

The comfort zone of the value circumplex for entrepreneurship: a structural analysis

Value
circumplex for
entrepreneurship

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Abstract

Purpose – The purpose of this paper is to extend the attitudinal approach to entrepreneurial intentions by using a structural analysis to explore overlooked personal values as the antecedents of entrepreneurial attitude. Based on the widely adopted value system proposed by Schwartz, this study argues that while one cluster of personal values is positively correlated with entrepreneurial attitude that leads to entrepreneurial intention, another cluster of personal values is negatively correlated with entrepreneurial attitude.

Design/methodology/approach – Questionnaire responses obtained from a sample of 276 MBA were analyzed using structural equation models to examine the influences of values on entrepreneurial intentions via entrepreneurial attitude.

Findings – The results of this study demonstrate that personal values of self-direction, stimulation, achievement, and universalism are all positively correlated with entrepreneurial attitude, which together constitute a comfort zone for entrepreneurship, whereas values in the opposite end of the circumplex including benevolence, tradition, conformity, security, and power are negatively correlated with entrepreneurial attitude. The values that discourage the formation of an entrepreneurial attitude also counter the positive effect of entrepreneurial attitude on intention, making the relationship between entrepreneurial attitude and intention contingent upon value conflicts.

Originality/value – This study regards entrepreneurship as a career development and contributes to the entrepreneurship study by differentiating the influences of a vital construct, i.e., personal values, which should not be regarded as a universalism. The value circumplex with a comfort and discomfort zone developed by this study can serve as a platform to help build the view on entrepreneurial intentions in terms of personal values.

Keywords Theory of planned behavior, Entrepreneurial intention, Entrepreneurial attitude, Personal values

Paper type Research paper

A great deal of research has addressed the question, “what makes an entrepreneur?” These studies used different approaches to portray entrepreneurs through various perspectives. Notably, the psychological and cognitive perspective that models an entrepreneurial decision as the result of a cognitive process (Shaver and Scott, 1991) or



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a planned behavior (Jaén and Liñán, 2013) has emerged as the dominant framework in explaining entrepreneurial behavior. Entrepreneurship researchers and psychologists have extensively applied Ajzen's (1991) theory of planned behavior (TPB) to explain entrepreneurial intentions and behavior (Baum *et al.*, 2007). This theory holds that entrepreneurial intentions and subsequent behaviors are strengthened by a positive attitude toward entrepreneurship, a high degree of perceived self-efficacy, and a strong feeling for perceived subjective norms derived from important others. The TPB model has received widespread support from empirical studies explaining entrepreneurial intentions (Kolvereid and Isaksen, 2006; Obschonka *et al.*, 2010).

According to the TPB, attitude is formed of an individual's beliefs regarding the likely outcomes and the evaluations of these outcomes (Ajzen, 2002); however, what really affects the criteria and beliefs upon which the potential entrepreneurs form their entrepreneurial attitude remains under-researched (Fayolle *et al.*, 2014) because related studies tend to treat personal attitudes toward entrepreneurship as exogenously given. Without knowing these criteria and beliefs, a comprehensive understanding of the formation of entrepreneurial intentions cannot be achieved from the attitudinal or cognitive perspective of entrepreneurship. The lack of interest in understanding the antecedents of personal attitude has retarded the progress toward a complete comprehension of the cognitive process from the implicitly deep-rooted psychological factors to the explicitly expressed intentions. Therefore, entrepreneurship researchers have called for a shift of focus to a deeper understanding of the antecedents of entrepreneurial attitudes (Fayolle *et al.*, 2014). More recently, researchers have suggested that an understanding of the beliefs underlying the attitude, in particular the role of personal values, may be of the highest research interest (Fayolle *et al.*, 2014).

Value, defined as abstract goals that people consider important guiding principles in their lives (Schwartz, 1992), is considered one of the most psychological functions of attitudes (Herek, 1986; Maio and Olson, 1994; Murray *et al.*, 1996). Influences of values have been found on many attitudinal and behavioral outcomes such as vocational choices (Bond *et al.*, 2004). Values serve as prototypes from which attitudes and behaviors are manufactured (Homer and Kahle, 1988), suggesting that values are distal antecedents of attitudes. Despite this theoretical linkage and empirical support across cultures (Milfont *et al.*, 2010), very few studies have examined the role of values in entrepreneurship (Morris and Schindehutte, 2005) and in particular the value-attitude relationship in an entrepreneurial context. This study thus intends to explore the value-attitude relationship for a better understanding of the formation of an entrepreneurial attitude.

Schwartz's (1992) value circumplex has been the most widely adopted model and received wide empirical support. In Schwartz's model, ten types of values constitute a circular structure in which the adjacent values share commonalities in motivations, whereas values on opposite ends of a polar are more incompatible. Based on a holistic view of this structure, a logical research objective would be set to delineate a value pie that is composed of certain adjacent values that together motivate or discourage entrepreneurial attitude instead of exploring supportive or discouraging values in a random or selective manner that past studies usually did.

Therefore, this study's objective, based on Schwartz's (1992) taxonomy of value types (Schwartz and Boehnke, 2004), is to answer two questions. First, are values a significant determinant of entrepreneurial attitudes, which subsequently affect entrepreneurial intentions? Second, given the structure in which values are located along a circumplex continuum (Schwartz, 1992), how does such a structure correspond to one's

attitude toward entrepreneurship? Specifically, can we draw a line that distinguishes pro-entrepreneurship values from their opposing values? By answering these two questions, this study can contribute to the provision of a holistic understanding of the individual and collective relationships between personal values and entrepreneurial attitudes and to the establishment of the value-attitude-intention hierarchy (Homer and Kahle, 1988) in the entrepreneurial context.

Theories and hypotheses

Entrepreneurial intention and the model

Psychology research generally defines entrepreneurial intention as “personal orientations, dispositions, desires, or interests that are thought potentially to lead to or to constitute an entrepreneurial proclivity” (Thompson, 2009). Accordingly, entrepreneurial intention is a conscious state of mind that directs one’s personal attention, experience, and behavior toward a planned entrepreneurial behavior (Bird, 1988). In viewing venture creation as a cognitive process (Shaver and Scott, 1991), the merit of studying entrepreneurial intentions lies primarily in the recognition of intentions’ central role in predicting or initiating subsequent venture-creation behavior (Krueger *et al.*, 2000; Obschonka *et al.*, 2010).

The TPB has been the most frequently used intentions model in related studies (Liñán and Fayolle, 2015); it depicts the nature of the processes underlying intentional behaviors in ordinary life. Because entrepreneurial activities are seldom accidental, and are instead planned and conscious (Krueger *et al.*, 2000), researchers have applied this framework to predict entrepreneurial behavior by way of entrepreneurial intentions. In its most commonly cited form, the TPB identifies three antecedents of intention: personal attitude toward performing the behavior, perceived subjective norms, and perceived self-efficacy (Ajzen, 1991). When individuals perceive a positive attitude toward certain acts, favorable subjective norms, and strong self-efficacy, they tend to possess strong intentions to execute these acts.

Personal values

Values are implicit evaluative criteria that individuals use to judge objects (i.e. values as principles) and are manifested in the degree of importance a person places on particular goals (i.e. values as preferences) (Bilsky and Schwartz, 1994). A synthetic view of values across psychology, sociology, and anthropology is “the criteria people use to select and justify actions and to evaluate people and events” (Schwartz, 1992).

Among early studies of entrepreneurs, personality traits have long been the focus of researchers (see Zhao *et al.*, 2005 for meta-analyses). Although personal values are related to personality traits, they are different in several respects (Bilsky and Schwartz, 1994). Personality traits are typically regarded as descriptions of behavior patterns that explicitly manifest in certain characteristics of individuals. Values are implicit evaluative criteria that individuals use to judge objects (i.e. values as principles) and are manifested in terms of how important a person believes particular goals are (i.e. values as preferences). Personality traits describe actions of the “like” people regardless of their intentions, whereas values refer to an individual’s intentional goal that is available to their consciousness. Values describe a person’s belief system, which represents an individual’s inner voice about what is right, good, or desirable. Values are largely composed of affective feelings instead of cognitive support (Maio *et al.*, 2001). Although people do not always act in ways that are consistent with their values, values are

strongly associated with attitudes (Maio *et al.*, 2001). Therefore, a value perspective offers insights into what makes a person tick.

Schwartz's (1992) value theory (Schwartz and Boehnke, 2004) is deemed the most well-developed and widely used of the taxonomies of values found in the literature. As shown in Figure 1, Schwartz's (1994) value theory is based on a circular structure representing ten groups (or types) of values. Each grouping is essentially a "fuzzy set" that captures highly correlated values. The ten-value types are as follows: power, achievement, hedonism, stimulation, self-direction, universalism, benevolence, conformity, tradition, and security. In this circumplex, highly correlated values are closely situated, whereas values that are in conflict with each other are far apart. In this structure, an individual who holds a certain value will usually fail to endorse a value at the opposite end of the polar.

Personal values and entrepreneurial attitude

The "importance" of values renders them as presumably strong motivators of pro-value behavior that is distinct from attitude, which mainly connotes "favorability or unfavorability" (Olson and Zanna, 1993). Value has been regarded as one of the most significant drivers of attitudes (Herek, 1986; Maio and Olson, 1994; Murray *et al.*, 1996), such that objects, events, or behaviors in congruence with values tend to result in a favorable attitude toward those objects, events, or behaviors. Conversely, values that conflict with one's environment, social norms, or internal compatibility can have a negative effect on people's well-being in the form of low job satisfaction and high stress (Bouckennooghe *et al.*, 2005). The double-edged influences of values suggest that the value-attitude relationship be examined in both circumstances of value congruity and value conflict.

In the following, we propose four hypotheses to relate personal values to entrepreneurial attitude, each including a pair consisting of a positive value and a negative value on the same polar. A particular value type, i.e., hedonism, is excluded from the framework because its dual meaning makes it feasible to be classified as either of the two adjacent high-order value types (i.e. self-enhancement and openness-to-change), which may confound the true causality being investigated.

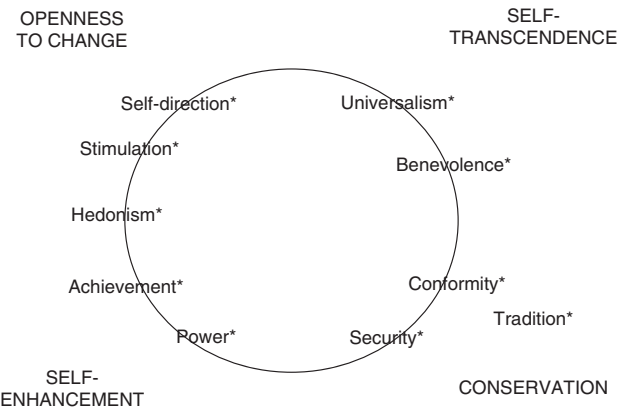


Figure 1.
The model of
relations among
ten motivational
types of values

Source: Schwartz and Boehnke (2004)

Self-direction vs security

In Schwartz's taxonomy, self-direction is a cluster that includes the values of autonomy, independence, and self-respect. Many studies aiming to distinguish entrepreneurs from non-entrepreneurs in terms of motivations have consistently shown that independence (Douglas and Shepherd, 2002; Tkachev and Kolvereid, 1999), autonomy (Kolvereid and Isaksen, 2006), and freedom (Dubini, 1989) are crucial drivers of new venture creation. All of these motives essentially overlap with the content domain of self-direction. Based on the highly consistent findings in the interdisciplinary literature, the needs related to self-direction are likely to reinforce attitudes toward new venture creation.

Security, as the value opposing self-direction, was conceptualized as a cluster containing the values of safety, harmony, and stability with regard to both the self and relationships (Schwartz, 1992). A general antonym of security is risk, which has frequently been linked to entrepreneurship studies. The focus of entrepreneurship studies on risk has been on whether entrepreneurs assess opportunities and threats differently from non-entrepreneurs, what determines the way they perceive the riskiness of their decisions, and how they cope with risks (Norton and Moore, 2002). Many of these studies' results have suggested that a perception of uncertainty as controllable (high risk perception) and a preference for taking risks (high risk propensity) are primary characteristics of entrepreneurs (Păunescu and Cantaragiu, 2012). In other words, individuals who pessimistically perceive uncertainties as threats instead of opportunities and avoid risks are less likely to foster a positive attitude toward entrepreneurship.

Empirical evidence provides support for self-direction's role as a pro-entrepreneurship value. In a value survey of 150 business owners (Gorgievski *et al.*, 2011), self-direction was ranked as the most important of Schwartz's ten values. A study on 2,744 Indian students also showed that commerce students are more inclined to ignore the input of parents compared with science students (Thatchenkery and Koizumi, 2010). In contrast, a study on 1,128 business administration students showed that the strongest reversal indicator of an entrepreneurial attitude was financial security (Van Gelderen *et al.*, 2008), meaning that the risks involved in new venture creation significantly repelled young adults. Consistent with the discussion in the literature addressed above, the following hypothesis is proposed:

- H1.* The personal value of self-direction, as opposed to the personal value of security, is positively correlated with entrepreneurial attitude.

Stimulation vs conformity and tradition

According to Schwartz (1992), stimulation embraces excitement, novelty, and challenges in life. Studies suggest that challenge (Vasakarla, 2008) and innovation (Choo and Wong, 2006) are critical motives for new venture creation. The literature on career choice suggests that an individual's choice of a self-employed or employee career path may be anchored in clusters of career-related values, such as "challenge" (Kolvereid, 1996), "entrepreneurial creativity," "autonomy and independence," and an escape from organizational bureaucracies (Feldman and Bolino, 2000), all of which lead to a tendency to favor self-employment.

In contrast, Schwartz and Boehnke (2004) explained that conformity and tradition are located at the same polar angle in the circumplex because they share a motivational goal, i.e., the subordination of the self in favor of socially imposed

expectations. What distinguishes between the two values is that although “conformity values emphasize restraint of actions, inclinations, and impulses that might upset or harm others and violate their expectations, tradition values emphasize respect, commitment, and acceptance of the customs and ideas of one’s culture or religion” (Schwartz and Boehnke, 2004, p. 235). Accordingly, people who regard conformity and traditions as important guiding principles have a strong sociocultural orientation.

An important facet of an entrepreneurial focus is the expectation that entrepreneurs will challenge the status quo and introduce novelty into the field (Shane and Venkataraman, 2000). De Vries (1977) described the primary mode of entrepreneurial behavior as being “non-conformistic rebelliousness aimed at exerting power and control.” Those who are afraid of “standing out” from the incumbent participants (Clercq and Voronov, 2009, p. 403) and violating social expectations are more likely to shy away from challenging the status quo in the field, including the creation of new ventures. Therefore, people with strong conformity and tradition values are less likely to have favorable attitudes toward entrepreneurship. Therefore, this study proposes that:

- H2. The personal value of stimulation, as opposed to the personal values of conformity and tradition, is positively correlated with entrepreneurial attitude.

Achievement vs benevolence

The Need for Achievement theory (McClelland, 1965) provides the theoretical basis for a majority of studies predicting entrepreneurial behavior. The Need for Achievement theory characterizes entrepreneurs as having a desire to perform well to attain a feeling of accomplishment through entrepreneurship. Miner (1993) also proposed a task-motivation theory, which posits that individuals are drawn to entrepreneurship because they desire to achieve via their own abilities and efforts and to enhance their self-esteem through achievement. In Schwartz’s taxonomy, the achievement value is encompassed by the values of influence, ambition, and success. Entrepreneurial motivation studies have shown that the pursuit of success and the need for achievement are crucial drivers of the founding of new businesses (Vasakarla, 2008). Two meta-analyses have also confirmed a positive relationship between achievement and entrepreneurship (Stewart and Roth, 2007). Therefore, if individuals consider the pursuit of success and achievement an important life goal, they tend to hold favorable attitudes toward entrepreneurship because of the nature of the inducements inherent in the entrepreneurial task (Miner, 1993).

While achievement involves an individual’s self-enhancement, its counter value – benevolence – focusses on concern for the welfare of close others (Schwartz, 1992). Although entrepreneurs often express values indicating deep feelings for closely related others such as family members and friends (Bann, 2009), they also recognize that the choice of an entrepreneurial pursuit often results in sacrifices for the entrepreneurial effort (Bhave, 1994), such that starting a new venture could be “beneficial for entrepreneur, detrimental for others” (Bann, 2009, p. 74). In this sense, an individual who greatly emphasizes benevolence may feel reluctant to sacrifice the time, attention, or money that is ordinarily devoted to their families and close others in exchange for entrepreneurial success. Taken together, this study proposes that:

- H3. The personal value of achievement, as opposed to the personal value of benevolence, is positively correlated with entrepreneurial attitude.

Power vs universalism

The Need for Power (n-power) theory (McClelland, 1970) suggests another motive behind entrepreneurial behavior. McClelland (1970) distinguished between two types of power, i.e., personal power and social power. The motive for personal power is a desire for authority and control over others, whereas the motive for social power is the exercise of social influence for the benefit of others, as opposed to the desire for control over others for its own sake. Although the motive for the pursuit of social power appears to be inconsistent with Schwartz's high-order value of self-enhancement, which includes the values of power and achievement, a subtle explanation for the motive for social power is the satisfaction of the personal need for gratification (Peay and Dyer, 1989). Hence, both the need for personal power and the need for social power are encompassed by the power domain in Schwartz's (1992) taxonomy, which contains the values of authority, wealth, social power, and social recognition. Power-related factors (e.g. social power, social recognition, and authority) (Reynolds, 1991) and economic incentives (e.g. wealth) (Tkachev and Kolvereid, 1999) have been shown to be associated with entrepreneurial intentions. Therefore, a positive relationship between the power value and entrepreneurial attitude is predicted in this study.

As for universalism, one central belief of universalists is equality among people and social justice, even for unknown people (Schwartz, 1992). Schwartz (1992) contrasted benevolence and universalism by stating that benevolence is mainly directed toward an individual's own ingroup of close others, whereas with universalism, one distinguishes less sharply between ingroups and outgroups when responding to one's own needs. The influences of universalism can be twofold. On the one hand, entrepreneurship is traditionally characterized by an egoistic passion (Locke and Baum, 2007) that might be inconsistent with a spirit of understanding, appreciation, tolerance, and protection of others' welfare. Moreover, starting a new business generally involves the creation of a hierarchy that enlarges the status gap between entrepreneurs and their subordinates. In line with these arguments, studies have reported a negative correlation between entrepreneurship and universalistic values (Sagiv, 2002). However, on the other hand, there is also the possibility that a new business is created to contribute to the broader social good, as manifested in the models of social entrepreneurship and classified as an emerging research area (Liñán and Fayolle, 2015). Researchers have proposed that social entrepreneurs attach higher importance to the universalistic value than commercial entrepreneurs (Saatci *et al.*, 2014). In summary, although the empirical evidence on the relationship between universalism and entrepreneurship is not as strong as the relationship between the power value and entrepreneurship, this study considers universalism an opposing value of power and thus consistently proposes a negative correlation between universalism and entrepreneurship. Taken together, this study proposes that:

- H4.* The personal value of power, as opposed to the personal value of universalism, is positively correlated with entrepreneurial attitude.

Because empirical research has widely validated the attitude-intention relationship (see Moriano *et al.*, 2012 for a cross-cultural comparison), and some studies have also examined how values affect behaviors through attitude in support of the value-attitude-behavior paradigm (Homer and Kahle, 1988), this study only focusses on the value-attitude relationship and assumes, rather than proposes, that entrepreneurial attitudes mediate the relationship between values and entrepreneurial intentions. Nevertheless, this study will examine the value-attitude relationship under a context that completely incorporates the value-attitude-behavior hierarchy.

Methods

Sample and procedures

The sample consisted of masters of business administration students enrolled in five universities located in the eastern, western, northern, and southern regions of Taiwan. The sample was considered appropriate for use in a number of previous studies on entrepreneurial intention (Krueger *et al.*, 2000; Tkachev and Kolvereid, 1999). The sample was used based on the belief that the respondents were facing important career decisions at the time of the surveys. Naturally, career aspirations are significant predictors of eventual career choices (Trice, 1991). In addition, the personal values of the respondents are considered stable because values do not change significantly in adulthood (Rokeach, 1972).

To mitigate the concern of common method variance, data were collected at two points in time using questionnaires. Prior to data collection, a complete version of the questionnaire was translated into Chinese and then back translated into English to ensure semantic precision. Items on the first survey addressed concepts including personal values, entrepreneurial attitude, and entrepreneurial self-efficacy. The second survey was conducted approximately three weeks after the first survey. This survey asked the respondents about the subjective norms they perceived with regard to entrepreneurship, their entrepreneurial intentions, demographic information, and again entrepreneurial self-efficacy for cross-validation purposes. All of the respondents were guaranteed anonymity.

A total of 423 questionnaires were distributed for each of the two surveys. Of this total, 348 copies of the first survey and 333 copies of the second survey were returned. By matching the last four digits of the respondents' mobile numbers, 320 valid survey pairs were obtained. Returned questionnaires with large segments of missing data and those with abnormal response tendencies were excluded, resulting in 272 usable paired samples and a 64.3 percent response rate. The correlation coefficient for repeated-measured entrepreneurial self-efficacy is 0.65 ($p < 0.01$), indicating adequate test-retest validity and ensuring the appropriateness of combining the two surveys. The measure of entrepreneurial self-efficacy in the first survey was used in the analyses.

Measures

Entrepreneurial intention. In consideration of the students' graduation schedule, a longer time span (i.e. five years) was used to measure entrepreneurial intentions (Krueger *et al.*, 2000). Based on Ajzen's (2002) scale, three items were adapted to capture individuals' beliefs regarding their entrepreneurship intentions on a five-point Likert scale: "I will start my own business in the next five years," "I will NOT engage in activities related to entrepreneurship in the next five years," (a reverse question) and "I have established an entrepreneurial plan and am going to execute it in the next five years." The Cronbach's α coefficient for this construct is 0.91.

Entrepreneurial attitude. Individuals' entrepreneurial attitudes were measured on a five-point Likert scale using five items based on Ajzen's (2002) scale: new venture creation is a "beneficial," "pleasant," "worthy," and "good" event for me or "NOT an interesting" event for me (a reverse item). A high Cronbach's α value of 0.81 indicates satisfactory reliability for this construct.

Values. An early version of Schwartz's (1992) value scale contains 56 items representing ten-value types, which were further refined into 44 items using the criterion of significant factor loadings (Schwartz and Boehnke, 2004). In this study, we adopted the

latter scale of 44 items. Respondents were asked to consider the relative importance of the following as guiding principles in their lives. Questions were measured on a five-point Likert scale from 1 (not important at all) to 5 (extremely important). We calculated respondents' scores for the ten-value types in accordance with the method described in several value-related studies (Olver and Mooradian, 2003; Schwartz, 1992), whereby items were normalized within subjects (i.e. ipsatized) to guarantee the scalar equivalence of the measures across subjects.

Control variable. Two constructs other than entrepreneurial attitude in the TPB, i.e., entrepreneurial self-efficacy and subjective norms, were controlled for their effects on entrepreneurial intentions. Entrepreneurial self-efficacy was measured using a six-item scale (Wilson *et al.*, 2007) and a five-point Likert format. The subjects were asked to rate their perceptions of their confidence in their capabilities to be successful entrepreneurs in the following respects: I am capable of "solving entrepreneurial problems," "managing money," "being creative," "gaining recognition," "being a good leader," and "making the right decisions." A high Cronbach's α value of 0.80 indicates that this construct had adequate reliability. The subjective norm measure included three items (Kolvereid and Isaksen, 2006): my family members, closest friends, and people important to me "think about," "approve," or "support" the idea that I should not (= 1) or should (= 5) pursue a career as an entrepreneur. This multiple-item measure indicates a high degree of internal consistency (Cronbach's $\alpha = 0.79$). Gender has a significant influence on career self-efficacy (Wilson *et al.*, 2007) and entrepreneurial intentions (Wilson *et al.*, 2007; Zhao *et al.*, 2005). Thus, a dummy measure for gender (0: female; 1: male) was included. The individual competencies developed through prior work experience can play a role in entrepreneurial intentions (Cooper *et al.*, 1994). Thus, a continuous measure of the accumulated number of years of full-time job experience was incorporated as a control variable. Family background characteristics are influential on a member's entrepreneurial decision. Researchers proposed a family embeddedness perspective, including characteristics such as family compositions, to study entrepreneurship (Aldrich and Cliff, 2003). Thus, the number of siblings and the ranks of the respondents were controlled for their effect on entrepreneurial intentions. Finally, family experience in entrepreneurship as the proxy of the existence of a family role model (Karimi *et al.*, 2013) was also controlled using a dummy variable (0: without experience; 1: with experience).

Statistical procedure

Given our numerous measurement items for the value constructs studied, we parceled items to maintain an adequate indicator-to-factor ratio. Following the procedures recommended in the extant literature (Landis *et al.*, 2000), the 44 value items were reduced to 25 item parcels: two parcels for the power, achievement, hedonism, stimulation, tradition, and conformity constructs, three parcels for the self-direction, benevolence, and security constructs, and four parcels for the universalism construct, respectively.

The hypotheses were tested using a symmetrical modeling design, whereby a test was performed on a causal model incorporating the positive values, the TPB constructs, and entrepreneurial intention (i.e. the positive model), followed by a test of another model that replaced the positive values with symmetrically negative values while retaining the remainder (i.e. the negative model). A path model was employed to test the causalities and to compare the models for all hypotheses.

Results

Descriptive statistics

Table I presents the means, standard deviations, and correlations of all of the studied variables, together with three reliability indicators of multi-item constructs. Self-direction was rated the most important of the ten types of values on average, whereas achievement was rated the least important. The respondents displayed moderate variance across all value types (ranging from 0.58 to 0.80). All of the Cronbach's α values for the multi-item constructs are well above the normally suggested threshold of 0.70, indicating high degrees of internal consistency for each construct.

Validity assessment

The correlation matrix in Table I coincides almost perfectly with the relational structure depicted by Schwartz's taxonomy. The three largest negative correlations for one of the paired values were found between three pairs of the most far-apart value types: power and universalism ($r = -0.40$, $p < 0.01$), self-direction and security ($r = -0.31$, $p < 0.01$), and stimulation and conformity ($r = -0.29$, $p < 0.01$). The following was the only exception: the largest negative correlation for achievement was with security ($r = -0.27$, $p < 0.01$) rather than benevolence ($r = -0.13$, $p < 0.05$), which does not significantly contradict Schwartz's prediction.

According to Table I, all of the correlation coefficients among the constructs were smaller than the respective value of the average variance extracted (AVE) for each construct, providing evidence of discriminant validity (Gaski and Nevin, 1985). Following Fornell and Larcker (1981), all of the standardized factor loadings exhibited statistical significance at $p < 0.01$, and, along with appropriate composite reliability values (ranging from 0.81 to 0.94) and AVE values, indicated good convergent validity.

Table II reports the results of a series of confirmatory factor analyses for the construct validity of the measurement model. The results for model 1 through model 6 indicate that the ten-value model (model 1) is a better fit to the data ($\chi^2 = 398.38$; $df = 230$; $p < 0.01$; AGFI = 0.90; CFI = 0.96; NFI = 0.91; SRMR = 0.04; RMSEA = 0.05) than the other parsimonious models, including two five-factor models, one four-factor model, one two-factor model, and one one-factor model. The results demonstrate a satisfactory goodness of fit for the measurement model of values and confirm that Schwartz's ten groupings of personal values are robust distinctions. The results of model 7 through model 9 also indicate that the TPB and entrepreneurial intention, as a four-construct model (model 7) ($\chi^2 = 274.00$; $df = 129$; $p < 0.01$; AGFI = 0.87; CFI = 0.93; NFI = 0.88; SRMR = 0.05; RMSEA = 0.06), is more appropriate than the other two parsimonious models (model 8 and model 9).

Structural analyses results

The hypothesized (positive-value) model to be tested includes five adjacent values that lead to favorable attitudes toward being an entrepreneur, three TPB constructs, and entrepreneurial intention as the dependent variable. The hedonism value, although not hypothesized, is incorporated into the model because it is adjacent to the positive values of stimulation and achievement. The causal model and the testing results are reported in the format of standardized regression coefficients, as shown in Figure 2. The path coefficients from self-direction ($r = 0.22$, $p < 0.05$), stimulation ($r = 0.12$, $p < 0.05$), and achievement ($r = 0.15$, $p < 0.05$) to entrepreneurial attitude are all positive and significant. Thus, $H1$, $H2$, and $H3$ are supported. However, the path

Variables	Mean	SD	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
1. Gender	0.53	0.50	–																		
2. Number of siblings	3.08	1.34	0.01	–																	
3. Sequence of siblings	2.10	1.26	0.03	0.70**	–																
4. Job experience	3.29	0.88	0.06	0.35**	0.21**	–															
5. Entrepreneurial experience	0.56	0.50	–0.02	0.17**	0.11	0.16*	–														
6. Self-efficacy	3.68	0.58	0.14*	0.23**	0.14*	0.22**	0.09	(0.69)													
7. Subjective norm	3.35	0.75	0.05	0.16**	0.04	0.07	0.34**	0.34**	(0.73)												
8. Power	3.77	0.63	–0.02	–0.03	–0.05	0.04	0.01	0.01	–0.00	(0.92)											
9. Achievement	3.73	0.64	0.09	0.04	0.01	–0.03	0.08	0.03	0.11	–0.15*	(0.87)										
10. Hedonism	4.14	0.67	–0.02	–0.00	0.00	–0.01	–0.04	–0.07	–0.03	0.05	–0.04	(0.84)									
11. Stimulation	3.83	0.80	0.10	–0.05	–0.08	–0.03	0.06	0.13*	0.16**	0.06	–0.16**	0.05	(0.88)								
12. Self-direction	4.18	0.61	0.05	–0.01	0.01	0.14*	0.04	0.18**	0.15*	–0.03	–0.05	0.02	0.22**	(0.88)							
13. Universalism	3.97	0.62	–0.08	0.11	0.12	0.05	0.06	–0.15*	–0.07	–0.40**	–0.01	–0.12*	–0.24**	–0.19**	(0.90)						
14. Benevolence	4.16	0.61	–0.10	–0.05	0.02	–0.12*	–0.06	–0.09	–0.07	–0.26**	–0.13*	–0.18**	–0.24**	–0.25**	–0.01	(0.91)					
15. Tradition	4.17	0.58	0.04	–0.13*	–0.13*	–0.00	–0.06	0.04	–0.07	0.14*	–0.22**	0.04	0.12*	–0.04	–0.36**	–0.19**	(0.92)				
16. Conformity	4.03	0.62	0.00	0.02	0.01	–0.07	–0.06	0.06	–0.00	–0.12	–0.01	–0.26**	–0.29**	–0.22**	–0.16**	0.19**	–0.18**	(0.91)			
17. Security	4.12	0.66	–0.03	0.02	0.03	–0.01	–0.07	–0.07	–0.14*	–0.18**	–0.27**	–0.17**	–0.35**	–0.31**	–0.05	0.09	–0.03	0.15*	(0.89)		
18. Entrepreneurial attitude	3.89	0.64	0.19**	0.08	0.01	0.03	0.12	0.47**	0.31**	–0.11	0.13*	–0.10	0.20**	0.26**	0.14*	–0.19**	–0.14*	–0.10	–0.17**	(0.72)	
19. Entrepreneurial intention	2.85	0.95	0.12	0.11	0.02	0.11	0.20**	0.35**	0.47**	–0.08	0.14*	–0.09	0.17**	0.16**	0.01	–0.08	–0.15*	–0.01	–0.10	0.34**	(0.87)
Number of items			1	1	1	1	1	6	4	4	4	2	3	5	8	5	4	4	5	5	3
Cronbach's α			–	–	–	–	–	0.79	0.79	0.74	0.73	0.86	0.85	0.85	0.88	0.85	0.77	0.82	0.87	0.81	0.91
Composite reliability			–	–	–	–	–	0.85	0.82	0.92	0.86	0.83	0.87	0.91	0.94	0.93	0.92	0.90	0.92	0.81	0.90

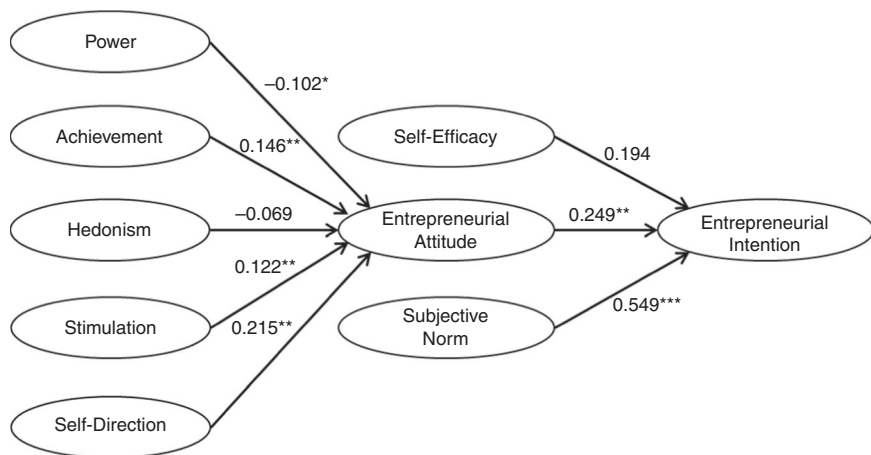
Notes: $n = 272$. Gender is a dummy variable for which 1 is equal to "male"; entrepreneurial experience is a dummy variable for which 1 is equal to "experienced". Numbers in parentheses on the diagonal represent the square root of the average variance extracted. Off-diagonal elements are correlations between constructs. ** $p < 0.01$, * $p < 0.05$

Table I.
Descriptive statistics
and correlations

Table II.
Results of
confirmatory factor
analysis for
measurement model

Model (constructs included)	χ^2	df	$\Delta\chi^2$	AGFI	CFI	NFI	SRMR	RMSEA
<i>CFA for value types</i>								
1. Hypothesized model (10 values)	398.38	230	–	0.90	0.96	0.91	0.04	0.05
2. Five-factor model 1 (5 closely located values)	1,184.20	265	785.82**	0.61	0.71	0.67	0.15	0.13
3. Five-factor model 2 (5 far-apart values)	1,540.48	265	1,142.10**	0.57	0.68	0.64	0.15	0.13
4. Four-factor model (4 higher order constructs)	1,315.17	269	916.79**	0.62	0.74	0.69	0.09	0.12
5. Two-factor model (positive and negative values)	1,512.09	274	1,113.71**	0.59	0.69	0.65	0.10	0.13
6. One-factor model (10 values as one factor)	1,785.01	275	1,386.63**	0.52	0.62	0.58	0.10	0.14
<i>CFA for TPB and EI</i>								
7. Hypothesized model (4 constructs: TPB and EI)	274.00	129	–	0.87	0.93	0.88	0.05	0.06
8. Two-factor model (TPB as one factor and EI)	775.16	134	501.16**	0.64	0.69	0.66	0.11	0.13
9. One-factor model (combining TPB and EI)	1,128.70	135	854.70**	0.53	0.53	0.50	0.12	0.17

Notes: The changes in $\Delta\chi^2$ and Δdf for models 2, 3, 4, 5, and 6 are relative to model 1. The changes in $\Delta\chi^2$ and Δdf for models 8 and 9 are relative to model 7. ** $p < 0.01$



Notes: * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$

coefficient from power to entrepreneurial attitude is significantly negative ($r = -0.10$, $p < 0.10$), meaning that $H4$ is not supported.

To triangulate the robustness of the findings, another (negative-value) model is tested that includes five negative values in opposition to the previous model, the three TPB constructs, and entrepreneurial intention as the dependent variable. As shown in Figure 3, the standardized path coefficients for benevolence ($r = -0.20$, $p < 0.05$), tradition ($r = -0.22$, $p < 0.05$), and security ($r = -0.12$, $p < 0.10$) are all significantly

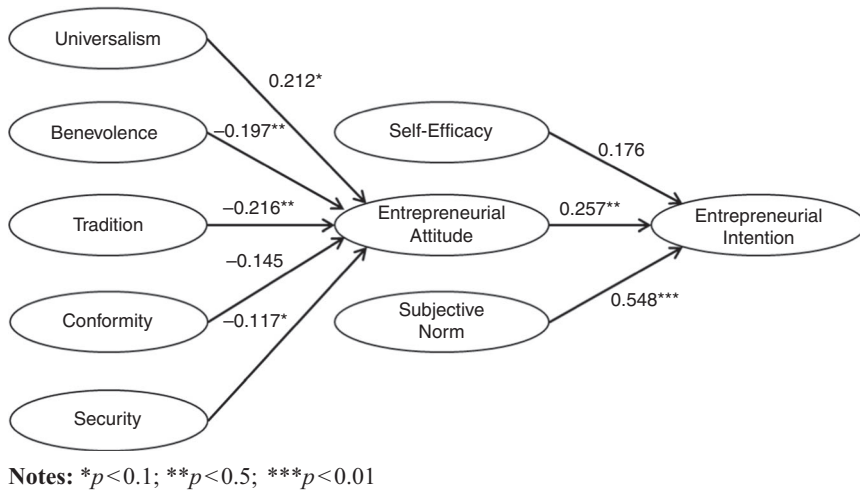


Figure 3.
Path estimates for
the negative-value
model

negative, and the exception is the construct of conformity. The results mostly correspond to the findings obtained from the previous positive-value model, providing additional support for *H1*, *H2*, and *H3*. Interestingly, universalism exhibits a significantly positive association ($r = 0.21$, $p < 0.10$) with entrepreneurial attitude, which, although rendering *H4* unsupported, is symmetrically consistent with the negative influence of the power value.

The relationship between entrepreneurial attitude and entrepreneurial intention is found to be consistently positive in the both the positive-value model ($\beta = 0.25$, $p < 0.05$) and the negative-value model ($\beta = 0.26$, $p < 0.05$). Regarding the effect of the control variables, only gender exhibits a positive correlation with entrepreneurial attitude ($\beta = 0.12$, $p < 0.10$) in the negative-value model, suggesting that males may tend to have a more favorable attitude toward entrepreneurship than females.

To examine the indirect effects of personal values on entrepreneurial intention via entrepreneurial attitude, we used a Sobel (1982) test and a bootstrapping estimation. The Sobel test results showed that the pro-attitude values (for self-direction, $z = 2.09$, $p < 0.05$; stimulation, $z = 1.95$, $p < 0.10$; and achievement, $z = 1.85$, $p < 0.10$) had a positive and indirect effect on entrepreneurial intention. The negative values (for benevolence, $z = -2.28$, $p < 0.05$; tradition, $z = -1.91$, $p < 0.10$; and security, $z = -1.67$, $p < 0.10$) also had a negative and indirect effect on entrepreneurial intention. Furthermore, zero was not included in the 95 percent confidence intervals for these constructs.

Model comparisons

Table III presents the results of model comparisons to determine whether the two hypothesized causal models best fit the data. The positive-value model was first compared with a simple model that includes only the control variables. All of the indicators of model fit (AGFI, CFI, NFI, SRMR, and RMSEA) suggest that the hypothesized model is overwhelmingly better than the control-variable-only model ($\Delta\chi^2 = 104.33$, $df = 17$, $p < 0.01$). Furthermore, the hypothesized model is overwhelmingly better than the partially mediated model ($\Delta\chi^2 = 50.57$, $df = 7$, $p < 0.01$). The role of entrepreneurial attitude as a mediator linking personal values to entrepreneurial intentions is thus corroborated. Similarly, the negative-value model

Table III.
Comparisons
between the
hypothesized model
and alternative
models

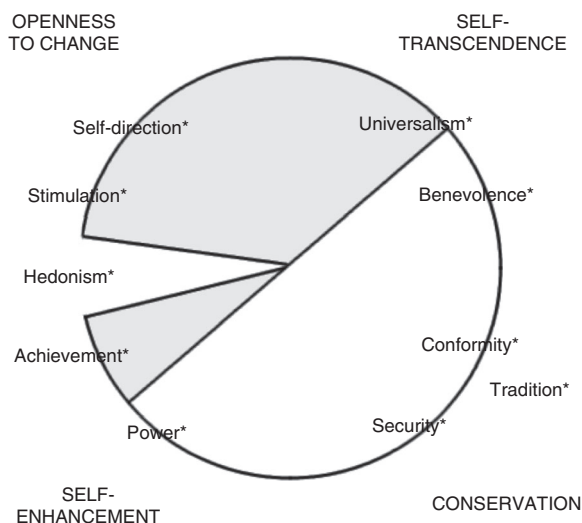
Model	χ^2	df	$\Delta\chi^2$	AGFI	CFI	NFI	SRMR	RMSEA
<i>For the positive-value models</i>								
1. Full mediated (hypothesized) model (positive values→attitude→intention)	11.39	10	—	0.94	0.99	0.98	0.02	0.02
2. Control variables only (control variables→intention)	115.72	17	104.33**	0.70	0.81	0.81	0.07	0.15
3. Non-mediated model (positive values→intention)	109.99	12	98.60**	0.60	0.81	0.82	0.07	0.17
4. Partially mediated model (positive values→intention and positive values→attitude→intention)	61.96	7	50.57**	0.56	0.89	0.88	0.04	0.17
<i>For the negative-value models</i>								
5. Full mediated (hypothesized) model (negative values→attitude→intention)	17.37	10	—	0.91	0.99	0.97	0.02	0.05
6. Control variables only (control variables→intention)	131.74	17	114.37**	0.68	0.81	0.81	0.07	0.15
7. Non-mediated model (negative values→intention)	126.91	12	109.54**	0.56	0.81	0.81	0.07	0.19
8. Partially mediated model (negative values→intention and negative values→attitude→intention)	94.73	7	77.36**	0.38	0.85	0.86	0.05	0.22
Notes: The changes in $\Delta\chi^2$ and Δdf for models 2, 3, and 4 are relative to model 1; the changes for models 6, 7, and 8 are relative to model 5. ** $p < 0.01$								

was compared with its corresponding control-variable-only model ($\Delta\chi^2 = 114.37$, $df = 17$, $p < 0.01$), the non-mediated model ($\Delta\chi^2 = 109.54$, $df = 12$, $p < 0.01$), and the partially mediated model ($\Delta\chi^2 = 77.36$, $df = 7$, $p < 0.01$). The results are highly consistent with the positive-value model. Therefore, the relative fitness of the theoretical model in this study is assured. Finally, the multicollinearity problem is excluded using the model comparison approach suggested by Marsh *et al.* (2004).

Discussion

This study extends the extant literature on entrepreneurial intentions by incorporating values as the antecedents of entrepreneurial attitude in the TPB framework. Specifically, this study models entrepreneurial intention as the result of a cognitive process that is triggered by personal values, which is an intrinsic factor that has long been ignored in the entrepreneurship literature. Based on Schwartz's value circumplex, a structural analysis dichotomizes personal values into two opposing value conglomerates: one fosters an entrepreneurial attitude; the other impedes an entrepreneurial attitude. The empirical results support most of the hypotheses, such that a clear cut-off line can be drawn to distinguish a comfort zone of personal values for entrepreneurship from a discomfort zone where the values conflict with entrepreneurial attitude, as shown in Figure 4.

The concept of comfort and discomfort zones makes more sense than previous research because it not only demonstrates the effect of specific values on entrepreneurial attitude, but also, more importantly, it generates harmonious conclusions by considering the dissonance among values that previous studies often ignored. For example, a survey of existing entrepreneurs resulted in relatively high



Value
circumplex for
entrepreneurship

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Figure 4.
The comfort zone of
personal values for
entrepreneurial
attitude

ratings for “an exciting life” (stimulation) and “obedience” (conformity) and low ratings for “ambition” (achievement) and “family security” (benevolence) (Uy, 2011). These findings appeared to contradict Schwartz’s circumplex because one is unlikely to hold values situated at opposite ends of the same polar. Furthermore, the lack of a holistic view, for example, using factor analysis to extract value into dimensions, may lead to ambiguous findings on the impact of values if certain values are excluded a priori from the factors (see Watchravesringkan *et al.*, 2013). Studies that adopted the premature compression of all the personal values into high-order, or reduced dimensional values, instead of using an intact value profile, may incur a similar problem.

Contrary to the prediction, the power value is negatively correlated with entrepreneurial attitude, whereas universalism and entrepreneurial attitude exhibit a positive correlation. The counter effect of the power value on entrepreneurial attitude can be explained from a competitive individual viewpoint. Personal development competitors who want to win but not at other people’s expense tend to embrace the values of achievement, hedonism, stimulation, and self-direction but not power (Ryckman *et al.*, 1997). The positive effect of universalism may be linked to the sustainable mindset of entrepreneurs. An increasing number of entrepreneurs have utilized their businesses to enact sustainable practices that support local communities or help establish a better society, which is becoming a growing research field (Kraus *et al.*, 2014). Based on Schwartz’s values structure, Gagnon (2012) argued that a sustainable entrepreneur mindset exists and found that morality, including benevolence and universalism, may be central to a sustainable entrepreneur mindset.

Theoretical and practical implications

This study’s theoretical contributions are threefold. First, researchers suggested that studies of entrepreneurial intentions could make significant progress by attempting to improve the understanding of deep assumptions underpinning intentions (Hayton and Cholakova, 2012), and, in particular, the role of personal values have begun to receive more attention (Fayolle *et al.*, 2014). In response to the more recent calls for the investigation of the role that personal values play in entrepreneurship (Fayolle and

Liñán, 2014; Liñán and Fayolle, 2015), this study, drawing on Ajzen's TPB and Schwartz' value structure, has validated personal values' role as significant antecedents of the entrepreneurial attitude that leads to entrepreneurial intentions. The framework of this study thus extends the myriad studies concerning entrepreneurial intentions and deepens academia's understanding of the formation of an entrepreneurial attitude, which has long been modeled as an exogenous construct in entrepreneurship studies.

Second, although recently a few select entrepreneurship studies such as that by Fayolle *et al.* (2014) and Uy (2011) have begun to shift the focus to personal values, but to our knowledge, none has adopted a structural view and simultaneously addressed the issue of value congruence and conflicts. The lack of a structural view can result in inconsistent findings that either contradict Schwartz's taxonomy or imply that personal values fail to effectively distinguish entrepreneurs from non-entrepreneurs. This study considers the conflicting nature of paired values that oppose each other on the polar of Schwartz's circumplex, dichotomizes personal values into two contrasting clusters, and derives highly consistent causalities between values and attitude in an entrepreneurial context. The findings improve our understanding in a systematic and logical way of how values are linked to the TPB and how they lie at the core of entrepreneurs' mindset.

Third, the entrepreneurial intention literature has long been focussed on typical questions such as "what makes an entrepreneur?" but has ignored the other side of the question: "what discourages an individual from becoming an entrepreneur?" Nevertheless, entrepreneurial attitude can be influenced not only by enhancing motivators but also by decreasing demotivators. This study, from the perspective of value conflicts, portrays a discomfort profile of personal values that discourages individuals from becoming entrepreneurs. The discovery of a discomfort zone significantly distinguishes this current study from past studies and has made a salient contribution to the literature on entrepreneurial intentions.

The findings obtained in this study highlight important implications for entrepreneurship education and practice. Early research on the influential factors in entrepreneurial decisions primarily focussed on demographics or individuals' personality traits (Robinson *et al.*, 1991; Tkachev and Kolvereid, 1999). As discussed previously, personal values differ from personality traits and are considered exogenously learned adaptations that are influenced by one's surroundings (Olver and Mooradian, 2003). In other words, personal values can be nurtured through acquired systems such as education. Accordingly, the findings obtained in this study suggest that educators should consider creating environments or devising programs for young students that emphasize certain values. Specifically, researchers have suggested that entrepreneurship education should not be designed as "one size fits all" (Wilson *et al.*, 2007). Entrepreneurship educators can group students according to the extent to which the students' value maps overlap with the comfort zone and then devise programs and courses separately.

The negative impact of values in the discomfort zone on entrepreneurial intentions found in this study provides implications that may be as important as those in the comfort zone. Fayolle and Gailly (2015) found that the positive effect of an entrepreneurial education program (EEP) would be more marked when previous entrepreneurial exposure has been weak or inexistent. To integrate their findings with ours, an EEP can be more effective when efforts are devoted to those who do not exhibit positive values on entrepreneurship. After all, the effectiveness of EEPs has

been criticized for the selection bias or a “virtuous circle” effect (Fayolle and Gailly, 2015). As a bottom line, helping students develop more realistic perceptions of the discrepancy between their (discouraging) values and what it takes to start a new business in terms of personal values could be a priority for educators (Von Graevenitz *et al.*, 2010).

As for policy implications, because personal values are effective predictors of entrepreneurial attitudes, support programs that aim to boost (and sponsor) entrepreneurship may consider the use of personal values as one of the criteria to filter potential entrepreneurs to create a better allocation of public entrepreneurial resources.

Limitations and suggestions

The limitations of this study should be noted. Although becoming an entrepreneur is widely viewed as an intentional behavior (Bird, 1988), and despite the well-established link between behavioral intention and subsequent behavior (Ajzen, 1991), researchers have highlighted a possible discrepancy between entrepreneurial intention and subsequent action (Jenkins and Johnson, 1997). Another limitation pertains to cultural differences. Personal values are embedded in cultures. Because our sample was drawn from a single country with a typical oriental culture, the findings obtained in this study may only be generalizable to regions with similar values or cultural systems.

This study offers suggestions for future research. Although Schwartz (1992) established a universal structure of value types, values can be heterogeneous between countries and regions (Hechavarria and Reynolds, 2009). For example, Schwartz's (1992) study revealed four to ten categories among countries. Therefore, the proposed model should be validated using samples from other countries and regions, particularly those that are culturally distant from oriental cultures. Finally, this study adopts Ajzen's (2002) items to measure entrepreneurial attitude as a whole construct; however, studies have suggested that attitudes may be an agglomeration of different components (e.g. Douglas and Shepherd, 2002; Van Gelderen *et al.*, 2008). It would be meaningful and interesting to link values to different types of attitudes.

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