

The Impact of Entrepreneurial Spirit on the Willingness to Start Up via Utilizing Knowledge and Information by College Students: Focused on Self-leadership's Mediating Effect and Regulating Effect of Gender

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ABSTRACT

Since business startups are known to have positive effects on the economic growth of a country, it is necessary to review the factors influencing the willingness to start new businesses for the people to act on business startups. In this regard, the study sought to reexamine the findings of previous research showing that the innovative, initiative, and risk-taking characteristics, which are the constitutive elements of entrepreneurships, influence the willingness to start up. Furthermore, in this study, attempts were made to empirically analyze the direct and indirect relationships of self-leadership influencing the willingness to start new businesses. Consequently, first, it showed that college students' entrepreneurship has positive effects on the willingness to start new businesses. Second, the significance of the gender of college students was not confirmed as to playing a regulating role in the relationship between entrepreneurship and the willingness to start up. Third, the relationship between self-leadership and the willingness to start new businesses was validated to be significant in a positive direction. Fourth, no mediating effect of self-leadership in the relationship between entrepreneurship and the willingness to start new businesses was observed. Such research results have the following significances. First, while there is an awareness that the concepts of business start-up, entrepreneurship, and leadership carry masculinity, the lack of regulating effect of gender may reflect the changing phases of time and society where women's participation has been increasing. Second, self-leadership is a concept by which one pioneers his or her own life and an influencing factor on the willingness to start up; however, since it has enormous impacts on the entrepreneurship and willingness to start up, relevant mediating effects were not observed and the magnitude of the important influence between entrepreneurship and the willingness to start up were confirmed.

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1. Introduction

The entrepreneurs' role and the importance of entrepreneurship have been stressed as an alternative to building engines for economic growth or overcoming economic crisis (Schumpeter, 1934). The importance of entrepreneurship and business startup is increasingly emphasized in countries such as Korea, which are shifting from factor-driven economy to innovation-driven economy (Ban, Kim, & Kim, 2013). In addition, Chen and Ku (2016) emphasized the importance of the Internet innovation, which must uncover new opportunities hidden behind the distorted information on the Internet, because of there are more benefits than harm in the utilization of correct information and knowledge through online. In addition, it showed that the Chinese economy, which was in an environment where entrepreneurship was suppressed due to anti-opening and anti-closure policies, changed the regulation environment by spreading successful cases of business startups through the Internet, analyzing utilization of personal knowledge and information as an important factor of the willingness of starting new businesses.

If we examine the dictionary definitions of information and knowledge industry, intellectual information ability and ideas are used, so creative mental activities are taken to be important, and so the activities of collecting, processing, and delivering information using advanced knowledge and technology are important. As a reflection of it, the Korean government announced that it has a budget of KRW 10.2 trillion for the Ministry of SMEs and Startups for 2019 in August 2018. Allotting over 55 % of the budget, which is about KRW 5.67 trillion, for the business startups and merchant support is indicative of how much the government cares for the business startups.

However, some have criticized whether this interest and support are effectively implemented and how they will bring greater efficiency to the national economy. This criticism has been reflected in the introduction of the business start up activation program as education related to technology and techniques centered on direct funding and start up methodology. As illustrated in the competency model presented by Spencer and Spencer (2008), the attitudes and values need to be changed in order to develop an individual's skills however, they also stressed that there is a limit to the fact that it does not reflect it properly because it is centered on techniques and skills. As such, in this capacity model, it is highlighted that knowledge and attitude are more emphasized than skills to bring out specific results or take actions towards such results.

In the EU, the Oslo Agenda in 2006 created a program to enable all of the knowledge, skills and attitudes to be learned through the entrepreneurship education as compulsory education for elementary, middle and high schools in the member states of the EU. From this point of view, this study intends to examine the influence of factors associated with the competence category of entrepreneurship and self-leadership with a view to facilitate entrepreneurship.

From another point of view, it is necessary to examine the relationship between entrepreneurship and business startups. First, many researchers have presented the concept of entrepreneurship from an opportunity's perspective. Most representatively, Stevenson (1983) introduced it as pursuing opportunities without being held back by controllable resources, whereas Drucker (1985) introduced entrepreneurs as those who utilize opportunities in response to change, whereas Shane and Venkataraman (2000) conceptualized entrepreneurship through the combination of opportunities to bring good profit-

ability and individuals who are engaged in entrepreneurial activities. Such awareness of opportunity leads to the intention of certain actions that induce the actions are the key contents of Ajzen's (1991) theory of planned behavior. This explains that in order for the people to take actions to start new businesses, which greatly influence the economic growth of a country, factors influencing the willingness to start up are required.

From this point of view and going farther from the previous studies of how innovation, initiative, and risk taking, which are constitutive elements of entrepreneurship, in this study, we intend to conduct an expanded study to find out how to use knowledge. In addition, self-leadership can be understood as a concept of leadership that exercises influences to develop one's own life, and it can influence entrepreneurship which is one of various career options for college students. In this study, we intend to empirically analyze the direct and indirect relationships of how self-leadership influences the willingness to start up.

In addition, traditionally speaking, entrepreneurship, leadership, and business start up seem to have a strong male tendency because they are related to factors responsible for livelihood. However, as the social activities of women are expanded relative to the past, the social roles expected of women have also changed, so that women can be cognitively or phenomenally confirmed that they can be more active in the business start up than in the past. Accordingly, in this study, we intend to empirically test as to whether the regulating effect of gender emerges in relation to entrepreneurship and the willingness to start up.

2. Theoretical Background & Setting Hypotheses

2.1 Entrepreneurial Spirit and Willingness to Start Up

Drucker (1993) defines the concept of entrepreneur as those pursuing opportunities by exploring and responding to changes and describes them as 'innovator who perform changes in the market through the execution of new unions. Innovation can be interpreted in a variety of ways, but it can be said that it is cost-saving and profit-making activities in a new approach, different from any other previous approaches, such as trying new changes in organizations, securing raw materials and parts to reduce costs, and improving production methods. Furthermore, an entrepreneur is a person with challenging spirit which faces risks and uncertainties and challenges new opportunities, and entrepreneurship is defined as organizational activity that is risk-taking, progressive, and innovative (Miller, 1983). Park and Kim (2004) define entrepreneurship as a process of predicting the future, capturing opportunities while taking risks, and pursuing innovation, whereas scholars who have studied entrepreneurship have found that entrepreneurship can be characterized by initiative, innovation, and risk-taking (Lumpkin & Dess, 1996; Weerawardena & Mort, 2006; Voss, Voss, & Moorman, 2005).

Innovation is the concept first introduced by Schuypeter (1934), which is referred to as the power of leading the market by demonstrating creativity, and is a process of market exploration, product development, and idea realization through organizations. Furthermore, entrepreneurship refers to the willingness to take the preempt market opportunity with the ability to act and commercialize

new ideas in an active manner (Lumpkin & Dess, 1996). In addition, risk-taking is distinguished as the entrepreneurs' tendency to accept failures made due to the uncertainty of change in politics, economy, and market (Sexton & Bowman, 1986). Under such a concept, it was analyzed that entrepreneurship is a critical factor that enterprises and the nations need to have beyond the individuals, and psychological factors (motivation, beliefs, attitudes, perceptions, and learning) can be helpful to the enterprises' growth.

Jiménez et al. (2015) empirically analyzed that the importance of entrepreneurship in Spain is crucial to innovation growth, business startups and the national economy, so that entrepreneurship education must be expanded across all educational programs in middle and high schools.

In addition, Chen and Ku (2016) emphasized the importance of the Internet innovation, which must uncover new opportunities hidden behind the distorted information on the Internet, because of there are more benefits than harm in the utilization of correct information and knowledge through online. In addition, it showed that the Chinese economy, which was in an environment where entrepreneurship was suppressed due to anti-opening and anti-closure policies, changed the regulation environment by spreading successful cases of business startups through the Internet, analyzing utilization of personal knowledge and information as an important factor of the willingness of starting new businesses. It can be inferred that rapidly changing environment, nowadays, has changed the perception and perspective towards entrepreneurship.

Under such a concept, entrepreneurship and the willingness to start up can be identified by various researchers as follows. As a result of examining the influence of the social entrepreneurship by classifying sub-variables of entrepreneurship into innovation, initiative, risk-taking, and social value orientation, Noh and Shin (2015) analyzed that they were variables influencing the willingness to start up in the order of innovation, initiative, risk taking, and social value orientation, respectively. Furthermore, Cho and Kim (2015) confirmed that risk-taking and self-efficacy among the college students' entrepreneurship have had positive effects on their willingness to start up.

In order to improve the willingness to start up, it was deemed important to cultivate the entrepreneurial spirit such as desire to achieve, risk-taking and self-efficacy. However, in the study on the effects of entrepreneurship of young entrepreneurs on the willingness to start up, Im, Kim, and Yoon (2004) found that innovativeness and risk-taking were the variables which had a significant effect on the willingness to start up, yet initiative was not a significant variable. In Cho (2017) study, it was also analyzed that initiative is not a factor influencing the willingness to start up. As such, the relationship between entrepreneurship and the willingness to start up was confirmed on multiple occasions, but since researchers did not agree on their previous research results, this study is intended to empirically validate the relationship between the college students' entrepreneurship and their willingness to start up and set the hypotheses as follows.

Hypothesis #1. The entrepreneurial spirit of college students will have a positive impact on their willingness to start up.

- Hypothesis 1.1 Innovation of college students will positively influence the willingness to start up.
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- Hypothesis 1.2 Risk-taking of college students will positively influence the willingness to start up.
- Hypothesis 1.3 Initiative of college students will have a positive impact on the willingness to start up.

2.2 Regulating Effect of Gender on the Relationship Between Entrepreneurship and Willingness to start up

As a result of analyzing the previous studies which looked at the relationship between entrepreneurship and the willingness to start up from the perspective of gender, Carland and Carland (1991) found that women CEOs have a stronger desire for achievement through entrepreneurship, such as risk-taking, innovation, and initiative, than male managers, while having the characteristic of preferring stability on the other hand. Brush (1992) noted the limitations of focusing on women's traditional enterprises, which are similar to domestic roles when choosing industries, because they are disadvantageous in acquiring resources compared to men in the process of starting up a business.

However, beginning in the 2000s, women's disposable income worldwide has reached \$18 trillion well in excess of twice the GDP combining that of China and India following the growth of the women's economic power, and as women's decision-making factor increased (Silverstein & Sayre, 2009), women's social influence has been also incrementally grown. Furthermore, the level of venture investment rate in women CEOs is rising as the social awareness of women's horizontal leadership became more prominent than that of men of vertical and authoritarian leadership.

Analyzing based on the data from Dow Jones Venture Source in 2017, De Crescenzo (2018) found that 14% of the start up capital investment in 2017 were invested in the women-led enterprises, and 16% of 14,000 new start ups had women CEOs, which represented rising entry of women leaders into the society, from 10% in 2009 to 18% in 2014, respectively. In addition, James (2015) claimed that Intel, a US semiconductor chip manufacturer, is also seeking ways to invest in the women-owned venture companies in India as part of its global program to enhance its diversity in technology business. However, women entrepreneurs in Korea were criticized for many cases of failure as they start up businesses in a field that is not related to their experiences or without having the experience of organizational life.

In addition, Kim, Kwon, and Yoon (2014) recent research on the effect of entrepreneurship on the willingness to start up among the college students majoring in culinary and hotel and restaurant management revealed that regulating effects were dependent on the gender, while it was revealed in the studies of Lee, Jung, Jang, and Na (2013) that in order to prepare for the aging society, women should actively be led to the entrepreneurial ecosystem, because the participation of women in economic activities is growing and the number of successful entrepreneurs is increasing, and that it is necessary to overcome male centrism and to make efforts to promote women's entrepreneurship. Furthermore, Jeon and Park (2015) claimed that women entrepreneurs are exploding in number due to changes in the entrepreneurial ecosystem, and that excellent women workers should take entrepreneurship.

As shown in the above studies, analyzing the impact of gender and entrepreneurship on the

willingness to start is deemed appropriate and thus hypotheses are set as follows for a regulating validation for this study.

Hypothesis #2. The gender of college students will adjust the impact of entrepreneurship on the willingness to start up.

- Hypothesis 2.1 Gender of college students will regulate the influence of innovation on the willingness to start up.
- Hypothesis 2.2 Gender of college students will regulate the influence of risk-taking on the willingness to start up.
- Hypothesis 2.3 Gender of college students will regulate the influence of initiative on the willingness to start up.

2.3 Entrepreneurship and Self leadership

Entrepreneurship may be said to be a spirit of constant challenge to create new values and opportunities through innovation, initiative, and risk-taking without being bound by the resources that can be controlled in a rapidly changing competitive environment and may be also said to be the attitude and competency to contribute. In addition, leadership may be identified as a concept which signifies influence on other people rather than position or title. Also, it can be observed to be strong in terms of organization management, in which influence is the process of exercising power (Ha & Jung, 2011).

The characteristic study of entrepreneurship primarily focuses on identifying specific personality variables and in order to do so, the level of achievement, control position, risk-taking, and tolerance to ambiguity are validated. On the other hand, the characteristics of the individuals discussed in terms of leadership can be seen as kindness, job motivation, emotional balance, superiority, ethical behavior, creativity and courage. That is, if the characteristics of the leader and the leadership are studied in terms of the various characteristics of the individual influencing the performance within the category of characteristics, the difference is apparent that the aspect of entrepreneurship is stressed in building and operating a new organization.

As such, there are many similarities between the concept of entrepreneurship and the concept of leadership in that they both have some confusion, but there is a big difference in the method of study and practical application. Accordingly, entrepreneurship is claimed to be a part of leadership in a particular context, but entrepreneurship can be interpreted in a sense different from leadership under the concept that it is the creation of something new rather than managing the existing (Im & Lee, 2017).

Entrepreneurship can be seen as innovation, that is, risk-taking along with innovativeness pursuing the new, and initiative of getting ahead of others (Yoo & Kim, 2015). This indicates that self-leadership may be even more important for innovation-oriented people (Pearce & Manz, 2005), and self-leadership may be much more helpful for risk-taking entrepreneurs (D'Intino et al., 2007), and those with strong initiative were found to have relatively stronger self-leadership compared to those who have

less strong initiative (Yun & Sims, 2006). As such, it can be construed that entrepreneurship and self-leadership are closely related to each other.

Self-leadership, in accordance with the recent trends, is emphasized efforts of each member to exercise influences and lead to desirable thoughts and actions, unlike the traditional leadership that focuses only on the influence of the leader in order to achieve the organizational performance (Song, 2013). In the previous studies of self-leadership (Houghton & Neck, 2002; Neck & Manz, 2010), the self-leadership of the constituents is also expected to serve innovative roles that maintains entrepreneurship, resulting in influencing the entrepreneurial spirit. It can be also said to be an initiative response mechanism used to cope with changes in the environment or organization of an enterprise in active response to a rapidly changing entrepreneurial spirit environment or organizational change.

Accordingly, there is a study claiming that since self-leadership can determine self-regulation towards environmental changes and the level of intention of self-control, the relationship with entrepreneurship will be very likely to be close (Kim & Noh, 2012). In addition, it is defined as an element of behavioral activities that approach self-goal-setting and passion of college students without further dividing them into sub-elements such as behavior-centric strategy, natural compensation strategy, and constructive thinking strategy, which are sub-elements of self-leadership (Song, 2013).

Innovation in entrepreneurship could mean a tendency to generate new ideas that are needed to create new products or services that have not existed before. That is, innovation reflects the entrepreneurial tendency to support and promote new ideas, research and development, and creative processes that lead to new products, new services, and technology development (Yoo, 2010). Examining the previous studies related to innovation and self-leadership in the context of entrepreneurship, innovation has been empirically validated to have a positive relationship with self-leadership (Neck & Houghton, 2006).

The relationship between entrepreneurship's risk-taking and self-leadership implies a tendency to introduce risk-preferred decision-making, which seeks opportunities despite risks in making business decisions where uncertainty exists, and in this regard, it was claimed that it can exercise influences (Kim, 2008).

In addition, the relationship between entrepreneurship's initiative and self-leadership is an entrepreneurial attitude to anticipate new opportunities and secure new markets by promoting new opportunities (Lee, 2016).

As such, since entrepreneurship is determined to have impacts on self-leadership based on multiple previous studies along with conceptual understanding, in this study, we intend to empirically validate the relationship with college students by setting hypotheses as follow.

Hypothesis #3. Entrepreneurship of college students will have a positive impact on self-leadership.

- Hypothesis 3.1 Innovation of college students will have a positive effect on self-leadership.
 - Hypothesis 3.2 Risk-taking of college students will have a positive effect on self-leadership.
 - Hypothesis 3.3 Initiative of college students will have a positive impact on self-leadership.
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2.4 Self leadership and Willingness to Start Up

Self-leadership is a leadership which exercises influences for self-direction while controlling and managing his or her own actions and thoughts and is a broad concept which encompasses both behavioral and cognitive aspects of how he or she exercises influences on him or herself (Manz & Sims, 2001). Individuals with high cognitive strategies of self-leadership focus on the potentials of problems and have a positive perception to overcome difficulties. In addition, individuals with high self-leadership have a strong desire to overcome difficulties that may arise during the business startup process, indicative of the close relationship between self-leadership and entrepreneurship (Kim & Kim, 2017).

When college students start up a new business, behavioral and cognitive strategies of self-leadership which have performance-oriented thoughts and actions can exercise a positive influence in solving encountered problems and overcoming difficulties. In addition, individuals with high self-leadership contribute to enhancing organizational performance by engaging in self-motivation and self-management and demonstrating individual creativity and voluntary abilities (Houghton & Neck, 2002).

Since the risk of decision making is always present when a founder is performing management, and self-leadership, which cope with such risks, is believed to be capable of exercising appropriate control in unpredicted situations, decision-making maintains even higher independence in the business startup process, so it has a positive influence on the willingness to start up (Cho & Kim, 2015).

Cho and Kim (2015) found that risk-taking and self-efficacy influence the willingness to start up among college students, and Seo (2013) validated that desire to achieve, self-efficacy, innovation, personal competence, and pursuit of career influence the willingness to start up. Therefore, the willingness to start up influencing self-leadership is believed to be highly related to the characteristics of cognitive strategies influencing self and thus self-leadership will positively influence the willingness to start up.

Based on such previous research results, we intend to set and validate by the following hypothesis.

Hypothesis #4. The self-leadership of college students will have a positive impact on their willingness to start up.

2.5 Mediating Effect of Self-leadership in the Relationship Between Entrepreneurship and Willingness to Start Up

For college students, if they understand the education of entrepreneurship and have a high level of awareness of creativity of entrepreneurship, it will influence what they can joyfully do and areas they find interest in, making a positive influence on self-leadership (Kim & Roh, 2012). Therefore, the higher level of satisfaction that college students have from entrepreneurship will lead to the more positive influence they have on their entrepreneurial will. Yoo (2014) conducted a study on the relationship between self-leadership and entrepreneurship in which he observed 195 entrepreneurs

from the business startup incubator agency and proved that self-leadership positively influence the willingness to start up through the mediating effect of the entrepreneurial efficacy and intrinsic motivation.

Considering the discussions of the previous studies examined in the above, entrepreneurship positively influences self-leadership, and since self-leadership is believed to positively influence the willingness to start up, a mediating role of self-leadership between entrepreneurship and the willingness to start up can be assumed. Following such a logical assumption, the below hypothesis has been set.

Hypothesis #5. The self-leadership of college students will have a mediating effect in between entrepreneurship and the willingness to start up.

3. Research Model and Variable Measurement

3.1 Research Model

Based on the analysis of various previous studies, we have set the model as in [Figure 1].

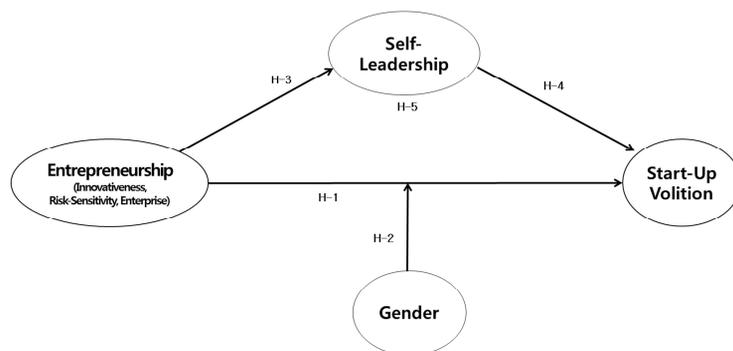


Fig. 1. Research Model

3.2 Operational Definition and Measurement of Variables

The variables of this study are largely entrepreneurship (innovation, risk-taking, and initiative), self-leadership, and the willingness to start up, and through various previous studies, their concepts have been clarified and surveys have been developed. Accordingly, in this study, we have developed a questionnaire based on the operational definition of the variables presented in Table 1.

Table 1. Distribution of Research Subjects by Demographic Characteristics

Name of Variable	Operational Definition of Variable	Previous Study	No. of Questions
Entrepreneurship	Innovation: Endeavoring to find new opportunities and new solutions Risk-taking: Exploring opportunities via entrepreneurial actions ahead of competitors Initiative: Attitude to capture opportunities even when one is aware of the presence of risk factors	Lumpkin & Dess (1996)	17
Self-leadership	The power of influence exercised to control and manage one's own actions and thoughts with the willingness to develop with self-direction	Manz & Sims (2001)	15
Intention to start up	The extent to which one thinks about and endeavors to start up business on his or her own	Kim, Kwon, & Yoon (2014)	10

4. Empirical Research

4.1 Characteristics of Samples

The purpose of this study is to verify the mediating effects of self-leadership, while identifying entrepreneurship as influential factor of the students' willingness to start up. To this end, we have conducted a questionnaire survey for students attending colleges and universities in Seoul and Chungcheong regions from September through December 2015. A total of 300 copies of questionnaires were recovered, among which 247 significant copies were obtained, and 62.7% of the respondents were male students and 37.3% were female students. As for their majors, 23.5% were humanities and social sciences, 41.7% were commerce, and 30.4% were science and engineering, and as for their grade level, 31.6% were freshmen, 28.9% were sophomores, 23.5% were juniors, and 17.0% were seniors. In addition, 47.0% of students received entrepreneurship education and the remaining 53% students did not. The results are illustrated in Table 2.

Table 2. Distribution of Research Subjects by Demographic Characteristics

Item	Frequency	Weight (%)	Item	Frequency	Weight (%)
Gender	Male	155	Entrepreneurship Education	Yes	116
	Female	92		No	131
Major Program	Humanities and Social Sciences	58	Grade Year	Freshmen	78
	Commerce	103		Sophomores	69
	Science and Engineering	75		Juniors	58
	Other	11		Seniors	42
		4.4			17

4.2 Testing of Research Model

In this study, we have conducted an analysis through SPSS to validate the hypotheses presented earlier. First, factor analysis to determine whether the concept of configuration is valid, reliability analysis to check the reliability of questionnaires and correlation analysis to confirm the connectivity between factors were carried out. All items were analyzed for principal components and only the factors greater than 1 were extracted. In addition, exploratory analysis was performed through orthogonal rotation as illustrated in [Table 3]. Consequently, out of the 3 factors of entrepreneurial orientation, innovation and risk-taking were loaded on 5 of the 6 items, whereas initiative was loaded only on 2 items. The reason why initiative was loaded only on relatively less items was that each 2-item without the load of initiative was loaded with innovation and risk-taking. Examining the items loaded with other factors, such as "I am not afraid to fail and I can confidently challenge myself," and "I have a willingness to discontinue any program that I think is no longer effective or necessary." they were found to be similarly perceived as risk-taking by college students, and the other 2 items were also observed to be loaded on the innovation factor. 9 out of the total 10 items were loaded with willingness to start up, and self-leadership were classified into 3 factors each of which had 5 items composed of 4 items of self-goal setting and successful performance imagination factors and 3 items of natural compensation factor.

On the other hand, the reliability of the measured variables was confirmed by Cronbach's α coefficient value. Consequently, it was found that the results from most of the variables exceeded the reference value of 0.6, while the entrepreneurial initiative showed .529, indicating that the internal consistency was insufficient. Accordingly, in this study, we intend to exclude initiative from the subjects of hypothesis testing due to lack of loading value and low reliability.

Table 3. Explorative Factor Analysis and Reliability Analysis Results by Variables' Characteristics

Classification	Component							Reliability	Median	Standard Deviation
	1	2	3	4	5	6	7			
Intention to start up10	0.863	0.114	-0.026	0.08	0.105	0.057	0.098	0.932	3.222	1.546
Intention to start up07	0.820	0.096	0.084	-0.006	0.094	0.134	-0.056			
Intention to start up06	0.814	0.111	0.037	0.103	0.24	0.1	0.106			
Intention to start up08	0.787	0.262	0.032	0.036	0.027	0.067	-0.075			
Intention to start up9	0.769	0.236	0.019	0.09	0.028	0.065	-0.079			
Intention to start up5	0.761	0.264	-0.057	0.078	0.111	0.122	0.285			
Intention to start up2	0.686	0.068	0.145	0.023	0.238	0.093	0.11			
Intention to start up4	0.666	0.295	-0.009	0.11	0.146	0.108	0.238			
Intention to start up3	0.649	0.157	0.046	0.136	0.327	-0.01	0.008			

Classification	Component							Reliability	Median	Standard Deviation
	1	2	3	4	5	6	7			
Risk-taking3	0.174	0.775	0.003	0.024	0.172	0.119	0.069	0.844	3.262	0.959
Risk-taking 6	0.323	0.743	0.086	0.133	0.199	-0.021	0.039			
Risk-taking4	0.158	0.706	0.049	0.105	0.133	0.124	-0.068			
Risk-taking5	0.272	0.627	0.195	0.184	0.063	0.116	0.092			
Risk-taking2	0.218	0.593	0.151	0.009	0.289	0.172	0.229	0.876	3.651	0.88
Self-leadershipB1	-0.066	0.108	0.855	0.142	0.07	0.039	0.034			
Self-leadershipB2	0.007	0.036	0.834	0.096	0.107	0.059	0.169			
Self-leadershipB3	0.006	0.11	0.815	0.14	0.041	0.073	0.09			
Self-leadershipB4	0.096	0.054	0.763	0.237	0.15	0.081	-0.088	0.888	3.687	0.906
Self-leadershipT2	0.139	0.13	0.119	0.879	0.05	0.094	0.104			
Self-leadershipT3	0.074	0.029	0.161	0.844	0.131	0.044	0.106			
Self-leadershipT1	0.076	0.047	0.256	0.773	0.119	0.081	0.254			
Self-leadershipT4	0.151	0.251	0.184	0.737	0.12	0.216	-0.114	0.871	3.637	0.963
Innovation4	0.284	0.136	0.158	0.078	0.678	0.16	0.126			
Innovation2	0.322	0.282	0.154	0.055	0.676	0.191	0.082			
Innovation3	0.273	0.304	0.044	0.178	0.675	0.171	0.041			
Innovation5	0.171	0.161	0.18	0.129	0.604	0.058	0.368	0.688	3.721	0.744
Innovation6	0.331	0.253	0.17	0.086	0.579	0.276	0.279			
Self-leadershipN4	0.09	0.148	0.155	0.13	0.179	0.741	0.069			
Self-leadershipN2	0.128	0.116	0.176	0.223	0.216	0.653	-0.187			
Self-leadershipN3	0.161	0.082	0.038	0.069	0.147	0.638	0.443	0.529	3.866	0.707
Initiative4	0.09	0.218	0.048	0.165	0.099	0.066	0.722			
Initiative 5	0.056	0.094	0.284	0.091	0.284	0.046	0.581			

* Reliability of integrated entrepreneurship: .891, * Reliability of integrated self leadership: .860

Next, correlation analysis was performed through the Pearson correlation analysis to determine whether variables are mutually independent or related. As illustrated in Table 4, all of the independent variables except some gender variables used as control variables and entrepreneurship education used as the control variable have a significant correlation.

Table 4. Correlation Analysis Between Variables

Classification		Innovation	Risk-taking	Self-leadership	Intention to start up	Gender	Presence or absence of entrepreneurship education
Innovation	Pearson Correlation Coefficient	1					
Risk-taking	Pearson Correlation Coefficient	.629**	1				
Self-leadership	Pearson Correlation Coefficient	.574**	.478**	1			
Intention to start up	Pearson Correlation Coefficient	.577**	.560**	.345**	1		
Gender	Pearson Correlation Coefficient	-.192**	-.161*	-0.005	-0.076	1	
Presence or absence of entrepreneurship education	Pearson Correlation Coefficient	-0.112	-0.071	-0.084	-0.109	0.123	1

** Significant at $p < 0.01$, * $P < 0.05$

4.3 Testing of Hypothesis

4.3.1 The Impact of Entrepreneurship on the Willingness to Start Up

The results of analyzing how entrepreneurship of college students influences their willingness to start up are as follow. First, the hypothesis 1 was adopted for the effect of entrepreneurship on the possibility of employment with the experience of entrepreneurship education as the control variable as illustrated in Table 5. As a result of analyzing the influence of individual entrepreneurship, the hypotheses 1-1 and 1-2 were adopted because innovation and risk-taking positively influenced the willingness to start up, and their differences in influential power were .367, and .326 respectively, based on the standard coefficient, indicating that innovation has a slightly greater impact on entrepreneurship than risk-taking.

Table 5. The Impact of Entrepreneurship on the Willingness to Start Up

Model		Non-Standardization Coefficient		Standardization Coefficient		t	Significance Probability	95.0% FOR B Confidence Interval		Collinearity Statistics	
Independent Variable	Dependent Variable	B	Standard Error	B				Minimum value	Maximum value	Tolerance	VIF
(Constant)	Intention to start up	-0.138	0.303			-0.456	0.649	-0.736	0.459		
Entrepreneurship		0.963	0.08	0.611		11.966	0.000	0.804	1.121	0.98	1.02
(Control)Presence or absence of entrepreneurship education		-0.047	0.103	-0.023		-0.46	0.646	-0.25	0.155	0.98	1.02
(Constant)	Intention to start up	0.11	0.271			0.404	0.687	-0.425	0.644		
(Control)Presence or absence of entrepreneurship education		-0.089	0.101	-0.044		-0.885	0.377	-0.288	0.109	0.987	1.013
Innovation		0.467	0.082	0.367		5.715	0.000	0.306	0.628	0.601	1.665
Risk taking		0.444	0.087	0.326		5.104	0.000	0.273	0.616	0.605	1.653

a. Dependent variable: Willingness to start up (significant at $p < 0.05$, $p < 0.01$, and $p < 0.001$)

4.3.2 The Impact of Entrepreneurship on Self-Leadership

Meanwhile, the results of analyzing how the college students' entrepreneurship influences self-leadership, following previous studies, are as illustrated in [Table 6]. Also, in this model, the impacts of entrepreneurship on self-leadership, having the entrepreneurship education experience as the control variable, were studied and the results are as illustrated in [Table 6], which shows that entrepreneurship has a positive effect on self-leadership, so the hypothesis 2 was adopted. In addition, the hypotheses 2-1 and 2-2 were adopted because each of the innovation and risk-taking positively influenced self-leadership. Also, in terms of influence, innovation and risk-taking respectively were .451 and .194, based on the standard coefficient, demonstrating that innovation has a greater influence on self-leadership than risk taking.

Table 6. The Impact of Entrepreneurship on Self leadership

Model		Non-Standardization Coefficient		Standardization Coefficient	t	Significance Probability	95.0% FOR B Confidence Interval		Collinearity Statistics	
Independent Variable	Dependent Variable	B	Standard Error	β			Minimum value	Maximum value	Tolerance	VIF
(Constant)	Self-leadership	1.721	0.166		10.341	0.000	1.393	2.049		
(Control) Presence or absence of entrepreneurship education		0.013	0.056	0.011	0.224	0.823	-0.098	0.124	0.98	1.02
Entrepreneurship		0.557	0.044	0.633	12.617	0.000	0.47	0.644	0.98	1.02
(Constant)	Self-leadership	2.045	0.157		12.999	0.000	1.735	2.355		
(Control) Presence or absence of entrepreneurship education		-0.015	0.058	-0.013	-0.251	0.802	-0.13	0.1	0.987	1.013
Innovation		0.321	0.047	0.451	6.769	0.000	0.227	0.414	0.601	1.665
Risk taking		0.148	0.05	0.194	2.924	0.004	0.048	0.247	0.605	1.653

* Significant at $p < 0.05$, $p < 0.01$, and $p < 0.001$

4.3.3 The Impact of Self-Leadership on the Willingness to Start Up

Next, as a result of empirically validating how self-leadership influences the willingness to start up, while having the presence or absence of entrepreneurship education as the control variable, the significance was validated as illustrated in Table 7 and the hypothesis 3 was adopted

Table 7. The Impact of Self leadership on the Willingness to Start Up

Model		Non-Standardization Coefficient		Standardization Coefficient	t	Significance Probability	95.0% FOR B Confidence Interval		Collinearity Statistics	
Independent Variable	Dependent Variable	B	Standard Error	β			Minimum value	Maximum value	Tolerance	VIF
(Constant)	Intention to start up	1.103	0.413		2.67	0.008	0.289	1.917		
(Control) Presence or absence of entrepreneurship education		-0.167	0.121	-0.083	-1.382	0.168	-0.405	0.071	0.994	1.006
Self-leadership		0.606	0.107	0.339	5.638	0.000	0.394	0.818	0.994	1.006

* Significant at $p < 0.05$, $p < 0.01$, and $p < 0.001$

4.3.4 Mediating Effect of Self-Leadership on the Relationship between Entrepreneurship and the Willingness to Start Up

Next, we have examined the mediating effects of self-leadership on the relationship between entrepreneurship and the willingness to start up. Consequently, as illustrated in [Table 8], entrepreneurship and the willingness to start up were confirmed for direct effects, but the hypothesis 4 was dismissed since no indirect effect was found. Since the results of the mediating effects of such

self-leadership were not found on the relationships among innovation, risk-taking and the willingness to start up each of which is individual entrepreneurship, the hypotheses 4-1 and 4-2 were dismissed.

Table 8. The Mediating Effect of Self-leadership on the Impact of Entrepreneurship on the Willingness to Start Up

Independent Variable	Dependent Variable	Path	Effect	SE	p	LLCI	ULCI
Entrepreneurship	Intention to start up	Direct	1.0381	0.10225	0.000	0.8363	1.24
		Indirect (Self-leadership)	-0.0702	0.0737		-0.2292	0.056
Innovation		Direct	0.7199	0.0814	0.000	0.5596	0.8802
		Indirect (Self-leadership)	0.015	0.0465		-0.0844	0.102
Risk-taking		Direct	0.6974	0.0818	0.000	0.5363	0.8584
		Indirect (Self-leadership)	0.0651	0.0412		-0.0065	0.1603

* Significant at p<0.05, p<0.01, and p<0.001

4.3.5 Regulating Effect of Gender in the Relationship of Entrepreneurship and the Willingness to Start Up

Lastly, since no regulating effect of gender was found on the relationship between entrepreneurship and the willingness to start up as illustrated in Table 9, the hypothesis 5 was dismissed. Same results were found in the detailed factors of entrepreneurship, and the hypotheses 5-1 and 5-2 were dismissed because no regulating effect of gender was found in the relationships among innovation, risk-taking and the willingness to start up.

Table 9. Regulating Effect of Gender on the Impact of Entrepreneurship on the Willingness to Start Up

Model		coeff	se	t	p	LLCI	ULCI
1	Constant	-0.287	0.4479	-0.6407	0.5223	-1.1693	0.5953
	Gender	0.2423	0.5851	0.4141	0.6792	-0.9103	1.3948
	Entrepreneurship	0.9958	0.1199	8.3078	0.7898	-0.363	0.2764
	int_1(Entrepreneurship*Gender)	-0.0433	0.1623	-0.2669	0.7898	-0.363	0.2764
2	Constant	0.7928	0.3948	2.008	0.0457	0.0151	1.5705
	Gender	-0.2997	0.5095	-0.5883	0.5569	-1.3033	0.7039
	Innovation	0.6791	0.1006	6.7473	0.000	0.4808	0.8774
	int_1(Innovation*Gender)	0.0998	0.1356	0.7358	0.4626	-0.1673	0.3669
3	Constant	0.8996	0.3431	2.5268	0.0121	0.1911	1.5427
	Gender	-0.1226	0.4979	-0.2462	0.8057	-1.1033	0.8581
	Risk taking	0.7364	0.0975	7.5508	0.000	0.5443	0.9285
	int_1(Risk taking*Gender)	0.0576	0.1473	0.3912	0.696	-0.2326	0.3479

* Significant at p<0.05, p<0.01, and p<0.001

5. Discussion

This study was conducted according to the recognition and necessity to activate the business startups while the social consciousness and consensus that recognize business startups as having positive effects on the national economy are formed. Though existing business startup activation programs focusing on technologies and techniques have been provided to students, the skepticism criticizing whether such technologies and techniques contribute to the activation of business startups was raised. In the meantime, the researchers of this study acknowledged that knowledge and attitudes are even more important than technologies and techniques based on competency model of Spencer and Spencer (2008) and accepted Ajzen's (1991) theory of planned behavior to change attitudes.

Consequently, intention is vital to activate the behaviors of business startups, and considering innovation, initiative, and risk-taking, which are components of entrepreneurship, as the influential factors of intention as validated in previous studies, we have examined their relationships with the willingness to start up. In addition, under the judgement that self-leadership for exercising influences for self-development will influence the individual's self-directed behavior of business startups, we have identified direct and indirect influences of self-leadership on the willingness to start up. Lastly, in the environment where entrepreneurship, business startups, and self-leadership are recognized as to have masculinity for their tendency, regulating effects of gender on the relationship between entrepreneurship and the willingness to start up was examined, reflecting the changes in social awareness and expectation for women. The results of empirically validating the hypotheses set for college students as per the research background and purposes are as follow. First, the entrepreneurship of college students has positive effects on the willingness to start up. Examining the relationships among components of detailed entrepreneurship also, as expected, revealed that innovation and risk-taking have positive effects on the willingness to start up. Meanwhile, in this study, which examined college students, initiative was insufficiently loaded as a separate factor, and even among the items loaded, reliability was so low that the influence of initiative was excluded from hypotheses testing. Second, as a result of confirming whether the gender of college students plays a regulating role in the relationship between entrepreneurship and the willingness to start up, the significance was not found. This means that the result is reflective of the change in the concept of the traditional gender role, which defines the role of men as a breadwinner and that of women as a caretaker, gradually disappears and women can also start up businesses on an equal footing with men. Third, the relationship between self-leadership and the willingness to start up has also been validated to be positive. As such, it was observed that entrepreneurship as well as the level of self-leadership need to be elevated in order to strengthen the willingness to start up.

Meanwhile, as a result of identifying the degree of influences that entrepreneurship and self-leadership have on the willingness to start up based on standard coefficient, it was found that the entrepreneurship had .633 and self-leadership had .339, indicating that the former has a greater influence on the willingness to start up. These results demonstrated that entrepreneurship is the concept of individuals' competency to start up businesses and have stronger influence compared to self-leadership. In addition, mediating effects of self-leadership was not found on the relationship between entrepreneurship and the willingness to start up. This can be understood as because of the strong direct influence

of entrepreneurship of 0.963 (non-standardization coefficient), the indirect effects of self-leadership were not reflected in their relationships. Lastly, no regulating effect of gender was found, reflecting the time. In other words, entrepreneurship has been believed to have a strong masculinity from the traditional point of view, but recently, women entrepreneurs and leaders have emerged much more than in the past, and it may be interpreted that their gender orientation in entrepreneurship is diminishing or gradually fading away as they make successful businesses.

6. Conclusion

As described earlier, in this study, we have attempted to investigate the effects of entrepreneurship and self-leadership on the willingness to start up, mediating effects of self-leadership and regulating effects of genders. This study differs from previous studies in that it pre-defined the entrepreneurship as individuals' competency and then adapted the theory of planned behavior which identifies willingness (intention) as an influential factor of attitude in order to validate the theory since attitude carries a greater importance compared to technology and technique. In addition, in this study, we were able to find the difference between entrepreneurship and leadership in that the entrepreneurship is the factor which has a greater influence over the willingness to start up amidst the reality in which the concepts of entrepreneurship and leadership are mixed, which may be said to the meaning of this study and what sets this study apart from other studies. However, notwithstanding such differences from previous studies, since there may have some limitations in the study as follow, additional studies will need to be carried out for supplementation. First, the limit of the sample. Because this study examined 247 college students from two colleges located in Seoul and Chungbuk regions, generalizing the study results have some limitations. Therefore, in future studies, we need to attempt to generalize the results by increasing the number of samples. Second, even if students are from the same college, different or even more meaningful results can be extracted according to various demographic variables. Therefore, future studies should provide more detailed results by classifying major, grade year, and income level. Lastly, considering the previous research claiming that the individual's willingness to start up is greatly influenced by social capital and social support, it will be necessary to understand the influence of these variables.

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