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Explaining entrepreneurial intentions of university students: a cross-cultural study

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Abstract

Purpose – In order to extend the literature on predicting entrepreneurial intentions this study aims to test a model incorporating cultural, social, and psychological factors.

Design/methodology/approach – The paper surveyed over 1,000 students at universities in the USA, Spain, and China.

Findings – Across cultures, university students share generally similar views on motivations and barriers to entrepreneurship, but with some interesting differences. Further, while cultural and social dimensions explain only a small portion of intentions, psychological self-efficacy (disposition) is an important predictor.

Research limitations/implications – The study was restricted to university students. It generated focused conclusions and recommendations, but these may not be more widely generalizable. The study suggests directions for continued work on the relationship between cultural and psychological factors in entrepreneurship.

Practical implications – Entrepreneurship education may serve students better by increasing its focus on creativity and confidence-building. Further, curricula should be adapted to specific cultures – for example, a unique dilemma faced by Chinese students is discussed in detail.

Originality/value – Performing a cross-cultural comparison made it possible to add fresh insight to debates over the antecedents of entrepreneurship. It also uncovered some important topics for further discussion and research.

Keywords Entrepreneurialism, Education, Motivation (psychology), China, Spain

Paper type Research paper

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Introduction

Explaining and predicting the choice of an entrepreneurial career remains an important research issue (Kuratko *et al.*, 1997). This study links cultural and situational factors (Hofstede, 2001; Bruton and Ahlstrom, 2003) to the body of literature that emphasizes a psychological, self-efficacy-based explanation for entrepreneurship (Chen *et al.*, 1998; Krueger *et al.*, 2000; Segal *et al.*, 2005). We focus on college students because they stand at one of life's inflection points, one at which they think about careers. It is an appealing setting from the basic and the applied research points-of-view (Shinnar *et al.*, 2009). We surveyed over 1,000 university students in the US, Spain, and China to test a model of entrepreneurial intention that incorporates not only an internal psychological factor, but cultural and situational factors as well.

Ideas, trends, and practices spread rapidly in the modern world. Younger generations are exposed to substantial economic and political changes, and influenced by powerful popular cultural trends. As Hofstede (2001) suggests, trade, economic development, and technological advances – such as mass-media – represent major forces of cultural change. With growth in international travel, cable and satellite television and, especially, the internet, students around the world are more inter-connected than were their parents, more exposed to foreign trends and ideas, and more able to share their ideas. For example, some research indicates that individualism and modernity values are becoming increasingly important for young Chinese (Zhang and Shavitt, 2003).

College students from different parts of the world grow up and live in very different political, economic, and cultural circumstances. Research is beginning to study how students' differing circumstances matter when it comes to entrepreneurial disposition and interest (Louw *et al.*, 2003). The growing importance of entrepreneurship education has been noted (Aronsson, 2004; Smith, 2003), and research looks at faculty issues in the arena (e.g. Bennett, 2006). In addition, in order to strengthen entrepreneurship education, we believe it is important to understand student issues across cultures.

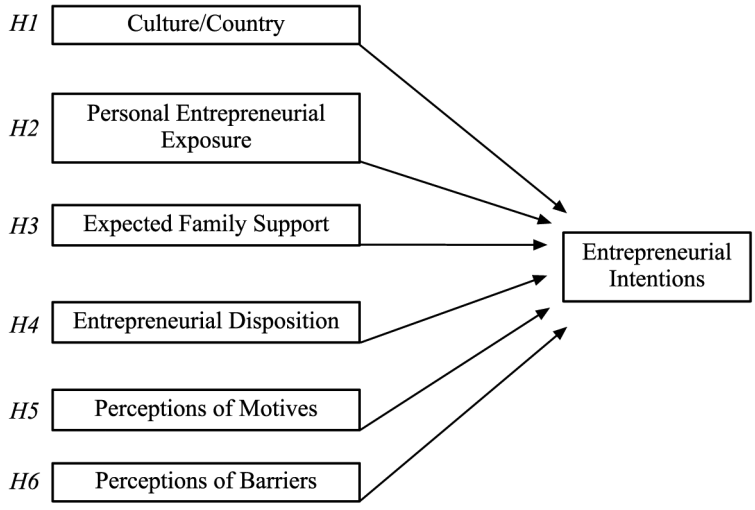

Figure 1.
Model of intentions

Model: drivers of entrepreneurial intention

Figure 1 illustrates the subsequent discussion. We model an individual's entrepreneurial intentions, expressed intention to pursue an entrepreneurial career, as a function of culture/country factors, social factors of exposure to personal entrepreneurial role models and expected family support, and entrepreneurial disposition.

Culture/country

Culture is of a set of shared values and beliefs that in turn determine socially accepted behaviors (Hofstede, 1980). Therefore, cultural values are also likely to determine "the degree to which a society considers entrepreneurial behaviors, such as risk taking and independent thinking, to be desirable" (Hayton *et al.*, 2002, p. 33). Researchers usually examine cross-cultural variations across four dimensions: individualism/collectivism, power distance, uncertainty avoidance, and femininity/masculinity (Hofstede, 1980; Thiederman, 1991). In this study we focus on the US, China, and Spain because these three nations have been identified in cross-cultural studies as being part of three distinct cultural clusters (Gupta *et al.*, 2002; Hofstede, 1980). The US belong to the Anglo cluster (Gupta *et al.*, 2002; Hofstede, 1980), Spain is in the Latin-European cluster (Gupta *et al.*, 2002; Hofstede, 1980), and China in the Confucian-Asian cluster (Gupta *et al.*, 2002). Past studies examining individual entrepreneurial disposition focused on Eastern European (Mueller and Goić, 2002; Mueller and Thomas, 2000), North American and Latin American (Mueller and Thomas, 2000) and Asian countries (Swierczek and Quang, 2004). In this study we were able to give individual attention to China and perform a comparison across three distinct cultural clusters.

Individualism/collectivism refers to the degree to which members of a society focus on satisfying personal interests and needs (individualism) over group interests and needs (collectivism). Individualistic societies value personal freedom as a way to improve one's quality of life, are more achievement-oriented and competitive. Self-actualization is the ultimate goal. People in these societies derive their identity from individual achievement (Hofstede, 1980; Thiederman, 1991). The US has been ranked high on individualism (Hofstede, 1980; Fernandez *et al.*, 1997), Spain ranked moderately, and China ranked low, identifying the latter as a collectivist culture (Hofstede, 1980). Individualism also has been linked to entrepreneurial activity (Hayton *et al.*, 2002), which suggests that Americans are likely to have high levels of entrepreneurial interest and activity relative to natives of the other two countries.

Power distance refers to the degree to which the members of a society accept the unequal distribution of power (pluralist vs elitist society) (Hofstede, 1980). Spain has been ranked moderately on power distance (Hofstede, 1980), whereas the US rank below the mean (Fernandez *et al.*, 1997; Hofstede, 1980) and China well above the mean on this dimension (Hofstede, 1980). Low power distance has been linked to entrepreneurship (Hayton *et al.*, 2002), which suggests that the Chinese are least likely, and Americans most likely, to have high levels of entrepreneurial activity and interest in entrepreneurship.

Uncertainty avoidance refers to the degree to which the members of a society are uncomfortable with or threatened by uncertain, ambiguous, or unstructured situations. In countries that score high on uncertainty avoidance, individuals are more likely to have an increased level of anxiety and stress when faced with such situations (Hofstede, 1980). The US and China both rank below the mean on this dimension, with

the US ranking slightly lower than China (Hofstede, 1980). Later studies rank the US slightly above the mean on uncertainty avoidance (Fernandez *et al.*, 1997). Spain has been ranked high on uncertainty avoidance (Hofstede, 1980) linking it to high levels of formalization within organizations (Rodrigues and Kaplan, 1998). Given the numerous risks associated with entrepreneurship (e.g. personal and financial) we would expect Americans to have the highest and Spaniards the lowest levels of entrepreneurial interest and activity.

Finally, cultures high on masculinity emphasize work goals, assertiveness and materialism such as earnings and promotion, while feminine cultures stress personal goals, such as employment security, human relationships, concern for others, and nurturing relationships (Hofstede, 1980). Hofstede (1980) identified the US as the most masculine society of the three. China was ranked close to the mean, leaning more toward feminine values, and Spain was ranked low on this dimension, making it the most feminine culture in this group. More recent studies identify the US as ranking well below the mean, categorizing it as a more feminine culture as well (Fernandez *et al.*, 1997). Given that masculinity has been linked to entrepreneurial disposition, we would again expect American respondents to have the highest levels of entrepreneurial interest and activity.

Given the complexity of the concept of culture, and the attendant difficulty of measuring its components, it is not surprising that studies that examine the relationship between national cultural orientation and entrepreneurship have yielded inconsistent results. "In general, researchers have hypothesized that entrepreneurship is facilitated by cultures that are high in individualism, low in uncertainty avoidance, low in power-distance, and high in masculinity" (Hayton *et al.*, 2002, p. 34). However, while high individualism and low uncertainty avoidance have been associated with national rates of innovation, these relationships were not consistent across time (Davidsson and Wiklund, 1997; Shane, 1993). In addition, research evidence suggests that individualism and uncertainty avoidance are significantly related to personality traits such as internal locus of control, risk taking, and innovativeness, which are associated with entrepreneurship (Mueller and Thomas, 2000; Mitchell *et al.*, 2000; Thomas and Mueller, 2000). This suggests that American and Spanish respondents will be more entrepreneurial than the Chinese. In fact, a recent examination of Asian countries reports the East Asian cluster (in which China was included) to have a low entrepreneurial culture (Swierczek and Quang, 2004).

The literature puts forward the central hypothesis that cultural differences significantly explain entrepreneurial behavior, but this explanation of entrepreneurship is not universally accepted. Hayton *et al.* (2002) suggest that culture plays a moderating role in the relationship between contextual factors and entrepreneurial outcomes, namely that "national culture acts as a catalyst rather than a causal agent of entrepreneurial outcomes" (p. 45). They believe that economic and institutional contexts, not culture, are the variables that play causal roles in creating a climate for innovation and entrepreneurship (Hayton *et al.*, 2002). This view is seconded by others who point to the important role of developmental financial institutions in fostering entrepreneurship in emerging economies (George and Prabhu, 2000) and of venture capitalist in different economic contexts (Bruton and Ahlstrom, 2003). In addition, differences in economic conditions and the continuing spread of knowledge, skills, and awareness of entrepreneurial opportunities are elements of

nationality that influence entrepreneurial efforts. We studied the US, Spain, and China because they differ culturally and in terms of their economic history and infrastructure for entrepreneurship, although entrepreneurship and entrepreneurship education are important topics for each country. Data from the US Census Bureau, Department of Labor, and Department of Commerce convey clearly the role small businesses play in the American economy: the 23 million small firms in the US represent 99.7 percent of all employer firms, employ half of all private sector employees, pay 44.3 percent of the total US private payroll, generate 60 to 80 percent of net new jobs annually, create more than 50 percent of non-farm, private gross domestic product, employ 39 percent of high tech workers (such as scientists, engineers, and computer workers), and make up 97 percent of all identified exporters.

It also is clear that entrepreneurship is a driving force in the burgeoning Chinese economy which is one of the world's fastest growing (Bruton and Ahlstrom, 2003). Research at the World Bank identifies the rapid adaptation associated with entrepreneurship as a crucial factor in China's recent economic boom (Nelson and Pack, 1998). The popular press is replete with stories on the decline of traditional state-run enterprises and the emergence of layoffs in the Chinese economy. The dramatic changes in Chinese business over the last decade, although initially sponsored (and, in some cases, owned or controlled) by the government, are heavily entrepreneurial. Although a couple of decades ago Western-style business education was not a significant part of many Chinese universities, the Chinese education system now has numerous schools, degrees, students, and faculty centered on business (Lavelle, 2006). Nonetheless, China remains a Communist-governed country with a large state-operated economy and without individual liberties and rights normal in the west. However, considering the magnitude of changes in China's economy and education, it is reasonable to conclude that the country's economic infrastructure now supports entrepreneurship very actively. Indeed, there is a growing body of research focused specifically on Chinese entrepreneurship (Taormina and Lai, 2007).

Spain, too, finds itself in an interesting position. With the European Union economy, changes in large corporate business, and the shrinking of the state's once-significant role in business ownership and economic planning, prosperity in the Spanish economy may increasingly depend on the emergence and growth of new businesses. However, we have not seen evidence of a long-standing entrepreneurial tradition as in the US, nor have we observed the frenzied expansion of entrepreneurial business as in China. So, given the impact of differences in culture and economies across the globe on individual values (Hayton *et al.*, 2002; Hofstede, 1980), we expect that individual entrepreneurial intentions can be explained by national culture. Thus:

H1. The degree of entrepreneurial intention is related to national culture.

Social exposure

Personal role models. Previous research on business ownership suggests that having a family member or close relative who is or was a business owner increases the likelihood of self-employment because these individuals can serve as role models. Feldman *et al.* (1991, p. 16) indicate that "entrepreneurs often . . . come from families in which a parent owns a business". This is also suggested in recent examinations of entrepreneurial self-efficacy (ESE). ESE refers to an individual's assessment of, and confidence in, his or her ability to successfully start a business (Chen *et al.*, 1998; Zhao

et al., 2005). Research evidence suggests that self-efficacy can be strengthened through exposure (Bandura, 1982). Thus, exposure to other entrepreneurs can act to strengthen ESE. This applies not only to families or close relatives, but to a person's set of close friends and contacts. Exposure to entrepreneurs provides a person not only with familiarity, but with an experienced network that can provide advice, insight, and encouragement. Indeed, social persuasion is an additional antecedent of self-efficacy (Bandura, 1982). Access to role models should therefore have a positive influence on an individual's entrepreneurial intentions by helping to overcome fear, lack of experience, and various practical hurdles (typical start-up issues like developing market and supply contacts, planning facilities, working with government and regulators, finding partners and employees, or securing financing). Thus:

H2. Exposure to personal entrepreneurial role models is positively related to entrepreneurial intention.

Family support. In earlier research, Tan (2001) identified a negative relationship between the perceived feasibility of entrepreneurship and the shame associated with failure. The higher the degree of shame brought by failure the less feasible the opportunity. The social significance of failure (i.e. shame, embarrassment) is one consequence of social norms. Those norms may vary widely – societies can differ dramatically in their views of what constitutes acceptable or unacceptable types or levels of failure, uncertainty, individuality, success, and so on. Our study focuses on norms in a relatively precise and relevant way – the importance of expected family reaction to plans for entrepreneurial activity. Regardless of whether family bonds are supportive or antagonistic, lenient or restrictive, family ties are the closest and strongest bonds most people have. They are the bonds likely to matter most – that is, the ones most likely to influence decisions and behavior. A nascent entrepreneur might face diverse reactions from acquaintances, friends, and loved ones, but family support (or lack thereof) will loom especially large. Thus:

H3. Expected family support is positively related to entrepreneurial intention.

Entrepreneurial disposition

Starting and owning a business typically is riskier and more demanding than paid employment, and we should expect that an entrepreneurial livelihood would attract, and indeed depend on, individuals with a well-developed sense of confidence, energy, and adaptability. Certainly, the common perception is that entrepreneurs are independent-minded people – as Krueger *et al.* (2000) expressed it, "Perhaps the popular stereotype of entrepreneurs as iconoclastic individualists captures a tendency toward inner-directedness" (p. 424). The psychological construct of self-efficacy has played an important role in entrepreneur motivation research (e.g. Chen *et al.*, 1998; Kropp *et al.*, 2008; Krueger *et al.*, 2000; Segal *et al.*, 2005). For the purposes of this study, we introduce a related, focused concept, entrepreneurial disposition, to highlight in particular the entrepreneurial context of motivation, in which creativity and the ability to self-start are especially important.

We define entrepreneurial disposition as an individual's sense of self, his or her judgment of their own personal creativity and personal initiative, and use self-reported scale data from survey respondents. Those who examined entrepreneurial self-efficacy have in fact found it to be the strongest predictor of entrepreneurial intentions (Baughn

et al., 2006; Krueger *et al.*, 2000; Peterman and Kennedy, 2003; Segal *et al.*, 2002). Thus, given the risks and demands of entrepreneurship:

H4. Entrepreneurial disposition is positively related to entrepreneurial intention.

Perceptions of motives and barriers

In addition to the preceding factors explaining entrepreneurial intention, it is important to consider the impact of motives and barriers. We argue that an individual's perceptions of the motives and barriers to embarking on an entrepreneurial venture should affect his or her intentions. The strength of an individual's belief, confidence in the belief and intention to act on it given available evidence, should affect intentions in the following manner. First, intentions should be positively affected by the strength of the belief that entrepreneurship offers relatively unique benefits, rewards, or opportunities. These include widely-held beliefs such as the possibility for increased independence, fewer restrictions on an individual's creativity, or better earnings. Second, intentions should be negatively affected by the strength of beliefs about the height of entry or start-up barriers, including such things as lack of knowledge, start-up capital, or operating risks. Thus:

H5. The strength of beliefs about motives for entrepreneurship is positively related to entrepreneurial intention.

H6. The strength of beliefs about barriers to entrepreneurship is negatively related to entrepreneurial intention.

Methodology

We surveyed students at three universities in the US, China, and Spain. Class time was used towards this effort and, thus, all of the surveys distributed were completed, yielding 1,058 usable surveys. No surveys were discarded for missing data, although some of the analyses reflect the fact that a small number of surveys lack data for particular items. The survey instrument was developed at the University of Alicante, Spain. The Spanish students completed it in their native tongue. For the American and Chinese samples, the survey was translated into English and then back into Spanish to check for consistency. The Chinese students had a strong level of English proficiency, and therefore completed an English version with minor modifications to the written language. Verbal clarifications were offered when necessary while the surveys were distributed. The survey consisted primarily of Likert-scale questions and some demographic questions. Our statistical analyses focused on means-testing to assess between group differences; when significantly unequal variances (Levene's test) between the groups were found, equality of variance was not assumed in the means-testing.

Results

Gender, student status

Demographic variables such as gender, education, and age often are used as controls, or as subjects of interest in their own right (Kwong *et al.*, 2009). Since respondents' demographic information was incomplete for the dataset as a whole, we pooled the 313 records with gender and education data to assess the impact of these typical control

variables on entrepreneurial intentions. In that set, somewhat more than half the respondents were male (59 percent male versus 41 percent). We found that that gender had no significant effect on entrepreneurial intention, when controlling for a student's year in school (*df* 1, $F = 1.00$, sig. 0.317). That is, our data showed no meaningful difference between men and women in terms of intentions to start businesses. These results challenge past research findings (Kourilsky and Walstad, 1998; Shay and Terjesen, 2005; Wilson *et al.*, 2004) which ranked female students lower on entrepreneurial dimensions compared to their male peers. Regarding student status, 12.7 percent were first-year, 10 percent second-year, 32.2 percent third-year, and 45 percent fourth-year. Student status reflects differences in education. It also is a proxy variable for testing for age differences, albeit within a typically rather restricted age-range (whether education or age, the underlying concepts concern experience and maturity). Interestingly, a student's year in school also had no significant impact on entrepreneurial intention (*df* 3, $F = 0.40$, sig. 0.750).

Intentions, exposure, support, and disposition

Students' entrepreneurial intentions and disposition were measured with scale questions. Exposure to entrepreneurs was assessed with two binary variables: existence of recent start-up businesses among a respondent's immediate circle of friends, and existence of entrepreneurs in the immediate family. Family support for a respondent's entrepreneurial intentions was measured on a scale ranging from hostility to strong support. Analysis shows that there are highly significant differences between national cultures in the three countries in terms of students' entrepreneurial intentions, exposure to entrepreneurs, family support, and disposition (Table I).

Each country had a small percentage of students who reported either having definite plans to start a business, or, to the contrary, never having thought about it. Most telling, though, are the results for the intermediate categories. Roughly half of

	US (%)	China (%)	Spain (%)	*F*	*p*
Thought about starting a business?				11.95	0.000
No, never	19.2	10.3	12.4		
Yes, vaguely	48.3	27.2	50.1		
Yes, seriously	24	51.5	24.4		
Yes, I have a definite plan	7.9	11.0	13.1		
Entrepreneurial exposure					
In immediate circle	38.2	80.9	43.4	40.67	0.000
In immediate family	50.8	32.6	58.9	16.24	0.000
Expected family support				58.5	0.000
Prevent	2.8	30.4	4.9		
Indifferent	22.4	20.7	12.7		
Support	74.8	48.9	82.4		
Entrepreneurial disposition					
1-7 scale, mean score	4.26	4.48	4.75	13.6	0.000

Note: n = US 312-317, China 130-136, Spain 591-603 (variation due to missing data)

Table I.
Differences in intentions, exposure, support, and disposition

American and the Spanish students have thought vaguely about starting a business, and roughly a quarter of the samples in both countries have seriously considered it. In China the results were almost the reverse. A total of 27 percent of respondents have thought vaguely about starting a business, and more than half (51.5 percent) have considered it seriously. Regarding the frequency of business ownership among students' close circles of friends and in their immediate families, 80 percent of the Chinese respondents knew someone who had started a business in the last three years – twice the percentage of the American students (38.2 percent) and slightly less than double that of the Spanish students (43.3 percent). Differences between the three countries are highly significant (F 40.67, $p = 0.000$). However, it was significantly less common (F 16.24, $p = 0.000$) for a Chinese respondent to have an entrepreneur in their immediate family (32.6 percent). The Spanish respondents had the highest reported presence of entrepreneurs within their immediate family (58.9 percent), closely followed by the American respondents (50.8 percent). The limited presence of entrepreneurs in the Chinese students' immediate family may explain their apprehension of family resistance to business ownership reported earlier. Regarding family support, we found that Chinese respondents are significantly more likely to believe that their families would not be particularly supportive of entrepreneurship This social barrier may be related to the collectivist orientation of Chinese society, in which personal failure affects not only the individual but also reflects on his/her group. This should make fear of failure more important in China than in the relatively individualistic USA.

Students also vary across countries in self-perception. We asked respondents to indicate the degree to which they considered themselves to be creative and full of initiative to start businesses. Respondents ranked themselves in terms of entrepreneurial disposition on a seven-point scale ranging from "not entrepreneurial at all" to "very entrepreneurial". Across all three countries, students were more likely to place themselves in the upper-half of the scale than the lower (in fact, more than 56 percent of students rated themselves as 5 or higher). However, there were significant differences ($F = 13.6$, $p = 0.000$) between the self-reported scores for American, Chinese, and Spanish students (means of 4.26, 4.48, and 4.75, respectively) in that students in the US rated themselves lowest and Chinese students rated themselves highest on entrepreneurial disposition.

Perceptions of motives and barriers

In the survey, we used multiple questions to assess respondents' perceptions of the importance of start-up motives and barriers, then performed a principle components factor analysis on this data. Using quartimax rotation maximized the single-factor loading of each variable. Table II summarizes the results for motives. High loadings for the data on motives and barriers yielded several factors with eigen-values over 1 (Kaiser, 1960), accounting for 59 percent of the variance in motives and 52 percent in barriers. Our subsequent modeling of intentions uses a set of independent variables derived from the factor analysis, with regression-generated coefficients for calculating the factor scores. We identified five factors in motives: money-status, quality of life, independence, creativity, and equity-opportunity:

(1) The money-status factor derives from scores on questions regarding the motivational importance of money, tradition, status, and position.

Table II.
Factor analysis: scores for motives

	Factor 1 money-status	2 Lifestyle	3 Independence	4 Creativity	5 Equity-opportunity
Personal independence	0.055	0.118	0.736	−0.052	0.025
Make more money than wages	0.516	0.268	0.240	−0.434	0.046
Difficulty finding the right job	−0.039	0.087	−0.002	0.014	0.765
Dissatisfaction in a professional occupation	−0.033	−0.040	0.021	0.071	0.786
Receiving fair compensation	0.257	0.277	0.181	−0.075	0.610
Chance to implement own ideas	0.036	−0.080	0.636	0.421	0.042
Opportunity to be financially independent	0.378	0.263	0.548	0.028	0.166
Heading an organization	0.647	−0.239	0.268	0.292	0.081
Managing people	0.590	−0.171	0.129	0.470	0.055
Building personal wealth	0.685	0.260	0.234	−0.007	−0.014
Following a family tradition	0.628	0.057	−0.094	0.105	0.018
Gaining high social status	0.709	0.182	−0.106	−0.058	−0.063
Creating something of my own	0.167	0.059	0.397	0.621	−0.037
Creating jobs	0.165	0.256	−0.043	0.758	0.063
Having more free time	0.187	0.771	0.041	0.097	0.136
Improving my quality of life	0.173	0.786	0.157	0.062	0.074
Eigen-values					
Before rotation	3.881	1.780	1.587	1.157	1.059
After rotation	2.735	1.718	1.687	1.674	1.650
Percentage variance explained					
Before rotation	24.3	11.1	9.9	7.2	6.6
After rotation	17.1	10.7	10.5	10.5	10.3
Cumulative percent after rotation	17.1	27.8	38.4	48.8	59.1
Cronbach's alpha	0.744	0.777	0.616	0.673	0.656

(2) The lifestyle factor is based on the score of free time and lifestyle questions.

(3) The independence factor derives from respondents' views on the importance of financial and decision-making autonomy.

(4) The creativity factor is based on responses regarding a sense of personal creative accomplishment and creating jobs.

(5) The equity-opportunity factor derives from the importance assigned to resolving concerns about career, satisfaction, and fairness.

Table III summarizes the results for barriers. We identified five factors in barriers: support structure, knowledge, operating risks, start-up risks, and self-efficacy/support:

(1) The support structure factor derives from respondents' scores on questions regarding the importance of institutional guidance and support mechanisms for analysis, procedural, and legal help.

(2) The knowledge factor derives from respondents' scores on questions regarding the significance of lack of managerial, market, business, and accounting experience.

(3) The operating risks factor derives from respondents' scores on questions regarding the importance of potential problems with employees, business failure risk, irregular income, and workload.

(4) The start-up risks factor derives from respondents' scores on questions regarding the entry barrier significance of financial risk, economic conditions, and lack of initial capital.

(5) The self-efficacy/social support factor derives from respondents' scores on questions regarding the entry barrier significance of abilities, ideas, and personal support.

Test of the model

Table I revealed interesting differences. We are particularly interested in modeling behavioral intentions to start a business. In other words, what effect do exposure to entrepreneurs and expected family support have on a student's intentions? What effect do country and entrepreneurial disposition have on intentions? Table IV shows descriptive statistics and correlations.

Table V presents the results of our modeling analysis. We show the iterations (Steps *a* through *e*) in the step-wise regression leading to the full model *f*. In addition to the unstandardized coefficients, we provide standardized beta coefficients for the full model *f* to compare the relative impact of changes in the different independent variables. Baseline step *a* uses two dummy variables for a respondent's country to predict intentions – this step explains slightly more than 2 percent of the variance in entrepreneurial intentions. Step *b*, which incorporates a respondent's exposure to entrepreneurial role models among friends and family, explains a total of 3.6 percent of the variance in intentions. Step *c* introduces the expected support of immediate family to entrepreneurial plans and explains 7 percent of the total variance in entrepreneurial intentions. Step *d* adds the respondent's entrepreneurial disposition, resulting in a substantially stronger model. The change in R^2 of 0.186 ($p < 0.001$) demonstrates the substantial impact of disposition relative to the smaller impact of country, network,

Table III.
Factor analysis: scores for barriers

	Factor 1 support structure	2 Knowledge	3 Operating risks	4 Start-up risks	5 Self-efficacy/ social support
Excessively risky	0.012	0.049	0.182	0.716	0.154
Current economic situation	0.142	0.019	0.098	0.680	0.043
Lack of entrepreneurial competence	0.106	0.372	0.209	0.089	0.052
Lack of initial capital	0.116	0.121	−0.002	0.606	−0.248
Fiscal charges	0.271	0.228	0.434	0.233	−0.370
Problems with employees	0.131	0.162	0.635	0.020	0.077
Fear of failure	0.007	0.082	0.491	0.346	0.297
Irregular income	0.117	0.001	0.659	0.260	0.043
Work too many hours	−0.004	0.162	0.688	0.025	−0.031
Lack of knowledge	0.084	0.751	0.175	3083	0.120
Lack of experience in management and accounting	0.159	0.759	0.069	0.148	−0.108
Doubts about personal abilities	0.011	0.515	3325	0.068	0.440
Lack of ideas	0.084	0.318	0.036	0.110	0.669
Lack of assistance to assess business viability	0.478	0.417	0.105	0.058	0.248
Start-up paper work/bureaucracy	0.522	0.313	0.316	−0.132	−0.138
Lack of knowledge of the business world	0.383	0.578	0.112	0.044	0.125
Lack of available assistance	0.653	0.078	−0.002	0.101	0.031
Lack of formal help	0.761	0.063	0.040	0.181	0.034
Lack of legal aid/counseling	0.765	0.092	0.126	0.062	0.027
Lack of support from people around me	0.283	0.005	0.402	−0.085	0.524
Eigen-values					
Before rotation	5.002	1.700	1.525	1.228	1.035
After rotation	2.508	2.398	2.273	1.946	1.365
Percentage variance explained					
Before rotation	25.0	8.5	7.6	6.1	5.2
After rotation	12.5	11.9	11.6	9.7	6.8
Cumulative percent after rotation	12.5	24.5	35.9	45.6	52.4
Cronbach's alpha	0.705	0.700	0.647	0.606	0.647

Variable	Mean**	SD	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1. Entrepreneurial intentions	1.36	0.86	1.000														
2. Exposure: start-ups by acquaintances	0.47	0.50	0.189*	1.000													
3. Exposure: in immediate family	0.53	0.50	0.137*	0.286*	1.000												
4. Family support	2.68	0.60	0.095*	0.016	0.180*	1.000											
5. Entrepreneurial disposition	4.57	1.38	0.475*	0.163*	0.145*	0.173*	1.000										
6. Wealth/ status motive	−0.054	0.99	0.003	0.053	0.009	0.000	0.014	1.000									
7. Lifestyle motive	−0.003	1.00	0.009	0.015	−0.009	0.113*	−0.014	0.001	1.000								
8. Independence motive	−0.002	0.98	0.112*	0.078	0.058	0.017	0.116*	−0.015	0.009	1.000							
9. Creativity motive	0.022	1.00	0.136*	0.064	0.026	0.080*	.133*	−0.005	−0.018	0.001	1.000						
10. Equity/ opportunity motive	0.087	0.97	−0.036	−0.023	−0.066*	0.006	−0.055	0.039	−0.001	0.018	−0.026	1.000					
11. Support structure barrier	0.002	1.00	0.000	−0.027	−0.013	−0.030	−0.004	0.081*	0.057	0.063	0.090*	0.279*	1.000				
12. Knowledge barrier	0.001	0.99	−0.093	−0.053	0.005	0.030	−0.145*	0.065	0.046	0.098*	0.176*	0.059	0.008	1.000			
13. Operating risks barrier	−0.005	0.99	−0.160*	−0.069	−0.056	−0.091*	−0.193*	0.282*	0.134*	−0.043	−0.089*	0.228*	0.001	−0.010	1.000		
14. Start-up risks barrier	0.024	0.98	−0.121*	−0.023	−0.007	−0.054	−0.122*	−0.001	−0.020	0.150*	−0.044	0.140*	0.004	−0.002	−0.005	1.000	
15. Self-efficacy/social barrier	0.002	0.100	−0.040	0.002	−0.065	−0.085*	−0.156*	0.195*	0.009	−0.025	−0.049	−0.022	0.009	−0.009	−0.010	−0.002	1.000

Notes: n = 921 to 1,056 (pairwise exclusion for missing data); *$p \leq 0.001$; **Means for motives and barriers (variables 6-15) are the averages of the factor scores across observations

Table IV.
Descriptive statistics and correlations

Table V.
Regression results

	B						
	Step a	b	c	d	e	f	Stand. β coefficients
Intercept	1.211****	1.030****	0.596****	−0.265**	−0.288**	−0.103**	
Country (two dummy variables)	Signif. ****	Signif. ****	Signif. ***	Signif. ***	Signif. ***	Signif. ***	
Exposure							
Recent start-ups by acquaintances		0.218 ****	0.204 ***	0.099 *	0.076	0.066	0.038
Entrepreneurs in immediate family		0.193 ****	0.171 **	0.118 **	0.125**	0.131***	0.076
Family support			0.166 ***	0.069 *	0.062*	0.050*	0.035
Entrepreneurial disposition				0.280 ****	0.269****	0.251****	0.404
Motives							
Wealth-status					0.013	0.005	0.006
Lifestyle					0.028	0.033	0.038
Independence					0.049***	0.065***	0.074
Creativity					0.076***	0.082***	0.096
Equity-opportunity					0.016	0.042	0.048
Barriers							
Support structure						−0.015	−0.017
Knowledge						−0.408**	−0.056
Operating risks						−0.055**	−0.064
Start-up risks						−0.066**	−0.076
Self-efficacy/social support						0.004	0.005
Change in F	9.803****	16.470****	11.079****	214.453****	2.642***	2.417**	
Change in R^2	0.022	0.036	0.012	0.186	0.011	0.010	
Total model R^2	0.022	0.058	0.070	0.256	0.268	0.278	

Notes: Dependent variable: entrepreneurial intentions, $n = 1056$; $^{*}p < 0.10$; $^{**}p < 0.05$; $^{***}p < 0.01$; $^{****}p < 0.001$

and family reaction. Steps *e* and *f* (the full model) incorporate the impact of perceived motives and barriers to entrepreneurship. The total variance explained by the full model *f* is 27.8 percent. The full model shows support for hypotheses *H1*, *H2*, *H3*, and *H4* and partial support for *H5* and *H6*. A respondent's country (*H1*) is significantly related ($p < 0.01$) to entrepreneurial intentions. Regarding *H2*, although a respondent's exposure to recent business start-ups by acquaintances is not significantly related to intentions, the presence of entrepreneurs in the immediate family is indeed significantly related ($p < 0.01$) to the respondent's intentions. Concerning *H3*, the results show that the expectation of family support is significantly related ($p < 0.10$) to the respondent's intention to engage in entrepreneurial activity. *H4*, which hypothesized that a respondent's entrepreneurial disposition is positively related to intentions, also was significantly supported ($p < 0.001$).

H5, which posits relationships between a respondent's intentions and his/her perceptions of motives, received partial support. Three motive factors were not significant in the analysis: wealth-status, lifestyle, and equity-opportunity. However, two motive factors were significantly related to intentions: independence – the importance of financial and decision-making autonomy ($p < 0.01$), and creativity – the sense of personal creative accomplishment and creating jobs ($p < 0.01$). That is, respondents who valued independence and creativity are significantly more likely to have strong entrepreneurial intentions.

H6, which posits that the strength of a respondent's perception of barriers is negatively related to entrepreneurial intentions, also received partial support. Two barrier factors were not significant in the analysis: support structure and self-efficacy/social support. However, three barrier factors were indeed significantly related to intentions: knowledge – the lack of personal relevant experience ($p < 0.05$), operating risks – potential operational problems in business ($p < 0.05$), and start-up risks – financial and economic issues ($p < 0.05$). In other words, respondents who are concerned about their knowledge, business risks, and financing are significantly less likely to have strong entrepreneurial intentions. In the full model, the coefficient signs are as expected – the motives have positive coefficients and the barrier coefficients are negative. That is, barrier factor scores are inversely related to intention scores. The only exception is the self-efficacy/support factor, with a positive sign, but it is insignificant.

In summary, the full model suggests that entrepreneurial intentions are positively influenced by a respondent's country, the presence of entrepreneurs in the immediate family, the expected family reaction, individual entrepreneurial disposition, how much weight an individual places on independence and opportunity for creative work. The countervailing barriers are pragmatic ones – knowledge, operating risks, and start-up risks. In terms of relative impact, the standardized β coefficients in Table V provide insight. They suggest that a change in entrepreneurial disposition (β of 0.404) will have the single biggest relative impact on entrepreneurial intentions. In contrast, the other significant variables have relatively small and similar impacts.

Table VI summarizes our test for interactions between country, exposure, and family support. Although each of those variables helps predict intentions, we found no significant interaction effects between the variables themselves.

Table VI.
Test for interactions

Source	Type III Sum of Squares	df	Mean Square	*F*	Sig.
Corrected model	209.028(a)	35	5.972	10.807	0.000
Intercept	0.819	1	0.819	1.483	0.224
Disposition	142.545	1	142.545	257.935	0.000
Country	7.348	2	3.674	6.648	0.001
Immediate circle exposure	0.028	1	0.028	0.050	0.823
Family exposure	1.273	1	1.273	2.303	0.129
Family support	0.280	2	0.140	0.253	0.776
Country * immediate circle	0.527	2	0.263	0.477	0.621
Country *family exposure	1.034	2	0.517	0.936	0.393
Immediate circle * family exposure	0.008	1	0.008	0.014	0.906
Country * immediate circle * family exposure	0.059	2	0.030	0.053	0.948
Country * family support	2.799	4	0.700	1.266	0.282
Immediate circle*family support	1.980	2	0.990	1.791	0.167
Country * immediate circle *family support	3.959	4	0.990	1.791	0.128
Family exposure * family support	1.573	2	0.787	1.424	0.241
Country * family exposure * family support	2.198	4	0.549	0.994	0.410
Immediate circle * family exposure * family support	0.278	2	0.139	0.252	0.777
Country * immediate circle * family exposure * family support	0.475	3	0.158	0.286	0.835
Error	545.455	987	0.553		
Total	2,635.000	1,023			
Corrected total	754.483	1,022			

Note: Dependent variable: entrepreneurial intentions

Perceptions of motives and barriers

We now turn to the in-depth study of respondents' perceptions of motives and barriers regarding start-ups, which did indeed yield some interesting differences across countries. Although the previously discussed hypothesis-testing component of the study yielded only limited support for the relationship between intentions and motives/barriers, we remain convinced that it is reasonable to believe that a respondent's views on the importance of various motives and barriers will influence his or her entrepreneurial intentions. Someone who perceives the barriers as extremely high should be less likely to embark on a business venture, even if they have a strongly entrepreneurial disposition. While the model-testing component of this study employed factor analysis to derive underlying motive and barrier factors, our discussion of respondents' perceptions is based on data regarding the individual motives and barriers in order to provide a richer context for the reader to assess the responses to individual items. American, Spanish, and Chinese students ranked entry motives differently, but generally agreed on the rank order of the underlying themes (see Table VII), except for a few significant differences. Unsurprisingly, respondents focused on themes of independence and decision-making autonomy as their top/most important motives. For all three groups, the top three motives to become an entrepreneur were: "the chance to implement my own ideas", "personal independence", and "creating something of my own". This focus on autonomy and independence is consistent with the findings of Alstete's (2002) student-focused research.

Notable differences emerged in two particular areas. First, Chinese respondents put more emphasis on money as seen by the relatively high rankings of "building personal wealth" and "wanting to make more money than by working for wages". This parallels Scheinberg and MacMillan (1988) who found that their Chinese respondents scored high on material motives. Second, Chinese respondents put a greater value on "gaining high social status" as a motive. In cultural attribute terms, China ranks high on the

	US		China		Spain			
	Rank	Mean	Rank	Mean	Rank	Mean	*F*	*p*
The chance to implement my own ideas	1	4.55	1	4.47	1	4.40	3.2	0.040
Personal independence	2	4.43	2	4.25	3	3.86	32.7	0.000
Creating something of my own	3	4.35	3	4.35	2	4.10	8.4	0.000
The opportunity to be financially independent	4	4.27	8	3.60	5	3.61	39.6	0.000
Improving my quality of life	5	4.21	9	3.59	4	3.78	21.2	0.000
Being at the head of an organization	6	4.06	6	3.71	10	3.31	43.5	0.000
Building personal wealth	7	3.97	4	4.02	7	3.36	40.7	0.000
Managing people	8	3.72	10	3.51	13	3.11	28.7	0.000
Wanting to make more money than by working for wages	9	3.71	5	4.02	12	3.20	40.8	0.000
Receiving fair compensation	10	3.65	10	3.04	9	3.36	17.3	0.000
Creating jobs	11	3.63	13	3.03	11	3.30	9.5	0.000
Having more free time	12	3.62	16	2.39	14	2.86	39.5	0.000
Dissatisfaction in a professional occupation	13	3.54	12	3.04	6	3.45	9.5	0.000
The difficulty of finding the right job	14	3.39	15	2.40	8	3.36	42.7	0.000
Following a family tradition	15	2.97	14	2.69	16	1.74	145.5	0.000
Gaining high social status	16	2.92	7	3.63	15	2.64	38.3	0.000

Table VII. Motives for starting businesses

power distance dimension, which may explain the desirability of higher social status that could be gained through business ownership. In contrast, for the low power distance cultures of the US and Spain, this motive was ranked significantly less important (the least important for American respondents, and second to least for the Spanish). A third interesting difference is the relatively high ranking given to "dissatisfaction in a professional occupation" and "difficulty of finding the right job" by Spanish respondents compared to US and Chinese respondents. The high levels of formalization within Spanish organizations that Rodrigues and Kaplan (1998) observed may clash with students' desires for independence and the opportunity to implement their own ideas.

This study also assessed perceptions of the relative importance of start-up barriers (see Table VIII). While students across the three countries agreed in a rough sense on their rankings of important and unimportant barriers, we identified some surprising differences. In addition, although the three groups often provide roughly similar rankings, their assessment of the basic importance of each factor differs significantly. Students perceived the top two barriers to be "excessively risky" and "lack of initial capital". Regardless of country, students saw high risk and lack of startup capital as the primary barriers to starting businesses. Students from the three countries also identified the current economic environment and lack of entrepreneurial competence as important barriers. In addition, students roughly agreed on the relative insignificance of barriers like potential for employee problems, start-up paperwork and bureaucracy, and workload. In contrast, they were generally self-confident, ranking doubts about their personal abilities below other barriers like high risk, lack of capital, and lack of knowledge of the business world and the market.

Some important distinctions in responses emerged across the three countries (see Table VIII). The most dramatic difference regards the lack of ideas of what businesses to start as a barrier to entrepreneurship. Chinese respondents ranked this barrier as third-most important, far higher and with less variance (mean 3.85, SD 1.13), than did the Spanish respondents, who ranked this barrier seventeenth (mean 2.72, SD 1.25). The eighth-place ranking given to this barrier by American respondents fell in the middle, albeit with far higher response variance (mean 3.68, SD 2.72). Finally, Chinese respondents were highly unconcerned about the prospect of a high workload for entrepreneurs since they ranked this barrier dead last in importance.

Another notable distinction concerns social barriers. As noted earlier, Chinese respondents were more likely to believe that their families would not support entrepreneurial initiatives. This finding is reinforced by the barrier ratings – the Chinese respondents rated the social barriers – namely, "lack of support from family and friends" and "fear of failure" – higher than did their American or Spanish counterparts.

Limitations

The data for our study were collected through a survey instrument. Respondents provided data about entrepreneurial disposition, entrepreneurial aspirations, exposure and other situational factors, and perceived barriers and motivations for entrepreneurship. All the observed relationships were reported by the same group of respondents. Therefore, any observed relations may be in part a result of common method effect (Fiske, 1982). However, this limitation is consistent with the limitations

	US		China		Spain			
	Rank	Mean	Rank	Mean	Rank	Mean	F	p
Excessively risky	1	4.25	2	4.02	2	3.94	10.3	0.000
Lack of initial capital	2	4.18	1	4.10	1	4.25	1.0	0.357
Current economic situation	3	4.18	4	3.79	3	3.94	8.7	0.000
Lack of a high level of entrepreneurial competence	4	3.86	5	3.70	5	3.53	10.1	0.000
Lack of knowledge	5	3.84	10	3.29	10	3.26	24.9	0.000
Lack of experience in management and accounting	6	3.76	11	3.26	4	3.62	9.2	0.000
Lack of knowledge of the business world and the market	7	3.70	6	3.46	8	3.27	15.2	0.000
Lack of ideas regarding what business to start	8	3.68	3	3.85	17	2.72	39.8	0.000
Irregular income	9	3.65	17	2.99	11	3.22	23.5	0.000
Fiscal charges (taxes, legal fees, etc.)	10	3.54	16	3.09	9	3.26	11.3	0.000
Lack of available assistance in assessing business viability	11	3.52	8	3.40	14	3.14		0.000
Lack of formal help to start a business	12	3.52	13	3.20	6	3.43	3.9	.021
Lack of organizations to assist entrepreneurs	13	3.47	14	3.19	7	3.30	1.5	0.218
Lack of support from people around me (family, friends, etc.)	14	3.46	7	3.41	18	3.26	41.4	0.000
Fear of failure	15	3.44	9	3.35	13	3.16	5.2	0.000
Lack of legal assistance or counseling	16	3.42	12	3.20	12	3.21	4.2	0.015
Having to work too many hours	17	3.41	20	2.54	16	2.75	35.2	0.000
Doubts about personal abilities	18	3.37	15	3.15	19	2.64	37.0	0.000
Problems with employees/contracted personnel	19	3.27	18	2.98	20	2.61	39.7	0.000
Start up paper work and bureaucracy	20	3.18	19	2.73	15	2.86	10.1	0.000

Table VIII.
Student ranking of perceived barriers to business ownership

of prior empirical studies in this area and of most survey research. A second limitation is that the sample came from three universities. Faculty and education programs at other schools will need to assess the applicability of our results to their specific institutions. A third limitation lies in our use of group-level cultural value orientation as a *post hoc* explanation of our findings without directly measuring cultural value orientations of study participants. It would have been advantageous to measure cultural value orientation of study participants at the individual-level models so as to provide more useful guidance in how culture influences behavior. This was, however, not possible given the length of the instrument and time limitations. Fourth, it will be desirable to pursue further work on the survey instrument itself. For example, additional development in the area of scaled items regarding motives and barriers may lead to higher explanatory power and reliability for the extracted factors, which would simplify interpretation and further strengthen the robustness of models.

Discussion and conclusions

As suggested by the results of this study, a respondent's country, entrepreneurial exposure and social norms help explain students' entrepreneurial intentions. Students with family members who are entrepreneurs are more likely to intend to start their own businesses. Unsurprisingly, the expected supportiveness of family reactions to entrepreneurship is positively related to intentions. Conversely, students who expect that their families will react negatively are less likely to intend to pursue entrepreneurship. These effects are modest but they remain even after controlling for the effect of country. Country itself has a significant but relatively small impact on intentions. Chinese students are more likely to expect their families to be opposed to or unsupportive of entrepreneurship. However, cultural values associated with country and expected family support had very modest influences on entrepreneurial intentions. This seems to indicate that variables about personal characteristics are more important. This finding meshes with prior research that found social norms to be unrelated to entrepreneurial behavioral intentions (Krueger *et al.*, 2000).

Political-economic and cultural-psychological factors research

Although there are substantial cultural and situational differences between the three countries, they are not strong predictors of entrepreneurial intentions – the degree to which respondents were actively planning to start a business. Country, personal entrepreneurial exposure, and social barriers explain only a small part of a student's entrepreneurial intentions. As one reviewer pointed out, our study highlights the need for further work on the relationship between, on the one hand, political and economic factors and, on the other, cultural and psychological factors. China, for example, may provide a very rich arena to study whether changes in politics and economics simply allow cultural and psychological factors to express themselves, or whether such changes foster changes in cultural and psychological underpinnings of entrepreneurship. As the reviewer notes, this subject and setting are ripe for longitudinal research and could address some of the conceptual and empirical limitations of Hofstede's approach to culture.

A focus on entrepreneurial disposition

The most influential factor by far in our analysis is entrepreneurial disposition. Our findings suggest that the most influential predictor of entrepreneurial intentions is personal – an individual's perceptions of his or her own entrepreneurial spirit. A very fruitful avenue for colleges, regardless of country, to encourage entrepreneurial behavior may be simply to focus on developing students' belief in their own creativity and autonomy. This has also been identified among researchers studying entrepreneurial self-efficacy (ESE), who indicate that individuals with higher levels of ESE are more likely to express interest in entrepreneurship and/or intend to start a business (Baughn *et al.*, 2006; Krueger *et al.*, 2000; Peterman and Kennedy, 2003; Segal *et al.*, 2002). It is not enough to give students practical managerial tools and knowledge about the processes and issues in entrepreneurship. To get more students deeply interested in entrepreneurship, and ready to embark on business start-up, we need to foster their sense of confidence and initiative. This conclusion has also been developed in studies of the impact of education on entrepreneurial self-efficacy (e.g. Zhao *et al.*, 2005).

Entrepreneurial tensions in China

In addition to showing broad interest in entrepreneurship across the three countries our findings provide much-needed insight into the popular perception that entrepreneurship is an important part of the "new" China. Chinese students have relatively strong motivations and intentions for entrepreneurship, yet these are offset by significant social and family forces that may work against budding entrepreneurs. They describe themselves as confident and knowledgeable, more than 60 percent of the Chinese respondents have thought seriously about owning a business or have a definite plan to do so. They are highly motivated by the entrepreneurial prospects of autonomy, wealth and, more so than Spanish or American students, social status. Many have some familiarity with entrepreneurship, 80 percent have friends that started businesses in the last three years. Nonetheless, there are substantial social or family-imposed barriers not mentioned by American and Spanish students that loom larger for aspiring Chinese entrepreneurs. Although Chinese students reported having friends who have started businesses, relatively few reported this to be the case within their own immediate families. This could perhaps explain why more than half of the Chinese respondents believed that their families would be indifferent or actively opposed to their pursuit of entrepreneurship. They are much more concerned than American and Spanish students with finding viable business ideas, fear of failure, and lack of support from family and friends.

Entrepreneurship education in China may need to take a substantially different approach than in the west. Addressing these social or familial issues can only strengthen student interest in entrepreneurship, the likelihood of students embarking on it, and the probability of satisfaction and success. On the other hand, it does not appear that western entrepreneurship education, taking America and Spain as examples, needs to place much emphasis on resolving social and familial tensions/barriers.

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