factors. Analysis of causing factors is the method to discriminate the new factors by collecting variables according to the degree of inter-correlation between variables. Extraction method of causing factors was used with principal component disection method and the orientation of factors was applied with Varimax method. In addition, to investigate the adaptability of items given for factor analysis, the measurement of Kaiser-Meyer-Olkin parameters was applied in the present study. The measurement of Kaiser-Meyer-Olkin parameters indicates to explain whether the correlation between question items depend on other variable. Thus, for the validity of question items, the result of this study was revealed as 0.816 of which value is appropriate. In addition, representing the adaptability of research model, Barlett's evaluation result was shown as 1572.827 of which value was significant. Therefore, the data items given in the present study was proper information. The result of vality analysis was presented in Table 6.

Table 6: Result of validity analysis

	Component					
	factor 1	factor 2	factor 3	factor 4	factor 5	factor 6
inn-2	0.042	0.095	0.163	0.780	-0.010	0.025
inn-3	0.062	0.161	-0.011	0.593	0.364	0.022
inn-4	-0.031	0.063	0.040	0.628	0.230	0.160
inn-5	0.297	0.152	0.159	0.633	-0.117	0.082
inn-6	0.172	0.100	0.185	0.739	-0.135	0.149
pac-1	0.444	-0.016	-0.022	0.060	0.240	0.579
pac-2	0.017	-0.092	0.100	0.081	0.217	0.805
pac-3	0.159	0.048	0.235	0.212	-0.077	0.802
pac-6	0.369	0.042	0.146	0.115	0.156	0.639
rkt-1	0.826	0.057	0.015	0.083	0.040	0.224
rkt-2	0.735	-0.009	0.178	0.096	0.221	0.163
rkt-4	0.721	0.019	0.126	0.181	0.218	-0.022
rkt-5	0.790	0.053	0.176	0.053	0.144	0.053
rkt-6	0.615	0.105	0.027	0.040	0.060	0.221
srp-3	0.093	0.041	0.068	0.098	0.796	0.210
srp-4	0.099	0.082	-0.045	0.016	0.755	0.171
srp-5	0.421	0.088	0.128	0.048	0.705	-0.040
srp-6	0.368	0.160	0.286	0.001	0.606	0.016
rec-1	0.199	0.677	0.013	0.103	0.114	-0.082
rec-2	-0.181	0.723	0.297	0.249	0.019	0.003
rec-3	-0.095	0.729	0.300	0.101	-0.011	0.066
rec-4	0.002	0.779	0.082	0.028	0.133	0.112
rec-5	0.367	0.654	-0.047	0.117	0.120	-0.139
rec-6	0.106	0.662	0.438	0.079	-0.023	-0.014
int-1	0.071	0.202	0.729	0.270	0.111	0.154
int-2	0.138	0.116	0.745	0.112	-0.006	0.222
int-3	0.321	0.207	0.717	-0.036	0.147	-0.015
int-4	0.038	0.204	0.826	0.223	0.073	0.106
Kaiser-Meyer-Olkin			0.816			
Bartlett's circular validation			1572.827			

4.4. Result of substantial analysis

4.4.1. Validation of research hypothesis

Hypothesis 1 The entrepreneurship (innovativeness, pro-activeness, risk-taking, social responsibility) of foreign students will affect significantly the intention of start-up.

Hypothesis 1-1 Innovativeness will affect significantly the intention of start-up.
Hypothesis 1-2 Pro-activeness will affect significantly the intention of start-up.
Hypothesis 1-3 Risk-taking will affect significantly the intention of start-up.
Hypothesis 1-4 Social responsibility will affect significantly the intention of start-up.

For the validation of the hypotheses above, linear regression analysis was conducted and the result was presented in Table 7. For the validation of sub-hypotheses, the entrepreneurship such as innovativeness, pro-activeness, risk-taking, and social responsibility of foreign students was set up as independent variable and the intention of start-up as an independent variable was expressed as a linear regression curve fitting. The t-value of regression parameter for innovativeness was 4.568 with the significance of 0.000 of which value was significant at p-value less than 0.05. The t-value of regression parameter for pro-activeness was 4.004 with the significance of 0.000 of which value was significant at p-value ledd than 0.05. The t-value of

regression parameter for risk-taking and social responsibility was 3.931 and 3.226, respectively. The significance p-value of risk-taking and social responsibility was 0.000 and 0.002, respectively, of which values were significant at p-value less than 0.05. The overall regression results for the effects of entrepreneurship on the intention of start-up was presented in Table 7.

Table 7: Regression analysis for the effects of entrepreneurship of foreign students on the intention of start-up

Dependent variable	Independent variable	Regression parameter					Regression model	
		Non-standard parameter		Standard parameter	t-value	Significance probability	F-value	R²
		B	Standard error					
Intention of start-up	Constant							
	innovativeness	.601	.132	.393	4.568	.000	20.865	.155
	pro-activeness	.410	.102	.351	4.004	.000	16.033	.116
	risk-taking	.352	.089	.346	3.931	.000	15.453	.119
	social responsibility	.303	.094	.289	3.226	.002	10.404	.084

Hypothesis 2 The recognition of foreign students will moderate significantly between entrepreneurship and intention of start-up.

Hypothesis 2-1 The recognition of intention will moderate significantly between innovativeness of entrepreneurship and intention of start-up of foreign students.

For the validation of sub-hypothesis 2-1 of hypothesis 2, the linear regression analysis was performed and the result was presented as Table 8. In the entrepreneurship of foreign students, the recognition of start-up between innovativeness and intention of start-up as an internal trait was expressed as R2 0.281, regression F-value 22.041, and significance 0.000 at the probability of significance less than 0.05, in which this regression model was adaptable. In the regression including the recognition of start-up as a mediating variable and interacting formula (innovativeness x recognition of start-up), R2 and F-value was 0.328 and 18.246, respectively, with significance 0.006 at the probability of significance. Since all interaction formula and the regulation variable were significant, the recognition of start-up can be a mediator of pseudo-regulation variable. Thus, the hypothesis 2-1 was adopted.

Table 8: Regression analysis for the mediating effect of recognition of start-up between innovativeness and intention of start-up of foreign students

Dependent variable	Independent variable	Regression parameter					Regression model	
		Non-standard parameter		Standard parameter	t-value	Significance probability	F-value	R²
		B	Standard error					
Intention of start-up	Constant	.493	.535		.922	.359	22.041 (.000)	.281
	innovativeness	.399	.130	.261	3.070	.003		
	recognition of start-up	.423	.095	.379	4.448	.000		
	Constant	-4.027	1.686		-2.389	.019	18.246 (.006)	.328
	innovativeness	1.487	.406	.973	3.663	.000		

recognition of start-up	1.796	.496	1.609	3.622	.000		
innovation and recognition	-.328	.116	-1.637	- 2.819	.006		

Hypothesis 2-2 The recognition of intention will moderate significantly between pro-activeness of entrepreneurship and intention of start-up of foreign students.

For the validation of sub-hypothesis 2-2 of hypothesis 2, the linear regression analysis was performed and the result was presented as Table 9. In the entrepreneurship of foreign students, the recognition of start-up between pro-activeness and intention of start-up as an internal trait was expressed as R2 0.318, regression F-value 26.290, and significance 0.000 at the probability of significance less than 0.05, in which this regression model was adaptable. In the regression including the recognition of start-up as a mediating variable and interacting formula (pro-activeness x recognition of start-up), R2 and F-value was 0.387 and 23.556, respectively, with significance 0.001 at the probability of significance. Since all interaction formula and the regulation variable were significant, the recognition of start-up can be a mediator of pseudo-regulation variable. Thus, the hypothesis 2-2 was adopted.

Table 9: Regression analysis for the mediating effect of recognition of start-up between pro-activeness and intention of start-up of foreign students

Dependent variable	Independent variable	Regression parameter					Regression model	
		Non-standard parameter		Standard parameter	t-value	Significance probably	F-value	R²
		B	Standard error					
Intention of start-up	Constant	.471	.461		1.021	.310	26.290 (.000)	.318
	pro-activeness	.365	.091	.312	4.006	.000		
	recognition of start-up	.494	.087	.442	5.671	.000		
	Constant	-4.226	1.391		-3.038	.003	23.556 (.001)	.387
	pro-activeness	1.605	.359	1.375	4.469	.000		
	recognition of start-up	1.810	.379	1.622	4.775	.000		
	pro-activeness and recognition	-.346	.097	-1.675	-3.558	.001		

Hypothesis 2-3 The recognition of intention will moderate significantly between risk-taking of entrepreneurship and intention of start-up of foreign students.

For the validation of sub-hypothesis 2-3 of hypothesis 2, the linear regression analysis was performed and the result was presented as Table 10. In the entrepreneurship of foreign students, the recognition of start-up between risk-taking and intention of start-up as an internal trait was expressed as R2 0.287, regression F-value 22.737, and significance 0.000 at the probability of significance less than 0.05, in which this regression model was adaptable. In the regression including the recognition of start-up as a mediating variable and interacting formula (risk-taking x recognition of start-up), R2 and F-value was 0.321 and 17.658, respectively, with significance 0.019 at the probability of significance. Since all interaction formula and the regulation variable were significant, the recognition of start-up can be a mediator of pseudo-regulation variable. Thus, the hypothesis 2-3 was

adopted.

Table 10: Regression analysis for the mediating effect of recognition of start-up between risk-taking and intention of start-up of foreign students

Dependent vaible	Independent variable	Regression parameter					Regression model	
		Non-standard parameter		Standard parameter	t-value	Significance probability	F-value	R²
		B	Standard error					
Intention of start-up	Constant	1.041	.403		2.581	.011	22.737 (.000)	.287
	risk-taking	.267	.083	.263	3.241	.002		
	recognition of start-up	.466	.090	.418	5.153	.000		
	Constant	-1.285	1057		-1.216	.227	17.658 (.019)	.321
	risk-taking	.954	.300	.937	3.177	.002		
	recognition of start-up	1.141	.298	1.022	3.832	.000		
	risk-taking and recognition	-.197	.083	-1.008	-2.374	.019		

Hypothesis 2-4 The recognition of intention will moderate significantly between social responsibility of entrepreneurship and intention of start-up of foreign students.

For the validation of sub-hypothesis 2-4 of hypothesis 2, the linear regression analysis was performed and the result was presented as Table 11. In the entrepreneurship of foreign students, the recognition of start-up between social responsibility and intention of start-up as an internal trait was expressed as R2 0.252, regression F-value 19.080, and significance 0.003 at the probability of significance less than 0.05, in which this regression model was adaptable. In the regression including the recognition of start-up as a mediating variable and interacting formula (social responsibility x recognition of start-up), R2 and F-value was 0.376 and 22.497, respectively, with significance 0.002 at the probability of significance. Since all interaction formula and the regulation variable were significant, the recognition of start-up can be a mediator of pseudo-regulation variable. Thus, the hypothesis 2-4 was adopted.

Table 11: Regression analysis for the mediating effect of recognition of start-up between social responsibility and intention of start-up of foreign students

Dependent vaible	Independent variable	Regression parameter					Regression model	
		Non-standard parameter		Standard parameter	t-value	Significance probability	F-value	R²
		B	Standard error					
Intention of start-up	Constant	1.270	.412		3.082	.003	19.080	.252
	social responsibility	.193	.088	.184	2.192	.030		
	recognition of start-up	.473	.094	.424	5.052	.000		
	Constant	-3.455	1.072		-3.222	.002	22.497	.376
	social responsibility	1.496	.288	1.429	5.190	.000		

| recognition of start-up | 1.847 | .304 | 1.654 | 6.074 | .000 | | |
| social responsibility and recognition | -.375 | .080 | -1.987 | -4.079 | .000 | | |

4.4.2. Analysis result of research model

The research model given below was summarized in Figure 2. Standard parameter values of independent variable, entrepreneurship to dependent variable, intention of start-up, and mediating variable, recognition of start-up, were given in Figure 2.
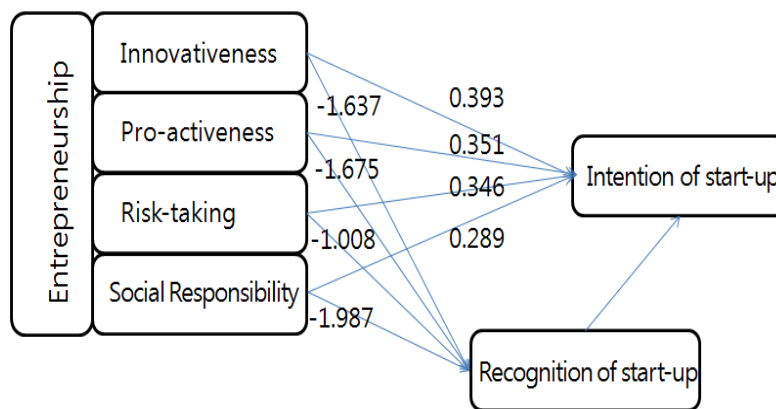

Figure 2: Analysis result of research model

5. Conclusion

5.1. Summary and conclusion

The present study aimed at investigating the effects of foreign students' entrepreneurship on the intention of start-up and the mediating effect of the recognition of start-up. For this, a total of 119 foreign students were used as survey targets and 116 significant respondents were used for substantial analysis. For the validation of the hypotheses in the present study, the linear regression analysis using SPSS program was used and the results and perspectives were obtained as follows. Firstly, the entrepreneurship such as innovativeness, pro-activeness, risk-taking, and social responsibility of foreign students affected positively the intention of start-up. Secondly, the recognition of start-up as a mediating variable affected significantly between entrepreneurship of foreign students and intention of start-up. Conclusively, the entrepreneurship of foreign students affects the intention of start-up and the recognition of start-up as a secondary mediating variable affected the intention of start-up.

5.2. Perspectives

The present study was focused on the effects of entrepreneurship of foreign students on the intention of start-up. In particular, it covered that the introductory start-up in foreign students leads to affect the international business in Korea by validating the effect of recognition of start-up on the intention of start-up. As a result of previous studies, the survey of the effect of entrepreneurship on recognition and intention of start-up was reported elsewhere, however, there has not been published the entrepreneurship traits of foreign students. This kind of survey research can be a useful information to understand the personal resource residing in Korea for future business outgrowth.

5.3. Research limitation and future works

It has the limitation to generalize the overall foreign students' correlation of entrepreneurship with start-up recognition and intention because the survey was conducted in restricted Daejeon city area. However, this information can be useful for understanding the foreign students's trait for entrepreneurship and planning the tailor-made entrepreneurship education.

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