

## Modeling Entrepreneurial Career Intentions among Undergraduates: An Examination of the Moderating Role of Entrepreneurial Knowledge and Skills

By: [Kittichai \(Tu\) Watchravesringkan](#), [Nancy Nelson Hodges](#), Jennifer Yurchisin, Jane Hegland, [Elena Karpova](#), Sara Marcketti, Ruoh-nan Yan

**This is the peer reviewed version of the following article:**

Watchravesringkan, K., Hodges, N. N., Yurchisin, J., Hegland, J., Karpova, E., Marcketti, S., & Yan, R. (2013). Modeling Entrepreneurial Career Intentions of Textile and Apparel Undergraduates: An Examination of the Moderating Role of Entrepreneurial Knowledge and Skills. *Family and Consumer Sciences Research Journal*, 41(3), 325-342.

**which has been published in final form at <https://doi.org/10.1111/fcsr.12014>. This article may be used for non-commercial purposes in accordance with Wiley Terms and Conditions for Use of Self-Archived Versions. This article may not be enhanced, enriched or otherwise transformed into a derivative work, without express permission from Wiley or by statutory rights under applicable legislation. Copyright notices must not be removed, obscured or modified. The article must be linked to Wiley's version of record on Wiley Online Library and any embedding, framing or otherwise making available the article or pages thereof by third parties from platforms, services and websites other than Wiley Online Library must be prohibited.**

### **Abstract:**

The purpose of this study was to empirically develop a comprehensive model of undergraduate students' entrepreneurial career intention that combines both cognitive and behavioral decision-making processes. Data were collected via a questionnaire completed by textile and apparel undergraduates at four American universities (n = 345). Based on the literature, a model of personal values—attitude—behavioral intention was developed. Structural equation modeling was used to test the hypothesized relationships in the model. Results revealed that self-actualization as a value significantly influenced attitudes, which, in turn, influenced entrepreneurial career intentions. Both entrepreneurial knowledge and skills moderated the relationship between self-actualization and entrepreneurial career attitudes. Findings shed light on the influence of personal values and entrepreneurial knowledge and skills on entrepreneurial career choice. Further testing of the model is needed.

**Keywords:** entrepreneur | knowledge | textiles and apparel | personal values | skills

### **Article:**

Higher education programs designed to foster interest in entrepreneurship are increasing in American universities (Walstad & Kourilsky, 1998; Wilson, Marlino & Kickul, 2004). Likewise, studies suggest that this interest is high among students of textile and apparel programs (Hodges, Karpova & Lentz, 2010). As U.S. economic reports increasingly point to the important role of small businesses in recovery from the recession (U.S. Small Business Administration (SBA), 2009), more emphasis has been placed on developing programs to enhance students' small business knowledge and entrepreneurial skills (Wilson, Kickul & Marlino, 2007) as well as assessing the outcomes of such programs (Davis, 2008; Fayolle, Gailly & Lassas-Clerc, 2006). Considering the large amount of interest in small businesses in the United States in general, and specifically within post-secondary programs, an understanding of the underlying motivations that drive students to pursue entrepreneurial careers is essential.

For individuals who choose to seek post-secondary degrees, deciding upon a career path often begins with the selection of a college major (Grant, Battle & Heggoy, 2000). Much research exists that investigates the decision-making process of college students when selecting a major (Callahan, 1993; Kim, Markham & Cangelosi, 2002; Mauldin, Crain & Mounce, 2000) including that of textiles and apparel (Hodges & Karpova, 2009; Morgan & Shim, 1990). The process involved in selecting a college major has been found to parallel that of other kinds of decision-making, such as consumption decision-making (Jayawardhena, 2004; Shim & Eastlick, 1998), necessitating an examination of values and attitudes as well as intentions (Hodges & Karpova, 2010; Malgwi, Howe & Burnaby, 2005; Shim & Morgan, 1990).

At present, no studies were found that examined textiles and apparel undergraduates' entrepreneurial career behavioral intentions within the context of a cognitive decision-making model. Therefore, the purpose of this study was to empirically develop a comprehensive model of entrepreneurial career behavioral intentions that incorporated aspects of the cognitive decision-making model (i.e., personal values and entrepreneurial career attitudes). In addition, students' perceptions of entrepreneurial knowledge and skills were examined for their effect on values, attitudes, and intentions with regard to intended entrepreneurial career decision-making. Evidence exists which suggests that both entrepreneurial knowledge and skills may have a direct impact on attitudes toward entrepreneurship (Ede, Panigrahi & Calcich, 1998; Peterman & Kennedy, 2003), implying that hypothesizing direct effects may be redundant. Therefore, it might be more meaningful to investigate entrepreneurial knowledge and skills as moderating variables in the model of entrepreneurial career behavioral intentions.

## **Review of Literature**

### Entrepreneurial Career Decision-Making

*Personal values and attitudes relationship.* According to the cognitive decision-making perspective, college students make rational, goal-oriented career decisions and these decisions occur in a series of steps, ranging from an assessment of interests to the likelihood of choosing a

particular career (Cebula & Lopes, 1982). Although it can be posited that entrepreneurial interest among college students may impact their selection of major, interest may not be enough to lead to career intention. In addition to interest, values have been found to be important to making a variety of decisions, including college major and career-related decisions (Brown, 2002; Hodges & Karpova, 2009).

A personal value is motivational and regulates an individual's intentional goals and commitments to achieve them (Schwartz & Bilsky, 1990). A value can be defined as “an enduring belief that a specific mode of conduct or end-state is personally or socially preferable to its opposite” (Rokeach, 1973, p. 5). In consumption contexts, values have been shown to influence attitudes (Jayawardhena, 2004; Shim & Eastlick, 1998). An attitude is a person's evaluation, positive or negative, of a particular object (Ajzen & Fishbein, 1977). According to the value–attitude–behavior hierarchy, values are often abstract and have an indirect effect on behavior, such that attitudes typically mediate the impact of values on behavior (Homer & Kahle, 1988; Kahle, 1983).

Little research exists that examines students' entrepreneurial career intentions building on the concept of personal values, despite the similarities between the decision-making process used for the selection of college major and career and other types of consumption-related products and experiences (Brown, 2002; Hodges & Karpova, 2009). Several researchers have suggested that personal values have an impact on attitudinal-based cognitions. Also, researchers believe that these cognitions may give rise to particular career choices due to their motivational and goal-driven nature that differentiates personal values from other dispositions such as personality traits (Howard & Woodside, 1984; Rokeach, 1973). Researchers (Bilsky & Schwartz, 1994) contend that personal values are distinct from personality traits in that personal values reflect an individual's intentional goals and intentional commitments. Furthermore, personal values are closely related to human needs that may better predict students' career choice than other variables such as demographics or psychographics (Schiffman, Sherman & Long, 2003).

Existing research has employed the list of values (LOV) to examine values relative to college students' retail career attitudes (Shim, Warrington & Goldsberry, 1999) and attitudes toward consequences related to alcohol consumption (Shim & Maggs, 2005). The LOV scale consists of nine values: self-fulfillment, a sense of accomplishment, self-respect, being well-respected, security, excitement, fun and enjoyment of life, sense of belonging, and warm relationships with others. Several researchers have suggested that the nine values should be factor analyzed to develop a smaller number of underlying dimensions. These dimensions could be used to predict attitudes and behaviors, in as much as different situations may render different important value dimensions (Homer & Kahle, 1988; Kahle, 1983; Kahle & Kennedy, 1989). For example, Shim et al. (1999) found that personal values related to self-actualization (i.e., a sense of accomplishment, self-respect, security, and self-fulfillment) and social affiliation (i.e., excitement, fun and enjoyment of life, sense of belonging, and warm relationships with others) were positively associated with college students' favorable attitudes toward a retail career.

Shim and Maggs (2005) also found that the self-actualizing value, consisting of a sense of accomplishment, self-respect, being well-respected, security, and self-fulfillment, as well as the social affiliation value, consisting of excitement, fun and enjoyment of life, and sense of belonging were negatively related to college students' attitudes toward the psychological and physical consequences of alcohol consumption. Based on these findings, the LOV scale was employed in the present study to examine students' attitudes toward an entrepreneurial career. It was expected that the self-actualization (e.g., self-fulfillment) and social affiliation (e.g., sense of belonging) values may function as grounds for students' favorable attitudes toward entrepreneurial careers. Therefore, it was hypothesized that:

H1: Students' personal values (i.e., self-actualization, social affiliation) will directly influence their attitudes toward an entrepreneurial career.

*Attitude and behavioral intention relationship.* Attitude has been found to be a better predictor of entrepreneurial intent than either personality characteristics or demographics (Kolvereid, 1996; Kuckertz & Wagner, 2010). Robinson, Stimpson, Huefner and Hunt (1991) developed the Entrepreneurial Attitude Orientation scale to assess entrepreneurial attitude via a combination of affect and cognition. Based on a review of literature on entrepreneurial characteristics, the authors identified four constructs (innovation, personal control, need for achievement, and self-esteem) related to attitude toward entrepreneurship. Then they developed a scale to test the constructs using a sample consisting of both entrepreneurs and non-entrepreneurs. The results revealed a significant overall difference between the two groups for all constructs, with the mean of the entrepreneur group being higher than the mean of the non-entrepreneur group for all constructs.

Building on the attitude–behavior relationship, several studies have employed the Theory of Planned Behavior to identify determinants of entrepreneurial intentions among college students in the United States and abroad. Boissin, Brandchet, Emin and Herbert (2009) compared attitudes and intentions between French and American students. Results indicate that attitudes toward the creation of an enterprise were positively related to entrepreneurship intentions for both French and American respondents. Similarly, Kolvereid (1996) sought to predict employment status choice intentions, and specifically self-employment, via the Theory of Planned Behavior and found that attitude, subjective norm, and perceived behavioral control had a more direct impact than demographic characteristics on entrepreneurial intentions.

Based on the link between attitudes toward entrepreneurship and career intention established within the literature, it was hypothesized that:

H2: Students' attitudes toward an entrepreneurial career will directly influence their entrepreneurial career intentions.

Entrepreneurial Knowledge and Skills

*Entrepreneurs.* According to the literature, the types of knowledge important for entrepreneurs are wide ranging, including content as well as domain-specific knowledge (Morris, 1998). Skills exhibited by successful entrepreneurs are also diverse, spanning leadership, management, communication, organization, and opportunity recognition. Recent research has gone beyond identifying types of knowledge and skills to assess the impact on firm performance as well as entrepreneurship success. For example, Sambasivan, Abdul and Yusop (2009) examined the influence of personal qualities, management skills, and opportunity recognition skills of entrepreneurs on venture performance via a survey of 243 small- and medium-sized entrepreneurs in Malaysia. The results revealed that the stronger the personal qualities and management skills, the better the opportunity recognition skills. In addition, the better the opportunity recognition skills, the greater the success of the venture in terms of sales volume and growth.

Based on a review of existing studies on entrepreneurial knowledge, Omerzel and Antoncic (2008) investigated the entrepreneurship knowledge construct and its significance for small- and medium-sized firm performance. They developed a conceptual model consisting of four dimensions (education level, work experience, knowledge about functional disciplines, and self-confidence). A total of 168 entrepreneurs and/or managers of small- and medium-sized Slovenian companies responded to a survey developed to test the model constructs. The authors found that all four dimensions were positively related to entrepreneurship knowledge, which, in turn, was positively linked to firm performance.

In considering the importance of education for entrepreneurial ability, some studies have examined whether and how entrepreneurs' educational background helps them cultivate entrepreneurial knowledge and skills. For example, Uger, Keith, Hilling, Gielnik and Frese (2009) developed and tested a cognitive model of learning within the small firm. The proposed model consisted of cognitive ability, prior knowledge, deliberate practice, current knowledge, and firm performance (as outcomes of deliberate practice activities). Data were collected from a sample of 90 South African business owners. Findings indicated that deliberate practice has a strong, direct effect on entrepreneurial knowledge as well as an indirect effect on business growth via entrepreneurial knowledge. Education showed positive indirect effects on business growth. Cognitive ability was positively related to deliberate practice and to entrepreneurial knowledge and had an indirect effect on business growth.

It is clear from these examples (Omerzel & Antoncic, 2008; Sambasivan et al., 2009; Uger et al., 2009) that successful entrepreneurs possess specific knowledge and skills. What remains unknown is the impact that possession of this knowledge and these skills has upon undergraduate students' career intentions. Evidence (Ede et al., 1998; Peterman & Kennedy, 2003) suggests that the possession of entrepreneurial knowledge and skills may enhance students' attitudes toward entrepreneurship. Consequently, their intentions to engage in entrepreneurial careers after graduation may also be enhanced.

*Students.* Much support can be located in the literature to justify the creation and implementation of course content focusing on entrepreneurship for textiles and apparel undergraduates. Prior to entering college, American students typically have a low level of entrepreneurship knowledge and experience (Kourilsky & Walstad, 1998; Walstad & Kourilsky, 1998). Furthermore, female teenagers tend to believe that they have less ability than male teenagers to become successful entrepreneurs (Wilson et al., 2007). These findings are disturbing and suggest that, if no targeted educational programs are offered to students as they mature, the observed gender gap between women's and men's participation in entrepreneurial careers in the United States will continue to exist (Minniti, Arenius & Langowitz, 2005).

Post-secondary textiles and apparel programs are an appropriate context for targeted entrepreneurship programs because the majority of undergraduate students enrolled in textile and apparel programs are women (Michelman, 2002). When college students participate in courses that feature entrepreneurship-related content, they believe they acquire necessary entrepreneurial knowledge and skills (Okudan & Rzasa, 2006; Smith, Barr, Barbosa & Kickul, 2008). When individuals acquire knowledge about and skills related to attitude objects, their attitudes toward those objects usually become more positive (Horton & Horton, 1990; Murphy-Russell, Die & Walker, 1986). Both Ede et al. (1998) and Peterman and Kennedy (2003) found that high school students' attitudes toward entrepreneurship became more positive after participating in an entrepreneurship program. In other words, high school students' attitudes became more positive when they acquired more knowledge about and skills related to entrepreneurship. Extrapolating from these findings, the more entrepreneurial knowledge and skills that undergraduate students have, the more positive their attitudes toward entrepreneurship should be.

However, in some studies, this relationship between knowledge and skill level and attitude toward course content has not always been found to be positive. Researchers have found that increases in knowledge and skill level can result in decreases in attitudes toward the subject matter (Baker & Piburn, 1991). Evidence exists to suggest that the same negative relationship exists for undergraduates who are exposed to entrepreneurial course content. For instance, Oosterbeek, van Praag and Ijsselstein (2010) examined the impact of entrepreneurship education on entrepreneurship skills and motivation through a comparison of students enrolled in an entrepreneurship education program with students who were not entrepreneurs. The results revealed that the program did not have the intended outcome, as its effect on students' self-assessed entrepreneurial skills was found to be insignificant and the program's effect on their intentions to become entrepreneurs was negative.

These conflicting results suggest that the relationship between knowledge and skill possession and attitude toward the subject matter might not be a direct relationship. Instead, entrepreneurial knowledge and skills might have an impact on attitudes toward entrepreneurship by moderating the relationship that exists between the possession of entrepreneurial values and attitude toward entrepreneurship. Because values were not included in previous studies, the effect of knowledge and skills on attitude toward entrepreneurship may not have been adequately identified. Examining the moderating effects of knowledge and skills on the relationship between

values and attitudes, it is believed that a clearer understanding of the usefulness of entrepreneurship education programs for teaching such knowledge and skills and for increasing students' level of entrepreneurial interest will emerge. Understanding what students think about the knowledge and skills that are important to cultivating a successful entrepreneurial career would provide further dimension to existing research on their decision-making processes. Therefore, the following two hypotheses were developed:

H3: Students' assessment of the knowledge essential to an entrepreneurial career will moderate the relationships between their personal values and attitudes toward an entrepreneurial career.

H4: Students' assessment of the skills essential to an entrepreneurial career will moderate the relationships between personal values and attitudes toward an entrepreneurial career.

## **Method**

### **Sample and Procedure**

Data were collected in a classroom setting using a self-administered questionnaire with textile and apparel undergraduates at four American universities (one located in the southeast, two located in the Midwest, and the fourth located in the west). In fall 2010, a survey was developed and pre-tested based on the literature review. Data collection commenced after receiving approval from the Institutional Review Boards at each of the four universities. College students in textile and apparel programs were the focus of the study because they have expressed a high degree of interest in eventually owning a small business (Hodges & Karpova, 2009). In addition, college students provide a homogeneous sample (i.e., less noise or extraneous variations) which is desirable for theory testing (Calder, Phillips & Tybout, 1981). This sampling frame also provides a relatively closely matched sample across the four universities. Students did not receive extra course credit or an incentive for participating in the study.

Table 1 presents descriptive statistics of the sample. Of the 345 usable questionnaires, approximately 94% (n = 323) of participants were women. The majority (92%) were aged between 18 and 23 years (the mean age was 20.8). Within the sample, 25% were freshmen, 13% were sophomores, 27% were juniors, and 32% were seniors. Seventy-six percentage were Caucasian, followed by African-American (9.3%), Asian (5.0%), Hispanic (3.0%), and all other ethnicities (6%). Approximately one-fourth of participants (25%) reported that they have had entrepreneurial experiences.

### **Measures**

Personal values. Nine items from the LOV scale (Kahle, 1983) were adapted to measure personal values. Participants were asked to indicate on a 5-point Likert-type scale (1 = relatively less important to 5 = extremely important), the importance of each value item in their daily lives (e.g., self-fulfillment, a sense of accomplishment, self-respect). The scale has been successfully employed in studies measuring college students' personal values, showing acceptable levels of reliability. For example, Shim et al. (1999) reported Cronbach's alpha coefficients of .81 for self-actualization and .87 for social affiliation. More recently, Shim and Maggs (2005) reported Cronbach's alpha coefficients of .85 for self-actualization and .67 for social affiliation.

**Table 1. Participants' Demographic Characteristics (*n* = 345)**

<i>Demographic Characteristics</i>	<i>Frequency</i>	<i>Percentage</i>
Gender		
Male	19	5.51
Female	323	93.62
Missing	3	0.87
Class standing		
Freshman	87	25.22
Sophomore	45	13.04
Junior	94	27.25
Senior	110	31.88
Missing	9	2.61
Age (mean)	20.8	
Ethnicity		
Caucasian	261	75.65
African-American	32	9.28
Asian	17	4.93
Hispanic	10	2.90
All others	21	6.09
Missing	4	1.16

Attitudes toward an entrepreneurial career. Attitudes toward an entrepreneurial career measures consisted of 12 items. Three items were adapted from Kuckertz and Wagner's (2010) consumer attitudes toward self-employment scale which reported a satisfactory degree of reliability (Cronbach's  $\alpha$  of .65). Two items were adapted from Kolvereid's (1996) study which reported a high degree of reliability (Cronbach's  $\alpha$  of .83), and one item was adapted from Boissin et al.'s (2009) study where reliability was not reported. The last six items were adapted from Kuckertz and Wagner's (2010) consumer perceived support factors and perceived barriers to becoming self-employed scales but acceptable reliability was reported but alphas were not provided. Participants were asked to indicate on a 5-point Likert-type scale (1 = strongly disagree to 5 = strongly agree), the extent of agreement with each statement (e.g., "I'd rather be my own boss than have a secure job," "I'd rather found a new company than be the manager of an existing one," "I am interested in owning a business someday").

Entrepreneurial career intentions. Scales assessing entrepreneurial career intentions consisted of four items. One item was adapted from Walstad and Kourilsky (1998) but reliability was not reported. The other three items were adapted from Kolvereid (1996), which indicated an acceptable degree of reliability (Cronbach's  $\alpha$  of .89) as well as a satisfactory degree of reliability across cultures (Cronbach's  $\alpha$  of .78 in the USA and  $\alpha = .82$  in France). On a 5-point Likert-type scale, participants were asked to rate one item related to their preference for being self-employed (1 = employed by someone to 5 = self-employed), one item related to their interest in starting/owning their own business (1 = not interested to 5 = very interested), and two items related to pursuing an entrepreneurial career upon graduation and in the next 10 years (1 = unlikely to 5 = likely).

Students' assessment of knowledge and skills. Nine items were adapted from Omerzel and Antoncic (2008) to capture students' self-assessment of the knowledge essential to an entrepreneurial career (e.g., marketing/retailing, quality assurance, strategic management, customer relations, business management and organization). In Omerzel and Antoncic's (2008) study, the scale displayed a high degree of internal consistency, reporting a Cronbach's  $\alpha$  of .89. On a 5-point Likert-type scale, participants rated their knowledge related to different areas of business (1 = very little to 5 = very much). To capture students' assessment of the skills essential to an entrepreneurial career, 11 items were also adapted from Omerzel and Antoncic (2008). Examples of these skills are management, team work, communication, critical/analytical thinking, presentation, ability to manage the self and time, problem solving, preparation and implementation of business plans and so on. On a 5-point Likert-type scale, participants rated their skills related to different areas of business (1 = very little to 5 = very much).

## **Results**

### Exploratory Factor Analysis

Exploratory factor analysis (i.e., principal component factor analysis with varimax rotation) was initially performed on each multiple-item scale. To set the criteria for each factor analysis, factors with eigenvalues greater than 1.0 and items with factor loadings of 0.40 or more on only one factor were retained (Hair, Anderson, Tatham & Black, 1998). For personal values, the sample yielded two factors (three items—security, excitement, and fun and enjoyment of life—were deleted due to high loadings on both factors) with eigenvalues of one or higher that explained 62.95% of the total variance. The first factor (Cronbach's  $\alpha = .73$ ) consisted of four items (self-fulfillment, a sense of accomplishment, self-respect, and being well-respected) with an eigenvalue of 2.60 and variance explained of 43.33%. The second factor (Cronbach's  $\alpha = .69$ ) consisted of two items (sense of belonging and warm relationships with others) with an eigenvalue of 1.18 and variance explained of 19.62%. In addition, factor loadings ranged from 0.72 to 0.86. The first factor was later named the self-actualization value, whereas the second factor was named the social affiliation value.

Related to attitudes toward an entrepreneurial career, the sample yielded three factors with eigenvalues of 3.82, 1.50, and 1.44, respectively, which explained 56.35% of variance. However, when assessing the reliability of each factor, Cronbach's alpha revealed that only factor one with six items displayed acceptable reliability ( $\alpha = .86$ ). The Cronbach's alphas of the other two factors did not display acceptable reliability ( $\alpha = .44$  and  $\alpha = .52$ , respectively). Thus, the first factor was selected as a surrogate for attitudes toward an entrepreneurial career in further analysis. In addition, the proportion of variance extracted by factor one (29.56% with factor loadings ranging from 0.60 to 0.87) was far greater than that extracted by the remaining two factors (below 15% for each factor). This indicates that factor one is the most significant contributor to attitudes toward an entrepreneurial career.

For entrepreneurial career intentions, the sample yielded one factor with an eigenvalue of 3.04 (Cronbach's  $\alpha = .89$ ), indicating that the entrepreneurial career intention construct was unidimensional. The factor loadings ranged from 0.81 to 0.91, and the total variance explained was 76.02%.

Exploratory factor analysis was performed to individually examine whether the knowledge and skills constructs were unidimensional. For students' assessment of knowledge, the sample yielded one factor (one item—quality assurance—was deleted due to low factor loading) with an eigenvalue of 4.59 (Cronbach's  $\alpha = .77$ ), suggesting that students' assessment of the knowledge construct was unidimensional. The factor loadings ranged from 0.68 to 0.81, and the total variance explained was 57.33%. With respect to students' assessment of skills, the sample also yielded one factor (with no item removal) with an eigenvalue of 5.08 (Cronbach's  $\alpha = .72$ ), suggesting that students' assessment of the skills construct was also unidimensional. The factor loadings ranged from 0.53 to 0.73, and the total variance explained was 46.22%.

According to Nunnally and Bernstein (1994), the value of acceptable reliability (i.e., Cronbach's alpha) of all constructs should exceed .70. However, Hair et al. (1998) argue that reliability scores between 0.60 and 0.70 are also acceptable because they represent the lower limit of acceptability. Based on the above results, all measures ranging from 0.69 (social

affiliation value) to 0.89 (entrepreneurial career intentions) demonstrated an acceptable degree of reliability.

### Measurement Model

LISREL 8.8 was employed to estimate the overall measurement model fit and structural model fit for the core model that did not include the moderating variables of knowledge and skills. We followed a two-step structural equation modeling approach recommended by Anderson and Gerbing (1984) to identify patterns in the data. A confirmatory factor analysis was first executed to estimate a measurement model using maximum likelihood in LISREL 8.8. Table 2 presents the statistical results of the measurement model, including standardized factor loadings, standard errors, t-statistics for each indicator, and composite reliabilities and proportion of variance extracted for each construct. The magnitude of standardized loading estimates of the indicators for each construct ranged from 0.36 to 0.93, and all loadings were statistically significant, suggesting convergent validity (Bagozzi & Yi, 1988). In addition, the average variance explained for all constructs except self-actualization exceeded the critical value of 0.50, indicating acceptable convergent validity (Bagozzi & Yi, 1988; Fornell & Larcker, 1981).

**Table 2: Results of Measurement Model (Core Model)**

Construct/Indicators	Standardized Factor Loadings	SE	t	Composite Reliability	Proportion of Variance Extracted (%)
$\xi_1$ (Self-Actualization Value)					
$x_1$ : Self-fulfillment	0.78 <sup>a</sup>	--	--	0.72	40.00
$x_2$ : A sense of accomplishment	0.71	0.092	9.88***		
$x_3$ : Self-respect	0.54	0.083	8.38***		
$x_4$ : Being well-respected	0.45	0.082	7.13***		
$\xi_2$ (Social Affiliation Value)					
$x_5$ : Sense of belonging	0.67 <sup>a</sup>	--	--	0.70	53.71
$x_6$ : Warm relationships with others	0.79	0.230	5.22***		
$\eta_1$ (Attitudes toward Entrepreneurial Career)					
$y_1$ : Be my own boss than have	00.61 <sup>a</sup>	--	--	0.82	50.20

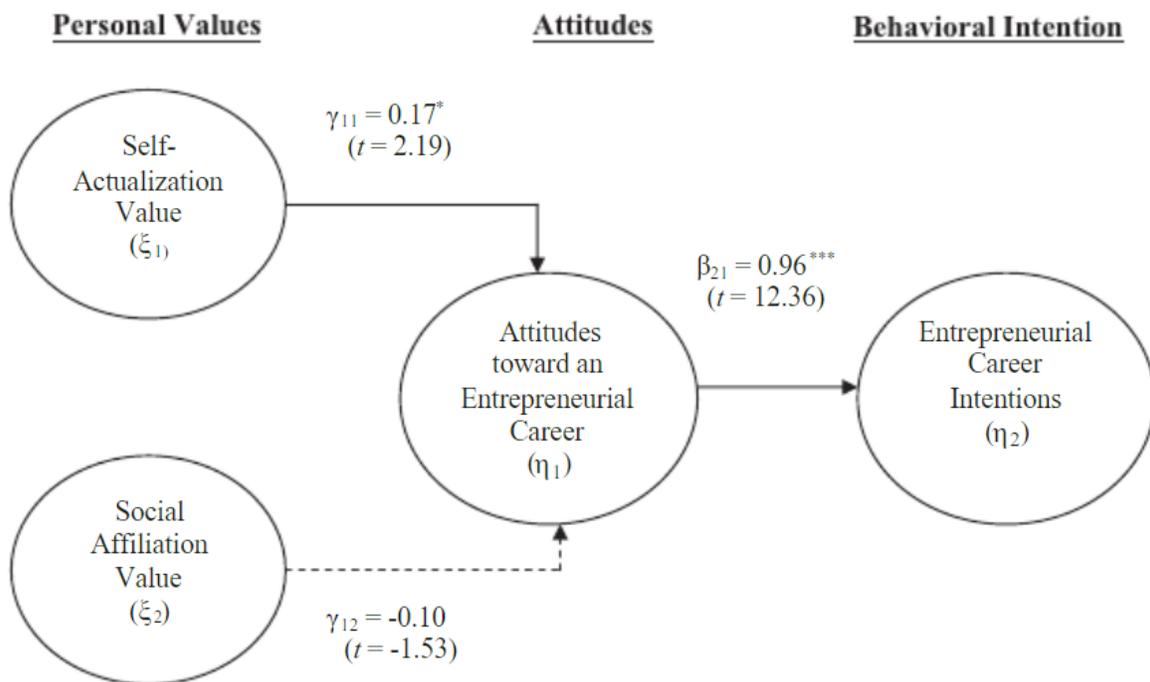
a secure job					
y <sub>2</sub> : Only make big money if self-employed	0.36	0.095	6.29***		
y <sub>3</sub> : Found a new company than be the manager of existing one.	0.57	0.100	9.25***		
y <sub>4</sub> : Starting a business sounds attractive	0.90	0.110	12.98***		
y <sub>5</sub> : Interested in owning a business some day	0.93	0.120	13.21***		
η <sub>2</sub> (Entrepreneurial Career Intentions)					
y <sub>6</sub> : Preference related to running your own business or being employed by someone	0.85 <sup>a</sup>	--	--	0.90	69.00
y <sub>7</sub> : Pursue a career as self-employed upon graduation	0.69	0.055	14.65***		
y <sub>8</sub> : Pursue a career as self-employed in the next 10 years	0.83	0.050	19.48***		
y <sub>9</sub> : Interested in starting/owning business	0.93	0.045	24.20***		

NOTE: <sup>a</sup>The first  $\lambda$  path for each construct was set to 1; thus, no SEs or t values are provided. \*\*\*p < .001.

The correlations among the constructs ranged from  $-.04$  (between social affiliation value and attitudes toward entrepreneurial career) to  $.84$  (between attitudes toward an entrepreneurial career and entrepreneurial career intention), indicating that constructs do not share a substantial portion of their variance. Discriminant validity was also supported using the interval confidence test; in that, the correlation between two latent constructs plus or minus two standard errors does not include one (Fornell & Larcker, 1981). Results revealed that this condition was met for all variable pairs. Last, the composite reliability of all measures ranged from  $0.70$  to  $0.90$  and was also greater than the recommended cutoff value ( $\geq 0.70$ ), indicating satisfactory reliability (Nunnally & Bernstein, 1994). On the basis of these criteria, it was concluded that the measurement model was reliable and valid.

## Structural Equation Model

Structural equation modeling was subsequently performed to test the hypothesized relationships in the model. Results revealed a  $\chi^2(82)$  of 267.42, root mean square error of approximation (RMSEA) of .081, normed chi-square ( $\chi^2/df$ ) of 3.26, comparative fit index (CFI) of 0.96, Tucker Lewis Index (TLI) of 0.95, goodness-of-fit index (GFI) of 0.91, and adjusted goodness-of-fit index (AGFI) of 0.86, suggesting satisfactory fit. A value of RMSEA below .080 indicates a good fit (Bentler & Bonette, 1980). Hayduk (1987) also suggested that GFI, CFI, and TLI values exceeding 0.90 and AGFI values exceeding 0.80 are generally interpreted as representing a good fit. Although the model's chi-square ( $\chi^2$ ) value is significant, this does not indicate a poor fit because chi-square measures are influenced by the sample size (unlike GFI and AGFI; Bentler & Bonette, 1980). In addition, the results revealed that all of the hypothesized paths were significant at  $p < .05$ , except for the path from social affiliation to students' attitudes toward an entrepreneurial career (Figure 1).



**Figure 1: Model predicting students' entrepreneurial career intentions (core model).**

## Hypotheses Results

*Testing using the core model.* H1 proposed that students' personal values (e.g., self-actualization) would directly influence their attitudes toward an entrepreneurial career. The structural model provided partial support for this hypothesis. That is, self-actualization as a value positively and significantly influenced attitude toward an entrepreneurial career ( $\gamma_{11} = .17$ ,  $p <$

.05). However, a significant path between the social affiliation value and attitude toward an entrepreneurial career failed to emerge ( $\gamma_{12} = -.10, p > .05$ ). While the self-actualization value held among these students is likely to lead to favorable attitudes toward an entrepreneurial career, the social affiliation value does not appear to affect their attitudes toward an entrepreneurial career. Thus, the data partially supported H1.

H2 proposed that students' attitudes toward an entrepreneurial career would directly influence their entrepreneurial career intentions. As expected, the structural model provided support for this hypothesis. That is, attitudes toward an entrepreneurial career positively and significantly influenced entrepreneurial career intentions ( $\beta_{21} = .96, p < .001$ ). Students with favorable attitudes toward entrepreneurial careers are likely to express a high degree of intention to pursue an entrepreneurial career. Therefore, H2 was supported.

*Testing for moderating effects.* To examine the moderating effects of entrepreneurial knowledge and skills on the relationship between values and attitudes, participants were each categorized into low and high groups using a median split. When testing for moderating effects, “the levels of the moderator are treated as different groups” (Baron & Kenney, 1986, p. 1175). Likewise, Schumacker and Lomax (1996) state that in testing interaction effects (i.e., moderating effects), “the different samples are defined by different levels of interacting variables” (i.e., low vs. high, p. 216). If interaction effects are present, certain parameters in different samples should reveal different values (i.e., the interaction effects can be determined by the differences in regression slope estimates between samples).

Prior to testing the moderating effect of students' assessment of their entrepreneurial knowledge on the relationships between personal values and attitudes toward an entrepreneurial career (H3), the mean score for entrepreneurial knowledge was calculated. Results revealed a mean score for entrepreneurial knowledge of 3.29 with a standard deviation of 0.81. Employing the median split technique, the mean score was later used to divide the participants into two groups: low ( $M < 3.29$ ) and high ( $M \geq 3.29$ ) levels of entrepreneurial knowledge groups.

Next, LISREL 8.3-SIMPLIS was employed to examine the interaction effects using levels of entrepreneurial knowledge (low vs. high) as a moderator. In testing the hypothesized relationship, we used separate covariance matrices and means for the independent and dependent variables from the two groups of entrepreneurial knowledge (low vs. high), implying that these two models were nested. The differences in chi-square between these two models were examined to determine whether there were any significant differences in the slope estimates. If the chi-square differences between these two models divided by the differences in degrees of freedom was significant, this suggested that there were significant moderating effects between low and high groups of entrepreneurial knowledge.

Table 3 shows the results of the moderating effect of entrepreneurial knowledge on the relationship between personal values and attitudes toward an entrepreneurial career. For the relationship between the self-actualization value and attitudes toward an entrepreneurial career, the difference in the regression slope estimates between low and high groups was 0.06, and the

chi-square difference test revealed a significant difference between these two groups ( $\Delta\chi^2 = 3.39, p < .01$ ). That is, self-actualization had a significant, positive effect on attitudes toward an entrepreneurial career in the high level of perceived entrepreneurial knowledge group, but not in the low level of perceived entrepreneurial knowledge group (SlopeHigh = 0.16 vs. SlopeLow = 0.10). For the relationship between the social affiliation value and attitudes toward an entrepreneurial career, although the chi-square difference test revealed a significant difference in the regression slope estimates between low and high groups ( $\Delta\chi^2 = 6.90, p < .001$ ), the social affiliation value did not significantly affect attitudes toward an entrepreneurial career in either the low or high level of perceived entrepreneurial knowledge groups. Thus, H3 was partially supported.

**Table 3: Results of Moderating Effect of Entrepreneurial Knowledge (Low vs. High Groups)**

Hypothesized Relationships	Low		High			$\Delta\chi^2(1)$ When Slope Values Invariant	p-value
	Intercept	Slope	Intercept	Slope	$\Delta Slope$		
Self-actualization and Attitudes	2.54	0.10	2.29	0.16**	0.06	3.39	<.01
Social affiliation and Attitudes	3.43	-010	3.02	0.011	0.11	6.90	<.001

NOTE: \*\* $p < .01$

In testing the moderating effect of students' assessment of their entrepreneurial skills on the relationships between their personal values and attitudes toward an entrepreneurial career (H4), we followed similar steps as for testing H3. That is, the mean score for entrepreneurial skills was first calculated. Results revealed a mean score for entrepreneurial skills of 3.79 with a standard deviation of 0.63. Employing the median split technique, the mean score was later used to divide the participants into two groups: low ( $M < 3.79$ ) and high ( $M \geq 3.79$ ) levels of entrepreneurial skill groups.

Next, LISREL 8.3-SIMPLIS was employed to examine the interaction effects using level of entrepreneurial skills (low vs. high) as a moderator. Table 4 presents the results of the moderating effect of entrepreneurial skills on the relationship between personal values and attitudes toward an entrepreneurial career. For the relationship between the self-actualization value and attitudes toward an entrepreneurial career, the difference in the regression slope estimates between low and high groups was 0.42, and the chi-square difference test revealed a significant difference between these two groups ( $\Delta\chi^2 = 17.01, p < .001$ ). That is, self-actualization had a significant, positive effect on attitudes toward an entrepreneurial career in the high level of perceived entrepreneurial skills group, but not in the low level of perceived

entrepreneurial skills group (SlopeHigh = 0.49 vs. SlopeLow = 0.075). For the relationships between the social affiliation value and attitudes toward an entrepreneurial career, the chi-square difference test revealed no significant difference in the regression slope estimates between low and high groups ( $\Delta\chi^2 = 0.46$ ,  $p > .05$ ), and the social affiliation value did not significantly affect attitudes toward an entrepreneurial career in either low or high levels of perceived entrepreneurial knowledge groups. Thus, H4 was also partially supported.

**Table 4. Results of Moderating Effect of Entrepreneurial Skills (Low vs. High Groups)**

Hypothesized Relationships	Low		High			$\Delta\chi^2(1)$ When Slope Values Invariant	p-value
	Intercept	Slope	Intercept	Slope	$\Delta Slope$		
Self-actualization and Attitudes	2.60	0.075	0.82	0.49***	0.42	17.01	<.001
Social affiliation and Attitudes	2.80	0.067	2.83	0.022	0.045	0.46	>.05

NOTE: \*\* $p < .001$

### Conclusions and implications

The results of the study establish a model of personal values—attitude—behavioral intention among the respondents and reveal that the self-actualization value significantly influences attitudes, which in turn influences entrepreneurial career intentions. In addition, both entrepreneurial knowledge and skills were found to moderate the relationship between self-actualization and entrepreneurial career attitudes. Thus, the model offers a deeper understanding of the influencing role of personal values and entrepreneurial knowledge and skills on entrepreneurial career choice.

Interestingly, only the self-actualization value was positively related to students' attitudes toward entrepreneurship. This finding may be a result of the emphasis that is typically placed on the individual nature of entrepreneurial employment. The self-actualization value emphasizes one's own accomplishments, which is consistent with the image of entrepreneurs as completely independent business owners (Dodd & Anderson, 2007). The insignificant path between the social affiliation value and students' attitudes toward entrepreneurship may be partly due to the extent to which students believe that starting a business requires more effort and/or hard work as compared to being employed by an organization. From this perspective, it makes sense that self-actualization (e.g., sense of accomplishment, self-respect) would be emphasized more strongly. Moreover, once a business has been started and begins to gain momentum, social affiliation values that are primarily pleasure seeking (such as excitement, fun, enjoying life) may take on greater importance.

In addition, a closer look at the two personal value scores reveals that students tended to place greater emphasis on self-actualization than social affiliation ( $M = 4.58$  vs.  $M = 4.40$ ), which may also help explain the insignificant relationship, as these two personal values are likely to vary depending on the context (Homer & Kahle, 1988; Kahle, 1983). Hence, self-actualization may have a more pronounced effect on students' attitudes toward entrepreneurship than social affiliation at this point in their professional development.

However, entrepreneurs must rely upon their social network for success (Smith & Lohrke, 2008). Positive relationships must be formed between entrepreneurs and their suppliers as well as entrepreneurs and their customers. Thus, the social affiliation value is as important, if not more important, than the self-actualization value for entrepreneurs to possess. For educators, emphasis should be placed on the importance of the social network in course content dealing with entrepreneurship so that undergraduates receive a more complete picture of the world of the entrepreneur. Guest speakers could stress the importance of business relationships as keys to their success. Likewise, shadowing and internship opportunities could be designed to involve the student in observation of a business owner's networking practices in addition to daily business operations.

As expected, students' attitude toward entrepreneurship was positively related to their intention to seek an entrepreneurial career after graduation. Educators should engage in activities designed to increase students' positive attitude toward entrepreneurship. It appears that many textiles and apparel undergraduate students enter their programs with a keen interest in operating their own businesses after graduation (Hodges & Karpova, 2009). Hence, many textiles and apparel undergraduates most likely possess positive attitudes toward entrepreneurial careers. The key is to deliver entrepreneurship course content without discouraging students from pursuing entrepreneurial careers in the future, as was found in previous research (Oosterbeek et al., 2010). Exposure to positive entrepreneurial experiences via class projects or internships should encourage enhancement of positive attitudes and, consequently, entrepreneurial career behavioral intentions.

The results demonstrate that undergraduates' perceptions of their entrepreneurial knowledge and skills moderate the relationship between their personal values and attitudes toward entrepreneurship. Students who believed they had more knowledge and skills with respect to entrepreneurship tended to have more positive attitudes toward entrepreneurship. Subsequently, these students also tended to have greater entrepreneurial career intentions than students with less positive attitudes toward entrepreneurship. Hence, the findings support previous research (Okudan & Rzasa, 2006; Smith et al., 2008) that indicates that participation in entrepreneurial education programs has a positive impact on students' intentions to pursue entrepreneurial careers.

The findings also support the inclusion of personal values in models used to assess the impact of entrepreneurship education programs. The cognitive decision-making model proposed and tested in this study seems to be an effective one for predicting undergraduates' entrepreneurial career intentions as well as examining the influence of entrepreneurial

knowledge and skills on those intentions. In the future, researchers could use the cognitive decision-making model from this study to test the effectiveness of their entrepreneurship education programs by comparing undergraduate students' career intentions before and after participation in the education program. It is important to note that only students' self-perceptions of their level of entrepreneurial knowledge and skills were examined in this study. Future researchers could test the cognitive decision-making model using objective measures of students' knowledge and skill levels before and after exposure to the course content to examine the influence of the course on the students' career intentions.

## References

- Ajzen, I., & Fishbein, M. (1977). Attitude-behavior relations: A theoretical analysis and review of empirical research. *Psychological Bulletin*, 84(5), 888–918.
- Anderson, J. C., & Gerbing, D. W. (1984). The effects of sampling error on convergence, improper solutions, and goodness of fit indices for maximum likelihood confirmatory factor analyses. *Psychometrika*, 49(2), 155–173.
- Bagozzi, R. P., & Yi, Y. (1988). On the evaluation of structural equation models. *Journal of the Academy of Marketing Science*, 16(1), 74–94.
- Baker, D. R., & Piburn, M. (1991). Process skills acquisition, cognitive growth, and attitude change of ninth grade students in a scientific literacy course. *Journal of Research in Science Teaching*, 28(5), 423–436.
- Baron, R. M., & Kenney, D. A. (1986). The moderator–mediator variable distinction on social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology*, 51(6), 1173–1182.
- Bentler, P. M., & Bonette, D. G. (1980). Significance tests and goodness of fit in the analysis of covariance structures. *Psychological Bulletin*, 88(3), 588–606.
- Bilsky, W., & Schwartz, S. (1994). Values and personality. *European Journal of Personality*, 8(3), 163–181.
- Boissin, J.-P., Brandchet, B., Emin, S., & Herbert, J. I. (2009). Students and entrepreneurship: A comparative study of France and the United States. *Journal of Small Business and Entrepreneurship*, 22(2), 101–122.
- Brown, D. (2002). *Career choice and development* (4th ed.). San Francisco, CA: Jossey-Bass.
- Calder, B. J., Phillips, L. W., & Tybout, A. M. (1981). Designing research for application. *Journal of Consumer Research*, 8(2), 197–207.
- Callahan, K. (1993). A predictive model for the marketing of home economics. *Home Economics Research Journal*, 21(4), 422–439.
- Cebula, R., & Lopes, J. (1982). Determinants of student choice of undergraduate major field. *American Educational Research Journal*, 19(2), 303–312.

- Davis, T. (2008). Understanding entrepreneurship: Developing indicators from international comparisons and assessments. In E. Congregado (Ed.), *Measuring entrepreneurship: Building a statistical system* (pp. 39–64). New York: Springer.
- Dodd, S. D., & Anderson, A. R. (2007). Mumpsimus and the mything of the individualistic entrepreneur. *International Small Business Journal*, 25(4), 341–360.
- Ede, F. O., Panigrahi, B., & Calcich, S. E. (1998). African American students' attitudes toward entrepreneurship education. *Journal of Education for Business*, 73(5), 291–296.
- Fayolle, A., Gailly, B., & Lassas-Clerc, N. (2006). Assessing the impact of entrepreneurship education programmes: A new methodology. *Journal of European Industrial Training*, 30(9), 701–720.
- Fornell, C., & Larcker, D. F. (1981). Evaluating structural equation models with unobservable variables and measurement error. *Journal of Marketing Research*, 18(1), 39–50.
- Grant, D., Battle, D., & Heggoy, S. (2000). The journey through college of seven gifted females: Influences on their career related decisions. *Roeper Review*, 22(4), 251–260.
- Hair, J. F., Jr., Anderson, R. E., Tatham, R. L., & Black, W. C. (1998). *Multivariate data analysis* (5th ed.). Upper Saddle River, NJ: Prentice-Hall.
- Hayduk, L. (1987). *Structural equation modeling with LISREL: Essentials and advances*. Baltimore, MD: Johns Hopkins University Press.
- Hodges, N., & Karpova, E. (2009). Making a major decision: An exploration of why students enroll in fashion programs. *International Journal of Fashion Design, Technology and Education*, 2(2), 47–57.
- Hodges, N., & Karpova, E. (2010). Majoring in fashion: A theoretical framework for understanding the decision-making process. *International Journal of Fashion Design, Technology and Education*, 3(2), 67–76.
- Hodges, N., Karpova, E., & Lentz, H. (2010). An investigation of women's career development in the textile and apparel industries. *Family and Consumer Sciences Research Journal*, 39(1), 75–89.
- Homer, P. M., & Kahle, L. R. (1988). A structural equation test of the value-attitude-behavior hierarchy. *Journal of Personality and Social Psychology*, 54(4), 638–646.
- Horton, R. L., & Horton, P. J. (1990). Knowledge regarding organ donation: Identifying and overcoming barriers to organ donation. *Social Science of Medicine*, 31(7), 791–800.
- Howard, J. A., & Woodside, A. G. (1984). Personal values affecting consumer psychology. In R. E. Pitts & A. G. Woodside (Eds.), *Personal values and consumer psychology* (pp. 3–12). Lexington, MA: D.C. Heath & Company.
- Jayawardhena, C. (2004). Personal values' influence on e-shopping attitude and behaviour. *Internet Research*, 14(2), 127–138.
- Kahle, L. R. (1983). *Social values and social change: Adaptation to life in America*. New York: Praeger.
- Kahle, L. R., & Kennedy, P. (1989). Using the list of values (LOV) to understand consumers. *The Journal of Consumer Marketing*, 6(3), 5–11.

- Kim, D., Markham, F. S., & Cangelosi, J. (2002). Why students pursue the business degree: A comparison of business majors across universities. *Journal of Education for Business*, 78(1), 28–32.
- Kolvereid, L. (1996). Predictions of employment status choice intentions. *Entrepreneurship Theory and Practice*, 21(1), 45–57.
- Kourilsky, M. L., & Walstad, W. B. (1998). Entrepreneurship and female youth: Knowledge, attitudes, gender differences, and educational practices. *Journal of Business Venturing*, 13(1), 77–88.
- Kuckertz, A., & Wagner, M. (2010). The influence of sustainability orientation on entrepreneurial intentions: Investigating the role of business experience. *Journal of Business Venturing*, 25(5), 524–539.
- Malgwi, C., Howe, M., & Burnaby, P. (2005). Influences on students' choice of college major. *Journal Of Education for Business*, 80(5), 275–282.
- Mauldin, S., Crain, J., & Mounce, P. (2000). The accounting principles instructor's influence on student's decision to major in accounting. *Journal of Education for Business*, 75(3), 141–148.
- Michelman, S. O. (2002). Department elimination and its relationship to student identity issues: Afeminist perspective. *Clothing and Textiles Research Journal*, 20(2), 53–61.
- Minniti, M., Arenius, P., & Langowitz, N. (2005). 2004 Report on women and entrepreneurship. In *Global entrepreneurship monitor* (pp.1–52). Wellesley, MA: The Center for Women's Leadership at Babson College.
- Morgan, G., & Shim, S. (1990). University student satisfaction: Implications for departmental planning. *Home Economics Research Journal*, 19(1), 47–66.
- Morris, M. H. (1998). *Entrepreneurial intensity*. Westport, CT: Quorum Press.
- Murphy-Russell, S., Die, A. H., & Walker, J. L., Jr. (1986). Changing attitudes toward the elderly: The Impact of three methods of attitude change. *Educational Gerontology*, 12(3), 241–251.
- Nunnally, J. C., & Bernstein, I. H. (1994). *Psychometric theory* (3rd ed.). New York: McGraw-Hill.
- Okudan, G. E., & Rzasa, S. E. (2006). A project-based approach to entrepreneurial leadership education. *Technovation*, 26(2), 195–210.
- Omerzel, D. G., & Antoncic, B. (2008). Critical entrepreneurial knowledge dimensions for the SME performance. *Industrial Management and Data*, 108(9), 1182–1199.
- Oosterbeek, H., van Praag, M., & Ijsselstein, A. (2010). The impact of entrepreneurship education on entrepreneurship skills and motivation. *European Economic Review*, 54(3), 442–454.
- Peterman, N. E., & Kennedy, J. (2003). Enterprise education: Influencing students' perceptions of entrepreneurship. *Entrepreneurship Theory and Practice*, 28(2), 129–144.
- Robinson, P. B., Stimpson, D. V., Huefner, J. C., & Hunt, H. K. (1991). An attitude approach to the prediction of entrepreneurship. *Entrepreneurship Theory and Practice*, 15(4), 13–31.

- Rokeach, M. (1973). *The nature of human values*. New York: Free Press.
- Sambasivan, M., Abdul, M., & Yusop, Y. (2009). Impact of personal qualities and management skills of entrepreneurs on venture performance in Malaysia: Opportunity recognition skills as a mediating factor. *Technovation*, 29(11), 798–805.
- Schiffman, L., Sherman, E., & Long, M. (2003). Toward a better understanding of the interplay of personal values and the Internet. *Psychology and Marketing*, 20(2), 169–186.
- Schumacker, R. E., & Lomax, R. G. (1996). *A beginner's guide to structural equation modeling*. Mahwah, NJ: Lawrence Erlbaum Associates.
- Schwartz, S. H., & Bilsky, W. (1990). Toward a theory of the universal content and structure of values: Extensions and cross-cultural replications. *Journal of Personality and Social Psychology*, 58(5), 878–891.
- Shim, S., & Eastlick, M. A. (1998). The hierarchical influence of personal values on mall shopping attitude and behavior. *Journal of Retailing*, 74(1), 139–160.
- Shim, S., & Maggs, J. (2005). A cognitive and behavioral hierarchical decision-making model of college students' alcohol consumption. *Psychology and Marketing*, 22(8), 649–668.
- Shim, S., & Morgan, G. (1990). Predicting students' attitude and satisfactions: Implications for strategic planning in higher education. *Clothing and Textiles Research Journal*, 8(3), 29–38.
- Shim, S., Warrington, P., & Goldsberry, E. (1999). A personal value-based model of college students attitudes and expected choice behavior regarding retailing career. *Family and Consumer Sciences Research Journal*, 28(1), 25–51.
- Smith, B. R., Barr, T. F., Barbosa, S. D., & Kickul, J. R. (2008). Social entrepreneurship: A grounded learning approach to social value creation. *Journal of Enterprising Culture*, 16(4), 339–362.
- Smith, D. A., & Lohrke, F. T. (2008). Entrepreneurial network development: Trusting in the process. *Journal of Business Research*, 61(4), 315–322.
- Uger, J. M., Keith, M., Hilling, C., Gielnik, M. M., & Frese, M. (2009). Deliberate practice among South African small business owners: Relationships with education, cognitive ability, knowledge, and success. *Journal of Occupational and Organizational Psychology*, 82(1), 21–44.
- U.S. Small Business Administration (SBA). (2009). *The small business economy: A report to the President*. Washington, DC: US Government Printing Office.
- Walstad, W. B., & Kourilsky, M. L. (1998). Entrepreneurial attitudes and knowledge of black youth. *Entrepreneurship Theory and Practice*, 23(2), 5–18.
- Wilson, F., Kickul, J., & Marlino, D. (2007). Gender, entrepreneurial self-efficacy, and entrepreneurial career intentions: Implications for entrepreneurship education. *Entrepreneurship Theory and Practice*, 31(3), 387–406.
- Wilson, F., Marlino, D., & Kickul, J. (2004). Our entrepreneurial future: Examining the diverse attitudes and motivations of teens across gender and ethnic identity. *Journal of Developmental Entrepreneurship*, 9(3), 177–197.