Does Social Network Increase Japanese College Students' Entrepreneurship Intentions? The Interactive Effect with Career Plan and Interdisciplinary Diversity

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Abstract

Low rate of entrepreneurship has been troubling Japan for decades. This study examines the main and interactive effects of social network, career plan, and interdisciplinary diversity in promoting Japanese college students' entrepreneurship intentions, where a sample of around 210 undergraduate students was included. Results showed that the range and status of social network were positively related to entrepreneurship intentions. In addition, career plan and interdisciplinary diversity had interactive effects on the relationship between social network and entrepreneurship intentions. Study results suggest that students who have wide range and high status of social network are more likely to have entrepreneurship intentions, and they would be stronger when students have clear career plan or diverse interdisciplinary knowledge.

Keywords: entrepreneurial intentions; social network; career plan; interdisciplinary diversity

Introduction

It is abundantly clear that entrepreneurship is important for economic growth, productivity, innovation and employment (W. Sander& R. Thurik, 1999). Young, high growth companies are essential drivers of economic growth and prosperity in the mature economies of Japan in the twenty-first century (A. Zoltan, 2006). However, according to the research from The Global Entrepreneurship Monitor (GEM), in the past decade, Japan recorded one of the lowest rates of entrepreneurial activity among the world's leading nations. Most of the Japanese college students tend to search for jobs in large companies and then getting stuck in the lifetime employment and seniority-based wage system. It has been an issue to encourage Japanese young people's entrepreneurship (Blanchflower, D. G., Oswald, A., & Stutzer, A., 2001). Nevertheless, far too little attention has been paid to college students as they have high propensity to start a venture (Krueger et al. 2000, Liñán et al. 2007).

Even though it has been popular to explain this phenomenon by pointing to the peculiarities of Japanese high uncertainty avoidance culture (Mueller, S. L., & Thomas, A. S., 2001, Lee, S. M., & Peterson, S. J., 2001), we still seek to know why some students intend to start their own business but not others. This paper attempts to find out what characteristics do the Japanese college students have, that would lead to entrepreneurial intentions.

A large number of studies on qualitative aspects of entrepreneurs have focused on the psychological characteristics and personality traits, such as the big five personality (Zhao, H., &Seibert, S. E.,2006) or risk propensity (Zhao, H., Seibert, S. E., & Hills, G. E., 2005). Later studies have emphasized the importance of different demographic factors, such as age, gender, religion, ethnic group, education, family, socioeconomic

status, and professional experience (Reynolds et al. 1994). Both research studies have made possible the identification of some significant relationships between several traits and demographic factors of individuals, on the one hand, and the fulfillment of entrepreneurial behaviors on the other hand. Nevertheless, from a theoretical point of view, both approaches have been criticized due to their methodological and conceptual problems, and also for their low explanatory capacity (Krueger et al. 2000). In fact, according to Chell (1986), accepting these approaches would mean that nobody can learn to be an entrepreneur.

Consequently, we set out to find out what kind of behaviors and experience that the Japanese college students have in their school life, would have an impact on entrepreneurial intentions, which manifest as the intention to start up their own business or acquire a small business in recent years after graduation (Zhao, H., Seibert, S. E., & Hills, G. E., 2005).

According to Burt (2002), entrepreneurs require information, capital, skills, and labor to start business activities. Through their social network, these are probably gained like support, knowledge, and access to distribution channels (Greve, A., & Salaff, J. W., 2003). Based on studies on social network which will be discussed below, in our study, we attempt to indicate and examine the relationship between social network and entrepreneurial intentions among Japanese college students. Social networks have several useful properties for entrepreneurs, which usually refer to size, density, strength, range and status (ArentGreve&Janet W. Salaff, 2003). Since our study object is college students, the social network would usually be strong ties, which means they generally have relationships with families and friends. Still, a student who is in a club or circle activity would normally have a big size and a high density of social network— like

friends from the same club. However, it is still rare for them to get out of the usual way of job hunting and getting entrepreneurial intentions. Then we speculate that the students of Japanese colleges are not lacking of social network, or might be similar in size and density of social network, but what differs in their social network are the terms range and status, which refer to friends from different units and connections with people who are one's teacher or high status. Thus, we guess whether the range and status might have an important impact on the inspiration for entrepreneurial intentions.

Japan has been suffering from economics depression for decades and the employment rate has been slumping in over a decade. Most of the Japanese college students are more inclined to stick the lifetime employment and could not have a clear career plan in their life because of the recruitment process. Consequently, we suspect whether a career plan should be an important issue on students' entrepreneurial intentions, especially for those who are rich in social network could make better use of the resources. Those who have goals or dreams in their life should be more consciously to make use of their social network stated above, which would lead to entrepreneurship.

Entrepreneurs generally have abundant knowledge of many fields, not only about their specific arena but also knowledge about management of their business (Mars, M. M., 2007). In Japan, formal academic courses of entrepreneurship programs are not popular, but interdisciplinary diversity has normally taken account in colleges. Students are supported to take diverse classes from different majors. However, students who want to concentrate on their own fields are also uninterested in these opportunities. we suppose that college students who take on diverse education should be more likely to make smooth communication in their social network, which might lead to entrepreneurial intentions.

Theory and Hypotheses

Entrepreneurial Intentions

While a variety of definitions of the term entrepreneurship have been suggested, this paper will use the definition, coined first by Arent Greve& Janet W. Salaff (2003), which defined an entrepreneur commonly as one who owns, launches, manages, and assumes the risks of an economic venture. Entrepreneurial intentions in this study refer to the intention to start up their own business or acquire a small business, to be an independent business person, which is the first important cognition step to entrepreneurship activities (Crant, J. M., 1996).

Range of Social Network

Researchers have found that those richer in terms of social network of strong ties are more likely to launch entrepreneurial ventures, and the ventures they launch are more likely to succeed (Burt,2000). Drawing from Azjen (1991) theory of planned behavior, their theoretical model specified that bonding and bridging social capital influences perceived desirability and perceived feasibility respectively which in turn affect entrepreneurial intentions (Abebe M. A., 2012).

Social network research suggests that access to useful information might be greatest in a network with diverse members, for instance, individuals from different clubs or activities (Morrion, 2002), since this diversity enables tapping multiple pockets of information. Such diversity has been referred to as network range (Campbell, Marsden, & Hurlburt, 1986). Students in school are usually involved in organizations, such as seminars, club activities and so on. Those who participate in different kinds of activities and are members of different organizations should have a wider range than those who

are only in one group or one type of organization. The later ones are typically students who concentrate on study and only communicate with their seminar mates or professors in the same field of study. Despite their communications with their family, they have a narrow range of social network in school.

In general, research evidence suggests that the presence of wide social network will facilitate opportunity identification (Ellis, 2000) and resource (including information) acquisition (Adler and Kwon, 2002; De Carolis et al., 2009; Abebe M. A., 2012). A narrow range of social network makes those students get information from single or no sources. On the other hand, students in various activities can meet more people who have different backgrounds so that they can acquire various information and might introduce more people to enlarge the network.

Moreover, according to Burt (2000), this makes an early access to a broad diversity of perspectives, skills, and resources, which (a) is associated with faster learning to identify the holes in new situations; (b) provides a broad base of referrals to customers, suppliers, alliances and employees. (c) helps the entrepreneur identify promising opportunities with respect to customers, suppliers, alliances, employees, financing, and alternative business models, and (d) increases the probability that the entrepreneur knows which of alternative ways to pitch the venture will most appeal to specific potential customers, suppliers, or other sources of revenue. This even enhances the chance to meet people who are entrepreneurs.

Hypothesis 1: The range ofsocial network will be positively related toentrepreneurial intentions.

Status of Social Network

Social network research emphasizes the instrumental value of network status, defined as the extent to which one's network contacts hold high positions in the relevant status hierarchy(Lin,1982). Research has emphasized both the political advantages of a high-status network(Ibarra,1995), and informational benefits, as persons at higher levels may be better sources of certain types of information than those at lower levels(Louis, 1990; Ostroff& Kozlowski, 1992).

In addition, as networks represent a means for entrepreneurs to improve access to business ideas, knowledge and capital(Aldrich and Zimmer, 1986), social network has an impact on desired career paths and the likelihood of successful entrepreneurial endeavor (Kristiansen S. and Nurul., 2004).

For students in school life, friends they contact might usually be students, most of which are from the same class and same grade. Classmates or friends from the same grade generally take on the same education, face situations from the same period and have similar experience. On the contrary, students who actively communicate with their teachers, tutors and friends from upper grade, get more possibilities to be inspired by their older peers from the knowledge, advices and past experience, which might be good model and result in entrepreneurial intentions.

Hypothesis 2: The status of social network will be positively related to entrepreneurship intentions.

Besides the importance of the range and status of social network, we posit that the degree of these variables in students' school life is also critical in promoting their entrepreneurial intentions.

The Interactive Role of Career Plan

Career plan here is defined and shown as whether a student have clear objectives about his or her career, with a clear strategy and to-do list to achieving those goals (Gould, S. 1979). Except for the low rate of employment these years mentioned before, the recruitment process in Japan is a fine-tuned system that begins during the junior year and is structured in a way that leaves little chance to receive a job offer once it ends. Moreover, the employment structure is still based on the so called employment for life. Japanese companies regard students' youth, freshness and potential more important than experience. Thus, students of junior year on job-hunting struggle even only to get a job during the limited period, which makes them lack sufficient time and the real need to think about their career plan, lacking clear objectives and goals for their career, let alone entrepreneurship.

Students who have clear career plan are probably more likely to easily get inspired by their diverse and high-status friends, and make good use of their social networks to achieve their own goals, especially for entrepreneurship. For instance, a student might ask his teachers and tutors for advice, seek inspiration or learn a lesson from those with more experience, and discuss his plan with friends with different background to find whoever has the same interest. To junior students who are facing job hunting, career plan would be a much more important issue.

Hypothesis 3a: The relationship between the range of social network and entrepreneurial intentions will be stronger when one's career plan is clear (high) rather than low.

Hypothesis 3b: The relationship between the status of social network and entrepreneurial intentions will be stronger when one's career plan is clear (high) rather than low.

The Interactive Role of Interdisciplinary Diversity

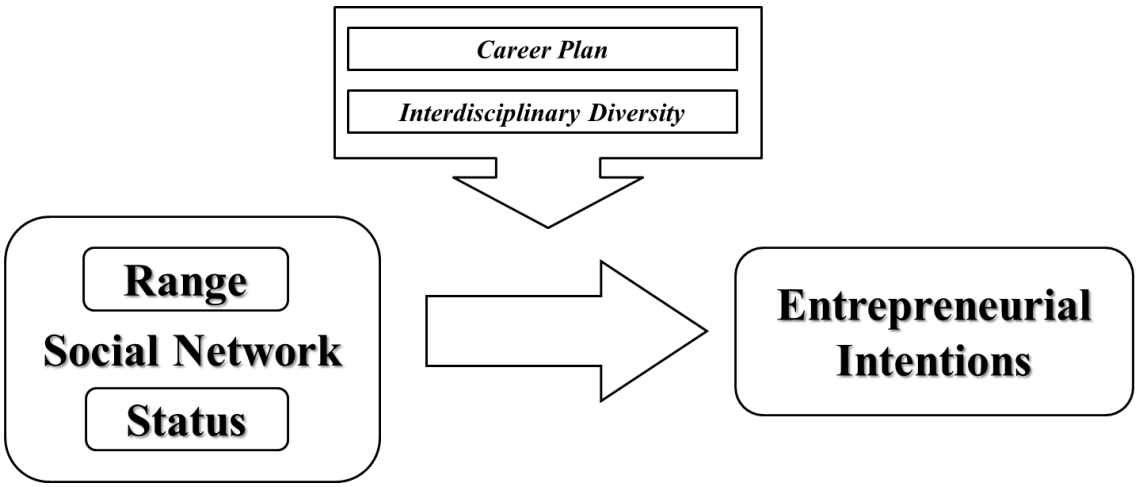
In Matthew's study of the diverse agendas of faculty within an institutionalized model of entrepreneurship education (2007), he stated that entrepreneurship and interdisciplinary learning is the wave of the future. The interdisciplinary idea threatens people. Entrepreneurship education creates opportunity structures for students and the college need to serve the students.

Zhao and colleagues (2005) have also found that formal academic courses of entrepreneurship programs can have a positive impact on students' intentions to initiate an entrepreneurial venture, through the mediating role of self-efficacy. They also recommended in comporting as many diverse types of learning experiences related to the promotion of greater entrepreneurial self-efficacy as possible. However, there is no research about the impact of interdisciplinary diversity in the case of normal colleges without formal academic courses of entrepreneurship programs in Japan.

Interdisciplinary diversity probably will not only make students knowledgeable but also bring students diverse ways of thinking, which will contribute to a smoother communication and better understanding towards wide range and high status of friends. Particularly knowledge of management study should directly lead to entrepreneurial intentions.

Hypothesis 4a: The relationship between the range of social network and entrepreneurial intentions will be stronger when one's interdisciplinary diversity is high rather than low.
Hypothesis 4b: The relationship between the status of social network and entrepreneurial intentions will be stronger when one's interdisciplinary diversity is high rather than low.

Figure 1 Hypothesis Model



Methods

Sample and Procedures

The data used for this study were collected as part of a large survey on entrepreneurial intentions among college students. Participants were recruited from a management class in a public college located in Osaka, Japan. Extra credit was given in return for participation in the study. The survey packets were distributed during the course hours. A cover letter attached with the questionnaire assured that participation was voluntary and anonymous and their responses would be used only for a research purpose.

The data were collected in two different time periods. In the first survey, participants responded to the items about their social network as well as demographic information. After two weeks, the second survey was administered where entrepreneurial intensions, career plan and interdisciplinary diversity were measured. Because the questionnaires were anonymous, participants were asked to generate unique identifiers (Fedor, Davis, Maslyn, & Mathieson, 2001). We used these identifiers to match data in the first and

second survey. The way variables were collected at different points in time is a standard procedure to alleviate the potential for common method variance (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003).

About 90 per cent of attending students agreed to participate in this study, resulting in a sample size of 214, including72.9 per cent males and 27.1 per cent females with an average age of 21.19years (SD = 2.185). It is worth noting that the majority of participants were college juniors (65.7%) who are facing job hunting, considering their career plan.

Measures

Most of the measures used in this study were based on existing scales. The items of social network, entrepreneurial intentions and career plan, originally developed and validated in English, were translated into Japanese and were back-translated to ensure that the meaning had been retained (Brislin, Lonner, & Thorndike, 1973).Some wordings were adjusted in order to fit the research context. The scale for interdisciplinary diversity was originally developed in this study. Despite social network, all items were 7-point Likert scale from 1 (strongly disagree) to 7 (strongly agree).Social network study here used the egocentric networks.

The range and the status of social network An egocentric network is an individual's unique set of social contacts (Marsden, 1990). Studies of egocentric networks are useful for understanding how a person's unique web of contacts (his or her ego-centered "universe") relates to variables at the individual level of analysis, such as social support, power, advancement, perceptions, and attitudes (Walker, Wasserman, & Wellman, 1993). A focus on egocentric networks is ideal for studying students on the

impact of entrepreneurial intentions predicting that they are causal inferences.

Students' egocentric networks were assessed on the first survey, where a chart for respondents to complete was contained. Across the first row, they were instructed to write the initials of "people who you consider being friends, or, people whom you are relatively keep in touch frequently in daily life". Eight columns were provided, and respondents were told to "list as many or as few people as are relevant." The wording, which was originally based on similar measures used by Ibarra (1992, 1995) and the decision to provide eight columns was based on the result of the study from Morrison, 2002.

After writing initials across the first row, the students responded to a set of questions for each of the listed persons (hereafter referred to as "alter"). Students were asked to indicate each other's demographic information (age and gender), units they are from (1= "the same college"; 2= "different college"; 3= "school but not college, such as primary school, high school, vocational school etc."; 4= " corporate or community "; 5= "independent businessperson"; 6= "person on managerial level"; 7= "family"; 8= "others")and relationship (1= "family or relatives"; 2= "friends"; 3= "senpai", which means students from upper grade in Japanese, 4= "kohai", which means students from lower grade in Japanese, 5= "teachers or tutors",6= "others").

Using the data from this survey, we computed measures of range and status for the students' friendship social networks. We measured range as the number of different units within a network. Status was the average hierarchical level of the relationship of network members (Ibarra, 1995), and values could range from 1 ("family or relatives, kohai and others") to 4 ("teachers or tutors").

Entrepreneurial intentions We assessed participants' entrepreneurial intentions using the 4-item scale developed by Zhao and colleagues (2005). Students were asked about how interested they were in engaging in the typical entrepreneurial activities (starting a business, acquiring a small business, starting and building a high-growth business, and acquiring and building a company into a high-growth business) in the next 5 to 10years.The Cronbach's alpha for this scale was .946.

Career Plan Career plan was measured using the 5-item scale developed by Gould, S. (1979). A sample item was "do you have clear objectives for your career". The Cronbach's alpha for this scale was .865.

Interdisciplinary Diversity We used an original 5-item scale to assess students' interdisciplinary diversity. A sample item was "I have taken diverse classes including interdisciplinary courses." The Cronbach's alpha was .739.

Control variables We introduced several control variables into our analyses to minimize the effects of other exogenous variables. These control variables mainly concern participants' demographics, including gender, age, part-time work experience and study hours per week.

Results

Means, standard deviations, and correlations for all variables are in Table 1. The range of social network correlates positively with entrepreneurial intentions(r = .261, p< .01), lending initial support for Hypothesis 1.Similarly, there is a significant positive

correlation between the status of social network and entrepreneurial intentions(r = .16, p< .01).

Table 1

Descriptive Statistics and Zero-Order Correlations for Main Study Variables

		Mean	*SD*	1	2	3	4	5
1	**Range**	2.106	0.936	--				
2	**Status**	2.030	0.174	0.369**	--			
3	**Entrepreneurial Intentions**	2.684	1.547	0.261**	0.16**	0.946		
4	**Career Plan**	4.015	1.085	0.083	0.133*	0.405**	0.865	
5	**Interdisciplinary Diversity**	2.877	1.070	-0.033	0.199**	0.478**	0.381**	0.739

Notes. Cronbach's Alpha is on the diagonal for each multiple-item measure. N=170
* p < .05. ** p < .01.

We conducted hierarchical regression analyses to further test our hypotheses. Table 2 presents the regression results. Hypothesis 1 and Hypothesis 2 predict that the range and status of social network would be positively related to entrepreneurial intentions. As shown in Table 2, even after control variables are accounted for, both outcomes were positively related to entrepreneurial intentions (β =.214, p < .01, for range; β =.102, p < .01, for status).Thus, Hypothesis 1 and Hypothesis 2 were therefore supported.

We centered the predictors to reduce multicollinearity when examining the interactive effects (Aiken & West, 1991; Cohen, 1978). In Model 1, we included the control variables and independent variables (the range and the status of social network, career plan and interdisciplinary diversity) in the regression. In Model 2 to 5, we entered the two-way interaction terms into the regression separately to avoid possible problems of high multicollinearity among interaction terms and weak statistical power.

TABLE 2

Results of Moderated Regression Analyses

Variables	Entrepreneurial Intentions				
	Model 1	Model 2	Model 3	Model 4	Model 5
Control variables	--	--	--	--	--
Range	.214**	.256**	.266**	.215**	.251**
Status	.102*	.047	.047	.086	-.042
Career Plan	.231**	.218**	.232**	.220*	.168*
Interdisciplinary Diversity	.431**	.437**	.430**	.437**	.461**
Range x Career Plan	--	.140*	--	--	--
Status x Career Plan	--	--	-.154*	--	--
Range x Interdisciplinary Diversity	--	--	--	.096*	--
Status x Interdisciplinary Diversity	--	--	--	--	0.075
Total R^2	.425	.438	.441	.433	0.535
ΔR^2	.313	.013	.016	.008	.004

Notes. N=214

*** p < .05. ** p < .01.**

In all analyses, control variables were entered in the first step. Due to the space consideration, their beta values were not reported here, but can be available from the authors.

The range and status of social network, career plan, interdisciplinary diversity and their interaction were centered prior to analyses.

ΔR^2 is the change of R^2 for the addition of range ×career plan, status ×career plan, range × interdisciplinary diversity, status ×interdisciplinary diversity or other interaction to the regression.

Hypothesis 3a and 3b predicted that career plan would moderate the relationship between the range and status of social network and entrepreneurial intentions.

The results of Model 2and Model 3 indicate the significant moderating effects of career plan for the relationship between the range and status of social network and entrepreneurial intentions(ΔR^2= .013,ΔF= 3.513, p< .05 for range; ΔR^2= .016, ΔF = 4.419, p< .05 for status).Thus, both Hypothesis 3aand 3b was supported.

Further examination suggests that the relationship is stronger when career plan is clear (high) rather than low (Figure 2 and Figure 3). Simple slope analyses for this interaction revealed that both two slopes were significant (Figure 2: b = .32, t = 7.2, p< .01 for high career plan, and b = .53, t = 1.82, p< .05 for low careerplan; Figure 3: b = .72, t = 1.88, p< .05, and b = .42, t = .52, p< .05, respectively). Figure 2 and Figure 3 depicts the significant interaction plotted using the approach outlined in Aiken and West

(1991), and suggests that the moderating effect of career plan on entrepreneurial intentions is in the predicted direction.

Figure 2 Interaction of Range and Career Plan on Entrepreneurial Intentions

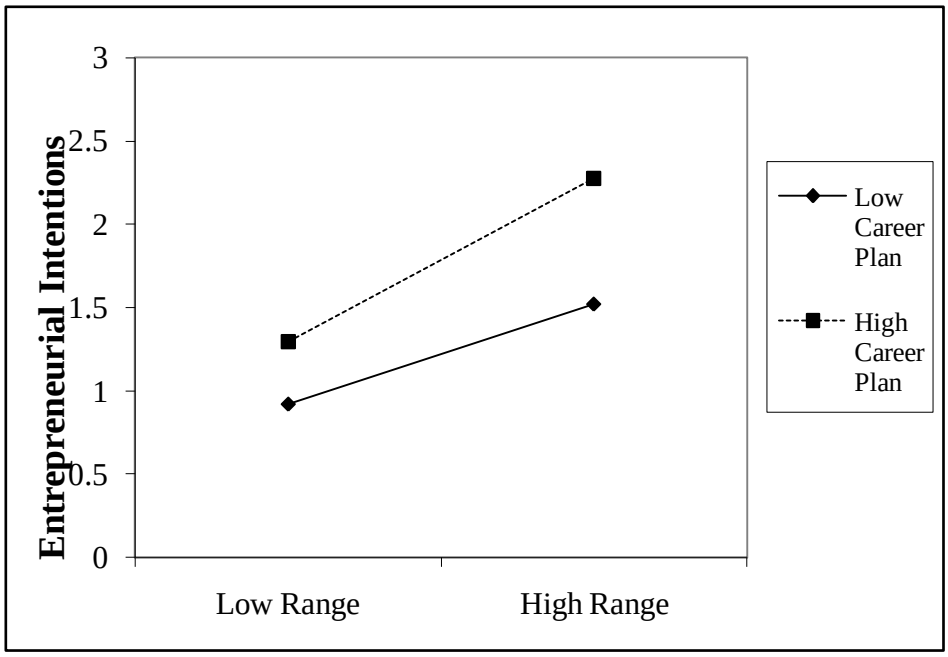
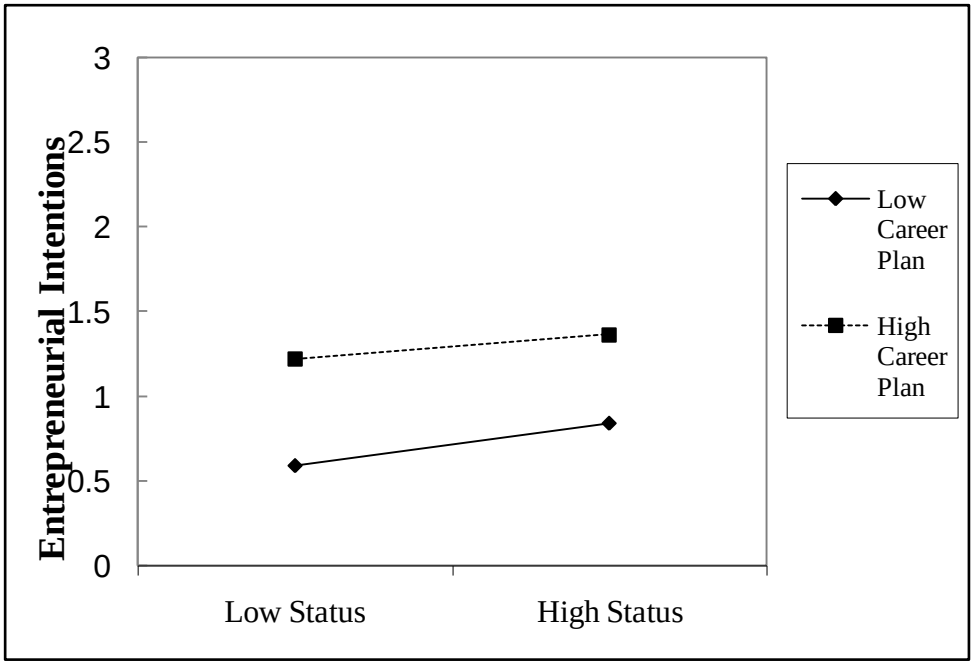


Figure 3 Interaction of Status and Career Plan on Entrepreneurial Intentions

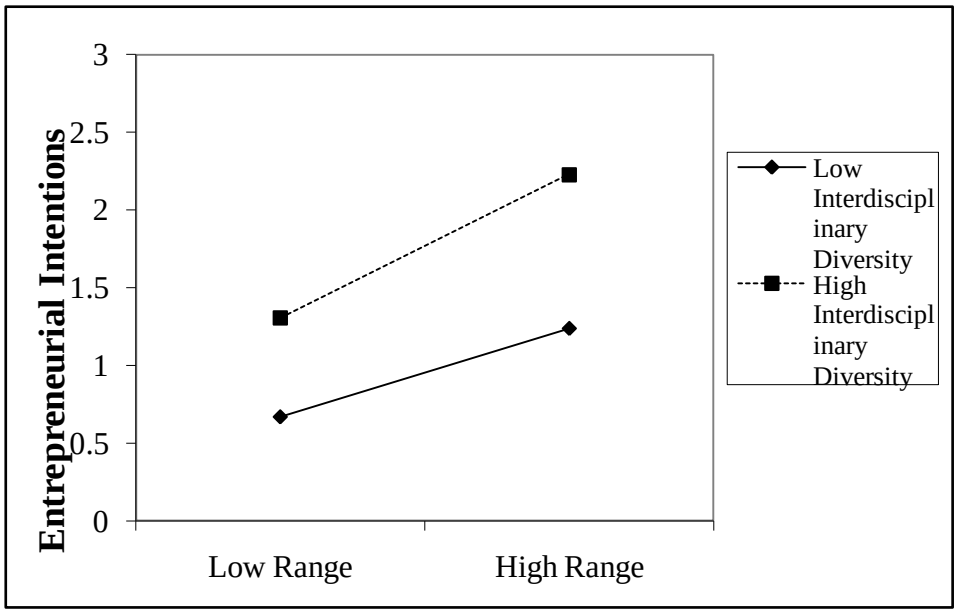


Hypothesis 4a and 4b predicted that interdisciplinary diversity would moderate the relationship between the range and status of social network and entrepreneurial intentions.

The results of Model 4 indicate a significant moderating effect of interdisciplinary diversity for the relationship between the range of social network and entrepreneurial intentions ($\Delta R^2 = .008$, $\Delta F = 2.158$, $p < .05$). We also computed the simple slopes of entrepreneurial intentions onto interdisciplinary diversity (Aiken & West, 1991). The slopes at both high and low level of interdisciplinary diversity were significant ($b = .30$, $t = 9.58$, $p < .01$for high interdisciplinary diversity, and $b = .49$, $t = 2.26$, $p < .05$, for low interdisciplinary diversity). In keeping with Hypothesis 4a, the relationship between the range of social network and entrepreneurial intentions was stronger when interdisciplinary diversity was high rather than low. Thus, Hypothesis 4a was supported.

Figure 4

Interaction of Range and Interdisciplinary Diversity on Entrepreneurial Intentions



However, surprisingly, as the results of Model 5 shown, the positive relationship between the status of social network and entrepreneurial intentions was not significant as predicted in Hypothesis 4b.

Discussion

The core idea of our model is that the range and status of social network are positively related to the Japanese college students' entrepreneurial intentions. The interactive effects of career plan and interdisciplinary diversity are also evaluated and discussed. Accordingly, our study makes following distinctive contributions to the studies on entrepreneurial intentions.

First, our study explicitly hypothesized and tested the relationship between social network and entrepreneurial intentions. Although the relationship between social network and entrepreneurial intentions had been theorized inductively through qualitative investigations, this study, using a sample of college students in Japan, empirically demonstrated such a relationship among Japanese college students. Moreover, our study focused on the range and status as the main aspects of social network which improved its pertinence.

Second, our study extends the relational perspective of entrepreneurial intentions by incorporating the interactive effect of career plan and interdisciplinary diversity as an important role of entrepreneurial intentions. Different from the numerous studies that discussed the academic model of the relationship between personalities and entrepreneurial intentions, the role career plan and interdisciplinary diversity plays in entrepreneurial intentions process has not explicitly been tested in past studies and have an important practical implication. This is the first study to examine and demonstrate the important role of career plan and interdisciplinary diversity in the entrepreneurial

intentions process. As expected, the moderating effect of the two aspects was found to be significant on the relationship between the range of social network and entrepreneurial intentions.

Practical Implications

Low rate of entrepreneurship has been troubling Japan for decades. Although it was used to be imputed to the uncertainty avoidance culture or the environment without support for entrepreneurs, we seek to find out what characteristics of students in their school life would lead to entrepreneurial intentions, which is the first cognition step to entrepreneurship activities. The purpose of this study was to validate the relationship between social network and entrepreneurial intentions among Japanese college students and develop the model of new variables of students about the behaviors and experience in their school life. The findings of our study may have important practical applications.

As we can see in the result of the main discussion, students with wide range and high status of social network are more likely to have entrepreneurial intentions, which implies that students should consciously expand the ways to meet new people with diverse backgrounds and try more communications with those who are more experienced or with a higher status.

On the other hand, colleges and the society should increase the chances and occasions for students to meet different people. For instance, to hold communication activities to offer platforms for people with different backgrounds, make it easier for students to get access to their senior schoolmates and teachers from different majors, and invite people from corporations or communities to give lectures about their experience, especially people who have had entrepreneurship experience.

With respect to the interactive effect about career plan, the findings indicated that if students with wide range social network have clear career plans, they are much more easily inspired by their diverse friends, and take good advantage of their social networks to achieve their own goals, especially for entrepreneurship.

For colleges and the society, they should create more occasions to encourage students have their own “dream” for their life, which could be changed into a career plan as a way to strive for it. For example, some lectures on successful diverse career planning, on risk taking stories for achieving one’s goal, or appropriate help from career center for students on their career planning. This would enlighten students that there is not only one way for their life as everyone does (such as lifetime employment) and one’s life should be of diversity, which might encourage students’ entrepreneurial intentions.

Likewise, the result of the interactive effect about interdisciplinary diversity showed that if students with wide range social network have high interdisciplinary diversity, they are much more likely to conduct smooth communication with the utilization of the knowledge, which would lead to entrepreneurial intentions.

Although interdisciplinary diversity has normally taken account in Japan’s colleges, according to the result of this research, colleges and the society should contribute more to broaden students’ diverse education. To create more incentives for students to take various classes out of their own major, to create more chances for students to get in touch with the knowledge of management, or to regard students who focus on their own major by diverse way of thinking through various activities. These are believed to result in entrepreneurial intentions according to this research.

Even if the result of the interactive effect about the two aspects discussed upon with the status of social network failed to lead to entrepreneurial intentions, we still believe that students who have clear career plan or high interdisciplinary diversity would make a better use of their high status of social network, like seeking advices and inspiration though the communication, which is more likely to happen to become entrepreneurial intentions.

Limitations and Future Research

The results of our study should be considered in terms of their limitations.

First, data were all obtained from self reports, which raises questions about the accuracy and objectivity of responses (Podsakoff & Organ.1986).Another issue related to the use of self-reports is single-source bias. However, we believe that this is unlikely to have had a significant effect on the results of this study because the variables in our study are difficult for others to observe. The data about social network is based on one's own cognition about the friendship, which is hard to be observed. Identically, entrepreneurial intention occurs within students' minds, which is also hard to be observed. Thus, self-report measure might be appropriate to capture students' social network and entrepreneurial intentions because focal students know better about themselves than any other student.

Second, although our data were collected at different points in time, the design of our survey was essentially cross-sectional. Therefore, our data can provide only limited support for causal inferences. In addition, because all data were collected from a single source, common method variance might also be an issue. However, we collected data at different points in time to alleviate the potential for common method variance.

Moreover, for the findings on significant interaction effects, in particular complex ones such as the two-way interaction, common method bias may be less likely to be a matter of concern (Evans, 1985; Spector, 2006).

Several suggestions are given below on future research could extend the major findings from our study. First, within the interactionist perspective, future research could examine other contextual factors than career plan and interdisciplinary diversity. These contextual factors may include other dimensions of characteristics of students' school life and education, such as different types of activities, proactive career behaviors, and study. Accumulating empirical findings regarding the contextual determinants of students' entrepreneurial intentions will have critical contributions to promote entrepreneurial activities in Japan. Second, other type of social network could also be integrated into future investigations. Although we focus on students' friendship social network, according to Morrison (2002), future research could alternatively focus on informational social network as motivational factors towards entrepreneurial intentions. The informational network refers to that a person reaps informational benefits by having a network of numerous people who are not themselves highly interconnected, such as finding a job (Burt, 1992; Podolny& Baron, 1997). Students are also likely to have a large network of nonredundant informational contacts, from which they could collect and exchange information or seek advices and consultations, which might also positively be related to entrepreneurial intentions.

Conclusion

In conclusion, the purpose of our research was to try to enhance Japan's situation of low rate of entrepreneurship by highlighting the role social network and the interactive effects of career plan and interdisciplinary diversity may play in Japanese college

students' entrepreneurial intentions. we expect the future accumulation of empirical evidence for the strives for stimulating Japan's entrepreneurial activities by focusing on college students as the main source of future entrepreneurs.

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