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Cultural Contingency in the Cognitive Model of Entrepreneurial Intention

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This study examines the impact of individualism–collectivism orientation on the cognitive model of entrepreneurial intention in a collectivist environment (i.e., China). Using a sample of 204 MBA students from China and Hong Kong, we investigate the moderating effect of self-construal on the relationship between perceptual factors and entrepreneurial intention. The results show that the strength of perceived social norms in predicting entrepreneurial intention depends on interdependent self-construal. The resulting nonsignificance of personal attitude contradicts findings reported in individualist contexts. This study develops a sound theory to explain the cultural contingency in the cognitive model of entrepreneurial intention.

Introduction

The Cognition of New Venture Creation in a Comprehensive Reality: Person-in-Context

Fiske and Taylor's (1984) model of social cognition proposes the conceptualization of "comprehensive reality" or "person-in-context"; that is, personal psychological, cognitive, and motivational variables and social contextual factors interact simultaneously rather than as individual forces or single elements to predict behavior. Researchers have postulated that cognition has the potential to make a significant contribution to the study of entrepreneurship (e.g., Baron, 1998; Busenitz & Barney, 1997; Mitchell et al., 2007). Specifically, a well-established entrepreneurial cognitive model is the Entrepreneurial Intentionality (EI) model (Bird, 1988), which conceptualizes entrepreneurial behaviors within a comprehensive reality of person-in-context. Bird's conceptual framework emphasizes the use of a context-oriented focus to investigate the role of person–environment interaction in an individual's cognitive processes of forming entrepreneurial intention. According to this framework, researchers applying cognitive models will have to consider contextual complexity because it is necessary to capture a variety of complex contextual influences on how an individual creates a new venture (Low & MacMillan, 1988). It is also necessary to evaluate any possible contingent (or moderating) effects

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environmental factors have on personal psychological, cognitive, and motivational variables predicting entrepreneurial intentions and actions (i.e., intentions and actions of new venture creation) (Mitchell et al.). Bird's contextual model could compensate for the insufficiency of the static entrepreneurship model, which uses a single deterministic dimension (e.g., entrepreneurial trait) to predict new venture creation (Gartner, 1989).

Within existing entrepreneurial cognitive models, theories for contingent environmental or contextual effects (e.g., social factors such as social norms and self-construals), including those for new venture creation, are not yet fully developed (Mitchell et al., 2007). In fact, two major cognitive research approaches—Entrepreneurial Expertise (e.g., Busenitz & Lau, 1996; Mitchell, Smith, Seawright, & Morse, 2000) and Self-Perceptual (e.g., Boyd & Vozikis, 1994; Krueger & Carsrud, 1993; Liñán & Chen, 2009)—have emerged that underscore and examine contextual or environmental contingency (specifically, the contextual influences of cultural values) in the existing cognitive models for entrepreneurial decision and intention. Against this background, this article will examine whether the theoretical explanations of the major cognitive research approaches adequately explain and test cultural contingent influences on entrepreneurial cognitive models.

Literature Review

Entrepreneurial Expertise Approach

Origin of Its Contextual Contingency: Busenitz and Lau's Cross-Cultural Cognitive Model of New Venture Creation. Following the "person-in-context" approach, Busenitz and Lau (1996) extended Bird's (1988) EI model by using the social information-processing perspective (i.e., Salancik & Pfeffer, 1978; Schneider & Angelmar, 1993), which addresses how people perceive and interpret information from the surrounding environment, to explain cultural orientation's impact on entrepreneurial cognitive structure (i.e., schema). They proposed that entrepreneurial schema (or schema for new venture creation) represents a cognitive structure that invokes memory, provides organized knowledge about new venture creation, contains both the relevant attributes and the specification of relationships among those attributes, and generates output by making predictions or inferences and initiating entrepreneurial intention and decision. Based on the findings of Hofstede (1980, 1991), Busenitz and Lau (1996) postulated that cultural values (e.g., uncertainty avoidance and long-term orientation) affect entrepreneurial schema. They proposed the Cross-Cultural Cognitive Model of New Venture Creation, which focuses on the impact of cultural context and its underlying cultural values on entrepreneurial schema. Although Busenitz and Lau's cognitive model has contributed substantially to current thinking about the theoretical linkage between cultural values and entrepreneurial cognitive structure, these theoretical explanations can set up only preliminary propositions. They are insufficient to show how people form entrepreneurial cognitive structure under different cultural influences. Mitchell et al. (2000) have also developed an advanced cross-cultural cognitive model to predict and explain how cultural values affect entrepreneurial schema.

Cultural Influences on Prediction of Entrepreneurial Expert Script on New Venture Creation Decisions. Also following the "person-in-context" approach, Mitchell et al. (2000) applied the expert information-processing theory (Leddo & Abelson, 1986) to

assert that entrepreneurial cognitive structures—entrepreneurial expert scripts (or expert scripts for new venture creation)—are shaped by social contextual and personal variables. Compared with entrepreneurial schema, entrepreneurial expert scripts are more highly organized cognitive structures that comprise highly developed, sequentially ordered knowledge that is applicable to new venture creation. More specifically, based on the cognitive constructs conceptualization of Leddo and Abelson, Mitchell et al. defined three types of expert scripts for studying new venture creation: (1) Arrangement Scripts, which are knowledge structures about resources and assets (e.g., customer and supplier contacts and relationships, venture capital, specific patents, and exclusive business ideas) necessary to create a new venture; (2) Willingness Scripts, which are knowledge structures about underlying commitment and receptivity to the idea of creating a new venture; and (3) Ability Scripts, which represent knowledge structures about the capabilities, skills, knowledge, norms, and attitudes required for creating a new venture.

Like Busenitz and Lau's (1996) theoretical model, Mitchell et al.'s (2000) model hypothesized that cultural values, including the cultural orientations of individualism and power distance (Hofstede, 1980), affect individuals' acquisition of these three types of entrepreneurial expert scripts and that this acquisition in turn impacts the entrepreneurial decision. Mitchell et al. have expanded on Busenitz and Lau's work by providing more specific theoretical explanations of how cultural values affect entrepreneurial cognitive structure. For example, collectivistic values shape individuals' concerns about laws and social norms of societies; thus, inhibiting the accumulation of personal wealth in a collective society might discourage individuals' willingness scripts (i.e., their own commitment) to create a new venture.

More importantly, Mitchell et al. (2000) suggested that because each culture might have specific values and norms regarding new venture creation, the strength of the relationship between entrepreneurial expert scripts and entrepreneurial decisions may be contingent on or moderated by cultural values. Mitchell et al. noted, ". . . Entrepreneurship cognition theory has not developed to the point where we are able a priori to identify the specific aspects that are likely to vary, and why. Accordingly, we treated this as an empirical issue . . ." (p. 980). Obviously, at this juncture, entrepreneurship cognition theory was only a stage of exploratory research.

Adopting Hofstede's (1980) individualism and power distance orientations, Mitchell et al. (2000) recategorized the seven-country samples into high, medium, and low country groups and undertook cross-cultural empirical tests. This recategorization of samples was based on the proximity of scores in Hofstede's (1980) table of individualism and power distance. For instance, the United States, Japanese, and Chinese samples were recategorized into high, medium, and low individualism groups, respectively. The results show that individuals from societies with stronger individualist or power distance contexts depend more on knowledge structures about the resources and assets for making decisions on a new venture. The research results, however, cannot be extended to individuals from societies with weaker individualist or power distance contexts. Although the study of Mitchell et al. was exploratory in nature, it contributed to the literature with empirical data to verify cultural contingency in the expertise cognitive model of entrepreneurial decision.

Self-Perceptual Approach

Modified Theory of Planned Behavior. Boyd & Vozikis (1994) and Krueger and Carsrud (1993) used the self-perception approach, which suggests that the cognitive process of

new venture creation is a perception-driven decision process. They proposed that personal and social contextual factors influence the formation of intention and behavior in creating new venture through self-perceptual factors. These authors applied the Theory of Planned Behavior (Ajzen, 1991) to determine how self-perceptual factors work in the cognitive process of forming entrepreneurial intention (ENI). Boyd and Vozikis and Krueger and Carsrud specifically modified three self-perceptual factors to build up their entrepreneurial cognitive model: (1) personal attitude toward entrepreneurship (ATE) or the perception of what an individual finds favorable or unfavorable about performing venture creation; (2) perceived social norms toward entrepreneurship (PSN), which include the sum of an individual's perceptions of what the influential people in his or her life think about performing venture creation; and (3) entrepreneurial self-efficacy (ESE), which describes an individual's perception of being capable of executing venture creation.

Subsequent empirical studies (e.g., Drennan, Kennedy, & Renfrow, 2005; Peterman & Kennedy, 2003; Zhao, Seibert, & Hills, 2005) verified that self-perceptual factors act as mediators between personal factors and entrepreneurial intention. Personal factors, including previous entrepreneurial experience (e.g., experience of start-up, working in a small firm, or working in a family business) and perceived formal learning of entrepreneurship, are significant antecedents of personal attitude toward entrepreneurship and entrepreneurial self-efficacy. These, in turn, significantly predict entrepreneurial intention. However, empirical studies of this type neither include social contextual factors in the cognitive model nor test their influences on the prediction of personal factors on entrepreneurial intention.

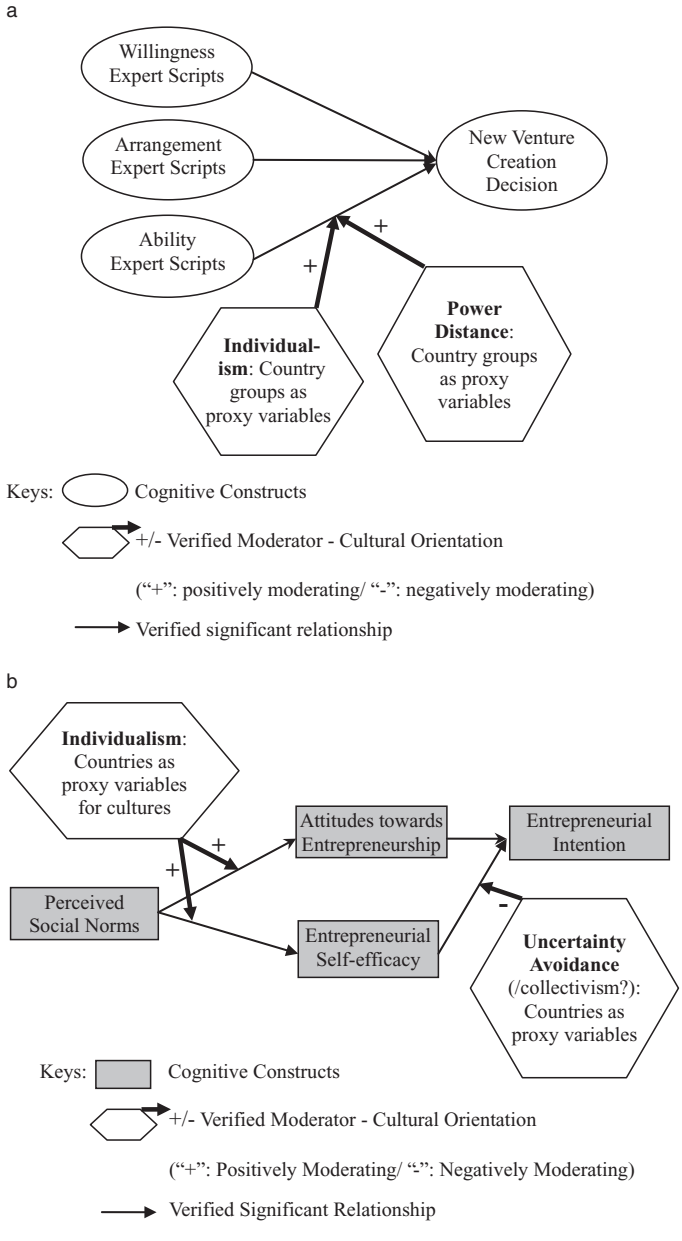
Recently, in cross-national research in Spain and Taiwan, Liñán and Chen (2009) were the first to theorize and examine the cultural contingency of the self-perceptual approach. By adopting Hofstede's (1980) cultural orientations, Liñán and Chen found that cultural orientations explain the variation of predictive strength of self-perceptual factors on entrepreneurial intention. They postulated that perceived social norms are specific forms of social capital that offer values transmitted by "reference people." The positive values of the reference people with regard to new venture creation probably cause an individual to have a stronger personal attitude toward entrepreneurship and entrepreneurial self-efficacy, while these factors, in turn, form the basis of stronger entrepreneurial intention. Notably, the direct influence of perceived social norms on entrepreneurial intention was not hypothesized. Thus, although perceived social norms were postulated to act as a stronger antecedent in explaining intention in collectivist cultures than in individualistic societies, Liñán and Chen did not determine the moderating effect of individualism–collectivism on the influence of perceived social norms on entrepreneurial intention.

Liñán and Chen also adopted Uslay, Teach, & Schwartz's (2002) findings regarding the varied views of Spanish and Taiwanese respondents on whether new venture creation brings job satisfaction and adds to the excitement of life. The hypothesis that personal attitude toward entrepreneurship has a greater influence on entrepreneurial intention in Spain than in Taiwan was not based upon any relevant theory of cultural orientation. Although there was a stronger agreement with the hypothesis among the Spanish samples studied, the study's results could provide only indirect evidence to support the hypothesis. Despite weak hypothesis support, Liñán and Chen's (2009) self-perceptual approach contributed to the testing of cultural contextual contingency in the cognitive model of entrepreneurial intention.

Figure 1(a) and (b) summarize the research findings of entrepreneurial cognitive models on the bases of entrepreneurial expertise and self-perceptual approaches, respectively.

Figure 1

(a) Predictive Strength of Cognitive Factors—Moderated by (or Contingent to) Cultural Dimensions in Entrepreneurial Expertise Approach. (b) Predictive Strength of Cognitive Factors—Moderated by (or Contingent to) Cultural Dimensions in Self-Perceptual Approach



Cultural Contingency and Entrepreneurial Intention

As mentioned in the literature review section, Mitchell et al. (2000) did not explain the cultural contingency that people from stronger individualist countries depend more on arrangement expert scripts for making new venture decisions than those from weaker individualist countries. Liñán and Chen (2009) did not determine the influence of cultural contingency on perceived social norms in predicting entrepreneurial intention between individualist and collectivist countries. Notably, these authors used only indirect evidence to explain the variance in predictive strength of personal attitude toward entrepreneurship on entrepreneurial intention between individualist and collectivist countries.

Both Mitchell et al.'s (2000) and Liñán and Chen's (2009) models could be strengthened if relevant theories of cultural orientation were introduced into the model and the significance of the predictive path in the individualist and collectivist subsamples were tested accordingly. Notably, cultural contingency theory in the cognitive model of entrepreneurial decision and intention displays a major inadequacy related to the individualism–collectivism orientation. Thus, the relevant theories about how the individualism–collectivism orientation determines the relative predictive strength of self-perceptual factors on entrepreneurial intention (e.g., Bontempo & Rivero, 1992; Davidson, Jaccard, Triandis, Morales, & Diaz-Guerrero, 1976; Park & Levine, 1999; Triandis, 1995) may help to fill the present entrepreneurial cognitive research gap.

Despite the fact that entrepreneurial expert scripts and self-perceptual factors influence entrepreneurial decision and intention, respectively, they represent different research perspectives in studying the entrepreneurial cognitive process. The former is expert information driven and examines the degree of actual mastery (or a quality) of entrepreneurial expert scripts of the decision-maker (Mitchell et al., 2000). The latter is perception driven and determines an individual's degree of perceived mastery or desirability of entrepreneurship (e.g., Krueger, Reilly, & Carsrud, 2000). While the entrepreneurial expert scripts were verified to predict and explain entrepreneurial decision (Mitchell et al.), the self-perceptual factors were confirmed to predict and explain entrepreneurial intention (e.g., Drennan et al., 2005; Krueger et al.; Peterman & Kennedy, 2003; Zhao et al., 2005). As a result, the relevant theories regarding the cultural contingency of self-perceptual factors most likely cannot be wholly applied to the cultural contingency of entrepreneurial expert scripts.

Notably, entrepreneurial expert scripts and self-perceptual factors capture similar aspects of entrepreneurial cognition. Both arrangement and ability expert scripts concern knowledge structures of resources and personal capabilities necessary to create a new venture. These aspects are closely associated with the perception and assessment of oneself as being capable of performing a search for resources and other entrepreneurial tasks—that is, entrepreneurial self-efficacy. Willingness expert scripts concern knowledge structures of commitment and receptivity to the idea of creating a new venture. These aspects are closely associated with an individual's favorable perception of performing venture start-up (i.e., personal attitude toward entrepreneurship) (Mitchell et al., 2000). Although different research approaches are applied in studying the cognitive constructs, they are, in accordance with existing theories (e.g., Bontempo & Rivero, 1992), associated with individualism–collectivism orientation. Thus, studying the influence of individualism–collectivism orientation on how self-perceptual factors affect intention would illuminate how entrepreneurial expert scripts influence behavior or decision as an outcome of intention (e.g., Bird, 1992; Krueger et al., 2000). Importantly, such study can compensate for the entrepreneurial expertise approach's shortcomings.

In terms of methodology, Mitchell et al.'s (2000) research was limited by their use of categorical variables for entrepreneurial expert scripts. The use of one-way analysis of variance (ANOVA) to analyze categorical variables inevitably reduces the statistical power of the analysis. Liñán and Chen's (2009) employment of continuous scales for self-perceptual factors is advantageous; however, their research is greatly limited by the use of country as proxy variable for culture based on relative country scores in Hofstede (1980). This practice may ignore within-country differences in cultural values among particular subcultures in a country (Hofstede & Hofstede, 2005). Additionally, the use of country as proxy for culture may risk not measuring all relevant cultural factors that could bias hypothesis testing (Schaffer & Riordan, 2003). Thus, cultural values held by individuals should be directly measured when studying cultural contingency in the cognitive model of entrepreneurial intention.

Another limitation of Liñán and Chen's (2009) research is the comparison of results between two proposed country subsamples with different cultural values. First, Liñán and Chen did not report whether the rating scales had the same meaning and were used in the same way by groups with different cultural values (Cheung & Rensvold, 2002; Hair, Black, Babin, Anderson, & Tatham, 2006). Statistical results of a series of multi-group confirmatory factor analyses (CFAs) could be used to test measurement invariance of the rating scales. Second, although Liñán and Chen showed obvious differences in magnitude of path coefficient between the two cultural groups, they did not report any subsequent tests examining the significances of these differences. Multi-group structural equation modeling (SEM) could be used to examine this. The cultural contingency hypothesis testing would be more rigorous if measurement invariance tests, together with multi-group SEM, were applied to analyze subsamples. In summary, there still exists a need for theoretical and methodological advancement in the study of cultural contingency in entrepreneurial cognitive research.

Research Objectives

To advance the body of knowledge in the area of entrepreneurial cognition, the present study focuses on investigating the cultural contingency of individualism–collectivism orientation in the cognitive model of entrepreneurial intention. Specifically, this study uses the self-perceptual approach to examine how individualist and collectivist constructs affect this cognitive model in a collectivist environment (i.e., China). As a transition economy, China is an ideal location to observe under-considered entrepreneurial phenomena such as entrepreneurial cognition (Siu & Martin, 1992). Moreover, extensive and relevant Chinese cultural literature is available, allowing the development of a sound theoretical foundation for the study. The present research focuses on a Chinese ethnic group to provide a theoretical foundation that researchers can use in a later cross-national approach. This groundwork also contributes to further research on cultural contingency from the perspective of the entrepreneurial expertise approach, in which its expert script constructs capture similar aspects as self-perceptual constructs.

The present study takes the first step toward integrating individualist and collectivist constructs directly into the conceptual framework of the self-perceptual approach. Based on the available literature (e.g., Bontempo & Rivero, 1992), the interplay of individualist and collectivist constructs, self-perceptual factors, and entrepreneurial intention are theorized and empirically tested. In more specific terms, the research objectives are as follows:

1. To determine the effect of a collectivist cultural context (i.e., People's Republic of China, PRC) on the theoretical relationship between self-perceptual factors and entrepreneurial intention;
2. To determine the moderating effect of individualist and collectivist values, specifically the independent and interdependent self-construals, on the predictive strength of self-perceptual factors on entrepreneurial intention in the cognitive model of entrepreneurial intention.

Theoretical Development

Individualism–Collectivism and Predictive Strength of Self-Perceptual Factors on Entrepreneurial Intention

Previous entrepreneurial cognitive research using a self-perceptual approach has indicated an interesting pattern involving the significance of three self-perceptual factors in predicting entrepreneurial intention. Previous works in various countries such as the United States (Krueger, 1993; Krueger et al., 2000), Australia (Drennan et al., 2005), and Spain (Guerrero, Rialp, & Urbano, 2006) has verified the significant predictive power of personal attitude toward entrepreneurship. Additionally, a significant effect of entrepreneurial self-efficacy has been verified with American (Chen, Greene, & Crick, 1998; De Noble, Jung, & Ehrlich, 1999; Kickul & Krueger, 2004; Krueger et al., 2000; Zhao et al., 2005), Chinese (Moy, Luk, & Wright, 2005), and South African samples (Urban, 2006).

The construct of perceived social norms toward entrepreneurship has rarely been studied; its nonsignificance was found in an American sample (Krueger et al., 2000) and in combined Spanish and Taiwanese samples (Liñán & Chen, 2009). On the other hand, a cross-national study in Finland, Sweden, and the United States showed that personal attitude toward entrepreneurship and entrepreneurial self-efficacy had a significantly strong impact on entrepreneurial intention (i.e., from about 25% to 35% of variance) (Autio, Keeley, Klofsten, Parker, & Hay, 2001), whereas only a very weak impact of perceived social norms on entrepreneurial intention was indicated among these same countries (i.e., less than 3%). Notably, the nonsignificant results (Krueger et al.) of perceived social norms predicting entrepreneurial intention were consistently found in societies in which people reported higher individualist values on average (i.e., Finland, Sweden, and the United States) (Hofstede & Hofstede, 2005).[1] However, these results have not yet been evaluated in societies in which people reported higher collectivist values on average. Although Liñán and Chen undertook research on contextual influences of cultural values in Taiwan, samples for that country were not separately tested.

Researchers have already attributed the nonsignificant results of perceived social norms to cultural contextual influences. Krueger et al. (2000) argued that the nonsignificant results regarding the perceived social norms construct were based on a single-country sample (i.e., the United States) and that their findings cannot be applied generally to other sample groups in other countries. They suggested that perhaps cultural differences affect the importance of perceived social norms in predicting entrepreneurial intention. Liñán and Chen (2009) alternatively presented an argument against attitudinal literature (i.e., Ajzen, 2001) that suggests that individualism–collectivism orientation is the most probable cultural factor to explain any variance in the power that perceived social norms have

1. With respect to Individualism Index (IDV) Values (Hofstede & Hofstede, 2005), the United States, Sweden, and Finland rank 1st, 13th, and 21st, respectively, out of 74 countries.

in predicting entrepreneurial intention. They asserted that the role of perceived social norms in predicting entrepreneurial intention would be stronger in collectivist cultures than in individualist cultures.

In light of these ideas, the present study will attempt to develop stronger theoretical explanations for the possible impacts of individualism–collectivism orientation on the relative predictive strength of three self-perceptual factors. Researchers searched for relevant cultural literature and found that Bontempo and Rivero's (1992) theory (cf. Triandis, 1995) and other supporting literature (e.g., Park & Levine, 1999) can be applied to explain and predict the moderating effect of individualism–collectivism orientation on the predictive strength of three self-perceptual factors.

Bontempo and Rivero's Theory and Predictive Strengths of Self-perceptual Factors

The relevant literature reveals that an individualism–collectivism orientation can be applied to explain and predict the strengths of perceptual factors on entrepreneurial intention. Davidson et al. (1976) asserted that people in individualist cultures focus on personal attitudes, personal needs, rights, and contracts to guide most social behavior, whereas people in collectivist cultures focus on norms, obligations, and duties. Based on this cross-cultural psychological assertion, Bontempo and Rivero (1992) hypothesized that the more individualistic the country, the more strongly personal attitude (rather than social norms) would predict intentions toward various behaviors.

Later, Park and Levine (1999) examined this hypothesis across three cultural groups. In their test, they used self-construals, which are individual-level constructs of individualist and collectivist values (Gudykunst et al., 1996; Triandis, 1989). Self-construals refer to the extent to which people view themselves as separate from or connected to others (Markus & Kitayama, 1991, p. 226). Two construals, independent self-construal (IDP) and interdependent self-construal (ITD), mediate the influences of individualist and collectivist values, respectively, on individual behavior (Kim, Aune, Hunter, Kim, & Kim, 2001; Kim et al., 1996; Singelis & Brown, 1995). Independent self-construal is defined as a "bounded, unitary, stable" self that is separated from social context, whereas interdependent self-construal is defined as a "flexible and variable" self that emphasizes one's connectedness with others (Singelis, 1994, p. 581). People with higher independent self-construal tend to focus more on their own abilities, characteristics, and goals than on the thoughts, feelings, and actions of others; in contrast, people with higher interdependent self-construal are more likely to act in accordance with the anticipated expectations of others and social norms (Singelis). Park and Levine confirmed that interdependent self-construal strengthens the effect of social norms but weakens the impact that personal attitude has on studying for upcoming exams.

Other researchers (Hagger et al., 2007; Van Hooft, Born, Taris, & van der Flier, 2004, 2006) applied Bontempo and Rivero's theory to determine the predictive strength of self-efficacy on intentions (e.g., intentions toward job searching and physical activities). People in individualist cultures are expected to rely more on their own abilities than on the thoughts of others (Singelis, 1994). As a result, self-efficacy was found to exert a stronger effect in individualist cultures than in collectivist cultures. Overall, Bontempo and Rivero's theory can be applied to determine the moderating effect of individualist and collectivist values in various kinds of cognitive models that employ the self-perceptual approach. The present research will adopt Bontempo and Rivero's framework to develop a culturally contingent cognitive model of entrepreneurial intention.

Hypotheses

Moderating Effect: Individualism and Collectivism

This study pioneers the evaluation of the predictive power of perceived social norms in societies in which people report higher collectivist values on average. Chinese society is one such society (e.g., Hofstede & Hofstede, 2005; Oyserman, Coon, & Kemmelmeier, 2002). Collectivist ideology, underscored in Confucian culture, maintains its great contextual influences in China and still shapes the value orientations of modern Chinese (Tu, 1998a). Collectivist values focus on the individual being part of an "in-group" of family, serving the interests of family, and maintaining lifelong loyalty and a mutually dependent relationship with parents (Hsu, 1998; Tu, 1998b; Yan & Sorenson, 2006). An important collectivist social belief influencing Chinese behavior is that "the futures of individuals from the same in-group such as family, close friends, and partners or colleagues are inter-related and well-being of each individual relies on the results of in-group effort; if each individual acts in accordance with the norms of the in-group, the in-group will be harmonious and prosperous" (Leung, 1996, p. 258). Thus, for collective interests, the behaviors of the individual align with the norms of the in-group. In the Chinese collectivist context, people place more emphasis on acting in accordance with the norms of an in-group; thus, personal beliefs about what others think of an individual's action become especially important. These beliefs, in turn, increase the likelihood that influential people embedded in one's social in-group will play a vital role in the process of creating new venture (Aldrich & Cliff, 2003; Aldrich & Zimmer, 1986).

Collectivist social belief in the Chinese context increases the likelihood that new venture creation is socially embedded—that is, individuals' decision making is subtly influenced by influential people in their social in-groups (Aldrich & Cliff, 2003; Aldrich & Zimmer, 1986). These influential people—mainly family members and close friends or colleagues regarded in the Chinese context (Goodwin & Tang, 1996; Triandis, Bontempo, Villareal, Asai, & Lucca, 1988)—would carry norms, attitudes, and values toward work that would affect individuals' decisions on venture creation (Aldrich & Cliff). The importance of influential people accords with Bontempo and Rivero's theory that collectivist values tend to strengthen the effect of social norms. An empirical Chinese study also verified that the strongest predictor of entrepreneurial intention was perception of others with a positive attitude toward entrepreneurs (Zhang & Yang, 2006). This result supports the idea that under the Chinese collectivist contextual influence, individuals' perceptions of others' attitudes can have a stronger effect than individuals' own attitudes and perceptions about personal capability. Accordingly, two hypotheses are proposed:

> **Hypothesis 1:** In the Chinese context, the predictive strength of perceived social norms toward entrepreneurship is stronger than the predictive strength of personal attitude toward entrepreneurship and entrepreneurial self-efficacy on entrepreneurial intention.
>
> **Hypothesis 2:** In the Chinese context, those who have higher levels of **(a)** personal attitude toward entrepreneurship, **(b)** perceived social norms toward entrepreneurship, and **(c)** entrepreneurial self-efficacy develop a higher level of entrepreneurial intention.

Because cultural values, rather than ethnicity or country, exert the moderating effect, the present study follows Schaffer and Riordan's (2003) recommendation to incorporate culture directly into a theoretical framework. Therefore, subjects' individualist and collectivist values were directly measured and tested in the hypothesized conceptual

framework. According to the literature (e.g., Markus & Kitayama, 1991; Triandis, 1989), the macrosocietal force of individualism–collectivism shapes how individuals conceive of themselves as separate from or connected to others and this in turn affects individual behaviors (Gudykunst et al., 1996). Independent self-construal and interdependent self-construal were operationalized as individual-level constructs to mediate the societal-level of individualism–collectivism and to capture how individuals conceive of themselves as separate from (i.e., individualist values) or connected to others (i.e., collectivist values) (Kim et al., 1996, 2001; Singelis & Brown, 1995). This distinction allows independent and interdependent self-construal to be conceptually differentiated from personal perceptions of the specific action of new venture creation. The moderating effects of independent and interdependent self-construal can therefore be indirectly incorporated into the cognitive model of entrepreneurial intention:

Hypothesis 3: In the Chinese context, the stronger one's independent self-construal (IDP), the stronger the effect of **(a)** personal attitude toward entrepreneurship and **(b)** entrepreneurial self-efficacy on entrepreneurial intention but the weaker the effect of **(c)** perceived social norms toward entrepreneurship on entrepreneurial intention.

Hypothesis 4: In the Chinese context, the stronger one's interdependent self-construal (ITD), the weaker the effect of **(a)** entrepreneurial self-efficacy and **(b)** personal attitude toward entrepreneurship on entrepreneurial intention but the stronger the effect of **(c)** perceived social norms toward entrepreneurship on entrepreneurial intention.

Mediating Effect: Process-Oriented Cognitive Model of Entrepreneurial Intention

To explain and predict the effect of cultural contingency, hypotheses 3 and 4 were set up to determine the moderating effect of independent and interdependent self-construal on the strength of relationship between the predictor (i.e., the self-perceptual factors) and the criterion (i.e., entrepreneurial intention) (Baron & Kenny, 1986). The self-perceptual factors of personal attitude toward entrepreneurship and entrepreneurial self-efficacy function as mediators and thus can explain how the entrepreneurial experience-related antecedents affect entrepreneurial intention (Boyd & Vozikis, 1994; Krueger & Carsrud, 1993). In this manner, the present study sets up mediation hypotheses to examine whether these two self-perceptual factors can have a mediating effect in the Chinese context.

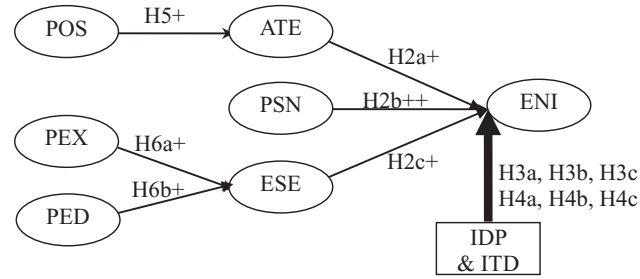
Based upon the expectancy-value model (Fishbein & Ajzen, 1975), personal attitude toward entrepreneurship was found to mediate the effect of positiveness of entrepreneurial experience (i.e., the perceived positive or negative quality of entrepreneurial experience) on entrepreneurial intention (Krueger, 1993). On the other hand, based on Boyd and Vozikis's (1994) conceptual work, entrepreneurial self-efficacy was shown to mediate the influences of previous entrepreneurial experience (PEX) and perceived formal learning in entrepreneurship (PED) on entrepreneurial intention (Zhao et al., 2005). Because all of these entrepreneurship-related experiences explained most variances of personal attitude toward entrepreneurship and entrepreneurial self-efficacy in past studies, the following relationships will also be examined in the Chinese context:

Hypothesis 5: In the Chinese context, those with a more positive entrepreneurial experience develop higher levels of personal attitude toward entrepreneurship.

Hypothesis 6: In the Chinese context, those with a higher level of (a) previous entrepreneurial experience and (b) perceived formal learning in entrepreneurship develop higher levels of entrepreneurial self-efficacy.

Figure 2

Whole Hypothetical Model



Key: ENI: Entrepreneurial Intention
ATE: Attitudes toward Entrepreneurship
PSN: Perceived Social Norms toward Entrepreneurship
ESE: Entrepreneurial Self-efficacy
PEX: Previous Entrepreneurial Experience
PED: Perceived Formal Learning of Entrepreneurship
POS: Positiveness of Entrepreneurial Experience
IDP: Independent Self-construal
ITD: Interdependent Self-construal
: Hypothetical Path
: Moderation Effect

Figure 2 provides a visual summary of the hypotheses.

Methodology

Sample and Procedure

Data were collected at a Hong Kong university from master of business administration (MBA) students who live in Guangdong Province and in the Hong Kong Special Administrative Region of the People's Republic of China. These two areas, located at the Pearl River Delta, are part of one of the three regions with the highest levels of entrepreneurial activity in the People's Republic of China (the other two are Beijing-Tinjin and Yangzi River Delta) (Gao, Jiang, Li, & Cheng, 2006). This sampling frame thus includes the Chinese population of a more prosperous entrepreneurial region. Moreover, MBA students at this university have opportunities to take entrepreneurship courses and gain experience in venturing through such activities as competing for venturing funds by drawing up a business plan. Because perceived formal learning in entrepreneurship is tested in the hypothesized model, nonprobability sampling from this group is more appropriate and practical than probability sampling from the general population (Henry, 1990, p. 23).

The self-administered questionnaire used to collect data (Fowler, 2002) followed the major principles for reducing response errors (e.g., wording, visual format, and navigational guides of instruction) (Dillman, 2000; Fowler). Two bilingual postgraduate students performed a back-translation (i.e., English and Chinese versions). The Chinese questionnaire draft was then evaluated with a pretest that helped to finalize the questionnaire with an improved logical flow to reduce response errors. With cash coupons used as incentives, 219 of 317 total MBA students completed the questionnaire (response rate: 69.1%). After

performing a data validation process for missing data and outliers (Hair et al., 2006), 204 useful responses were obtained. Of these, 167 (82.3%) were from Guangdong and 36 (17.7%) were from Hong Kong. This ratio accords with the actual population distribution in the Pearl River Delta region. Table 1 shows that all of the demographic variables of the sample except for gender were normally distributed; 70% of the respondents were male.

Measures

All construct measures were adopted directly from existing relevant research. Detailed measurements, including literature sources, scale types, and number of items, are summarized in Table 2. Although measures had been empirically verified to have a high degree of reliability and validity, they were re-examined with a sample from the present study before they were used again.

Reliability and validity tests were determined first on Independent and Interdependent Self Scales (Lu & Gilmour, 2007), which measure independent and interdependent self-construals. These scales were then used to form groups in the moderating test (i.e., independent and interdependent self-construals were not tested in the structural model). The scales' two-dimensional theoretical structure was initially confirmed by exploratory factor analyses (EFAs) using SPSS 14.0. According to the guidelines for assessing factor loadings of each item, absolute values greater than .40 are regarded as practical significant loadings with a sample size around 200 (Hair et al., 2006, pp. 128–129). Problematic

Table 1

Frequency Distribution Report for Demographic Variables[†]

	Frequency	Percentage (%)
Gender		
Male	137	67.82
Female	65	32.18
Residence		
Guangdong Province	167	82.27
Hong Kong SAR	36	17.73
Age (Re-coded)		
27 or below	34	16.75
28–33	59	29.06
34–39	78	38.42
40 or above	32	15.76
Work experience (in years) (Re-coded)		
Nil	8	3.92
1 to 5	35	17.16
6 to 10	54	26.47
11 to 15	62	30.39
16 to 20	34	16.67
21 or above	11	5.39

[†] Missing data are found in the demographic variables that causes the sum of total not equal to 204.

Table 2

Details of Measures

	Construct	Literature Source	Scale Type	No of Item
1	IDP	Lu & Gilmour's (2007) Independent & Interdependent Self Scales	IISS: 1–7 Likert: Strongly Disagree–Strongly Agree	21
2	ITD	Lu & Gilmour's (2007) Independent & Interdependent Self Scales	IISS: 1–7 Likert: Strongly Disagree–Strongly Agree	21
3	POS	Krueger (1993)	Three Options: Positive: "+1"; Negative: "–1"; No Exposure: 0	4
4	PEX	Zhao et al. (2005)	1–5 Likert: Very Low–Very High; No Exposure: 0	3
5	PED	Zhao et al. (2005)	1–5 Likert: Very Low–Very High	4
6	ATE	Krueger et al. (2000)	1–7 Likert: e.g., I'd hate doing it–I'd love doing it	4
7	PSN	Reitan (1997)	Brief subset 7-point Semantic Differential; Motivation subset 1–7 Likert: I don't care at all–I care very much	6
8	ESE	De Noble et al. (1999)	1–5 Likert: Strongly Disagree–Strongly Agree	23
9	ENI	Chen et al. (1998)	1–5 Likert: Strongly Disagree–Strongly Agree	5

IDP, Independent self-construal; ITD, Interdependent self-construal; POS, positiveness of entrepreneurial experience; PEX, previous entrepreneurial experience; PED, perceived formal learning in entrepreneurship; ATE, personal attitude toward entrepreneurship; PSN, perceived social norms toward entrepreneurship; ESE, entrepreneurial self-efficacy; ENI, entrepreneurial intention.

items with significant cross-loadings or loading to the wrong factor (i.e., independent self-construal items loading on a factor dominant with significant interdependent items or vice versa) were deleted. The communalities of those items far below .50, due to insufficient explanation to the factor solution, were deleted. Factor models were re-specified and loading recalculated until all problematic items were removed. Then, the dimensional structure verified in EFA was further tested by CFA with LISREL 8.80 (Jöreskog & Sorbom, 2006). CFA validated the structure with good model fit indices under this model situation (χ^2 $[df = 64,\ p < .001] = 127.662$; RMSEA = .0636; SRMR = .0617; CFI = .970).[2] Also, as reported in Table 3, all the items' standardized loading estimates

2. According to Hair et al. (2006, p. 753), the fit statistics demonstrating goodness-of-fit are different across the model situation in terms of sample sizes (N) and number of variables (m). To demonstrate the goodness-of-fit for different indices, as an example, for $N < 250$ with $12 < m < 30$, a significant p-value for χ^2 (i.e., an indication of a bad model fit) can normally result because its computation is biased to sample sizes and number of indicator variables (i.e., items of constructs); CFI is over .95 or better, RMSEA below .08, SRMR below .08 (with CFI of .95 or higher).

Table 3

Report for Confirmatory Factor Analysis—Independent and Interdependent Self-construal (N = 204)

Item/Construct	Standardized loading	CR	AVE
IDP [ξ_1]		.755	.441
IDP18: I believe that family and friends should not influence my important life decisions.	.60		
IDP19: I believe that people should try to achieve their goals at any costs.	.59		
IDP20: I believe that people should stick to their opinions in any circumstances.	.82		
IDP21: I believe that people should be the same at home and in public.	.62		
ITD [ξ_2]		.886	.528
ITD04: Once you become a member of the group, you should try hard to adjust to the group's demands.	.72		
ITD05: I believe that people should find their place within a group.	.82		
ITD07: I believe that it is important to maintain group harmony.	.67		
ITD09: I believe that the family should be a life unit.	.67		
ITD11: I believe that people should perform their social roles well.	.76		
ITD12: I believe that people should behave appropriately according to different circumstances.	.72		
ITD14: I believe that people should behave appropriately according to their different social status and roles.	.70		
ITD15: Belonging to a group is important to my self-identity, or sense of myself.	.69		
ITD16: Acting appropriately is an important principle for me.	.63		
CFA Model fit indices			
$\chi^2(df\ 64)$	127.662		
RMSEA	.0636		
SRMR	.0617		
CFI	.970		

AVE, average variance extracted; CR, composite reliability; IDP, independent self-construal; ITD, interdependent self-construal.

were above .50. The composite reliability and average variance extracted (AVE) of each construct was over .70 and .40, respectively. On the other hand, the AVEs of two constructs (i.e., .441 and .528) were much higher than the square of inter-construct correlation (i.e., phi correlation = .010). These figures support that idea that the scales had adequate converging validity and discriminant validity (Anderson & Gerbing, 1988; Fornell & Larcker, 1981).

A similar procedure was applied to examine the measures for the other six constructs, which were: (1) PEX; (2) perceived formal learning in entrepreneurship (PED); (3) personal ATE; (4) PSN; (5) ESE; and (6) ENI. CFA ultimately validated the six-dimensional structure with good fit indices (χ^2 [df 194, $p < .001$] = 276.250; RMSEA = .0435; SRMR = .0566; CFI = .979). Table 4 reports standardized loading estimates, CRs, and AVEs, and Table 5 provides a comparison between inter-construct (phi) correlations and AVEs. Both tables show that the six scales had adequate converging and discriminant validity. All the previously reported satisfactory results offered a basis for using SEM to analyze the validity of the hypothetical model (Hair et al., 2006).

Table 6 reports the means, standard deviations (SDs), Cronbach's alpha, and Pearson correlations of all the construct measures.

Table 4

Report for Confirmatory Factor Analysis: Six Constructs (N = 204)

Item descriptions	Standardized loading	CR	AVE
PEX [ξ_1]		.793	.563
(Please rate your level of experience in the following activities)			
PEX01: New market development	.73		
PEX02: New product development	.84		
PEX03: New venture start-up	.67		
PED[ξ_2]		.815	.597
(How much you had learnt during your MBA program about the following areas of entrepreneurship?)			
PED01: Starting a new business	.83		
PED02: Opportunity recognition	.80		
PED03: Corporate	.68		
ATE [ξ_3]		.822	.606
(If you actually started your own business, how would you feel?)			
ATE02: "How tense would you be?"	.87		
ATE03: "How overworked would you be?"	.70		
ATE04: "How enthusiastic would you be?"	.70		
PSN [ξ_4]		.855	.663
PSN01: Closest friend—(belief × Re-coded Motivation)	.82		
PSN02: Closest family—(belief × Re-coded Motivation)	.82		
PSN03: Important others—(belief × Re-coded Motivation)	.80		
ESE [ξ_5]		.861	.471
ESE03: I can identify new areas for potential growth.	.60		
ESE09: I can develop a working environment that encourages people to try out something new.	.65		
ESE13: I can develop relationships with key people who are connected to capital sources.	.61		
ESE15: I can articulate vision and values of the organization	.75		
ESE16: I can inspire others to embrace vision and values of the company.	.75		
ESE17: I can formulate a set of actions in pursuit of opportunities.	.71		
ESE22: I can develop contingency plans to backfill key technical staff.	.71		
ENI [ξ_6]		.918	.788
ENI02: To what extent you have been preparing to set up your own business?	.89		
ENI03: To what extent you have considered setting up your own business?	.91		
ENI04: How likely it is that you are going to try hard to set up your own business?	.87		
CFA Model fit indices			
χ^2 (*df* 194)	276.250		
RMSEA	.0435		
SRMR	.0566		
CFI	.979		

AVE, average variance extracted; CR, composite reliability; PEX, previous entrepreneurial experience; PED, perceived formal learning in entrepreneurship; ATE, personal attitude toward entrepreneurship; PSN, perceived social norms toward entrepreneurship; ESE, entrepreneurial self-efficacy; ENI, entrepreneurial intention.

Tests for Sample Bias: The Extent and Positiveness of Entrepreneurial Experience

Due to the limited extent of entrepreneurial experience and lack of positive exposure to entrepreneurship of most students, it was expected that the use of MBA student samples in the present study would bias the research findings. Therefore, prior to hypothetical analysis, tests were undertaken to gauge the possible biases that may have been present. After the exclusion of 20 respondents without any entrepreneurial experience, the

Table 5

Comparison Between the Phi Correlation Coefficients and the Average Variance Extracted (AVE) to Testing the Discriminant Validity of the Scales (N = 204)

	Square of Phi (Φ)						
Constructs	1	2	3	4	5	6	AVE
1 PEX (ξ_1)	1	.147	.108	.020	.247	.226	.563
2 PED (ξ_2)	.147	1	.080	.042	.354	.123	.597
3 ATE (ξ_3)	.108	.080	1	.000	.151	.013	.606
4 PSN (ξ_4)	.020	.042	.000	1	.037	.163	.663
5 ESE (ξ_5)	.247	.354	.151	.037	1	.096	.471
6 ENI (ξ_6)	.226	.123	.013	.163	.096	1	.788

PEX, previous entrepreneurial experience; PED, perceived formal learning in entrepreneurship; ATE, personal attitude toward entrepreneurship; PSN, perceived social norms toward entrepreneurship; ESE, entrepreneurial self-efficacy; ENI, entrepreneurial intention.

Table 6

Report for Means, Standard Deviations, Reliabilities, and Pearson Correlations

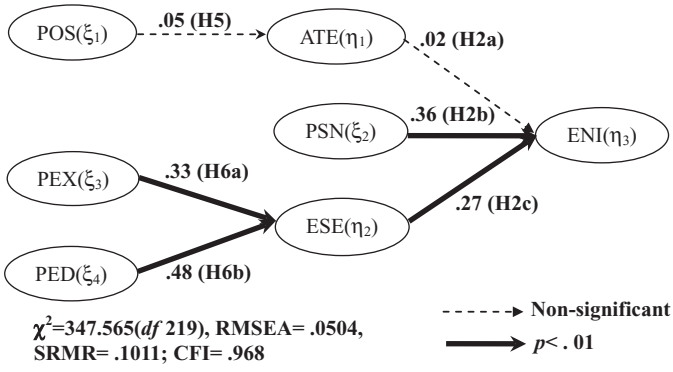
		Mean (SD)	α [No. of Item]	1	2	3	4	5	6	7	8
1	IDP	4.18 (1.18)	.748 [4]								
2	ITD	5.84 (.81)	.900 [9]	.097							
3	POS	1.91 (1.19)	– [1]	.153*	.059						
4	PEX	2.59 (1.38)	.790 [3]	.063	.167†	.239†					
5	PED	3.46 (.89)	.809 [3]	.093	.205†	.099	.338†				
6	ATE	5.49 (1.00)	.789 [3]	.047	.370†	.041	.282†	.241†			
7	PSN	.729 (7.55)	.852 [3]	.019	.118*	.102	.128*	.180†	.011		
8	ESE	3.92 (.62)	.859 [7]	.091	.471†	.104	.404†	.511†	.344†	.162*	
9	ENI	3.34 (1.06)	.916 [3]	.190†	.178†	.166*	.402†	.320†	.121*	.362†	.289†

† Correlation is significant at the .01 level (one-tailed); *at the .05 level (one-tailed).
IDP, independent self-construal; ITD, interdependent self-construal; POS, positiveness of entrepreneurial experience; PEX, previous entrepreneurial experience; PED, perceived formal learning in entrepreneurship; ATE, personal attitude toward entrepreneurship; PSN, perceived social norms toward entrepreneurship; ESE, entrepreneurial self-efficacy; ENI, entrepreneurial intention.

nonsignificant statistical results (skewness value = –.213, $Z_{skewness}$ = –.124, i.e., not significant) showed that the score distribution was balanced and did not shift to the left (i.e., low) or right (i.e., high) side. Table 6 shows that the MBA student samples, on average, have positive entrepreneurial exposure (mean = 1.91, SD = 1.19; code: Positive = "+1"; Negative = "–1"; No Exposure = 0). Overall, this evidence supports the notion that the use of student samples in this study will not bias the research findings.

Figure 3

First Estimation Results for the Hypothetical Model (in Simplified Form)



Results

SEM Analysis

The hypothetical model was assessed with SEM analysis with LISREL 8.80. The first estimation results showed satisfactory fit indices, except SRMR ($\chi^2 = 347.565$[df 219, $p < .001$], RMSEA = .0504; SRMR = .101; CFI = .968). The direction, strength, and significant tests of path estimates are illustrated in Figure 3. Two empirical significant control factors of ENI—age and gender (e.g., Autio et al., 2001)—were then added to the model. Nonsignificant improvement in all the fit indices was found in the re-estimated model ($\chi^2 = 398.260$ [$df = 255$], $\Delta\chi^2$-value = 50.69; $\Delta df = 36$, n.s.; RMSEA = .0485, SRMR = .962; CFI = .966; see Figure 4 for details). This eliminated the possibility of an alternative explanation to the estimation findings by these demographic variables. Thus, the first estimation results show that most path estimates were significant ($p < .01$). Hypotheses 2b, 2c, 6a, and 6b are therefore accepted. The results suggest that people who perceive that the influential people in their lives think more positively about their creation of a new venture will have stronger entrepreneurial intention. In addition, people who have more entrepreneurial experience and perceived formal learning in entrepreneurship will have stronger entrepreneurial efficacy, which, in turn, will result in their having stronger entrepreneurial intention.

Notably, the standardized beta estimate of perceived social norms toward entrepreneurship (PSN) (i.e., β of PSN = .36, $p < .01$) is larger than the estimates of personal ATE (i.e., β of ATE = .02, n.s.) and ESE (i.e., β of ESE = .27, $p < .01$) on entrepreneurial intention. This finding supports hypothesis 1: the factor of perceived social norms had the strongest predictive strength in the Chinese context.

Although the results of this study supported several of the proposed hypotheses, two nonsignificant paths that emerged from the study—from POS to ATE (β_{31}) and from ATE to ENI (γ_{11})—led to the rejection of hypotheses 2a and 5 because those individuals with more positive entrepreneurial experience were not shown to have a stronger personal attitude toward entrepreneurship and thus would not be expected to have stronger entrepreneurial intention. These two paths were removed from the hypothetical model, and a new competing model was formed and re-estimated. A significant decrease in chi-square value from the first estimated model was found ($\chi^2 = 234.209$ [$df = 145$], $\Delta\chi^2$ value = 113.356; $\Delta df = 74$, $p < .01$). All other fit indices, especially for SRMR, were also

Figure 4

Estimation Results for the Hypothetical Model Added with Control Factors (in Simplified Form)

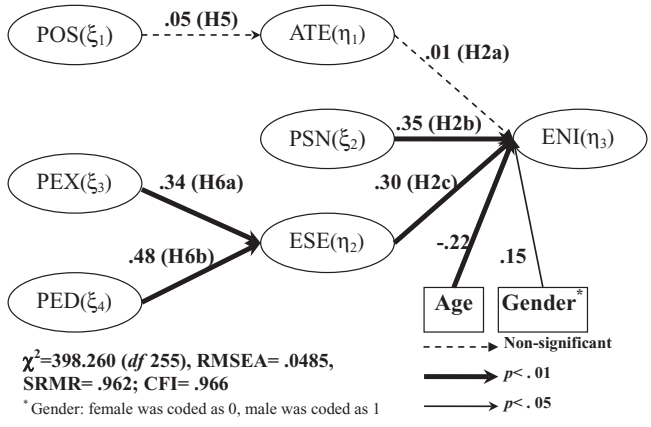
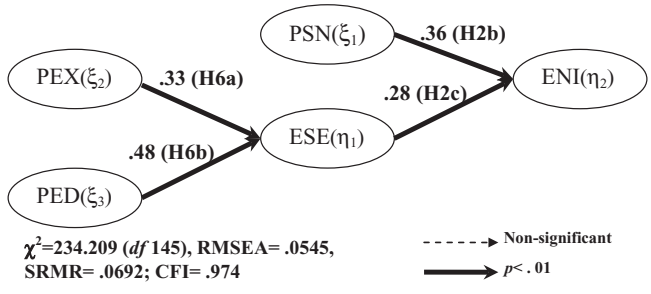


Figure 5

Estimation Results for the Competing Model Without ATE and POS



improved (RMSEA = .0545; SRMR = .0692; CFI = .974) (see also Figure 5). This indicates that in a Chinese context, the competing model was more parsimonious than the first estimated model. The competing model was then analyzed by two-group SEM to test its proposed moderating effects.

Two-Group SEM Analysis for Testing the Moderating Effects

The present sample was further divided into two groups—"high score" and "low score." Two-group SEM analysis was used to test the moderating effects of independent and interdependent self-construal. There are two approaches that can be used in generating high- and low-score groups, the extreme-groups approach (EGA) and the median-split approach. The EGA approach, in which samples are bifurcated using one standard deviation above or below the mean, can specifically select individuals for further analysis on the basis of extreme high and low scores of sample distribution (Preacher, Rucker,

Table 7

Fit Indices for Measurement Equivalent Analyses IDP and ITD

Model	χ^2	*df*	RMSEA	SRMR	CFI
IDP					
Loose Cross-Validation					
0a: CFA for High IDP Group (n = 87)	187.985	142	.0368	.0571	.9774
0b: CFA for Low IDP Group (n = 117)	200.632	142	.0559	.0731	.9617
1. Configural Equivalence	388.617	284	.0487	.0731	.9774
2. Metric Equivalence	403.199	298	.0466	.0746	.9705
Model Comparison	$\Delta\chi^2$	Δdf	*p*		ΔCFI
From Model 1 to 2	14.582	14	>.05		.0069
ITD					
Loose Cross-Validation					
0a: CFA for High ITD Group (n = 95)	202.738	142	.0621	.0744	.9444
0b: CFA for Low ITD Group (n = 109)	198.857	142	.0560	.0660	.9726
1. Configural Equivalence	401.595	284	.0560	.0660	.9629
2. Metric Equivalence	413.100	298	.0577	.0699	.9637
Model Comparison	$\Delta\chi^2$	Δdf	*p*		ΔCFI
From Model 1 to 2	11.506	14	>.05		.0008

IDP, independent self-construal; ITD, interdependent self-construal.

MacCallum, & Nicewander, 2005). This technique can help achieve greater statistical power in hypothesis testing. However, Alf and Abrahams (1975) argue that when EGA and dichotomization of scores are used simultaneously, reliable and important information about individual differences in given variables is often lost. Therefore, the present study employs a more conservative approach—simple median-split—to prevent a serious loss of reliable information.

For independent self-construal (IDP), cases with scores higher than the median of 4.250 were assigned to the "high score" group, and cases below the median were assigned to the "low score" group. For interdependent self-construal (ITD), cases with scores higher than the median of 6.000 were assigned to the high score group, and cases below the median were assigned to the low score group. The number of cases in each group is as follows: High IDP = 87; Low IDP = 117; High ITD = 95; Low ITD = 109.

Prior to two-group SEM, a series of two-group CFA model tests ranging from loose cross-validation to more rigorous configural and metric equivalence were performed to ensure a valid cross-group interconstruct relationship comparison (MacCallum, Rosnowski, Mar, & Reith, 1994). The two-group CFA model comprised five constructs from the previously verified competing model. As shown in Table 7, good fit indices in the progressive two-group CFA model tests supported the valid relationship comparison between high and low IDP groups and between high and low ITD groups. More importantly, the nonsignificant increase of chi-square values from configural to metric equivalent models (i.e., from Model 1 to Model 2) provided evidence of metric equivalence across high and low groups of IDP and ITD (i.e., IDP: $\chi^2 = 14.592$, $df = 14$, $p > .05$; ITD: $\chi^2 = 11.506$; $df = 14$, $p > .05$). This meets the criteria for valid moderation test with two-group SEM (Hair et al., 2006).

Next, for each IDP and ITD, a two-group structural model that freely estimates all hypothesized paths was established and tested. The resulting global fit indices were

also satisfactory for subsequent moderating tests (IDP: $\chi^2 = 412.033$ [$df = 290$], RMSEA = .0542, SRMR = .0729, CFI = .966; ITD: $\chi^2 = 424.877$ [$df = 290$], RMSEA = .0623, SRMR = .0785; CFI = .958). After this was completed, for the moderating test, the paths from PSN (ξ_2) to ENI (η_2) (i.e., $\gamma_{2,1}$), and ESE (η_1) to ENI (η_2) (i.e., β_{21}) were constrained to be equal across high and low groups of IDP and ITD. The constraint on the PSN–ENI path across IDP groups did not cause a significant increase in chi-square value (i.e., $\Delta\chi^2 = .464$, $\Delta df = 1$, $p > .05$). This result did not support the moderating effect of IDP on the PSN–ENI path. A similar result was found in the constraint on the ESE–ENI path (i.e., $\Delta\chi^2 = 1.952$, $\Delta df = 1$, $p > .05$). Thus, hypotheses 3b and 3c are rejected. Independent self-construal does not moderate the effect of perceived social norms and entrepreneurial self-efficacy. For ITD groups, the constraint on PSN–ENI path led to a significant increase in chi-square value (i.e., $\Delta\chi^2 = 6.126$, $\Delta df = 1$, $p < .05$). However, this result was not shown in the constraint on ESE–ENI across ITD groups (i.e., $\Delta\chi^2 = 3.144$, $\Delta df = 1$, $p < .10$). Thus, only hypothesis 4b is accepted. The relationship between perceived social norms and entrepreneurial intention is significantly stronger when the interdependent self-construal is high ($\gamma_{21[high]} = .55$).

Discussion and Implications

Contributions to Theoretical Development

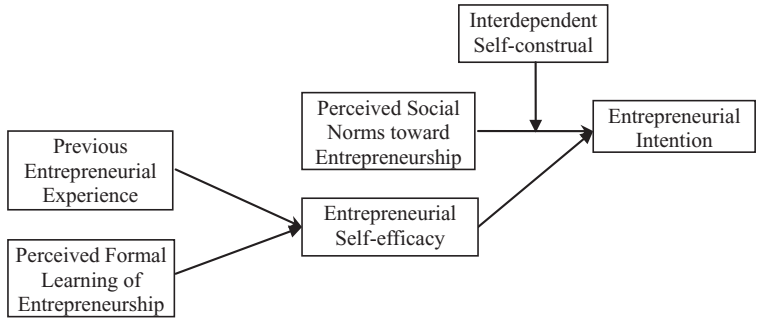
The present study contributes to the body of knowledge in the area of entrepreneurial cognition. By introducing Bontempo and Rivero's theory, self-construal theory, and collectivist social belief literature, this study compensates for the incomplete theoretical underpinning of cultural contingency related to individualism–collectivism in the cognitive model of entrepreneurial intention. Theoretically, this study offers a research context within which the cultural contingency in the cognitive model for collectivist respondents, such as the Chinese ethnic group, can be examined. The predictive strength of perceived social norms toward entrepreneurship on entrepreneurial intention is found to be contingent on individuals' level of interdependent self-construal. This supports cultural contingency in the cognitive model: for Chinese who place more value on their connectedness with others, their perceptions of what the influential people (e.g., family, close friends, partners, colleagues) in their lives think about their new venture creation have very significant influence on their entrepreneurial intentions. Conversely, for Chinese who place less value on their connectedness with others, their perceptions of what influential people think become less influential.

This result verifies perceived social norms' strong effect on entrepreneurial intention in the Chinese collectivist context and contradicts its nonsignificance in research studies undertaken in the individualist context (e.g., Autio et al., 2001; Guerrero et al., 2006; Krueger et al., 2000). The nonsignificance of personal attitude toward entrepreneurship in Chinese respondents also challenges results consistently reported in individualist contexts. The existence of these conflicting results suggests the possible existence of comparable differences in predictive strength of personal attitude versus perceived social norms across individualist and collectivist contexts.

The present research results suggest that Chinese who more-or-less value their connectedness with others also refer to their own personal abilities in developing entrepreneurial intention. Previous research findings also support the significance of entrepreneurial self-efficacy in individualist societies. Thus, the preliminary idea about the universal importance of entrepreneurial self-efficacy in determining entrepreneurial intention may be supported. On the other hand, the finding of significant predictive power of

Figure 6

A Tentative Schema for the Cognitive Model of Entrepreneurial Intention in the Chinese Context



perceived formal learning of entrepreneurship and entrepreneurial experience on entrepreneurial intention through entrepreneurial self-efficacy is consistent with results from individualist American samples. The consistency of these results implies their universal importance in the entrepreneurial intention model across cultural contexts. Based upon these findings, a tentative schema for forming entrepreneurial intention in the Chinese context was developed (Figure 6).

The theoretical explanations proposed by the present study also provide insight into theories about the cultural contingency of entrepreneurial expert scripts in predicting entrepreneurial decision. For instance, theories about the moderating effect of individualism–collectivism on the relationship between entrepreneurial self-efficacy (i.e., encompassing capability in a search for resources) and entrepreneurial intention and decision may help explain why individuals from societies with stronger individualist contexts depend more on knowledge structures about the resources in making entrepreneurial decisions than do individuals from more collectivist societies.

This article also contributes to the methodological advancement of the study of the cultural contingency of entrepreneurial cognitive research. Instead of using country as a proxy variable of culture, the present research takes a first step toward measuring cultural values of individuals and directly testing their impacts on the cognitive model of entrepreneurial intention. Thus, the impacts of individualism–collectivism, but not those of other cultural orientations held by individuals in the cognitive model, can be specifically and appropriately determined in hypothesis testing. Use of the advanced techniques of measurement equivalent tests and two-group structural equation modeling further strengthens the creditability of research findings of cultural contingency.

Limitations and Suggestions For Future Research

The present study has several research limitations. First, the intention-based model of entrepreneurship was actually Western-culture bounded. Chinese people may not fully share the same frame of reference as their Western counterparts regarding definitions of cognitive constructs and thought patterns (Schaffer & Riordan, 2003). However, current findings point to the importance of studying perceived social norms and suggest

future entrepreneurial cognitive research to operationalize social norms with cultural contingency.

Second, the present study takes an initial step toward verifying cultural contingency related to collectivist values in the cognitive model with only Chinese respondents. Although self-construals vary among individuals within a single context, they are actually skewed toward the interdependent pole (i.e., independent self-construal mean = 4.18 vs. interdependent self-construal mean = 5.81; seven-point scale). A cross-national context could capture respondents with normally distributed individualist and collectivist values. Collecting data from individuals with dispersed cultural values across countries would better determine moderating effects. Specifically, a cross-national approach could establish the possible comparable differences in predictive strength of personal attitudes versus perceived social norms across individualist and collectivist contexts. Thus, to ground the theoretical underpinning of the present study, further investigation of the cultural contingency of individualism–collectivism with a cross-national approach is recommended.

Third, the study of one cultural orientation in contingency theory cannot fully explain and predict complex entrepreneurial cognitive development. Future research is suggested to incorporate other cultural orientations into the theoretical framework of the cognitive model of entrepreneurial intention. According to previous entrepreneurial cognitive research, power distance was also shown to moderate the predictive power of entrepreneurial capability-related cognitive constructs (i.e., arrangement expert script) on entrepreneurial decisions (Mitchell et al., 2000). Uncertainty avoidance was also hypothesized to moderate the predictive power of entrepreneurial self-efficacy on entrepreneurial intention (Liñán & Chen, 2009). The direct involvement of power distance and uncertainty avoidance in future hypothesis testing of the cognitive model can help in developing cultural contingency theories.

Fourth, age likely affects approval and disapproval beliefs. A majority (85%) of the sampling unit was young executives less than 40 years of age; the results may thus be more susceptible to an influence of age than results from a more balanced or older sample might be.

Finally, the present study cannot determine whether respondents' recently formed entrepreneurial intentions remain stable over time. Future research employing the longitudinal approach, which takes at least two measures for intention and behavior or decision and reveals situational factors such as economy and family support (Summer, 2000) that may cause the subsequent formation of entrepreneurial behavior from intention, is therefore suggested.

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