Assessing entrepreneurial career intentions of family and consumer sciences students in higher education: a model testing approach

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Assessing entrepreneurial career intentions of Family and Consumer Sciences students in higher education: A model testing approach

by

Mary Wezi Mhango

A dissertation submitted to the graduate faculty in partial fulfillment of the requirements for the degree of

DOCTOR OF PHILOSOPHY

Major: Textiles and Clothing

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Ames, Iowa

2006

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For the Major Program
In memory of my husband Lt. Colonel Nebert Mhango and my daughter Esnat 
and
To my children Wonani, Miranda and Chandiwira

The love, encouragement, and support of my husband, children and extended family have been exemplary.

"But the greatest of these is love"
1 Corinthians 13:13
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ABSTRACT

The study explains college students’ entrepreneurial attitudes and intentions as they prepare for careers in the field of Family and Consumer Sciences (FCS). It examined relationships between leadership behavior, entrepreneurial intensity, and attitudes as variables explaining and predicting entrepreneurial intentions of FCS students in early stages of their college education. The fundamental assumption was that how FCS students reach program of study and career decisions is inconclusive. A review of relevant theoretical perspectives of entrepreneurial intentions and antecedents guided the development of hypotheses for the study. Entrepreneurial intentions were hypothesized to be the function of FCS students’ perceptions of leadership behavior, entrepreneurial intensity, and attitude toward entrepreneurship.

A Web-based survey was developed and administered to 233 FCS undergraduate students, enrolled in FCS apparel and textiles classes at three public universities in the Midwestern U.S. Structural equation modeling (SEM) using confirmatory factor analysis and path analysis with LISREL 8.50 were employed to test the model.

Results of this study confirm prior findings that attitudes predict intentions (Ajzen, 1987; Krueger et al., 2000; Shapero, 1982). This study substantiates that perceived desirability, perceived feasibility, and propensity to act explain a significant portion of entrepreneurial intentions for FCS students in the early stages of their university education. Findings indicate that entrepreneurial intensity and leadership behavior provide additional insight concerning why FCS students intend to study and pursue business ownership as a career path.
This study represents an initial test of an entrepreneurial intentions model that includes entrepreneurial intensity and leadership behavior for FCS students. It provides a plausible representation of the entrepreneurial intentions theory as conceptualized and serves as the basis for final conclusions. Implications and future research ideas are suggested. Further testing of the theory is necessary for generalization of results beyond this study.
CHAPTER 1. INTRODUCTION

Significance of the study

Interest in the entrepreneurial learning process has increased substantially in higher education. This increase may be attributed to the important contribution of entrepreneurship to economic well-being of individuals and society, changes in the global marketplace, and employment trends (American Association of Family and Consumer Sciences (AAFCS), 2004; Davidson, 2003; Ewing Marion Kauffman Foundation, 2004). One in seven Americans has some form of business, of which 98% hire less than 100 employees (Brockhaus, 2001). This evidence suggests that entrepreneurs develop their own career paths.

Further, the world of work increasingly is changing. Small firms are frequently the major sources of jobs, thus affecting patterns of employment (Kuratko & Hodgetts, 2004). These employment shifts have sparked increased interest in entrepreneurship education. Students graduating from college enter a work environment in which the majority of new job opportunities are created in small and medium-sized firms. Corporate restructuring and downsizing are additional forces driving the increase in small business startups (Lord, 1999). Students in higher education may need to plan for entrepreneurial self-employment as an alternative career path in the face of the changing job market. These developments create challenging entrepreneurial opportunities, leading to a demand for competent entrepreneurs.

The field of Family and Consumer Sciences (FCS) offers abundant entrepreneurial career opportunities. Businesses in areas such as apparel, retail, housing and interior design, restaurants, and human services can stimulate economic development and quality of life for residents in local communities (Henderson, 2002; Marcketti, Niehm, & Fuloria, 2005). The discipline of FCS would be wise to employ educational approaches that may foster the study
of entrepreneurship and enhance the desirability and feasibility of students becoming independent business owners.

Intentions have practical and theoretical implications for entrepreneurial success because initiating a purposeful activity requires unique qualities and mindsets. Entrepreneurs are characterized by the tendency to achieve, their risk-taking propensity, leadership, pursuit of energetic and/or novel activity, and taking personal responsibility for success (Kuratko & Hodgetts, 2004; McClelland, 1961), which lead to entrepreneurial actions (Lumpkin & Dess, 1996). It is plausible that college students who possess these characteristics may be attracted to pursuing a career in entrepreneurship. The essential qualities may be different from those required to prepare students for employment in existing organizations or corporate settings.

The course of action is deeply embedded in how an individual processes information (Krueger, 2000). Students need to demonstrate some degree of planned intent toward their chosen career path. Identifying their fit with entrepreneurship will allow students to formulate a coherent strategic intent to explore and guide future planned actions. Intentions are at the center of strategic, competent planning (Krueger & Brazeal, 1994). Before acting on entrepreneurial career options, students need first to see and reflect on possible opportunities. One’s ability to perceive entrepreneurial alternatives may increase the chances of identifying a satisfying career path.

There is increased interest in studying entrepreneurial intentions, which may be attributed to the fact that they provide vital insights into behavioral processes (Ajzen, 1987, 1991). Literature shows that entrepreneurship is a process for which intention is central (Bird, 1988; Krueger, 2000). However, a limited number of studies explicitly test theory-based process models in entrepreneurship (Gartner, 1988; Krueger, 1993, 2000). Intention
models may provide a sound, practical, and robust framework for enhanced understanding of entrepreneurial processes. Dominant models such as the Shapero-Krueger (Krueger et al., 2000) entrepreneurial intention-based model merit empirical testing regarding their application to various fields including FCS.

Morris (2006) defined entrepreneurship as a process of creating value through unique resource combinations that exploit opportunity. He further describes it as a distinct way of thinking and acting. From this perspective, entrepreneurship implies planned, intentional behavior. Entrepreneurship can be conceptualized as a process in which the individual displays innovativeness, proactiveness, and risk-taking propensity in strategic decision-making (Morris, 1998; Weerawardena, 2003). Morris (1998) identified innovativeness, proactiveness, and risk-taking propensity as three dimensions of entrepreneurial intensity, or the extent to which entrepreneurial events take place. These processes need to be fostered in students at an early stage of their college education in light of changes in the job market and technology.

Higher education institutions are challenged to embark on research and other scholarly activities that foster effective preparation of competent graduates for careers such as business ownership. The Department of Apparel, Education Studies, and Hospitality Management (AESHM) at Iowa State University has undertaken research initiative to enhance entrepreneurship curricula, create visibility and awareness of entrepreneurship opportunities in FCS (Niehm, Gregoire, Austin, & Mhango (2005). The goal of this research project, funded by the Kauffman Foundation and the Pappajohn Center for Entrepreneurship, was to develop learning modules based on critical thinking strategies. The aim was to increase awareness of entrepreneurial opportunities for FCS graduates and self-assessment of
personal fit within entrepreneurial career paths (Niehm et al., 2005). The current study is part of the AESHM department’s initiative. It focused on FCS students’ self-assessment perspective of the research project.

Initially, an experimental research design was employed to examine the effect of a critical thinking approach compared to the lecture method in teaching entrepreneurship. The central hypothesis was to determine the effect of teaching strategy as reflected by a statistically significant difference in scores between the pretest and posttest. A Web-based pretest and posttest survey was developed and self-administered to FCS students enrolled in introductory-level courses at three public universities in the Midwestern U.S. Respondents rated their perceptions of entrepreneurial qualities, attitudes, and intentions toward entrepreneurship. The pretest was administered followed by two separate, 50-minute-long teaching interventions within a week. The posttest was taken by respondents immediately after the second lesson of teaching intervention. Family and Consumer Sciences entrepreneurship learning modules based on critical thinking strategies were developed and used as a teaching intervention for the treatment group of FCS students while a lecture method was used for teaching control group.

Although preliminary results of the experimental design revealed significant improvement in the posttest self-assessment scores, one-tailed t-test results were not statistically significant. These results suggested that the difference between treatment groups and control groups of FCS students was not substantial. These insignificant results likely may be attributed to the short period (within one week) in which the teaching intervention was implemented (Hunk, 2004; McMillan & Schumacher, 2001). The preliminary results prompted a change in the approach and analyses employed in the current study. Thus, this
The study is based only on pretest data drawn from FCS students at three public universities in the Midwestern U.S.

The purpose of the present study was to examine relationships between FCS students’ perceptions of their leadership behavior, entrepreneurial intensity, attitude toward entrepreneurship, and entrepreneurial intentions. It also attempted to validate measures of FCS students’ perceptions with those in the Shapero-Krueger intentions model (Krueger, Reilly, & Carsrud, 2000). The basic principle underpinning the intentions model is that attitudes predict intentions, which in turn predict target behavior (Ajzen, 1987; Krueger, 1993; Shapero, 1982).

**Problem Statement**

The need for growing entrepreneurship as source of economic development and to keep graduates in rural communities necessitates teaching strategies that enhance students’ attitudes and intentions to own business. About one-fourth of the U.S. population is non-metropolitan, and many have lost jobs due to the economic impact of agricultural and manufacturing downsizing (Barkley, 1995). For example, many graduates have left Iowa for jobs in larger cities (Burcum, 2003). Policymakers and educators recognize the importance of entrepreneurship education for nurturing entrepreneurial potential in students. Presently, many university programs including Family and Consumer Sciences (FCS) degree programs, offer entrepreneurship courses (Wild, 2004). Scholars posit that developing a positive perception about the feasibility and desirability of entrepreneurship through education at an early stage may increase the supply of entrepreneurs (Kourilsky, 1995).

While a large number of higher education institutions in the U.S. offer programs to encourage entrepreneurship (Bailey, 2003), the literature is void of means to identify who
may perform effectively in entrepreneurship programs. This study aims to provide empirical
evidence on students’ entrepreneurial attitudes and intentions as they prepare for careers in
the FCS field. The results may be useful for students’ selection into appropriate programs of
study. This information may also help group students according to their entrepreneurial
interests and capabilities, and appropriate teaching strategies may be developed to nurture
competence in entrepreneurship.

One of the underlying assumptions of the present study was that intentions are central
to students’ decisions regarding program of study and career path. Entrepreneurial intentions
models may enhance understanding of entrepreneurship processes such as innovation,
opportunity recognition, risk-taking, and proactiveness (Morris, 1998). Students’
understanding of entrepreneurship processes at early stage of their college education is
critical for making informed career decisions. Empirical evidence is needed to help students
make informed career decisions. Studies have shown that becoming an entrepreneur is a
process of intentional, planned behavior (Bird, 1988; Krueger et al., 2000). Thus, the
population of study was FCS students enrolled in introductory level courses at three selected
public universities in the Midwestern U.S.

Intentions models have been applied successfully to entrepreneurship regarding new
business start-ups (Davidsson, 1991; Krueger, 1993; Reitan, 1996; Shapero, 1982). However,
the literature is void of information concerning the entrepreneurial intentions of FCS
students. In the current study, the Shapero-Krueger intentions model (Krueger et al., 2000) is
extended to include entrepreneurial intensity and leadership behavior as predictors of
attitudes and intentions. The central hypothesis is that FCS students’ entrepreneurial
intentions may be explained by entrepreneurial intensity, leadership ability, and attitudes.
Another assumption of the present study was that theories about how individuals make decisions are critical for curriculum development and teaching strategies. Intention models are valuable for understanding planned, purposive behavior such as decisions about one’s program of study and profession. The foundation of intentions frameworks is that attitudes predict intentions that lead to goal behavior (Ajzen, 1987; Shapero, 1982). In the theory of planned behavior, Ajzen (1987) argues that intentions depend on perceptions of personal attractiveness, social pressure, and perceived ease of performing the task. Shapero’s entrepreneurial event model (1982) further posits that entrepreneurial intentions depend on perceived desirability, feasibility or ease of performing, and propensity to act on opportunities. The Shapero-Krueger intentions model (Krueger et al., 2000) builds on Ajzen’s theory of planned behavior and Shapero’s entrepreneurial events intentions model to explain and predict entrepreneurial activity.

Educators may use the outcome of FCS students entrepreneurial intentions model to design learning activities that target student behavior and shape their attitudes and intentions. They may apply the intentions model to strategic curricula decision-making such as experiential teaching strategy to increase perceptions of the feasibility and desirability of FCS-related business ventures. The mission of FCS to improve quality of life for individuals and families (AAFCS, 2004; Brown, 1993) hinges to a large extent on fostering economic and community development. FCS programs that increase students’ perceived feasibility, desirability, and propensity may also increase entrepreneurial business formations in areas such as apparel and textiles, human development and consumer services, hospitality, and nutrition.
An additional impetus for entrepreneurship education in FCS may be its potential in facilitating women-owned businesses, which have substantial impact on the economy and employment. Women-owned businesses generated $819 billion in revenues in 2000 in the U.S., and employed more than seven million workers (Kuratko & Hodgetts, 2004). Women start businesses for a variety of reasons, such as the need to provide income and a more flexible work schedule to ensure better care for their families (Brackery, 1998). Limited progress has been made with respect to integration of issues related to women entrepreneurs into entrepreneurship curricula (Brush, Carter, Gatewood, Greene, & Hart, 2004). FCS programs, which have been traditionally female-dominated, may prepare students for self-employment. The effectiveness of FCS curricula may be improved through application of relevant theoretical frameworks such as the intentions model that is critical to professional choices.

The present study also assumed that intentions are a function of attitudes (Ajzen, 1987; Krueger, 1993; Shapero, 1982), leadership behavior, and entrepreneurial intensity. The Consortium for Entrepreneurship Education (2004) asserts that entrepreneurship education can impact students positively at the post-secondary education level in various ways. This group of educators, working with the National Content Standards for Entrepreneurship Education, states that outcomes of entrepreneurship education in higher education include changes in personal and career attitudes and intentions. These experts also identified potential benefits of entrepreneurship education to college students, such as change in attitude toward entrepreneurship, fostering self-awareness, personality responsibility or self-management, motivation, problem solving, creativity, and skills in business startup as some of the benefits of entrepreneurship education. The challenge for FCS programs is to employ
theoretical frameworks that enhance understanding of students’ entrepreneurial intentions and course of action. This replicable, sustainable process may impact life quality in a variety ways, including personal and business decisions, community contribution and leadership, resource decisions, and maximizing intended outcomes.

The fundamental assumption in this study was that how FCS students reach program of study and career decisions is inconclusive. While many studies have examined the relationship between perceived desirability, perceived feasibility, propensity to act, and intentions (Ajzen, 1987; Krueger, 1993; Krueger et al., 2000; Shapero, 1982), there is a gap in the literature concerning theory-based knowledge of entrepreneurial intensity, leadership behavior, attitudes toward entrepreneurship, and intentions. The present study addresses this theoretical intentions gap in the context of FCS students in their early stages of higher education. This is the stage at which students may be expected to make critical decisions regarding their intended program of study for a profession of interest.

The decision to study and pursue a chosen career may be perceived as intentional behavior. Students consider what to study in preparation for an intended profession including business ownership. Thus, taking a course of action regarding what to study and which career to pursue may be perceived as a planned, intentional behavior that could be used to explain and predict the entrepreneurship process. It is assumed that all students have entrepreneurial potential and are able cognitively to process information that may affect entrepreneurial attitudes and intentions (Morris, 1998).

Research shows that behavioral intentions depend on the degree to which an individual has a favorable appraisal of or is attracted to the particular behavior, perceived pressure (social norms) to perform the behavior, and perceived ease of performing
(feasibility) the behavior (Ajzen, 1987, 1991). From an entrepreneurial perspective, Krueger (1993) and Shapero (1982) show that intentions depend on desirability, feasibility, and propensity to start a business venture. Undergraduate students who have been exposed to business experiences logically may desire and perceive entrepreneurship as a process leading them to a feasible career alternative, which may shape their intentions to study entrepreneurship. Studies have shown that intentions are the best predictor of any planned behavior, including entrepreneurship (Krueger et al., 2000).

A number of studies have applied intentions theory to entrepreneurship regarding business start-up behavior (Davidsson, 1995; Krueger, 1993; Shapero, 1982). However, the literature is void of intention theory applications to FCS students’ career decisions and choices made at the early stages of their college education. Students face critical decisions in planning programs of study for an intended career which will determine their future livelihood. Theoretical frameworks that increase understanding of the antecedents of intentions are critical for fostering educational strategies that enhance students’ attitude toward specific career path. To better understand the path to professional entrepreneurship, this study examines relationships between perceptions of entrepreneurial qualities and professional entrepreneurship intentions. More research also is required to provide empirical evidence that entrepreneurial intentions can be predicted (Krueger & Brazeal, 1994; McMullan, Chrisman, & Vesper, 2002). Testing the plausibility of a hypothesized intentions model using data drawn from FCS undergraduate students enrolled in introductory apparel-related courses is a step toward understanding entrepreneurial intentions.

FCS undergraduate students are most likely expected to make decisions about the program of study for an intended career at early stage of their higher education. While
several studies have successfully applied intentions models to explain and predict entrepreneurial process regarding business start-up behavior (Davidson, 2003; Davidsson & Persson, 1999, Krueger, 1993; Shapero, 1982), there is no empirical evidence of intentions model application to FCS students at their entry level of higher education. This theory-based knowledge of students’ intentions at college education entry level may have critical implication for curriculum design and implementation strategy, university-wide student intake for specific programs of study, and students’ career orientation programs.

In addition, prior entrepreneurial intentions models (i.e., SEE model (1982), Shapero-Krueger model of entrepreneurial intentions) may not adequately be used to explain students’ entrepreneurial intentions as it does not go beyond attitudes to encompass other factors such as entrepreneurial intensity and leadership behavior that are critical in the entrepreneurship process (Bass, 1997; Morris, 1998). College students possess unique personal attributes, which account for their entrepreneurial or non-entrepreneurial behavior. These attributes are learned through modeling, experience, and the education system (Deakins & Freel, 1998). Research suggests that families who own a business serve as role models and are a good predictor of younger family members becoming entrepreneurs at some point in life (Scheler, Brodzinski, & Wiebe, 1991). A majority of students perform entrepreneurial activities with parents and friends who own business (Henderson & Robertson, 2000). This may affect their attitudes and entrepreneurial intentions.

There are different schools of thought regarding entrepreneurial intentions. The social psychology paradigm suggests that intentions predict behavior, particularly rare and difficult-to-observe behavior (Ajzen, 1987; Bird, 1988; Katz & Gartner, 1988). The business perspective of entrepreneurship emphasizes intentions as a way of thinking that focuses on
the decisions and actions necessary for starting a business venture (Krueger, 1993; Krueger et al., 2000; Morris, 2006; Shapero, 1982). The premise is that intentions predict planned behavior, such as starting a new business (Ajzen, 1991; Krueger, 1993). From this viewpoint, the entrepreneur thinks about an opportunity by processing cues from the environment, such as a market niche, and turns the opportunity into a viable business venture (Krueger et al., 2000). Such empirical evidence suggests that becoming an entrepreneur is indeed intentional, planned behavior (Katz & Gartner, 1988; Shapero, 1982). Studies also have suggested that individuals may be more inclined to pursue entrepreneurship if they are aware and believe that they possess the necessary skills to function in such an environment (Boyd & Vozikis, 1994; Chen, Greene, & Crick, 1998; Krueger & Brazeal, 1994). To extend the validation of this theoretical perspective it is necessary to develop and refine measures of entrepreneurial intentions. Models that reflect how individuals make decisions and take action are needed, particularly for college students who face critical decisions regarding career paths.

The Study Objectives

Intentions are central to the process of identifying a course of action in preparing for an entrepreneurial career. The first objective of this study was to test a model of FCS students’ entrepreneurial intentions guided by the Shapero-Krueger model of entrepreneurial intentions (Krueger et al., 2000). The second objective was to examine relationships between FCS undergraduate students’ perceptions of their leadership behavior, entrepreneurial intensity, attitude toward entrepreneurship, and entrepreneurial intentions. The key research question addressed was: What effect does students’ perception of their leadership behavior, entrepreneurial intensity, and attitude toward entrepreneurship have on their intentions to study and pursue a business career path?
College graduates who exhibit entrepreneurial behavior and attitudes increasingly are needed for developing the economies of countries (Roffe, 1996). However, the literature lacks empirical work that directly addresses effective teaching strategies for fostering entrepreneurial attributes in would-be entrepreneurs. The present study assessed the plausibility of a hypothesized intention model using data from a sample of FCS students. A process-based perspective of studying entrepreneurial intentions has become increasingly popular (Davidsson, 1995; Krueger, 1993; Krueger & Brazeal, 1994; Krueger & Carsrud, 1993; Reitan, 1996). The current study parallels this approach, as it tests and builds a model that incorporates a number of process variables such as entrepreneurial intensity and leadership behavior, thought to influence entrepreneurial intent. The proposed model also builds on frameworks suggested in recent research (Krueger et al., 2000), developing an application tailored to higher education learning environments for FCS students. Undergraduate FCS programs equip students with technical expertise applicable to businesses or industries such as hospitality, fashion, housing, human service, and interior design (Marcketti et al., 2005; Morrison, Rimmington, & Williams, 1999). Inclusion of entrepreneurship in FCS programs may not only equip them with business skills, but shape their attitudes and intentions to own business at some point in their lives.

**Intentions Theoretical Framework**

A variety of intention models have been developed that attempt to explain the nature of processes underlying intentional behavior. Dominant models of intentions, including Shapero’s Entrepreneurial Event (SEE) model, suggest that individual background experiences affect attitudes, which in turn influence intentions that lead to action or behavior (Ajzen, 1987, 1991; Shapero, 1982). The more favorable the attitudes and subjective norms
with respect to the behavior, and the greater the perceived behavioral control, the stronger the intention to perform the behavior. The SEE model demonstrates that intentions are influenced by perceptions of self-efficacy and control, perceived personal desirability and feasibility of performing an entrepreneurial task, and propensity to act (Krueger, 1993; Shapero, 1982). Intentions models that guided model testing for this study are discussed in detail in Chapter Two.

**Leadership behavior**

Entrepreneurial leadership refers to entrepreneurs’ ability to envision, think purposefully, and work with others to initiate change that creates a viable business (Kuratko & Hodgetts, 2004). PCS students who aspire to become self-employed also may perceive themselves as dynamic with the ability to vision and initiate feasible business projects. Positive perceptions of ability to facilitate innovation and translate it to desirable and feasible business activity may affect entrepreneurial intentions (Kuratko & Hodgetts, 2004). In this study leadership behavior consisted of two factors: charisma and vision. Students assessed their entrepreneurial charismatic and visionary abilities.

The ability to work and get along with others to make dreams a reality may help students identify their entrepreneurial intentions. Thriving entrepreneurs take initiative, are tough and highly committed, and try new things for productive purposes (Ambramovitch, 1994; Duke, 1996). Students who perceive themselves as having the ability to innovate, set, and achieve goals through their own efforts may have positive entrepreneurial intentions.

**Entrepreneurial intensity**

Students enter college with differing amounts and degrees of entrepreneurial background. Morris (1998) defined entrepreneurial intensity as the frequency or amount with
which entrepreneurial events occur, and the degree or extents to which events are innovative, risky, and proactive. He argues that each of the three dimensions—innovativeness, risk-taking, and proactiveness—can vary independently and simultaneously in both frequency and degree. Morris (1998) further identified education and collective personal life experiences in society as critical in supporting or undermining entrepreneurial intensity. FCS students' perceptions of their level of fit with entrepreneurship may affect their entrepreneurial attitudes and intentions.

Entrepreneurs are characterized by their tendency to achieve, calculated risk-taking, self-awareness, leadership, ability to make decision under uncertainty, tolerance for ambiguity, preference for energetic and novel activity, internal locus of control, and self-efficacy (Lambing & Kuehl, 2003; McClelland, 1961; Mueller & Thomas, 2001). FCS students who rate themselves high on these characteristics may desire to pursue a career in entrepreneurship. In the present study entrepreneurial intensity encompasses entrepreneurial decision-making and problem solving, tendency to achieve, self-awareness, and personal values.

**Attitude toward entrepreneurship**

Research indicates that intentions predict and explain targeted behavior, and that attitudes toward a behavior affect intentions (Ajzen, 1987, 1991; Krueger, et al, 2000). Ajzen’s theory of planned behavior (1987) suggests that attitudes toward a behavior consist of feelings based on expectancies, social norms, and the attitude of perceived behavioral control (Ajzen, 1987; Ajzen & Fisbein, 1980). Perceived behavior control suggests that behavior is within the decision-maker’s control, an essential precondition for behavior to be
feasible personally (Ajzen, 1987). College students are at a stage in life when learning experiences may influence attitudes, which in turn can affect their entrepreneurial intentions.

Krueger, Reilly, and Carsrud (2000) propose that because the act of initiating a new venture typically is a planned behavior, the construct of entrepreneurial intention can be used as a reliable predictor of the individual taking further entrepreneurial actions. Accordingly, the present study contends that students’ perceived desirability, feasibility, and propensity to undertake a course of study in entrepreneurship will influence intentions, and ultimately entrepreneurial actions, positively impacting their career path.

**Entrepreneurial intentions**

Intentions are crucial to understanding the entrepreneurship process. Intention refers to the degree of commitment toward a specific target behavior, such as a goal to start a business (Krueger, 1993). This definition reflects that the target behavior is purposely planned. In the present study entrepreneurial intention is defined as the degree of commitment toward a goal to study and pursue a career in entrepreneurship. Presumably, students’ goal behavior is identified by the time they enter college. Once the intended goal is identified, students can plan actions and behave to reach the target.

It is important to understand that intentions depend on critical antecedents such as attitudes. Research reveals that personal and situational experiences indirectly affect intent by affecting these critical antecedents. Role models, for example, tend to facilitate entrepreneurial activity only if they influence perceptions of desirability and feasibility of performing a business activity (Krueger, 1993, 2000; Shapero, 1982).

Testing entrepreneurial intentions models and enhancing the validation of measures that include individuals’ self-assessments of their fit with entrepreneurship will contribute to
theory building in the field of entrepreneurship. Studies have shown that attitudes have significant influence on entrepreneurial intentions. It was the contention of this study that FCS students will demonstrate perceptions and attitudes consistent with the Shapero-Krueger entrepreneurial intentions model. Successful application of this model requires a better understanding of the key conceptual and empirical issues.

**Definitions of terms**

The following terms are operationalized for this study concerning entrepreneurship and entrepreneurial intentions of FCS students.

**Entrepreneurship**—a process of thinking and behavior to create value through unique resource combinations that exploit an opportunity (Morris, 2006).

**Entrepreneurial intentions**—the degree of commitment toward a specific planned, targeted behavior, such as study entrepreneurship and pursue a career that involves entrepreneurship.

**Attitude toward entrepreneurship**—the desirability, feasibility, and propensity to take action such as to study entrepreneurship and to own business at some point in life.

**Leadership behavior**—refers to taking initiative and personal responsibility in guiding others to make a difference. It is the tendency to be charismatic or compelling and visionary.

**Entrepreneurial intensity**—The level of fit with entrepreneurship as perceived by one’s ability consistently to exhibit innovativeness, proactiveness, and risk-taking in performing activities or processes (Lumpkin & Dess, 1996; Morris, 1998).

**Summary**

Intentions models are valuable for understanding and explaining college students’ intentions regarding an entrepreneurship program of study and profession. Higher education institution could use the knowledge to design effective curricula and teaching strategies that
may shape students’ attitudes and professional intentions. The purpose of the study was to test the FCS students’ entrepreneurial intentions model and to examine relationships between leadership behavior, entrepreneurial intensity, and attitudes as variables explaining and predicting entrepreneurial intentions of FCS students. The study focuses on model testing and building based on intentions frameworks from prior studies. Shapero-Krueger’s model of entrepreneurial intentions (Krueger et al., 2000) and other relevant intentions models that guided the hypothesized entrepreneurial intention model for this study are discussed in detail in the next chapter.
CHAPTER 2: LITERATURE REVIEW

Introduction

This study was based on an integrated conceptual framework supported largely by the Shapero-Krueger entrepreneurial intentions model. Other frameworks applied in this study are the theory of planned behavior (Ajzen, 1987, 1991) and Shapero's entrepreneurial event (SEE) model (Shapero, 1982). The concept of entrepreneurial intentions is used as a measure for entrepreneurial attitudes of an individual and resulting professional intention. The intention antecedents are characterized through three different dimensions: entrepreneurial intensity (innovative, proactive, and risk-taking), leadership (charisma and vision), and attitude factors (the desirability, feasibility and propensity to act). Intentions antecedents are entrepreneurial qualities, which are desirable and acquirable (Timmons, 1994). It is hypothesized that these antecedents affect professional entrepreneurial intentions in early stages of higher education. A model defining relationships between the antecedent factors and professional entrepreneurial intentions of FCS students is presented drawing on the combined entrepreneurial intentions models (Krueger et al., 2000).

Students' decision to pursue higher education for a specific career is generally planned and intentional. Research supports the contention that career decisions are planned, thus reflecting some degree of cognitive processing. Further, profession-related decisions including entrepreneurial careers reflect a process in which attitudes and intentions evolve as individuals cognitively process their knowledge (Davidsson, 1991; Katz, 1992; Lent, Brown, & Hackett, 1994). It is likely that students may develop attitudes toward entrepreneurship
Entrepreneurial intensity, defined as the frequency or the amount with which entrepreneurial events occur, and the degree to which events are perceived as innovative, proactive, and risky (Morris, 1998), has implications for the intentions model. Timmons (1994) identified leadership, decision-making and problem solving, tendency to achieve or motivation to excel, and entrepreneurial values as desirable and acquirable entrepreneurial intensity. It is important to examine these characteristics and understand their effect on entrepreneurial attitudes and intentions in the context of the present study. Research has shown that individuals may be more inclined to pursue entrepreneurship if they are aware of and believe that they possess qualities essential to functioning in such an environment (Boyd & Vozikis, 1994; Chen, Greene, & Crick, 1998; Krueger & Brazeal, 1994). Attitudes toward entrepreneurship and intentions are implicit in these research findings. However, apart from personality traits, leadership and entrepreneurial intensity have not been featured in the intention models. A college student who is aware of their entrepreneurial intensity may be attracted to preparation (take entrepreneurship courses and participate in internships) for an intended career in entrepreneurship. Thus, entrepreneurial intensity is included as antecedent of entrepreneurial intentions in the present study.

Conceptual frameworks that explain factors and influences which shape individuals intentions to start business are widely recognized (Autio et al., 1997; Bird, 1988; Davidsson, 1995; Krueger, 1993). To understand the path to entrepreneurship better, this study examines relationships between perceptions of entrepreneurial intensity and intentions to study entrepreneurship and own a business in future. This chapter presents a review of theoretical
perspectives of entrepreneurial intentions and antecedents. Intention models that guide the present study are discussed. Entrepreneurial intentions are hypothesized to be the function of perception of leadership behavior, entrepreneurial intensity and attitude toward entrepreneurship.

**Entrepreneurial Intentions: Models and Underlying Theory**

Intention-based models describe how internal influences (such as perceptions of resource availability) change intentions, and ultimately, venture creation (Krueger, 1993). A number of intention models have been developed to explain processes underlying intentional behavior. These entrepreneurial intentions models are grounded, to a large extent, in the theory of planned behavior (Ajzen, 1987, 1991) and in Shapero’s entrepreneurial event (SEE) model (Shapero, 1982). Research reveals that attitudes explain over 50% of the variance in intentions and intentions account for over 30% of variance in behavior (Kim & Hunter, 1993). Empirical evidence further indicates that intention is a significant predictor of career choice (Lent et al., 1994). College students face professional decisions that may be explained and understood through the intentions model.

Prior studies have focused largely on the intentions to start a business (Davidsson, 1995; Krueger, 2000; Shapero, 1982). A few studies involving university students have addressed the effects of employment status and the balancing of home and family demands (Autio, Keeley, Klofsten, & Ulfstedt, 1997; Robinson & Sexton, 1994). The current study focuses on students’ entrepreneurial intentions at an early stage of college education when they face critical decisions about programs to study for an intended profession. It is hypothesized that perceptions of desirability and feasibility are related to intentions to study and pursue a career in entrepreneurship. In addition, leadership behavior and entrepreneurial
intensity are incorporated as antecedents to test their effect on entrepreneurial attitudes and intentions. Next, relevant intention models are presented, that may help explain FCS students' perceived entrepreneurial intensity, leadership behavior, attitudes, and intentions to study and pursue a profession that involves entrepreneurship.

**Theory of Planned Behavior**

The theory of planned behavior (TPB) argues that attitudes predict intentions, which in turn explain target behavior (Ajzen, 1987). The premise in Ajzen’s theory of planned behavior is that personal attitudes are influenced by outcomes from performing a goal behavior (Ajzen, 1987, 1991). The TPB suggests three antecedents of intentions: personal attitude toward behavior effects, perceived social norms, and perceived ease of performing the behavior (Ajzen, 1987, 1991; Ajzen & Fishbein, 1980). Personal attitude toward behavior refers to the extent to which a person holds favorable appraisal for a particular behavior. The social or subjective norm is defined as perceived pressure to perform the behavior. It refers to perceptions of what a person of importance to the student thinks about a particular behavior. In the current study, FCS students assess the influence of parents and other people that own business, as well as personal entrepreneurial values. Both personal attitude toward behavior outcome and perceived social norms reflect desirability of performing behavior.

The perceived ease of performing a behavior suggests that the behavior is within the decision maker’s control, a necessary precondition for the behavior to be personally feasible (Ajzen, 1987). The theory further contends that the more favorable the attitude and pressure to perform a behavior, the greater the perceived behavioral control, and the stronger the intention to perform the goal behavior.
The theory of planned behavior also argues that perceived desirability and feasibility of performing an activity are learned (Ajzen, 1991). For example, to increase students’ attitude toward entrepreneurship, raising perceptions of their likelihood to operate successfully and sustain a business venture may increase expectancies. Prior exposure to diverse life experiences and learning experiences may also help students recognize a wide range of desirable entrepreneurial career options. Therefore, positive relationships are likely to exist between life experiences and attitudes toward entrepreneurship. The TPB has been used with success in practical applications as well as in basic research (Krueger & Carsrud, 1993). However, the TPB does not include propensity to act, a critical aspect addressed in Shapero’s entrepreneurial event model that is discussed next.

**Shapero’s Entrepreneurial Event (SEE) Model**

Shapero (1982) proposed an intentionality-based process model (Shapero’s Entrepreneurial Event or SEE model). The SEE model (Figure 2.1) posits that a change in behavior requires some kind of disruption, a general fact that may also apply to students’ decision to study and pursue a career in entrepreneurship. The premise is that the decision to perform an entrepreneurial activity requires a pre-existing attitude toward the activity as desirable and feasible, as well as propensity to act on opportunities. Although disruption tends to be a negative factor, it also may be positive where individuals are attracted to entrepreneurship by entrepreneurial training or an innovation (Stewart, Watson, Carland, & Carland, 1999).

The SEE model (Shapero, 1982) incorporates the influence of environment, and the notion that entrepreneurial behavior is planned and intentional (Krueger et al., 2000). This approach is process-focused in that the interactions of several factors are examined in order
to predict behavior. The foundation of this theory is that the intent and behavior are dependent on perceived personal desirability and feasibility of the endeavor.

Shapero (1982) defined perceived desirability as the degree to which one finds the prospect of starting a business to be attractive. Perceived feasibility refers to the extent to which one believes that she or he is capable of performing the task such as starting a business venture. It refers to personal propensity to act on one’s decisions. This perspective may be useful for examining different initiatives for entrepreneurial training and support in higher education, since these often deal with attitude change and an increase in self-confidence (Krueger & Brazeal, 1994). The propensity to act is what differentiates the SEE model (1982) from the TPB (1987).

Figure 2.1 Shapero Entrepreneurial Event (SEE) Model

Shapero-Krueger model of entrepreneurial intentions

The Shapero-Krueger entrepreneurial intentions model (Figure 2.2) is based on two intention models: Ajzen’s (1987, 1991) theory of planned behavior (TPB) and Shapero’s (1982) model of entrepreneurial event (Krueger et al., 2000). The model is based on the interaction between personal characteristics, perceptions, values, beliefs, background, and environment (situational context) (Krueger & Brazeal, 1994). For example, in the case of entrepreneurial intention, the model uses a person’s attitude toward the act of becoming an entrepreneur, subjective norms, and the perception of one’s ability to act on targeted activity. Attitudes are formed as a result of a person’s expectations and beliefs about the impact of outcomes of performing the entrepreneurial behavior. Outcomes may include wealth, stress, autonomy, or community benefits (Krueger et al., 2000). Students studying entrepreneurship may develop attitudes that potentially change their professional expectations.

Figure 2.2. Shapero-Krueger model of entrepreneurial intentions

According to the Shapero-Krueger model, entrepreneurial intentions are also influenced by perceptions of self-efficacy and control and the perceived personal desirability of performing an entrepreneurial act. The perceived desirability represents the relative attractiveness of the entrepreneurial opportunity. This reflects both personal preferences and attitudes in the particular environment. The more favorable the attitudes and subjective norm with respect to the behavior, and the greater the perceived behavioral control, and the stronger the intention to perform the behavior. Thus, this model is useful for examining students' perceptions of their entrepreneurial intensity or level of fit with entrepreneurship.

Research Hypotheses

In the present study, the antecedents of entrepreneurial intention (such as desire to take courses and pursue a career path that involves entrepreneurship) in FCS students are identified and explored. However, the Shapero-Krueger model does not include aspects of entrepreneurial intensity that may affect students' perceived entrepreneurial attitude and intentions. Thus, the present study expanded the Shapero-Krueger model to include leadership behavior and entrepreneurial intensity.

Leadership behavior

Leadership is about interacting with people (Morrison, Rimmington, & Williams, 1999). Personal and professional values and enhancing performance are central to entrepreneurship. Effective leaders use their knowledge or competencies to make things happen (Boyatzis, 2004). They provide visionary, strategic, and operational leadership often associated with actions and responsibilities (Van Slyke & Newman, 2006). Entrepreneurs perform leadership functions such as providing vision to the development of new service or process; decision-making and problem solving (Fernald, Solomon, & Tarabishy, 2005).
Students who inspire others and influence change may recognize their fit with entrepreneurship.

Leaders are expected to act as role models and to be authentic. Entrepreneurs demonstrate these leadership qualities. They organize others and tap into the knowledge and expertise required in different aspects of the business venture (Garavan & O’Cinneide, 1994). Entrepreneurial leaders are self-starters, set high standards, are team builders, possess a high degree of interpersonal skills, are good learners and teachers, and exercise both patience and urgency (Timmons, 1994). Entrepreneurs network or build purposeful relationships and work with others to initiate change that creates a viable future for business and community (Kuratko & Hodgetts, 2004). These qualities may affect their attitudes and entrepreneurial intentions. Bass (1997) found a positive correlation between transformational leadership and effective selling by salespersons. In this study leadership behavior represents the characteristics of influencing others, self-confidence, sense of responsibility, vision, and a need for change. Students who perceived themselves as possessing leadership qualities may have positive attitudes toward entrepreneurship, which may affect entrepreneurial professional intentions.

**Charisma**

Charismatic leaders inspire followers to develop a sense of pride and ownership in the activity. Followers who trust, admire, and respect their leader are motivated to do more or aim for high performance (Miles, 1998). Research shows positive correlations between leaders with high self-awareness and entrepreneurial transformation leader (Sosik & Mergerian, 1999). Entrepreneurs stimulate others to tap into the knowledge and expertise required in different aspects of a firm (Garavan & O’Cinneide, 1994). They build confidence...
in followers and inspire them to realize goals and think creatively, and thus encourage empowerment. All these qualities suggest entrepreneurs’ charismatic tendency to lead and see that ideas become a reality.

Charismatic leaders exhibit power and self-confidence, and have enabling personalities to stimulate followers’ awareness, perception, and values of intended outcomes (Bass, 1990a). Ross and Offerman (1997) found that the enabling characteristic of a leader had the greatest predictive power. In this study charisma represents characteristics of highly influencing others. FCS students self-assessed their perceptions as role models others tend to follow. Students who perceive themselves as being charismatic are inclined to pursue entrepreneurial studies to increase the feasibility and propensity to pursue entrepreneurial opportunities.

Successful entrepreneurs are self-starters and tend to get along with others. They take initiative, and are resilient, obsessive, highly committed, and willing to try new things for productive purposes (Ambramovitch, 1994; Duke, 1996). Students who are self-starters with ability to innovate, set, and achieve goals through their own efforts may have positive attitudes and inclination toward entrepreneurial behavior.

Vision

Entrepreneurs possess leadership qualities that allow them to be visionary and think ahead. Capacity to visualize is an important part of business startup activities (Lumpkin & Dess, 1996). The capacity is determined by factors such as managerial vision that is realistic and feasible (Fernald et al., 2005). In the present study FCS students assessed the extent to which they take the lead in a group, and/or are often ahead of others. The goal is to picture and maximize potential and outcomes for the intended activity.
The correlation between leadership behavior and entrepreneurial intensity is critical in model building. Nomological validity is evaluated using correlation between constructs, providing insight into the underlying structural model (Byrne, 1998). Successful leaders and entrepreneurs are characterized as being creative, achievement-oriented, and risk-takers (Fernald et al., 2005). Both leaders and entrepreneurs build confidence in followers and inspire them to realize goals and think creatively, and hence encourage empowerment. All these qualities suggest entrepreneurs’ tendency to lead and see that ideas become a reality. In the current study correlation between leadership behavior and entrepreneurial intensity may suggest that these constructs complement each other in an entrepreneurial intentions model. This supports the inclusion of the following hypotheses regarding leadership behavior and the components of entrepreneurial intensity:

_Hypothesis 1a:_ FCS students’ perceived charisma is positively related to perceptions of their:

1) innovativeness
2) proactiveness
3) risk-taking

_Hypothesis 1b:_ FCS students’ perceived vision is positively related to perceptions of their:

1) innovativeness
2) proactiveness
3) risk-taking

Entrepreneurship is an opportunity-driven behavior, and the ability to evaluate the viability of an opportunity is critical (Timmons, 1994). Students’ perceptions of their ability
to lead in recognizing and refining an opportunity paying attention to forces in the external environment that form opportunities may positively affect their entrepreneurial attitudes and intentions. Important issues considered when evaluating opportunities include the need, size, and growth rate of the market; economic issues such as resources requirements and return on investment; competitive advantages such as cost structure, control over prices, and the power of suppliers and distributors; and developing networks (Timmons, 1999). These require intellectual and reflective leadership behavior with a vision. Learning experiences that foster reflective and visionary entrepreneurial leadership qualities may further positively impact students' attitudes and intentions.

**Entrepreneurial intensity**

Entrepreneurship involves differing amount and degree of entrepreneurial qualities or entrepreneurial intensity that work well in a particular context. Morris (1998) defines entrepreneurial intensity (EI) as the frequency or the amount with which entrepreneurial events occur, and the degree or extents to which events are perceived as innovative, risky, and proactive. He further identified education and collective personal life experiences in society as critical in supporting or undermining entrepreneurial intensity. Entrepreneurial intensity has been associated with entrepreneurial intentions (Shane & Venkataraman, 2000). However, because measurements of entrepreneurial intensity at the individual level are elusive (Morris, 1998), this study provided an empirical opportunity to measure latent variables that were closely related to the three dimensions (innovativeness, risk-taking, and proactiveness) and constitute entrepreneurial intensity in relation to entrepreneurial attitudes and intentions.
Students enter college with differing amounts and degrees of entrepreneurial qualities. Some students demonstrate creativity and ability to come up with new ideas and make something out of them. This opportunity recognition behavior and perceiving possibility to create something new may be indicative of their innovativeness. On the other hand, students’ inclination to pursue and accomplish what they set out to do may be indicative of their proactiveness. Students’ perceptions of their ability to take on new tasks under uncertain situations may reflect their risk-taking ability.

Students’ perception of entrepreneurial intensity or level of fit with entrepreneurship may influence their attitudes and intentions. Prior studies have shown that students with a strong interest in entrepreneurial careers are proactive, creative, opportunity-seeking, and confident, and have a positive image of entrepreneurship (Frazier & Niehm, 2005). Therefore, the entrepreneurial intensity construct in the present study consists of innovation, proactiveness, and risk-taking. Each construct is discussed in relation to FCS students’ entrepreneurial tendencies.

**Innovation**

Innovation is the tendency to generate new ideas, experiment, and create unique products, services, or processes (Miller & Friesen, 1983). Sexton and Bowman (1986) found that entrepreneurship students tend to be creative innovators, and enjoy risk-taking and exciting activities even in situations with uncertain outcomes. Innovation has been identified as an essential characteristic of entrepreneurship that creates competitive entry into business, and influences change in the economy (Schumpeter, 1934).

Innovation also refers to unique ways of doing things. It is defined as the ability and tendency to involve new ideas and processes creatively, resulting in unique ways of doing
things such as the development of new products or services (Lumpkin & Dess, 1996). Entrepreneurs cause entrepreneurship in that they decide to set an entrepreneurial activity into motion. For example, new ventures are outcomes of entrepreneurs' intentions and decisions to take actions (Morris, 1998). Students' self-assessment of their level of fit with entrepreneurship may affect their decisions to study and pursue a career in entrepreneurship.

The decision to act is influenced by the interaction of various variables. These include individual characteristics, individual environment, business environment, an individual's personal goal set, and the existence of a viable business idea (Krueger & Brazeal, 1994; Lambing & Kuehl, 2003). Through these interacting factors, individuals make several comparisons between their perceptions of a probable outcome, their intended goals, intended behavior, and actual outcomes. When results meet or exceed perceived outcomes, positive behavior (continued engagement in entrepreneurial activity) is reinforced, and the opposite occurs when perceived outcomes are not met (Naffziger, Hornsby, & Kurtako, 1994).

Through self-assessment, students may discover their self-efficacy, or capacity to accomplish a certain level of performance. There is a relationship between self-awareness and entrepreneurial intentions. Self-awareness helps discover who an individual wants to be emerging from personal ego ideals and aspirations (Boyatzis, 2004). Chen, Green, and Crick (1998) argue that individuals with a high level of self-awareness are likely to evaluate their entrepreneurial opportunities and potential payoffs positively. Individuals develop entrepreneurial awareness by observing role models, and through socialization and the educational system (Ducheneaut, 2001). In addition, Kirby (2004) found that students who intended to start their own business in the future scored high on overall self-concept and self-confidence than did those not aspiring to start their own business. Early stages of
undergraduate programs therefore should focus on helping students evaluate self-awareness, develop entrepreneurial competencies and skills, and identify career options (Erkkila, 2001).

**Proactiveness**

Proactiveness, a forward-looking inclination that focuses on the tendency to be first in action, is a vital quality associated with entrepreneurs (Morris, 1998). It focuses on the pursuit of opportunities and initiation of activities (Covin & Slevin, 1989). Students who perceive themselves as doing whatever it takes to make a job or a project a success may consider themselves as being proactive in initiating activities.

Individual proactiveness is positively related to the degree of entrepreneurial intentions. In a study examining the relationship between proactive personality and entrepreneurial intentions, Crant (1996) found that proactiveness is positively associated with the degree of entrepreneurial intentions. Proactive personality characteristics also account for the amount of variation in entrepreneurship. Khan and Manopichetwattana (1989) indicate that greater proactiveness was demonstrated in management strategies and practices of innovative firms.

Entrepreneurs operate with intuition and limited information under peculiar conditions to act on or solve specific problem (Gibb, 1996). These entrepreneurial activities require the ability to learn and interpret data and information quickly, generate knowledge, and formulate that knowledge in creative and innovative ways to produce unique results (Drucker, 1985; Morris et al., 2001). FCS students who network with people and are able to seek information most likely may engage in new ways of looking at things and achieve whatever they set out to do. Further, students’ decision-making and problem solving skills
may change as they acquire more information through interaction with others in relevant entrepreneurial learning activities.

**Risk-taking**

The risk perspective of EI refers to the extent to which individuals differ in their willingness to take on new unknown situations (Morris, 1998). Several business behaviors have been associated with EI. Timmons (1994) asserts that entrepreneurs are prudent managers of risk. Students’ perception of their ability to identify opportunities and turn them into business activity even under uncertain situations may aspire to become entrepreneurs.

Decision-making and problem solving are also important in risk management. Entrepreneurs often engage in risky behaviors and seem more willing to take risks (Norton & Moore, 2002). Higher education need to develop skills that enable students to question established ideas, create new ideas, use information to solve problems, and analyze the consequences of decisions (Doran, 2000). These abilities are essential for the entrepreneurial process, which requires innovative, risk taking, and proactive approach to challenges, tasks, needs, obstacles, and opportunities (Morris et al., 2001).

**Attitudes toward entrepreneurship**

Attitudes, defined as a representation of a person’s feelings of or liking for a specific idea or object (Churchill & Iacobucci, 2002), are vital in entrepreneurship. A common pattern among successful entrepreneurs is their focus on identifying opportunities. Entrepreneurs have a flair for creating new products, unique services, or creative processes (Morris, 1998). They see change as an opportunity and allow their understanding of it to guide their self-determination to exploit it as a business concept, which is the basis of innovation (Lambing & Kuehl, 2003). Entrepreneurs tend to be confident and proactive in
their ability to accomplish whatever they set out to do. Through experience and observation, they gain knowledge of the business environment and are able to define the risks early and try to minimize them (Garavan & O’Cinneide, 1994; Reynolds, 1998). Students’ self-assessment of attitudes toward entrepreneurship may affect entrepreneurial intentions.

Attitudes predict intentions, which in turn predict behavior (Krueger et al., 2000). Davidsson (1995) differentiated between general attitudes, which refer to general psychological dispositions, and domain attitudes, which are specifically attitudes toward entrepreneurship. Intentions toward behavior are critical to understanding FCS students’ self-assessment of their fit with entrepreneurship, their decision to take more courses, and to pursue a business ownership career that involves entrepreneurship. Much of entrepreneurship is intentional, and therefore the use of an empirically tested intention model should provide a good means of examining students’ intentions to take more courses and pursue a career that involves entrepreneurship. Perceived desirability, perceived feasibility and propensity to act are presented as direct antecedents to entrepreneurial intentions.

Krueger and Brazeal (1994) argue that beliefs, perceptions, and assumptions are learned within the context of a given environment (such as a business or community). They also contend that these attitudes and perceptions predict intentions which in turn influence behavior. Thus, the Krueger and Brazeal (1994) model indirectly suggests that entrepreneurial intention is mediated assumptions and beliefs that may be formed in a change-oriented environment as opposed to a static environment. These perceptions then translate themselves into intentions, or potential, which are expressed through behavior. This model suggests that entrepreneurial characteristics not only can be learned, but can vary across individuals and situations.
Perceived desirability

Personal attitude depends on perceptions of the consequences of outcomes from performing the goal-behavior (Ajzen, 1987). Attitudes may be increased by enhancing positiveness of outcomes. This is achieved through exposure to multiple perspectives such as diverse life experiences and learning opportunities that enable the individual to recognize a wide range of desirable options (Krueger, 2000). Prior to college entry, FCS students have been exposed to life experiences that may affect their attitude toward entrepreneurship.

Perceived feasibility

Perceived feasibility or self-efficacy refers to judgment of one’s capability to accomplish a certain level of performance or desired outcomes (Bandura, 1986). Individuals accumulate their self-efficacy through cognitive, social, and physical experiences (Bandura, 1986). As such, FCS students with prior successful performance of a task may consider an entrepreneurial career path. Bandura (1990) further asserts that self-efficacy affects individual thought patterns that can undermine performance. Those students who perceive themselves as having a high level of self-efficacy are likely to set higher or challenging goals which in turn may raise the level of feasibility of an entrepreneurial career.

Propensity to act

Krueger (2000) defined propensity to act as special disposition to act on one’s decisions. Propensity to act reflects volitional aspects of intentions (e.g., I will do it or I will take …) and depends on the desire to gain control by taking action. The degree of propensity to act may influence the relative impact of life experiences on attitudes and of attitudes on intentions. Thus, if propensity to act is high taking action may be perceived as desirable and feasible, and experiences may have greater effect on attitudes.
Students’ entrepreneurial intentions

Intentions reflect a person’s willingness to pursue a given behavior (Bird, 1988). Entrepreneurial intentions, defined as commitments to starting new business ventures (Krueger, 1993), are influenced by many factors (Bird, 1988; Davidsson, 1995; Shapero, 1982). Research suggests that entrepreneurship is a planned, intentional behavior. In their meta-analysis of relationships between attitudes and intentions, Kim and Hunter (1993) show that attitudes predict intentions and intentions predict behavior. The theory of planned behavior posits that perception of desirability and feasibility explains and predicts intentions (Ajzen, 1987, 1991). Other studies also support the notion that intentions are driven by perceptions that outcomes from the target behavior are personally and socially desirable (Autio et al., 1997; Krueger, 1993; Krueger et al., 2000). Intention-based models have been widely applied in practical situations concerning intentions, such as career preferences and the use of seatbelts and coupons (Ajzen 1987; Kim & Hunter, 1993).

Entrepreneurship career intentions are triggered by particular situations (Kennedy, Drennan, Renflow, & Watson, 2003). The threat of unemployment is increasingly becoming a factor leading to self-employment (Lawrence & Hamilton, 1997). Entrepreneurship may be a means to economic growth in Iowa, which is a predominantly rural community. Additionally, social factors, such as religion, family members, and work experience, tend to influence an individual’s propensity to become self-employed (Bandura, 1977). Prior experience and family background also impact one’s intentions to start a business (Davidsson, 1995; Krueger, 1993). All these factors shape personal attitudes, which in turn affect intentions leading to a targeted behavior. In other words, studies indicate that intentions are affected by perceptions of desirability, perceived feasibility, and propensity to
act on opportunity. However, the relationship between career and university students’ entrepreneurship intentions is inconclusive (Kennedy et al., 2003). Empirical evidence based on entrepreneurial intentions model may provide useful information to guide university selection into programs of study, orientation and career programs, development of curriculum and teaching strategies that may enhance perceptions of entrepreneurial attitudes and intentions.

There is high demand for entrepreneurship that leads to rural economic development in the U.S., but no mechanism of identifying who may perform effectively (Bailey, 2003). Creating early awareness and exposure to entrepreneurial career options will allow students to make informed career choices and build supply of potential and well prepared entrepreneurs and stem the outflow of students from rural areas (Barkley, 1995; Niehm, et al., 2005). Knowledge of students’ perceptions of their leadership behavior, entrepreneurial intensity, entrepreneurial attitudes and intentions will be useful for understanding the process of choosing the program of study as well as designing appropriate curricula and teaching strategies to meet their needs. The present study aims to examine relationships between FCS students’ perceptions of their leadership behavior, entrepreneurial intensity, attitude toward entrepreneurship and entrepreneurial intentions.

As a leader an entrepreneur focuses on inspiring people to aim for high performance (Fernald et al., 2005). Students who perceive themselves as having the vision and ability to attract other people to be part of the venture reflect leadership behavior. The ability to work and get along with others to make dreams a reality may affect students’ attitudes and intentions for entrepreneurship. A great leader takes decisions in consultation with others, encourages individuals’ ability, creativity, and initiative to empower team members, and
delegates wisely (Meattle, 2005). From an entrepreneurial perspective, these leadership qualities may affect attitudes and intentions, leading to the following hypotheses:

_Hypothesis 2a:_ FCS students’ perceived charisma positively related to their:

1. desirability of entrepreneurship
2. feasibility of entrepreneurship
3. propensity to act on entrepreneurial profession opportunity.

_Hypothesis 2b:_ FCS students’ perceived vision positively relates to their:

1. desirability of entrepreneurship
2. feasibility of entrepreneurship
3. propensity to act on entrepreneurial profession opportunity.

_Hypothesis 3a:_ FCS students’ perceived charisma positively related to their:

1. career intentions in entrepreneurship
2. training intentions in entrepreneurship

_Hypothesis 3b:_ FCS students’ perceived vision positively related to their:

1. career intentions in entrepreneurship
2. training intentions in entrepreneurship.

Students’ perception of entrepreneurial intensity, or how they perceive their entrepreneurial behavioral tendencies and qualities, is considered in this study because these behaviors give meaning to the entrepreneurship process (Covin & Slevin, 1991). It is expected that students will have differing amounts of entrepreneurial intensities resulting from observing role models, parents who own businesses, or community business. In sum, literature provides support for the following series of hypotheses linking entrepreneurial intensity to attitudes toward entrepreneurship and intentions.
Hypothesis 4a: FCS students’ perceived innovativeness is positively related to their:

1. desirability of entrepreneurship.
2. feasibility of entrepreneurship.
3. propensity to act on entrepreneurial profession opportunity.

Hypothesis 4b: FCS students’ perceived proactiveness is positively related to their:

1. desirability of entrepreneurship.
2. feasibility of entrepreneurship.
3. propensity to act on entrepreneurial profession opportunity.

Hypothesis 4c: FCS students’ perceived risk taking is positively related to their:

1. desirability of entrepreneurship.
2. feasibility of entrepreneurship.
3. propensity to act on entrepreneurial profession opportunity.

Hypothesis 5a: FCS students’ perceived innovativeness is positively related to:

1. career intentions in entrepreneurship.
2. training intentions in entrepreneurship.

Hypothesis 5b: FCS students’ perceived proactiveness is positively related to:

1. career intentions in entrepreneurship.
2. training intentions in entrepreneurship.

Hypothesis 5c: FCS students’ perceived risk taking is positively related to:

1. career intentions in entrepreneurship
2. training intentions in entrepreneurship.

Nurturing potential entrepreneurs or individuals, who are visionary, have the ability to lead, take risks, leverage resources, and network can have economic benefits (Kuratko &
In this study, FCS students assess the effect of entrepreneurial attitudes (desirability, feasibility and propensity to act) on entrepreneurial intentions, thus the following hypotheses are proposed linking attitudes concerning the perceived desirability of entrepreneurship with entrepreneurial intentions.

**Hypothesis 6a:** FCS students’ perceived desirability of entrepreneurship is positively related to their entrepreneurial career intentions.

**Hypothesis 6b:** FCS students’ perceived desirability of entrepreneurship is positively related to their intentions for training in entrepreneurship.

Entrepreneurs tend to be confident and proactive in their ability to accomplish whatever they set out to do. Through experience and observation, they gain knowledge of the business environment and are able to define the risks early and try to minimize them (Garavan & O’Cinneide, 1994; Reynolds, 1998). Students may be more inclined to take courses and pursue a career in entrepreneurship if they believe that they possess the necessary skills to function in such environment, leading to the following hypotheses linking perceived feasibility of entrepreneurship with entrepreneurial intentions:

**Hypothesis 7a:** FCS students’ perceived feasibility of entrepreneurship is positively related to entrepreneurial career intentions.

**Hypothesis 7b:** FCS students’ perceived feasibility of entrepreneurship is positively related to intentions to train in entrepreneurship.

Propensity to act is positively related to entrepreneurial intentions (Krueger, 1993; Shapero, 1982). The SEE model (1982) argues that a person’s intent to start a business is influenced by perceived desirability, perceived feasibility, and propensity to act. Shapero (1982) assumes that people are motivated by displacement, which could be either positive or
negative. A person’s propensity to act will depend on perceived ease to perform and the relative credibility of alternative behaviors (Shapero, 1985). Effects of propensity to act may have an indirect effect on intentions, and when this happens it may serve as moderating other relationships in the model (Krueger, 1993). The literature suggests that for intentions to predict behavior, intentions should be reasonably well formed (Bagozzi, Baumgartner, & Yi, 1992; Gartner, 1988). These findings provide support for the following hypotheses concerning the relationship of entrepreneurial attitudes to intentions of FCS students.

**Hypothesis 8a:** FCS students’ perceived propensity to act on entrepreneurship is positively related to entrepreneurial career intentions.

**Hypothesis 8b:** FCS students’ perceived propensity to act on entrepreneurship is positively related to intentions for training in entrepreneurship.

**Summary**

The purpose of this study was to provide empirical evidence on relationships between FCS students’ perceptions of their leadership behavior, entrepreneurial intensity, entrepreneurial attitudes and intentions as they prepare for careers involving entrepreneurship. Specifically, in this study FCS students assessed their intentions to study and pursue a career that involves entrepreneurship.

Entrepreneurial intentions models have provided significant results concerning new business startup (Davidsson, 1995; Krueger, 1993, Shapero, 1982). However, literature is void of entrepreneurial intentions model’s application in predicting and understanding FCS students’ decision concerning program of study and career paths involving entrepreneurship. In this study, intentions are hypothesized to be a function of attitudes concerning the perceived feasibility and desirability to pursue a business ownership career path. A student
who believes he or she would be a successful entrepreneur may likely perceive it as a career option. The basic assumption underlying the suggested entrepreneurial intentions-based model is that the desirability and feasibility to study and pursue a career in entrepreneurship is intentional planned behavior. Based on intentions literature, for this study, entrepreneurial intention is defined as the commitment to study and pursue a business ownership career that involves entrepreneurship. The research model proposed for the current study is presented in Figure 2.3.

Figure 2.3 Entrepreneurial Intentions Model for FCS Students
CHAPTER 3. METHODOLOGY

Research Design

Originally the purpose of this study was twofold. The study was initially designed to identify and gain a better understanding of teaching strategies that foster entrepreneurial critical thinking in FCS students. A pretest-posttest experimental research design was initially employed for FCS students’ self-assessment of entrepreneurial potential, intentions to study entrepreneurship in FCS, and intentions to become an entrepreneur in the future. Students enrolled in an introductory level course selected for this study three universities in the Midwestern U.S., were randomly assigned to treatment and control groups prior to pretest. A measurement instrument was designed to provide information useful in examining the effectiveness of entrepreneurship learning modules as instructional resources that foster critical thinking in FCS undergraduate students. The cover letter (Appendix A) reflects the original purpose of the study. The pretest and posttest were comprised of the Entrepreneurship Self-Assessment survey presented in Appendix C.

Pretest and posttest data were matched for each respondent to assess differences in self-assessment after one week of teaching intervention for both the experimental and control groups of FCS undergraduate students. There was significant impact of teaching intervention, as revealed by paired-samples t-tests showing higher mean performance for posttest scores than pretest mean scores. This change may be attributed to teaching intervention. However, one-tailed t-tests did not show significant differences between the treatment and control methods of teaching intervention. These results appear to confirm the need for a longer period of teaching intervention to establish significant differences in learning outcomes via
the experimental design as well as to reduce potential halo effect (Hunk, 2004; McMillan & Schumacher, 2001).

Thus, this focus of the dissertation was revised to include the development and testing of an entrepreneurial intentions model using pretest data drawn from FCS students. This perspective of the study is presented next.

**Model Testing**

A model-testing research approach is vital for assessing application of well-established models, such as the Shapero Entrepreneurial Event model, to different contexts. A structural equation modeling (SEM) process using LISREL 8.50’s maximum likelihood estimation was the primary approach for data analyses in this study. This involved validating the measurement model by using confirmatory factor analysis (CFA), and fitting the structural model by conducting path analysis with latent variables. Modification indices were referenced to help improve model fit. Cronbach’s coefficient alpha tested the extent to which multiple indicators for a latent variable belong together (Byrne, 1998). Construct reliability and variance extracted based on factor loadings were also used to assess the extent to which latent variables were measured by related indicators.

A multi-step process of CFA and causal model testing was utilized for data analysis (Anderson & Gerbing, 1988). Confirmatory factor analysis procedures test the validity of indicator variables to determine that the measurement model is operating adequately (Byrne, 1998). The first step was comprised of confirmatory factor analyses conducted on the measurement model to determine unidimensionality of constructs and provide a partial assessment of the model. This was followed by a full CFA utilizing all latent and observed variables. Indicators that measured the hypothesized model constructs are presented in
Appendix A. The dependent and independent variables were specified in the measurement model. This step is important for path analysis, in which the order of dependent variables precedes the independent variables (Byrne, 1998). Next, path analysis was conducted to test the hypothesized causal structure of the entrepreneurial intentions model. Fit indices such as the Comparative Fit Index (CFI), the Goodness-of-Fit Index (GFI), as well as the Root Mean Square Error of Approximation (RMSEA) provided guidance in determining the extent to which the model fit. Modification indices were reviewed for largest meaningful structural paths coefficients (structural parameters). Large structural error parameters suggestive of model misfit were reviewed and items removed one at a time to improve model fit (Byrne, 1998). Finally, significant structural parameter estimates were retained as coefficient paths for the revised entrepreneurial intentions model.

**Measures**

**Measurement instrument**

The Entrepreneurship Self-Assessment, a Web-based multi-item measurement instrument, was self-administered to respondents. Web-based data collection facilitated ease of scoring, coding, and analysis of data because files are created as responses are being submitted (George & Mallery, 2003). Items were adapted primarily from two instruments: the Entrepreneurial Self Test, and the Rural Entrepreneur Survey developed by the Rural Entrepreneurship Initiative, now known as the Center for Rural Entrepreneurship at the Kauffman Foundation of Entrepreneurship (Macke & Markley, 2003). The Center for Rural Entrepreneurship has developed survey items that capture entrepreneurial potential of individuals, thus these measures were considered appropriate for college students. The Entrepreneur Self Test, for example, measures the degree of agreement or disagreement with
each statement on a 10-point Likert range from strongly disagree to strongly agree. The current study utilized a 5-point Likert range for all measures, where 1 indicated lowest rating and 5 the highest rating, to measure the level of disagreement or agreement with each statement.

The Entrepreneurship Self-Assessment instrument developed for the present study was comprised of four sections (see Appendix C). Section one consists of four constructs: self-awareness, personal values, decision-making and problem solving, and leadership behavior. Section two was comprised of two constructs: tendency to achieve and attitude toward entrepreneurship. Entrepreneurial intentions constituted section three. The fourth section addressed personal information. Item distribution for section one was 15 items for self-awareness, 14 for personal values, 13 for decision-making and problem solving, and 10 for leadership skills. Embedded in these constructs were items that measured the three dimensions of entrepreneurial intensity: innovativeness, risk-taking, and proactiveness. The second section measured the tendency to achieve (15 items), and attitude toward entrepreneurship (10 items). The third section contained 11 items that measured respondents’ intentions to take more courses and pursuing a business career. The fourth section was comprised of items for obtaining personal information to describe respondents’ profile. It consisted of demographic variables (such as age, gender, education, and business work experience), items on parents’ involvement in business, and six items on life experiences (interaction with business owners) related to business.

A pilot study was conducted in spring semester of 2005. The measurement instrument was pre-tested with 38 students enrolled in an FCS entrepreneurship course and 10 students enrolled in an FCS orientation course at one of the three universities that participated in this
study. These two courses were selected for pilot testing because they comprise students majoring in various FCS areas. Reliability analysis based on standardized items was performed on items measuring each construct. Cronbach reliability coefficient alpha of at least 0.70 was attained (Hunk, 2004; Nunnally, 1978).

**Construct measures**

Construct measures are discussed next, in the order they appear in the hypothesized model (Figure 2.3). Items were selected for each construct from previously tested measures of entrepreneurial intentions based on theoretical coherence with the SEE model.

**Leadership behavior**

Entrepreneurs may be associated with leadership functions such as motivating others and providing vision to the development of a new product. Entrepreneurial leadership behavior reflects one’s ability to envision, think purposely, and work with others to initiate change (Fernald, Solomon & Tarabishy, 2005). Successful entrepreneurs are charismatic and tend to get along with others. They take initiative, and are resilient, obsessive, highly committed, and willing to try new things for productive purposes (Ambramovitch, 1994; Duke, 1996). Students who are self-starters with ability to innovate, set, and achieve goals through their own efforts may readily recognize their intentions and inclinations toward entrepreneurial behavior. The ability to work and get along with others to make dreams a reality may help students identify their vision of becoming entrepreneurs. This reflects the managerial form of leadership that was measured in this study.

The leadership behavior construct was measured using ten items (v4.1 to v4.10) on a 5-point Likert-type range (1 = not at all, to 5 = very frequently) of the Entrepreneurship Self-Assessment instrument (see Appendix C). Respondents assessed how each statement on
leadership applied to them. Items were selected and adapted from subscales included in the Rural Entrepreneurship Survey (Macke & Mackley, 2003) and from variables on skills by Barker and Kellen (1998). The multiple measures for leadership demonstrated composite reliability of 0.86. Anchor points for the Rural Entrepreneurship Survey were 1 = not at all to 7 = very frequently (Macke & Mackley, 2003). Barker and Kellen’s (1998) variables on skills include motivating others, teamwork ability, and critical thinking, rated on a scale of 1 = low ability to 5 = high ability.

**Charisma:** Entrepreneurs are charismatic and stimulate other peoples’ perception and values of intended outcomes (Bass, 1990a). The enabling characteristic of a leader is one of the best predictive powers (Ross & Offerman, 1997). In this study charisma represent characteristics of high influence of others. Students that perceive themselves as being charismatic are inclined to pursue entrepreneurial studies to increase the feasibility and propensity to act on entrepreneurial opportunities. Three items (v4.2, v4.3, and v4.5) on leadership, suggesting dynamic qualities, were employed to assess FCS students’ perceived degree of charisma (see Appendix C. For example, “I help people vision what can be accomplished if we work together” and “I lead and encourage people to reach goals with or without my input.”

**Vision:** Entrepreneurs are visionary and think ahead. The ability to visualize is central to business startup activities (Lumpkin & Dess, 1996). The objective is to picture and capitalize on the potential and possible outcomes for the intended action. Entrepreneurship is an opportunity-driven process and the ability to evaluate the feasibility of an opportunity is critical (Timmons, 1994). Students’ perceptions of ability to lead in identifying and refining an opportunity may positively change their entrepreneurial attitudes and intentions. Vision in the current study consisted of three items (v4.2, v4.7, and v4.8, shown in Appendix C) on
leadership, suggestive of inspirational characteristics. For example, respondents rated statement like “I am often a step ahead of others.”

**Entrepreneurial intensity**

Entrepreneurial intensity (EI) refers to the frequency or the amount with which entrepreneurial events happen, and the degree to which events are perceived as innovative, proactive, and risky (Morris, 1998). Entrepreneurs are characterized by energetic and/or novel activity, risk-taking propensity, and assuming personal responsibility for success (Kuratko & Hodgetts, 2004; McCleland, 1961). They are self-starters, initiative, and goal achievement-oriented, obsessive for the business, persistent, confident with self-determination and self-efficacy, tolerant of ambiguity, and able to see a big picture of an opportunity (Kuratko & Hodgetts, 2004; Miner, 2001). These descriptors suggest multiple constructs and measures to identify and assess student entrepreneurial characteristics and predict their intentions to take courses and pursue a career in entrepreneurship. A college student with these characteristics most likely would be attracted to pursuing a career in entrepreneurship. Multiple items were used to measure three dimensions of entrepreneurial intensity. Items were adapted from subscales included in the Rural Entrepreneurship Survey (Macke & Mackley, 2003)

**Innovativeness:** Innovativeness refers to one’s tendency to generate new ideas and unique ways of performing tasks (Lumpkin & Dess, 1996). Three items (v3.5, v3.6, and v3.7, Appendix C) measured perceived innovativeness of respondents. Innovativeness was assessed using a 5-point Likert-type range (1 = not at all, to 5 = very frequently). Items such as “I provide others with new ways of looking at things,” “I encourage others to rethink ideas not previously questioned,” and “I enable others to think about old problems in new ways,”
were employed to measure perceived innovative behavior of respondents. Items were adapted from Leider (1994) variables on “creativity,” which had anchor points ranging between 1 = strongly disagree and 5 = strongly agree.

**Proactiveness:** Proactiveness is defined as a forward-looking behavior and tendency to be first in taking action (Morris, 1998). Proactiveness was rated by FCS students using three items on self-awareness (v1.5, v1.11, and v1.1, Appendix C). For example, respondents rated their innovativeness as reflected by the following statements: “I am motivated by success and driven to do well,” and “I have a vision and I know where I want to go.” Items were adapted from Leider’s (1994) variables on “challenge.” Prior studies have shown relationships between proactiveness and degree of entrepreneurial intentions (Crant, 1996).

**Risk-taking:** Entrepreneurs tend to be prudent in managing risk (Timmons, 1994). FCS students in this study assessed their perceived willingness to take on new unknown situations. Measures of risk-taking comprised two items (v1.7 and v1.9, Appendix C): “I am a hard working person and I do what it takes to succeed,” and “I am a risk taker and I would be able to successfully manage risk associated with creating and growing a business.”

The Cronbach coefficient alpha for the entrepreneurial intensity construct in this study was 0.81. Other scales measuring entrepreneurial intensity have reported reliability coefficients of 0.83 (Covin & Slevin, 1989), and Niehm, Frazier, and Plank (1999) obtained coefficient alpha values of 0.77 for innovativeness and 0.83 for proactiveness. Using a 5-point Likert range (1 = strongly disagree to 5 = strongly agree) for self-assessment, respondents indicated the degree to which they align with innovativeness, proactiveness, and risk-taking. Higher scores reflect a greater entrepreneurial tendency of FCS students.
Attitude toward entrepreneurship

Perceived desirability of entrepreneurship: To assess the perceived level of the attitude toward entrepreneurship, students were asked to rate their thoughts toward owning a business in the future. Research has shown that attitude depends on perceptions of the consequences of outcomes from performing the target behavior in terms of their likelihood and magnitude, and positive and negative consequences (Ajzen, 1987; Krueger, 1993). Shapero’s (1982) entrepreneurial event model posits that exposure to entrepreneurial activity affects intentions through desirability and feasibility of performing target behavior. These perceptions may be learned through relevant life experiences (Ajzen, 1987; Krueger & Brazeal, 1994). In addition, social norms, a function of perceived normative beliefs of significant others weighted by one’s motive to comply with each normative belief, constitute another perspective of attitude toward entrepreneurship (Ajzen, 1987).

Respondents in this study rated the degree to which their exposure to entrepreneurial activity through parents and people that run businesses (i.e., role models) as well as situations affected their perceptions of the desirability and feasibility of entrepreneurship. Respondents used 5-point (1 = strongly disagree to 5 = strongly agree) Likert-type items to rate the effect of exposure of watching parents run a business or listening to people’s success stories. Perception of desirability was measured using three items (v8.2, v8.3, and v8.4) on life experiences produced by the researcher (Appendix C). Items included “I listen to business success stories from the media” and “I have interacted with successful business people in the past and I would like to have my own business.”

The Cronbach’s alpha value for the perceived desirability construct in this study was 0.72, indicating acceptable reliability (Hinkle, Wiersma, & Jurs, 2003). Krueger (1993)
reported a reliability of 0.69 for the perceived desirability scale. Prior research measured respondents’ experiences in entrepreneurial activities by asking whether they have been exposed to various types of entrepreneurial experience. These experiences include those with parents and people they know that start businesses, business work experience, and whether they had ever started a business a venture themselves (Krueger et al., 1993; Shapero, 1982).

**Perceived feasibility of entrepreneurship:** Perceived feasibility, or self-efficacy, defined as one’s perceived ability to perform some target behavior, is critical when taking a course of action toward goal behavior (Bandura, 1986, 1995). It reflects the perception of a person’s capacity to perform a particular set of tasks. Five-point Likert-type items (1 = strongly disagree to 5 = strongly agree) adapted from the Entrepreneur Self-Test developed by the Rural Entrepreneurship Initiative (Macke & Mackley, 2003) were identified to measure this factor. Respondents rated their entrepreneurial capabilities using multiple items such as “I plan to have my own business in future” (v6.2), “I would like to make a significant contribution to the community by developing a successful business” (v6.6), and “I would rather own my own business than earn a higher salary working for someone” (v6.7) (Appendix C). The items yielded a composite reliability of 0.83.

**Propensity to act:** Another component of the attitude construct is the propensity to act. Krueger (2000) defined propensity to act as a special disposition to act on one’s decisions. It reflects volitional aspects of intentions (e.g., “I will become an entrepreneur because I cherish the feeling of performing a useful service” (v5.13), “I will take courses that enable me to learn about operating my own business” (v7.6), and “I would rather have my own business than pursue another promising career” (v7.9) (see Appendix C). It all depends on the desire to gain control by taking action. Propensity to act was measured using three 5-
point (1 = strongly disagree to 5 = strongly agree) Likert-type items that were linked closely to initiating and persisting at a goal-directed behavior under uncertainty and adversity. The composite reliability for propensity to act items was 0.72.

**Entrepreneurial Intentions**

The present study measured students' intentions to study and pursue a career that involves entrepreneurship. Research suggests that entrepreneurship is a planned, intentional behavior. Meta-analyses show that attitudes predict intentions, which in turn predict behavior (Kim & Hunter, 1993). Intention-based models have been applied widely in practical situations such as career preferences and the use of seatbelts and coupons (Ajzen, 1987; Kim & Hunter, 1993). The theory of planned behavior (TPB) posits that perception of desirability and feasibility explains and predicts intentions (Ajzen, 1987, 1991). Ajzen identified three antecedents of intentions: personal attitude toward outcomes of behavior, perceived social norms, and perceived behavior control. In short, intentions are affected by perceptions of desirability and perceived feasibility, such as controllability.

Entrepreneurial intentions of respondents were measured using six items (v7.1, v7.2, v7.3, v7.5, v7.7, and v7.8, Appendix C). Respondents' desire to take courses in entrepreneurship was measured using items that required them to rate their expectations to do an internship and to take entrepreneurship courses. For example, items included “I will take more courses in entrepreneurship to gain more knowledge and understanding,” and “I plan to take courses that will improve my business management skills.” Respondents rated their level of agreement (1 = strongly disagree to 5 = strongly agree) with their intentions to take courses and pursue a career in entrepreneurship. A composite reliability coefficient of 0.90 was achieved on this multi-item subscale.
The basic assumption underlying the entrepreneurial intentions-based model for this study is that the desirability and feasibility to study and become an entrepreneur is an intentional, planned behavior. The proposed entrepreneurial intentions model was preliminarily tested using confirmatory factor analyses to examine whether the data drawn from FCS undergraduate students support the components of the Shapero-Krueger model (2000). The Shapero-Krueger model posits that entrepreneurial intentions are influenced by perceived desirability or attractiveness of an entrepreneurial opportunity, perceived feasibility or capability to accomplish a task, and propensity to act on opportunity (Krueger et al., 2000). It is implicit in the SEE model used for this study. Family and Consumer Sciences students rated their intentions to take courses, participate in workshops and internships, and pursue a career in entrepreneurship. The instrument used for collecting data from which indicators were selected for testing the hypothesized entrepreneurial intentions model is presented in Appendix C.

Sample

Demographics

Descriptive analyses, such as frequency distributions, means, and standard deviations, provided a profile of the sample. Demographic variables and parental business experiences have been associated with entrepreneurship qualities (Harrison & Hulin, 1989). In this study demographic variables included students’ age, gender, education, and business work experience. Variables measuring parents’ business experiences included whether parents own a business, the type of business owned, and number of years in business. A total of seven demographic items comprised this portion of the survey (see Appendix C).
Sample selection

A purposive sampling approach was employed to select respondents from three public universities in the Midwestern United States. This approach has been deemed appropriate for theory testing purposes (MacMillan & Katz, 1992). For example, the sample for this study included students enrolled for the selected introductory course, and each class was most likely to include students that were inclined and those that were not inclined toward becoming entrepreneurs. The commonality among subjects was enrollment in courses in the apparel and textiles area of FCS.

The population for this study consisted of students enrolled in an entry-level course in the FCS undergraduate program at three public universities located in the Midwestern region of the United States. A total of 233 FCS students participated in the study. Universities that offer entrepreneurship in FCS programs, particularly in the apparel and textiles field, were identified and selected for the study.

Undergraduate students in FCS represent an interesting and appropriate population for the study because of their unique characteristics. Generally FCS students acquire technical expertise applicable to family-owned businesses and lifestyle businesses. Also, FCS undergraduate students are at a stage of their lives where their entrepreneurial inclination and potential may be made operative to provide an option for a career in entrepreneurship. However, like other non-business majors, FCS students often do not have the opportunity to take entrepreneurship courses that may equip them with skills for an entrepreneurial career path. The assumption that guided the present study was that FCS students who are entrepreneurial-inclined are more likely to take entrepreneurship courses to prepare themselves and improve their prospects for a career that involves entrepreneurship.


Student profile

A total of 233 undergraduate students from three universities located in the Midwestern region of the United States participated in the pretest phase of the study. Table 3.1 summarizes students’ demographic information, business work experience, and parents’ business ownership. A majority (76.7%) of respondents were 18–20 years old. The sample was comprised of 93.2% female and 6.8% male students. This may limit the generalizability of the results to male students. Students were enrolled in introductory-level courses. More than half (64.3%) of the sample were first-year (freshman) and second-year (sophomore) students. This large proportion was expected given that the study aimed at introducing entrepreneurship to students at an early stage of their college education. As shown in Table 3.1, types of businesses owned by parents ranged from retail (36.7%), construction (15.2%), bath and body/salon (12.7%), farming (11.4%), and real estate (7.6%), to restaurant/bed and breakfast (6.3%).

A majority of students had business work experience (80.8%) and summer job work experience (92%), but less than half (36.9%) had parents who owned a business. More than half (54.7%) had parents that owned a business for 10–20 years, and about 28% whose parents had been in business for less than 10 years. Results also show positions held by students while working in business. More than half (57.1%) worked as a sales associate or cashier, 20% were servers in restaurants, and 6.5% had managerial positions. The majority (91.7%) of students had 1 to 5 years of business work experience. About 62% worked in retail business, 21.4% in restaurant/bed and breakfast, and 6.9% in bath and body or salon.
Data Collection

The data for this study were collected during the fall semester from September to November 2005 at three universities in the Midwestern United States. Measurements used in this study are derived from 5-point Likert-type items adapted primarily from the Entrepreneurial Self-Test and the Rural Entrepreneur Survey developed by the Rural Entrepreneurship Initiative (Macke & Mackley, 2003), with several items developed by the researcher. This Web-based entrepreneurship measurement instrument was self-administered to a total of 233 respondents in the pretest phase of this study. Data files were created as the online survey was being written. Data cleaning procedures yielded a response rate of 96%. A total of 223 usable surveys were yielded for use in statistical analyses from the pretest portion of the original study.

The cooperation from instructors responsible for teaching introductory courses at the selected universities made it possible to have all students enrolled in each course participate in the study. To maximize the response rate, a letter was written to course instructors at the universities during the first week of the fall semester 2005. They were asked to participate in the study by distributing a consent and participation letter (see Appendix B) to all of their students. The letter informed the instructors of the nature and purpose of the study. Instructors were asked further to consider offering extra credit as an incentive for respondents' participation in the study. They were contacted later through electronic mail and telephone to make arrangements for the dates and times when respondents would take the survey.
Table 3.1 Students’ personal demographic information and business experience ($n = 223$)

<table>
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<tr>
<th>Personal Information</th>
<th>Frequency</th>
<th>Percent</th>
<th>Business Work Experience</th>
<th>Frequency</th>
<th>Percent</th>
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<td>Other</td>
<td>6</td>
<td>2.7</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Undecided</td>
<td>5</td>
<td>2.3</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td><strong>Year in college</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Freshman</td>
<td>69</td>
<td>31.7</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sophomore</td>
<td>71</td>
<td>32.6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Junior</td>
<td>51</td>
<td>23.4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Senior</td>
<td>2</td>
<td>11.9</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Parents own business</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>79</td>
<td>36.9</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>135</td>
<td>63.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Parents’ business</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Retail</td>
<td>29</td>
<td>36.7</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Construction</td>
<td>12</td>
<td>15.2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bath &amp; body/salon</td>
<td>10</td>
<td>12.7</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Farming</td>
<td>9</td>
<td>11.4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Real estate/insurance</td>
<td>6</td>
<td>7.6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Restaurant/bed &amp; breakfast</td>
<td>5</td>
<td>6.3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td>8</td>
<td>10.1</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Parents' number of years in business
- Less than 10 years: 18, 28.1%
- 10-20 years: 35, 54.7%
- 21-30 years: 9, 14.1%
- More than 30 years: 2, 3.1%

Employed in business
- Yes: 173, 80.8%
- No: 41, 19.2%

Summer job experience
- Yes: 196, 92%
- No: 17, 8%

Position held
- Sales associate/cashier: 97, 57.1%
- Server/hostess/waiter: 34, 20%
- Assistant manager/supervisor: 11, 6.5%
- Brand representative: 4, 3.5%
- Designer/stylist/buyer: 6, 2.4%
- Receptionist/secretary: 10, 5.9%
- Other: 8, 4.7%

Number of years worked
- One year: 28, 17.9%
- Two years: 38, 24.3%
- Three years: 39, 25%
- Four years: 25, 16.0%
- Five years: 13, 8.3%
- More than five years: 13, 8.3%

Type of business
- Retail: 108, 62.4%
- Restaurant/bed & breakfast: 37, 21.4%
- Construction/factory: 3, 1.7%
- Bath & body/salon/club: 12, 6.9%
- Real estate/insurance: 4, 2.3%
- Other: 8, 5.2%
Respondents were assured that their participation in the study would be confidential. They rated themselves against a list of characteristics deemed to be critical to entrepreneurial success by taking a Web-based Entrepreneurship Self-Assessment survey. Respondents assessed their level of entrepreneurial self-awareness, values, decision-making and problem-solving, leadership behavior, tendency to achieve, attitude toward entrepreneurship, and intentions to take study and pursue a career in entrepreneurship. Respondents also provided demographic information, including family business background and other life experiences related to entrepreneurship.

**Data Analysis**

Structural equation modeling (SEM) methods were employed to examine causal relationships linking entrepreneurial intensity, leadership behavior, attitudes, and professional entrepreneurial intentions of FCS students. A multi-step process that was comprised of confirmatory factor analysis (CFA) and SEM testing guided the analyses (Anderson & Gerbing, 1988). The LISREL 8.50 maximum likelihood procedure was used to obtain estimates. Inputs for the CFAs were based on covariance matrix values from the pretest data.

The hypothesized measurement model was estimated using a tiered approach. Initial CFAs were performed for the four individual model constructs. Finally, the full measurement model was estimated. A standard approach was used to analyze data and assess model fit. The first step included examination of the covariance matrix factor pattern and assessment of large residuals were used to check construct validity. Significant indicators for factor loadings showed convergent validity (Anderson & Gerbing, 1988). Discriminant validity was assessed using LISREL’s modification index. Variable measures that cross-loaded were
removed one at a time to achieve a model of best fit. Items retained for each construct are presented in Chapter 4. This multi-step process helped determine if constructs functioned well together, and that each measure was unidirectional. It also helped assess fit of the hypothesized model to the data. Reliability of construct indicators was tested using coefficient alpha, composite reliability, and variance extracted. Results for these analyses are also presented and discussed in Chapter 4.

The second phase of analysis focused on estimating the structural model. Covariance matrices of factors produced by the measurement model provided data input for the structural model. Path analyses involved testing of the student perceived leadership behavior, entrepreneurial intensity, attitudes, and the hypothesized construct relationships regarding the students’ intentions to study and pursue a career in entrepreneurship. Appropriate steps were taken to assure validity, parsimony, and overall model fit. Results of structural model fit are presented in Chapter 4. Based on fit assessments, a good structural model fit was produced. Further detail of data analysis and model testing results are presented and discussed in Chapter 4.
CHAPTER 4. RESULTS AND DISCUSSION

Model Testing Procedure

The purpose of this study was to examine the relationship between perceived leadership behavior, entrepreneurial intensity, and attitudes of FCS college students and their intentions to study and pursue a career in entrepreneurship. An entrepreneurial process-based intentions model, the Shapero-Krueger intentions model (Krueger et al., 2000), was employed to test the plausibility of the hypothesized intentions model. The hypothesis was that FCS students’ entrepreneurial intentions can be predicted by their entrepreneurial intensity, leadership behavior, and attitudes. The key research question addressed was: What effect does students’ perceived entrepreneurial intensity; leadership behavior and attitude toward entrepreneurship have on students’ intentions to study and pursue a career in entrepreneurship? Respondents were enrolled in introductory apparel and textiles related courses at three public universities in the Midwestern United States. These students were at the stage in higher education when they considered which program of study to pursue in preparation for a profession of interest including a career in entrepreneurship. Students assessed their level of fit with entrepreneurship and their intention to study and pursue a career in entrepreneurship.

A multi-step process of CFA and causal model testing provided a basic framework for data analysis (Anderson & Gerbing, 1988). Lisrel 8.50 was used for conducting all analyses. The analyses indicated the way in which observed measurements were mapped to particular factors (Byrne, 2001). Criteria for assessing model fit were derived from various sources in the output of CFA. Both parameter estimates and goodness of fit indices provided criteria for model assessment. Parameter estimates were checked for feasibility, approximate
standard errors, and statistical significance. Positive sign values of close to 1.00, but not
greater than 1.00 in feasibility of parameter estimates reflect good fit (Byrne, 1998; Hair,
Anderson, Tathan, & Black, 1998). Approximate standard errors that were not excessively
large or small indicate good fit. Acceptable significance of parameter estimates were
assessed using t-values of greater than 2.00 (Byrne, 1998).

CFA was run based on a covariance matrix using maximum likelihood estimates. The
results indicate optimal fit. The coefficient determinant, an indication of how well the
observed variables in combination (composite) serve as measurement instruments for latent
variables, was reasonable (0.90). Because the coefficient determinant is considered a
generalized indicator of reliability (Byrne, 1998), a high coefficient score indicates that the
measurement model is accurate. Model fit indices employed in this study include the Normed
Fit Index (NFI), Non-Normed Fit Index (NNFI), Comparative Fit Index (CFI), and
Goodness-of-Fit Index (GFI). All indices were within optimal (> 0.90) level of fit (Byrne,
1998). The Root Mean Square Error of Approximation (RMSEA) also provided acceptable
(< .05) value range (Hair et al., 1998).

This chapter presents and discusses the results of model testing in the proposed
entrepreneurial intentions model. Results are presented in two parts. The first part comprises
results of the measurement model assessment. It begins with the presentation of CFA results
performed on the measurement model constructs. A full CFA using all latent and observed
variables is presented as a final assessment of the measurement model. The second part of the
results discusses testing of the structural model and hypotheses.
Measurement Model of FCS Students' Entrepreneurial Intentions

Confirmatory factor analysis by construct

Confirmatory factor analysis was conducted on each construct of the entrepreneurial intentions model to determine unidimensionality. This also provided partial assessment of the measurement model fit. Measurement items from the survey were entered into the analysis by construct. Covariance for each construct served as input for confirmatory factor analyses. Several criteria were used to evaluate model fit.

The model building process began with the observation of fit statistics on which evaluation of model fit was based. The chi-square ($\chi^2$) statistic, a useful general fit indicator and often referred to as goodness-of-fit (Burns & Bush, 2002), is an absolute measure of model fit. Low and nonsignificant ($p > .05$) $\chi^2$ values show that the actual and predicted matrices are not statistically different. In structural equation modeling (SEM), contrary to the customary desire for statistical significance, the interest is in obtaining nonsignificant differences “because the test is between actual and predicted matrices” (Hair et al., 1998, p. 683). Nonsignificant chi-square $p$-values were obtained for each construct in this study.

However, because the $\chi^2$ statistic is biased toward large samples ($n \geq 200$) and models with large number of indicators, alternative fit indices were also used to assess the model fit (Byrne, 1998). Alternative fit indices selected to evaluate the model include the Root Mean Square Error of Approximation (RMSEA), which measures how well the model would fit the population covariance matrix; and the Goodness-of-Fit Index (GFI). RMSEA index values of .05 or less reflect good fit, while values ranging from .08 to .10 are moderately acceptable (Byrne, 1998; Hair et al., 1998). LISREL's 90% confidence interval was used to assess the accuracy of RMSEA estimates, where a narrow confidence interval suggests good precision.
and model fit in the population (MacMillan, Browne, & Sugawara, 1996). The GFI is an
absolute measure of model fit, where values of .90 or greater indicate optimal model fit
(Byrne, 1998; Hair et al., 1998). Incremental fit indices, such as the Bentler and Bonnet's
(1980, 1987) Normed Fit Index (NFI), the Non-Normed Fit Index (NNFI), and the
Comparative Fit Index (CFI), were used to compare the hypothesized model to a null model.
The perfect fit for all incremental indices is 1.0 (Hair et al., 1998), reflecting that the
hypothesized model fits the data.

Phase two of model building involved the assessment of item to factor loading, and
thus assesses construct validity. A positive and significant item to factor loadings suggests
convergent validity of the model. CFA is a widely used technique for testing psychometric
properties of measurements. In CFA, overall model fit shows the extent to which the
specified indicators represent the hypothesized constructs (Byrne, 1998). Items with high
error terms and cross-loadings were removed one at a time to improve model fit.

To assess discriminant validity, LISREL modification indices were checked for item
to factor cross-loading. Standardized residuals were checked to further assess items that
cross-loaded and produced high estimates. Large standardized residuals (> 2.58) that form a
pattern of error among construct indicators are problematic (Byrne, 1998). Thus, cross-
loaded items with high error terms were removed one at a time, followed by model fit
assessment after each revision. Construct validity was evaluated through this step. Indicators
for individual constructs are presented in Table 4.1. Twenty-nine construct items were
retained as a result of model building (Table 4.1).
Table 4.1. Items for constructs in the entrepreneurial intentions model of FCS students

<table>
<thead>
<tr>
<th>Construct</th>
<th>Item</th>
<th>Scale: 1= not at all to 5=very frequently</th>
<th>Composite Reliability</th>
<th>Coefficient Alpha</th>
<th>Variance Extracted</th>
</tr>
</thead>
<tbody>
<tr>
<td>Leadership Behavior</td>
<td>v4.2</td>
<td>I help people vision what can be accomplished if we work together.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>v4.3</td>
<td>I lead and encourage people to reach goals with or without my input.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>v4.5</td>
<td>I inspire others to consider new ways of looking at things.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>v4.6</td>
<td>I like to assume responsibility.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>v4.7</td>
<td>I like to take the lead in group work.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>v4.8</td>
<td>I am often a step ahead of others.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vision</td>
<td>v4.9</td>
<td>I provide others with new ways of looking at things.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>v4.10</td>
<td>I encourage others to rethink ideas not previously questioned.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>v4.11</td>
<td>I enable others to think about old problems in new ways.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>v4.15</td>
<td>I am motivated by success and driven to do well.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>v4.16</td>
<td>I am resourceful and I am able to meet challenges and solve problems.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>v4.17</td>
<td>I have a vision and I know where I want to go.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>v4.18</td>
<td>I am a hard working person and I do what it takes to succeed.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>v4.19</td>
<td>I am a risk taker and I would be able to successfully manage risk associated with creating and growing a business.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
The resulting construct composition from the measurement instrument items listed in Appendix C follows. The construct of leadership behavior contained six items retained for structural model testing. Cross-loading for item v4.1, and low factor loadings (<.50) for items v4.4, v4.9, and v4.10, resulted in their removal from the leadership construct. Entrepreneurial intensity CFA results produced low (<.40) factor loadings for items v1.10, and v1.14, and
cross-loading for items v1.13 and v5.5. All these items subsequently were dropped from the analysis. Assessment of attitude toward entrepreneurship construct reflected very low (< .45) factor loadings for indicators v6.1, v6.4, v6.10, v7.4, and v8.1, and high error terms for items v5.6 and v7.10, which resulted in their removal from overall structural model testing. The entrepreneurial intentions construct consisted of six items retained for model testing. High error terms for items v7.7, v7.9, and v7.10, cross-loading for item v7.6, and low factor loadings (.35) in item v7.11 led to elimination of these items from the model.

The revised construct scales were assessed for internal consistency using coefficient alpha, composite scale reliability, and variance extracted. As shown in Table 4.1, acceptable reliability coefficient alpha values of 0.70 or greater were achieved for each construct (Hinkle et al., 2003). Composite reliabilities (≥ 0.70) and variance extracted (≥ 0.50) of the measurement model constructs meet the minimum recommended level of reliability (Hair et al., 1998). The confirmatory factor analysis resulted in the retention of 29 items for structural model testing. The formulas used to calculate composite reliability and variance extracted are presented in Appendix B.

**Confirmatory factor analysis**

Identification and measurement of the perceived entrepreneurial intensity, leadership behavior, attitudes, and intentions are critical to the proposed entrepreneurial intentions theory. Building on this assertion, factors of each construct were subjected to CFA. The resulting model was evaluated using the standard assessment procedure outlined previously.

The CFA indicated the way observed measurements loaded on specific factors (Byrne, 1998). Covariance matrices were computed using multiple observed variables for each construct and served as input for analyses. The analyses resulted in three-item factors
for all latent variables except risk-taking, which was a two-item factor. The leadership construct was represented by two latent variables: charisma and vision. There were three items for each leadership behavior latent variable. The entrepreneurial intensity construct consists of a three-item innovativeness factor, three-item proactiveness factor, and two-item risk-taking factor. Three factors—desirability of entrepreneurship, feasibility of entrepreneurship, and propensity to act on opportunity—constitute the attitude toward entrepreneurship construct. The entrepreneurial intentions construct was comprised of training and career factors.

CFA results suggest excellent model fit. The parameter estimates, with associated \( t \)-values (> 2.00), were significant (Byrne, 1998). High item-factor loadings were achieved for each construct. The CFA results including overall fit are presented under each construct. Using maximum modification indices, good model fit was yielded for each construct.

Composite reliability and variance extracted were computed from the CFA output. As shown in Table 4.2, optimal composite construct reliability and alpha coefficients (> .70) were achieved for each construct. The variance extracted was acceptable (≥ .50) for all constructs. Results show that the leadership construct has good composite reliability (0.90), coefficient alpha (0.88), and variance extracted (0.53). The composite reliability (0.94), Cronbach alpha (\( \alpha = 0.81 \)), and variance extracted (0.53) indicate that the entrepreneurial intensity construct exceeds minimum reliability and variance extracted levels. Acceptable values for composite reliability (0.90), reliability coefficient (\( \alpha = 0.89 \)), and variance extracted (0.50) were achieved for the attitude toward entrepreneurship construct. Finally, the entrepreneurial intentions construct is represented by a composite reliability (0.90), Cronbach coefficient (\( \alpha = 0.82 \)), and variance extracted (0.56).
Leadership behavior

As shown in Table 4.2, CFA results reveal that the parameter estimates for the entrepreneurial leadership construct are significant, with $t$-values greater than 2.00 (Byrne, 1998). The chi-square value ($\chi^2 = 26.37, 23 \, df, p = 0.28$), with RMSEA of 0.024 and 90% confidence interval ranging from 0.0 to 0.062, suggest good model fit. The fit indices (NFI = 0.95, NNFI = 0.99, CFI = 1.00, and GFI = 0.97) indicate good model fit for leadership behavior.

Table 4.2. Confirmatory factor analysis: Leadership behavior

<table>
<thead>
<tr>
<th>Construct</th>
<th>Observed Variables</th>
<th>Parameter Estimate</th>
<th>t-value</th>
<th>Standardized Estimate</th>
<th>Standardized Residual Variance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Leadership Behavior</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Charisma</td>
<td>v4.2</td>
<td>0.68</td>
<td>13.84</td>
<td>0.82</td>
<td>0.32</td>
</tr>
<tr>
<td></td>
<td>v4.3</td>
<td>0.74</td>
<td>13.30</td>
<td>0.80</td>
<td>0.36</td>
</tr>
<tr>
<td></td>
<td>v4.5</td>
<td>0.61</td>
<td>11.68</td>
<td>0.73</td>
<td>0.47</td>
</tr>
<tr>
<td>Vision</td>
<td>v4.6</td>
<td>0.71</td>
<td>13.34</td>
<td>0.82</td>
<td>0.33</td>
</tr>
<tr>
<td></td>
<td>v4.7</td>
<td>0.75</td>
<td>12.48</td>
<td>0.78</td>
<td>0.39</td>
</tr>
<tr>
<td></td>
<td>v4.8</td>
<td>0.62</td>
<td>10.57</td>
<td>0.70</td>
<td>0.51</td>
</tr>
</tbody>
</table>

All are significant ($p < .05$).

Overall fit

<table>
<thead>
<tr>
<th>Construct</th>
<th>Chi-Square</th>
<th>df</th>
<th>$p$</th>
<th>RMSEA</th>
<th>90% CI</th>
<th>NFI</th>
<th>NNFI</th>
<th>CFI</th>
<th>GFI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Leadership</td>
<td>26.37</td>
<td>23</td>
<td>0.28</td>
<td>0.024</td>
<td>(0.0 ; 0.062)</td>
<td>0.97</td>
<td>0.99</td>
<td>1.00</td>
<td>0.97</td>
</tr>
</tbody>
</table>

The CFA results in Table 4.3 show good model fit for the entrepreneurial intensity construct. Parameter estimates are significant ($t > 2.00$). The chi-square ($\chi^2 = 42.17, 33 \, df, p = 0.13$), with RMSEA of 0.036 and fit indices (NFI = 0.95, NNFI = 0.98, CFI = 0.99, and GFI = 0.96), demonstrate good model fit. The composite reliability (0.94), variance extracted value of 0.57, and coefficient alpha of .81 are acceptable values for model fit.
Table 4.3. Confirmatory factor analysis: Entrepreneurial intensity

<table>
<thead>
<tr>
<th>Construct</th>
<th>Observed Variables</th>
<th>Parameter Estimate</th>
<th>t-value</th>
<th>Standardized Estimate</th>
<th>Standardized Residual Variance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Entrepreneurial Intensity</td>
<td>Innovative</td>
<td>v3.5</td>
<td>0.74</td>
<td>12.45</td>
<td>0.90</td>
</tr>
<tr>
<td></td>
<td></td>
<td>v3.6</td>
<td>0.69</td>
<td>10.95</td>
<td>0.75</td>
</tr>
<tr>
<td></td>
<td></td>
<td>v3.7</td>
<td>0.90</td>
<td>13.43</td>
<td>0.95</td>
</tr>
<tr>
<td></td>
<td>Proactive</td>
<td>v1.5</td>
<td>0.51</td>
<td>12.14</td>
<td>0.77</td>
</tr>
<tr>
<td></td>
<td></td>
<td>v1.11</td>
<td>0.49</td>
<td>12.27</td>
<td>0.76</td>
</tr>
<tr>
<td></td>
<td></td>
<td>v1.15</td>
<td>0.54</td>
<td>8.42</td>
<td>0.58</td>
</tr>
<tr>
<td></td>
<td>Risk taking</td>
<td>v1.7</td>
<td>0.63</td>
<td>10.04</td>
<td>0.88</td>
</tr>
<tr>
<td></td>
<td></td>
<td>v1.9</td>
<td>0.65</td>
<td>7.85</td>
<td>0.68</td>
</tr>
</tbody>
</table>

All are significant ($p < .05$).

Overall fit

<table>
<thead>
<tr>
<th>Construct</th>
<th>Chi-Square</th>
<th>df</th>
<th>p</th>
<th>RMSEA</th>
<th>90% CI</th>
<th>NFI</th>
<th>NNFI</th>
<th>CFI</th>
<th>GFI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Entrepreneurial Intensity</td>
<td>42.17</td>
<td>33</td>
<td>0.13</td>
<td>0.036</td>
<td>(0.0 ; 0.066)</td>
<td>0.95</td>
<td>0.98</td>
<td>0.99</td>
<td>0.96</td>
</tr>
</tbody>
</table>

As indicated in Table 4.4, the chi-square statistic ($\chi^2 = 75.30$, 70 df, $p = 0.31$) for the attitude toward entrepreneurship construct, and the RMSEA (0.023) with associated 90% confidence interval (0.0; 0.046) represent good model fit. The optimal model fit for the attitude toward entrepreneurship construct is also supported by high values for incremental fit indices (NFI = .95, NNFI = .99, CFI = 1.00, GFI = .95). Composite reliability value of 0.90, variance extracted value (0.50) and coefficient alpha of 0.89 are acceptable for model fit.
Table 4.4. Confirmatory factor analysis: Attitude toward entrepreneurship

<table>
<thead>
<tr>
<th>Construct</th>
<th>Observed Variables</th>
<th>Parameter Estimate</th>
<th>t-value</th>
<th>Standardized Estimate</th>
<th>Standardized Residual Variance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attitude toward entrepreneurship Desirability</td>
<td>V8.2</td>
<td>0.67</td>
<td>8.22</td>
<td>0.56</td>
<td>0.69</td>
</tr>
<tr>
<td></td>
<td>V8.3</td>
<td>0.52</td>
<td>7.30</td>
<td>0.50</td>
<td>0.75</td>
</tr>
<tr>
<td></td>
<td>V8.4</td>
<td>0.99</td>
<td>14.49</td>
<td>0.95</td>
<td>0.11</td>
</tr>
<tr>
<td>Feasibility</td>
<td>V6.2</td>
<td>0.95</td>
<td>15.26</td>
<td>0.87</td>
<td>0.24</td>
</tr>
<tr>
<td></td>
<td>V6.6</td>
<td>0.69</td>
<td>12.18</td>
<td>0.75</td>
<td>0.44</td>
</tr>
<tr>
<td></td>
<td>V6.7</td>
<td>0.78</td>
<td>11.10</td>
<td>0.70</td>
<td>0.51</td>
</tr>
<tr>
<td>Propensity to act</td>
<td>V7.6</td>
<td>0.69</td>
<td>11.92</td>
<td>0.74</td>
<td>0.45</td>
</tr>
<tr>
<td></td>
<td>V7.9</td>
<td>0.74</td>
<td>10.65</td>
<td>0.69</td>
<td>0.27</td>
</tr>
<tr>
<td></td>
<td>V5.13</td>
<td>0.64</td>
<td>10.76</td>
<td>0.69</td>
<td>0.53</td>
</tr>
</tbody>
</table>

All are significant (p < .05).

Overall fit

<table>
<thead>
<tr>
<th>Construct</th>
<th>Chi-Square</th>
<th>df</th>
<th>p</th>
<th>RMSEA</th>
<th>90% CI</th>
<th>NFI</th>
<th>NNFI</th>
<th>CFI</th>
<th>GFI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attitude Toward Entrepreneurship</td>
<td>75.30</td>
<td>70</td>
<td>0.31</td>
<td>0.020</td>
<td>(0.0 ; 0.046)</td>
<td>0.95</td>
<td>0.99</td>
<td>1.00</td>
<td>0.95</td>
</tr>
</tbody>
</table>

Table 4.5. Confirmatory factor analysis: Entrepreneurial intentions

<table>
<thead>
<tr>
<th>Construct</th>
<th>Observed Variables</th>
<th>Parameter Estimate</th>
<th>t-value</th>
<th>Standardized Estimate</th>
<th>Standardized Residual Variance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intentions Career</td>
<td>V7.2</td>
<td>0.92</td>
<td>14.96</td>
<td>0.84</td>
<td>0.10</td>
</tr>
<tr>
<td></td>
<td>V7.7</td>
<td>0.65</td>
<td>11.65</td>
<td>0.71</td>
<td>0.50</td>
</tr>
<tr>
<td></td>
<td>V7.8</td>
<td>0.62</td>
<td>10.13</td>
<td>0.63</td>
<td>0.60</td>
</tr>
<tr>
<td>Intentions Training</td>
<td>V7.1</td>
<td>0.80</td>
<td>14.30</td>
<td>0.95</td>
<td>0.42</td>
</tr>
<tr>
<td></td>
<td>V7.3</td>
<td>0.68</td>
<td>11.74</td>
<td>0.76</td>
<td>0.25</td>
</tr>
<tr>
<td></td>
<td>V7.5</td>
<td>0.78</td>
<td>12.50</td>
<td>0.87</td>
<td>0.29</td>
</tr>
</tbody>
</table>

All are significant (p < .05).

Overall fit

<table>
<thead>
<tr>
<th>Construct</th>
<th>Chi-Square</th>
<th>df</th>
<th>p</th>
<th>RMSEA</th>
<th>90% CI</th>
<th>NFI</th>
<th>NNFI</th>
<th>CFI</th>
<th>GFI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intentions</td>
<td>33.07</td>
<td>32</td>
<td>0.41</td>
<td>0.0020</td>
<td>(0.0 ; 0.051)</td>
<td>0.97</td>
<td>1.00</td>
<td>1.00</td>
<td>0.97</td>
</tr>
</tbody>
</table>
CFA results of the entrepreneurial intentions construct (Table 4.5) produced significant factor loadings for each indicator with $t$-values of greater than 2.00 ($p < 0.05$) (Byrne, 1998). The chi-square statistic ($\chi^2 =33.07, 32 \text{ df, } p = 0.41$), RMSEA (0.020), and associated 90% confidence interval (0.0; 0.051) for entrepreneurial intentions suggest acceptable model fit. High values for incremental fit indices (NFI = .97, NNFI = 1.00, CFI = 1.00, GFI = .97) further support construct model fit. Reliability coefficient alpha (0.82), composite reliability (0.90), and variance extracted (0.56) are also optimal.

**Full measurement model CFA**

The full measurement model (Figure 4.1) was estimated using CFA. The focus in this step was on assessing the relationship between constructs, the nomological validity contained in the measurement model, and the overall factor structures and dimensionality. Discriminant validity was tested through assessment of the overall structure and dimensionality. Nomological validity was noted by evaluating correlations between constructs. Prior research supports this approach and suggests that a full CFA allows for overall assessment of construct relationships and model fit (Byrne, 1998). Results from this assessment helped build confidence in findings related to the hypothesized structural model.

Confirmatory factor analysis results of the full measurement model are presented in Table 4.6. The model consists of four constructs comprising ten latent factors and 29 observed variables. Each construct in the model is distinct and unidimensional. Findings provide support for convergent and discriminant validity of the model. All items factor coefficients were positive and significant, indicative of convergent validity (Byrne, 1998). Strong and distinct item-factor loadings are noted as well as moderate to strong between
construct correlations for most model dimensions. No high indicator cross-loadings were noted in this analysis.

Figure 4.1. Measurement model: Leadership behavior, entrepreneurial intensity, attitudes and intentions of FCS students

Observed variable definitions:
- \( y_1 = \) Charisma
- \( y_2 = \) Vision
- \( y_3 = \) Innovative
- \( y_4 = \) Proactive
- \( y_5 = \) Risk-taking
- \( y_6 = \) Desirability of entrepreneurship
- \( y_7 = \) Feasibility of entrepreneurship
- \( y_8 = \) Propensity to act
- \( y_9 = \) Career intentions
- \( y_{10} = \) Training intentions

Overall results in Table 4.6 suggest good model fit. Acceptable model fit is reflected by the chi-square statistic \( (\chi^2 = 37.95, 29 \text{ df}, p = .12) \), a RMSEA value of 0.036, and an associated 90\% confidence interval (0.0; 0.067). Incremental indices also indicate excellent fit (NFI = 0.98, NNFI = 0.99, CFI = 0.99, GFI = 0.97).
Table 4.6. Full confirmatory factor analysis of measurement model of FCS students

<table>
<thead>
<tr>
<th>Construct</th>
<th>Observed Variables</th>
<th>Parameter Estimate</th>
<th>t-value</th>
<th>Standardized Estimate</th>
<th>Standardized Residual Variance</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Leadership Behavior</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Charisma</td>
<td>y1</td>
<td>0.47</td>
<td>9.06</td>
<td>0.62</td>
<td>0.61</td>
</tr>
<tr>
<td>Vision</td>
<td>y2</td>
<td>0.51</td>
<td>9.52</td>
<td>0.64</td>
<td>0.59</td>
</tr>
<tr>
<td><strong>Entrepreneurial Intensity</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Innovative</td>
<td>y3</td>
<td>0.43</td>
<td>7.86</td>
<td>0.55</td>
<td>0.70</td>
</tr>
<tr>
<td>Proactive</td>
<td>y4</td>
<td>0.48</td>
<td>12.10</td>
<td>0.78</td>
<td>0.39</td>
</tr>
<tr>
<td>Risk-taking</td>
<td>y5</td>
<td>0.47</td>
<td>10.57</td>
<td>0.70</td>
<td>0.51</td>
</tr>
<tr>
<td><strong>Attitudes</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Desirability</td>
<td>y6</td>
<td>0.54</td>
<td>9.53</td>
<td>0.61</td>
<td>0.63</td>
</tr>
<tr>
<td>Feasibility</td>
<td>y7</td>
<td>0.76</td>
<td>14.86</td>
<td>0.87</td>
<td>0.24</td>
</tr>
<tr>
<td>Propensity to act</td>
<td>y8</td>
<td>0.67</td>
<td>14.57</td>
<td>0.85</td>
<td>0.27</td>
</tr>
<tr>
<td><strong>Entrepreneurial Intentions</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Career</td>
<td>y9</td>
<td>0.43</td>
<td>7.89</td>
<td>0.55</td>
<td>0.70</td>
</tr>
<tr>
<td>Training</td>
<td>y10</td>
<td>0.73</td>
<td>14.07</td>
<td>0.83</td>
<td>0.31</td>
</tr>
</tbody>
</table>

All are significant (p < .05).

Overall fit

<table>
<thead>
<tr>
<th>Construct</th>
<th>Chi-Square</th>
<th>df</th>
<th>p</th>
<th>RMSEA</th>
<th>90% CI</th>
<th>NFI</th>
<th>NNFI</th>
<th>CFI</th>
<th>GFI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Measurement Model</td>
<td>37.95</td>
<td>29</td>
<td>0.12</td>
<td>0.036</td>
<td>(0.0; 0.067)</td>
<td>0.98</td>
<td>0.99</td>
<td>0.99</td>
<td>0.97</td>
</tr>
</tbody>
</table>

Table 4.7. Composite reliabilities of the full measurement model constructs

<table>
<thead>
<tr>
<th>Construct</th>
<th>Composite Reliability</th>
<th>Coefficient Alpha</th>
<th>Variance Extracted</th>
</tr>
</thead>
<tbody>
<tr>
<td>Leadership Behavior</td>
<td>0.90</td>
<td>0.86</td>
<td>0.60</td>
</tr>
<tr>
<td>Entrepreneurial Intensity</td>
<td>0.91</td>
<td>0.81</td>
<td>0.59</td>
</tr>
<tr>
<td>Attitude Toward Entrepreneurship</td>
<td>0.91</td>
<td>0.87</td>
<td>0.51</td>
</tr>
<tr>
<td>Entrepreneurial Intentions</td>
<td>0.91</td>
<td>0.81</td>
<td>0.62</td>
</tr>
</tbody>
</table>
Reliability and variance extracted measure were computed. Results in Table 4.8 reveal that composite reliabilities of all measurement model constructs meet the minimum (> 0.70) acceptable level. Results of variance extracted exceed the threshold value of 0.50 for all constructs, suggesting construct validity (Hair et al., 1998). Thus, the measurement model was sufficiently specified, allowing analysis to proceed to structural equation model process.

**Structural Model of FCS Students**

The structural model phase employed path analysis to estimate structural parameters and test hypothesized construct relationships in the entrepreneurial intentions model. The objective was to examine causal relationships relating to FCS students’ perceptions of their entrepreneurial intensity, leadership, attitudes, and intentions. As illustrated in Figure 4.1, an intentions-based model was derived from the literature to understand and explain FCS students’ perceived leadership behavior, entrepreneurial intensity, and attitude toward entrepreneurship in relation to their intentions to study and pursue a career in entrepreneurship.

The structural model (Figure 4.2) consists of four constructs: entrepreneurial intensity, leadership behavior, attitude toward entrepreneurship, and entrepreneurial intentions. Summed variables were used in the analysis of the structural model. Ten latent factors and 29 observed variables were computed and produced covariance matrix for the path analysis input. Results show structural equations that contain a large number of statistically significant path coefficients, total effect estimates, and statistics of overall model fit (see Table 4.8).
Table 4.8. Structural model: Relationships between leadership behavior, entrepreneurial intensity, attitudes, and intentions of FCS students.

<table>
<thead>
<tr>
<th>Hypotheses</th>
<th>Paths</th>
<th>Path Coefficient &amp; (t-value)</th>
<th>Total Effect &amp; (t-value)</th>
<th>Indirect Effect &amp; (t-value)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>H1</strong>&lt;sub&gt;ab&lt;/sub&gt;</td>
<td>Correlation between Leadership Behavior and Entrepreneurial Intensity</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a) Charisma →</td>
<td>1. proactive</td>
<td>r = .50*(9.86)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>2. risk taking</td>
<td>r = .38*(6.52)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>b) Vision →</td>
<td>1. proactive</td>
<td>r = .49*(9.52)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>2. risk taking</td>
<td>r = .39*(6.81)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>H2</strong>&lt;sub&gt;ab&lt;/sub&gt;</td>
<td>Leadership Behavior → Attitudes Toward Entrepreneurship</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a) Charisma →</td>
<td>1. desirability</td>
<td>0.04(0.45)</td>
<td>0.05(0.60)</td>
<td>0.02(0.26)</td>
</tr>
<tr>
<td></td>
<td>2. feasibility</td>
<td>0.13*(2.30)</td>
<td>0.12(1.49)</td>
<td>-0.01(-0.19)</td>
</tr>
<tr>
<td></td>
<td>3. propensity to act</td>
<td>-0.02(-0.35)</td>
<td>-0.01(-0.19)</td>
<td>0.01(0.24)</td>
</tr>
<tr>
<td>b) Vision →</td>
<td>1. desirability</td>
<td>0.08(1.09)</td>
<td>0.08(1.08)</td>
<td>0.00(0.09)</td>
</tr>
<tr>
<td></td>
<td>2. feasibility</td>
<td>-0.04(-0.79)</td>
<td>0.08(1.13)</td>
<td>-0.04(-0.79)</td>
</tr>
<tr>
<td></td>
<td>3. propensity to act</td>
<td>0.16*(3.31)</td>
<td>0.16*(2.58)</td>
<td>0.12*(2.38)</td>
</tr>
<tr>
<td><strong>H3</strong>&lt;sub&gt;ab&lt;/sub&gt;</td>
<td>Leadership Behavior → Intentions</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a) Charisma →</td>
<td>1. career intentions</td>
<td>0.00(0.08)</td>
<td>0.02(0.26)</td>
<td>0.02(0.28)</td>
</tr>
<tr>
<td></td>
<td>2. training intentions</td>
<td>0.05(0.75)</td>
<td>0.05(0.39)</td>
<td>-0.02(-0.74)</td>
</tr>
<tr>
<td>b) Vision →</td>
<td>1. career intentions</td>
<td>-0.10(-1.39)</td>
<td>0.01(0.09)</td>
<td>0.10(1.42)</td>
</tr>
<tr>
<td></td>
<td>2. training intentions</td>
<td>0.01(0.25)</td>
<td>0.08(1.22)</td>
<td>0.06(2.29)</td>
</tr>
<tr>
<td><strong>H4</strong>&lt;sub&gt;abc&lt;/sub&gt;</td>
<td>Entrepreneurial Intensity → Attitudes Toward Entrepreneurship</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a) Innovativeness →</td>
<td>1. desirability</td>
<td>-0.07(-0.91)</td>
<td>-0.01(-0.07)</td>
<td>0.06(1.09)</td>
</tr>
<tr>
<td></td>
<td>2. feasibility</td>
<td>-0.03(-0.56)</td>
<td>0.03(0.42)</td>
<td>0.06(1.21)</td>
</tr>
<tr>
<td></td>
<td>3. propensity to act</td>
<td>0.06(0.93)</td>
<td>0.08(1.24)</td>
<td>0.02(0.61)</td>
</tr>
<tr>
<td>b) Proactiveness →</td>
<td>1. desirability</td>
<td>0.02(0.12)</td>
<td>0.12(1.54)</td>
<td>0.11(1.70)</td>
</tr>
<tr>
<td></td>
<td>2. feasibility</td>
<td>0.10(1.87)</td>
<td>0.12(1.65)</td>
<td>0.02(0.51)</td>
</tr>
<tr>
<td></td>
<td>3. propensity to act</td>
<td>-0.01(-0.12)</td>
<td>0.03(0.51)</td>
<td>0.04(0.67)</td>
</tr>
<tr>
<td>c) Risk taking →</td>
<td>1. desirability</td>
<td>-0.06(-0.68)</td>
<td>0.12(1.66)</td>
<td>0.18*(2.34)</td>
</tr>
<tr>
<td></td>
<td>2. feasibility</td>
<td>0.00(0.07)</td>
<td>0.13(1.93)</td>
<td>0.13*(2.56)</td>
</tr>
<tr>
<td></td>
<td>3. propensity to act</td>
<td>0.10(0.94)</td>
<td>0.17*(2.82)</td>
<td>0.07(0.70)</td>
</tr>
<tr>
<td><strong>H5</strong>&lt;sub&gt;abc&lt;/sub&gt;</td>
<td>Entrepreneurial Intensity → Intentions</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a) Innovative →</td>
<td>1. career intentions</td>
<td>0.02(0.45)</td>
<td>0.08(1.16)</td>
<td>0.06(1.08)</td>
</tr>
<tr>
<td></td>
<td>2. training intentions</td>
<td>0.02(0.25)</td>
<td>0.04(0.62)</td>
<td>0.02(0.95)</td>
</tr>
<tr>
<td>b) Proactive →</td>
<td>1. career intentions</td>
<td>0.12*(2.30)</td>
<td>0.14*(2.02)</td>
<td>0.03(0.51)</td>
</tr>
<tr>
<td></td>
<td>2. training intentions</td>
<td>0.09(1.43)</td>
<td>0.09 (1.44)</td>
<td>0.01(0.27)</td>
</tr>
<tr>
<td>c) Risk taking →</td>
<td>1. career intentions</td>
<td>0.12(1.70)</td>
<td>0.24*(3.53)</td>
<td>0.12(1.55)</td>
</tr>
<tr>
<td></td>
<td>2. training intentions</td>
<td>0.12*(2.05)</td>
<td>0.18*(2.91)</td>
<td>0.06*(2.33)</td>
</tr>
<tr>
<td><strong>H6</strong>&lt;sub&gt;ab&lt;/sub&gt;</td>
<td>Attitudes → Intentions</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a) Desirability →</td>
<td>career intentions</td>
<td>-0.25(-1.54)</td>
<td>-0.27(-1.38)</td>
<td>-0.02(-0.36)</td>
</tr>
<tr>
<td>b) Desirability →</td>
<td>training intentions</td>
<td>0.16*(2.64)</td>
<td>0.11(1.19)</td>
<td>-0.05*(-0.68)</td>
</tr>
<tr>
<td><strong>H7</strong>&lt;sub&gt;ab&lt;/sub&gt;</td>
<td>Attitudes → Intentions</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a) Feasibility →</td>
<td>career intentions</td>
<td>0.31*(2.87)</td>
<td>0.33*(2.28)</td>
<td>0.02(0.39)</td>
</tr>
<tr>
<td>b) Feasibility →</td>
<td>training intentions</td>
<td>-0.21*(-2.57)</td>
<td>-0.15(-1.32)</td>
<td>0.06(0.86)</td>
</tr>
<tr>
<td><strong>H8</strong>&lt;sub&gt;ab&lt;/sub&gt;</td>
<td>Attitudes → Intentions</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Propensity to act →</td>
<td>a) career intentions</td>
<td>0.61*(2.01)</td>
<td>0.89*(4.59)</td>
<td>0.28*(2.12)</td>
</tr>
<tr>
<td></td>
<td>b) training intentions</td>
<td>0.40*(4.29)</td>
<td>0.42*(2.95)</td>
<td>0.02(0.13)</td>
</tr>
</tbody>
</table>

*p < .05 n = 215 (table 4.9 continues)
Path analysis was conducted using 29 observed variables. Residuals, modification indices, and model fit were checked and revised until acceptable fit was reached. The focus of the study was to test the plausibility of hypothesized entrepreneurial intentions model on perceived leadership behavior, entrepreneurial intensity, attitudes, and intentions of FCS students. The foundation of intentions model is that attitudes predict intentions, and intentions predict behavior (Ajzen, 1987; Shapero, 1982).

The path analysis process produced a no significant chi-square statistic ($\chi^2 = 1.44, 1 \text{ df}, p < 0.23$) for FCS students’ entrepreneurial intentions model, suggesting good model fit. The RMSEA value of 0.045, with associated 90% confidence interval ranging from 0.0 to 0.19, is indicative of good model fit. Incremental fit indices (NFI = 1.00, NNFI = 0.98, CFI = 1.00, GFI = 1.00) further reflect excellent fit for the hypothesized entrepreneurial intentions model. Distinct and high item-to-factor loadings were produced for model dimensions.

Relationships between variables (path coefficients) for the full recursive structural model of FCS students’ entrepreneurial intentions are illustrated in Figure 4.2. In addition, the squared multiple correlations ($R^2$) values were as follows: feasibility $R^2 = 0.60$, propensity to act $R^2 = 0.52$, desirability $R^2 = 0.23$ for the structural equations. This indicates that 23-60% of variance in attitude toward entrepreneurship is explained by the model. The squared multiple correlations for career, $R^2 = 0.66$; and for training, $R^2 = 0.30$ reveal that 30-66% of variance in entrepreneurial intentions were explained by the model. This finding also
shows significant casual relationships. Finally, the correlations between endogenous (dependent) variables were reviewed, where high values were noted as indicative of not acceptable level of Interco related constructs (Hair et al., 1998). Acceptable low \( (r = 0.43 \text{ or less}) \) correlation values for endogenous constructs, except for desirability \( (r = 0.61) \) were achieved. These results suggest no problematic intercorrelations.

**Hypothesis Testing Results**

A large number of the hypothesized relationships in the original structural model (Figure 4.2) were supported. Statistically significant structural coefficients \( (t > 2.00) \) were achieved between variables, revealing both direct and indirect relationships (Byrne, 1998). High reliability coefficient alpha \( (> .80) \) and distinct item-factor loadings were attained for all latent constructs throughout model building. Results of hypothesis testing are discussed in sequential order, beginning with the correlations between exogenous variables (leadership behavior and entrepreneurial intensity).

Evaluation of the correlation (H1ab) between leadership behavior and entrepreneurial intensity constructs provided further insight into the structural model. Nomological validity is achieved, demonstrating that these constructs compliment each other in the intentions model (Byrne, 1998). Each latent variable is significantly correlated with other exogenous variables. As shown in Table 4.10, perceived charisma correlates with proactiveness \( (r = 0.50) \), and with risk-taking \( (r = 0.38) \). Students’ vision was correlated with proactive \( (r = 0.49) \), and risk-taking \( (r = 0.39) \). These findings provide support for results related to the hypothesized structural model (Hair et al., 1998).
Figure 4.2 Structural model results: Relationships between leadership behavior, entrepreneurial intensity, attitudes, and intentions of FCS students

Definition of indicators:
- y1 = charisma
- y2 = vision
- y3 = innovative
- y4 = proactive
- y5 = risk taking
- y6 = desirability of entrepreneurship
- y7 = feasibility of entrepreneurship
- y8 = propensity to act on opportunity
- y9 = career intentions
- y10 = training intentions

Table 4.10 Correlations between leadership behavior and entrepreneurial intensity

<table>
<thead>
<tr>
<th></th>
<th>Charisma</th>
<th>Vision</th>
<th>Innovative</th>
<th>Proactive</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vision</td>
<td>0.58</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Innovative</td>
<td>0.64</td>
<td>0.39</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Proactive</td>
<td>0.50</td>
<td>0.49</td>
<td>0.40</td>
<td></td>
</tr>
<tr>
<td>Risk-taking</td>
<td>0.38</td>
<td>0.39</td>
<td>0.38</td>
<td>0.57</td>
</tr>
</tbody>
</table>
Entrepreneurial leadership behavior

It was hypothesized that leadership behavior is positively related to attitudes toward entrepreneurship. Specifically, hypothesis H2a was that students’ perceived level of charisma is positively related to their perceived desirability of entrepreneurship, feasibility of entrepreneurship, and propensity to act entrepreneurial. A positive and significant relationship was found between charisma and entrepreneurial feasibility ($\gamma = 0.13, t = 2.30^*$), suggesting support for H2a. Results suggest that charismatic FCS students have positive attitudes toward their capacity to perform entrepreneurial activities. Similarly, students’ perceived vision demonstrated a positive and significant relationship with their propensity to act entrepreneurial ($\gamma = 0.16, t = 3.31^*$), supporting H2b. This finding suggests visionary students have positive feelings toward taking entrepreneurial action to study and practice entrepreneurship. Studies indicate that effective leaders use their competencies to make things happen (Boyatzis, 2004).

Relationships between charisma and the desirability of entrepreneurship (H2a1) and propensity to act on entrepreneurial opportunity (H2a3) were not significant. In addition, no significant relationships were found between vision and desirability of entrepreneurship (H2b1), and with feasibility of entrepreneurship (H2b2).

No significant relationships were found between students’ perceptions of their leadership behavior and entrepreneurial intentions. Both perceived charisma and vision had insignificant direct relationships with entrepreneurial career and training intentions. A possible interpretation is that leadership characteristics such as vision develop over time as a person begins to realize the possibility of success (Kuratko & Hodgetts, 2004). Respondents may not perceive this possibility, as it may be remote.
Entrepreneurial intensity

The study examined the extent to which perceived amount of FCS students’ tendency to foster innovativeness, as well as perceptions of their proactiveness, and risk-taking relate to their entrepreneurial attitudes (H4abc) and intentions (H5ab). Prior research indicates that entrepreneurs are characterized by their ability to create something new, such as a new product or service, and improved processes (Gartner, 1990; Morris, 1998). Entrepreneurs also provide vision the development of a new product, service or process (Fernald et al., 2005). In this study students assessed the extent to which they provide others with new ways of looking at things; encourage others to rethink ideas; and think about old problems in new ways (items v3.5, v3.6, and v3.7, Appendix C). Proactiveness is demonstrated in entrepreneurs’ ability to accomplish whatever they set out to do (Reynolds, 1998). Risk-taking refers to one’s ability to deal with uncertainty in pursuit of a goal (Fernald et al., 2005). Thus, a significant relationship was proposed between entrepreneurial intensity and attitude toward entrepreneurship and entrepreneurial intentions of FCS students.

Results did not support the hypotheses that students’ perceived degree of innovativeness, proactiveness, or risk-taking is significantly related to desirability, feasibility, or propensity to act on entrepreneurial activities concerning professional training and career (H4a, b, & c). However, there were significant indirect effects of FCS students’ perceived risk-taking on desirability (0.18*) and feasibility (0.13*) of entrepreneurship.

Hypothesis 5a, which states that students’ perceptions of innovativeness are positively related to career (H5a1) and training (H5a2) intentions in entrepreneurship, was not supported. Additionally, a nonsignificant finding was found for hypothesis 5b2, regarding the relationship between students’ perceived proactiveness and training intentions. Similar
findings were indicated for H5c1, for the association between students’ risk taking and their career intentions in entrepreneurship.

Results support the primary hypothesis H5b1, that students’ proactive behavior is positively associated with career intentions (γ = 0.12*, t = 2.30; p < .05) and a total effect value of 0.14* (t = 2.02). A positive and significant relationship was reflected by path coefficient (γ = 0.12*, t = 2.05; p < .05) and significant total effect (0.18*, t = 2.91) for H5c2, between students’ risk-taking qualities and training intentions. These findings suggest a direct relationship between the exogenous variables of perceived proactiveness, risk-taking tendencies, and entrepreneurial intentions.

In sum, viewing the results of the relationships between the exogenous constructs (entrepreneurial intensity, leadership behavior) and endogenous constructs (attitudes and entrepreneurial intentions), significant relationships suggest that perceptions of entrepreneurial intensity and leadership behavior play a role in influencing attitudes and intentions, and may therefore, be appropriate addition to the entrepreneurial intentions model. These findings confirm existing entrepreneurial intentions models (Krueger, 1993; Krueger et al., 2000; Shapero, 1982). Vision, for example, had a significant and positive effect on attitudes (H2b3), suggesting that visionary FCS students are proactive and demonstrate propensity to act (γ = 0.16*, total effect = 0.16*). The risk-taking factor also had positive and significant relationship with training intentions (γ = 0.12*, total effect = 0.18*). These constructs were a major extension to the entrepreneurial intentions model. They warrant further tests in other entrepreneurial applications to confirm the findings of this study.
Attitude toward entrepreneurship

Perceived desirability for a profession in entrepreneurship

It was hypothesized that FCS students' perceived desirability is positively related to career (H6a) and training (H6b) intentions in entrepreneurship. FCS students rated the effect of exposure to life experiences on entrepreneurial intentions. Studies have shown that desirability is enhanced by perceived positiveness of outcomes (Ajzen, 1987; Krueger, 2000).

As shown in Table 4.9 and Figure 4.2, path coefficients between all latent variables of FCS students' perceived attitudes toward entrepreneurship and entrepreneurial intentions indicate significant relationships. Perceived desirability is positively related to career intentions ($\beta = 0.50\* t = 3.67$), and to training intentions ($\beta = 0.53\* t = 4.42$). Results also suggest that FCS students have positive perceptions from outcomes of studying entrepreneurship. These results are consistent with Shapero’s entrepreneurial event (SEE) model, which argues that intent and performance depend on perceived personal desirability for the endeavor. Prior studies have supported a positive relationship between desirability and entrepreneurial intentions (Krueger, 1993, Peterman & Kennedy, 2003).

Perceived feasibility of pursuing a profession in entrepreneurship

Perceived feasibility was hypothesized to relate positively to career (H7a) and training (H7b) intentions in entrepreneurship. A positive and significant relationship was found between perceived feasibility and career intentions ($\beta = 0.31\*, t = 2.87; p < .05$) with a significant total effect value of $0.33\* (t = 2.28)$, supporting H7a. Results suggest that FCS students have strong perceived feasibility of their capacity to perform entrepreneurial activities. This may be attributed to their prior life experiences, including business work experiences. Demographic results of the present study indicate that a majority (92%) of
respondents had business-related summer job experience, 80.8% had business work experience, and 54.7% had parents who owned a business (see Table 3.1 in Chapter 3). Such experiences may account for perceived desirability predicting FCS students’ intentions to study and pursue a profession in entrepreneurship.

A significant negative relationship was reflected in the parameter estimate ($\beta = -0.21^*, t = -2.57; p < .05$) between perceived feasibility and training intentions in entrepreneurship (H6b). This result generally follows those of Krueger (1993) in indicating significant causal relationships between feasibility and intentions. The current study revealed that perceived feasibility was negatively related to students’ intentions to study entrepreneurship (H7b). The inverse relationship may be attributed to the fact that students’ perceptions of FCS programs of study to prepare them for a career in entrepreneurship are remote. Entrepreneurship has been associated historically with programs of study in business schools and colleges. This may require FCS programs of study to create awareness in students concerning entrepreneurship in non-business programs. Prior studies indicate that participation in entrepreneurship education program enhances perceptions of entrepreneurship feasibility (Peterman & Kennedy, 2003).

**Propensity to act on entrepreneurship profession decisions**

Propensity to act relates to a person’s perception of the ability to execute a target behavior (Bandura, 1986). The SEE model (1982) presumes that propensity to act is central to entrepreneurial intentions and influences the perceived feasibility of starting a business venture. Propensity to act is influenced by experiences, social pressure, and personal judgments (Boyd & Vozikis, 1994). Respondents in this study had diverse business work experiences. Demographic results in Chapter 3 reveal that 57.1% worked as sales associates,
20% were servers in restaurants, and 6.5% had managerial positions in business. These experiences may affect their propensity to act. Therefore, a positive relationship was hypothesized between propensity to act and entrepreneurial intentions (H8ab).

Hypotheses 8a and 8b that FCS students would have propensity to act on their decisions regarding career and training in entrepreneurship were supported. A positive significant relationship represented by path coefficient ($\beta = 0.61^*, t = 2.01^*; p < .05$) for H8a, and path coefficient ($\beta = 0.40^*, t = 4.29; p < .05$) for H8b indicate that FCS students consider themselves able and willing to study and pursue a career in entrepreneurship (H8a). These findings are consistent with prior research findings (Davidsson, 1995; Krueger, 2000). The results suggest that FCS students have a strong disposition to take action regarding the decision to study entrepreneurship. Prior studies contend that propensity to act depends on perceived ease of performing a task (Krueger, 1993; Shapero, 1985). Exposure to life experiences and business work experience cited earlier may be attributed to students' perceptions of ease concerning their ability to perform entrepreneurial activities.

The structural model that produced the above results demonstrated good overall fit (RMSEA = 0.045, $p = .23$, and > 0.95 fit indices). Correlations between latent factors were minimal (< 0.50). In addition, significant support for H5b1 and H5c2 suggest a direct relationship of leadership behavior and entrepreneurial intensity (exogenous constructs) with entrepreneurial intentions.

Leadership behavior and entrepreneurial intensity—exogenous variables—represent an extension to the entrepreneurial intentions model. Insignificant relationships for innovativeness with other variables were noted in the structural model. Theoretically, innovativeness is a key element in entrepreneurial process; therefore, it warrants further
examination in future studies. Significant relationships were achieved for all other latent variables linking attitude relationships with intentions. This finding also confirmed the model’s consistency with other intentions models including the Shapero-Krueger intentions model (Krueger et al., 2000).

Overall, significant relationships were found between some exogenous variables and endogenous variables. Perceived students’ charisma, a latent variable in leadership construct, is positively related to training intentions ($\gamma = 0.22, t = 2.08^*$). These findings suggest that FCS students’ perceived attitudes toward entrepreneurship predict their intentions to study and pursue a career in entrepreneurship. These results confirm the FCS students’ entrepreneurial intentions model’s consistency with other intentions models including the Shapero-Krueger intentions model (Krueger et al., 2000).

**Summary**

In sum, the results demonstrate consistency with prior findings and confirmed the usefulness of the intentions model in explaining entrepreneurial intentions of FCS students (Ajzen, 1987; Krueger, 1993). This study substantiates that using perceived desirability, perceived feasibility, and propensity to act to explain entrepreneurial intentions is valid for FCS students in the early stage of university education. These findings provide university-level FCS programs with new insight for curriculum development and career guidance. The results are consistent with the Shapero-Krueger entrepreneurial intentions model (Krueger et al., 2000). In addition, inverse relationships demonstrate that students at early stage of college education may not be very much concerned with the feasibility and the urge to start a business because the event may be perceived as distant. Relationships between the exogenous constructs (entrepreneurial intensity, leadership behavior) and endogenous
constructs (attitudes and entrepreneurial intentions) warrant further empirical tests. These constructs were a proposed extension to the entrepreneurial intentions model.
CHAPTER 5. CONCLUSION

Confirmation of Shapero-Krueger’s entrepreneurial intentions model

Findings of this study support literature that attitudes predict entrepreneurial intentions (Ajzen, 1987; Krueger, 1993; Shapero, 1982). The findings also provide a base for further studies on entrepreneurial intentions model. The primary objective of the study was to test the plausibility of FCS students’ entrepreneurial intentions model based on perceived leadership behavior, entrepreneurial intensity, attitudes, and entrepreneurial intentions of FCS undergraduate students from three public universities in the Midwestern U.S. Significant relationships were found between leadership behavior, entrepreneurial intensity, attitudes and entrepreneurial intentions. Respondents’ perceptions of leadership behavior and entrepreneurial intensity, attitude toward entrepreneurship significantly affected their entrepreneurial intentions.

Support for hypothesis 1a and 1b about the correlation between leadership behavior and entrepreneurial intensity in the FCS students’ entrepreneurial intentions structural model suggest an achievement of nomological validity. Findings show that leadership behavior and entrepreneurial intensity compliment each other in the FCS entrepreneurial intentions model. These two constructs were a proposed expansion to the Shapero-Krueger model of entrepreneurial intentions. More research that applies these constructs in entrepreneurial intentions model is essential. Future studies may apply these constructs to nascent entrepreneurs.

Further, the hypothesized model included the possible influence of entrepreneurial intensity and leadership behavior on both attitudes and entrepreneurial intentions of FCS students (H2a2, H2b3, H5b1, and H5c2). Significant relationships were found between the
latent variables of leadership behavior, attitude toward entrepreneurship, and the entrepreneurial intentions of FCS students. This leads to a conclusion that leadership behavior and entrepreneurial intensity affect attitudes and entrepreneurial intentions. More research, however, is required, through longitudinal investigation, to ascertain to what extent leadership behavior and entrepreneurial intensity influence subsequent entrepreneurial attitudes and intentions.

On the other hand, the risk-taking variable under the entrepreneurial intensity construct demonstrated an indirect effect on the feasibility of entrepreneurship (H4b2), and on propensity to act (H4b3). Risk-taking also had a positive and significant direct relationship with career intentions of FCS students (H5b1). These FCS students’ perceptions appear to be consistent with literature, which posits that entrepreneurs are risk-takers, high-achievers, and innovative in their ability to produce unique products and services (Morris et al., 2001).

The study supports Shapero’s (1982) propositions that entrepreneurial intentions derive largely from perceived desirability, perceived feasibility, and propensity to act on opportunities. This was demonstrated by support for hypotheses 6, 7, and 8 in the path analysis. Significant casual relationships were further indicated by the squared multiple correlations for structural equations ($R^2$) values, which revealed that a great portion (23-60%) of variance in attitude toward entrepreneurship, and a substantial amount (30-66%) of variance in entrepreneurial intentions of FCS students, was explained by the structural model. The explanatory power of these constructs strengthens the value of expanding the entrepreneurial intentions model to include leadership behavior and entrepreneurial intensity. However, there is still a degree of variance to be explained. Perhaps teaching strategies may
affect attitudes, especially FCS students’ perceptions of desirability, feasibility, and propensity to act. Krueger (1995) argues that to encourage personal desirability, one must examine rewards as perceived by potential entrepreneurs. More variables, for example, need to be explored to understand why students embark on program of study and pursue a career that involves entrepreneurship. Further research should also investigate teaching and learning strategies, especially what students are learning and how this affects their entrepreneurial attitudes and intentions.

Support for a large number of hypothesized relationships (H1, H2a1, H2b3, H3b2, H4c, H5b & c, H6, H7, & H8) not only demonstrates consistency with findings from other studies of entrepreneurial intentions models, but also provides helpful information to higher education FCS programs and institutions. Empirical evidence on students’ profile from this study may be useful to students considering owning business at some point, to university students’ selection and orientation into programs of study, career programs, curriculum development and teaching strategies. The present study’s intention-based model offers researchers a valuable tool for understanding students’ decision-making process regarding program of study and pedagogical approaches that may be effective for students’ profile. Educators in FCS programs may also design and develop curriculum based on refined entrepreneurial intentions model.

Clearly, much research is encouraged to confirm relationships between exogenous constructs (leadership behavior and entrepreneurial intensity) introduced in the present study, and attitudes and entrepreneurial intentions in various contexts, such as with existing entrepreneurs. These results raise research questions such as: Are there ways and tools for selecting students and orienting them with appropriate programs of study that fit with their
perceived entrepreneurial profile? What teaching strategies may enhance attitudes toward intended career paths? Results of the initial experimental design study revealed significant effect of teaching as reflected by increase of the posttest mean score over the pretest. However, one-tailed t-tests were insignificant, suggesting no distinct difference between the critical thinking and lecture method of teaching intervention. Further research may help confirm specific relationships between teaching strategies and perceived entrepreneurial attitudes and intentions. These outcomes have implications for selection of prospective students into programs of study based on students’ attitudes, entrepreneurial intensity, and leadership behavior. As noted in the initial experimental design, teaching interventions, such as critical thinking worked for some students with entrepreneurial potential. Future studies may address strategies for identifying and developing entrepreneurship through appropriate teaching interventions. The FCS students’ entrepreneurial intentions model may also be improved by including new variables influencing antecedents of the Shapero’s entrepreneurial event model.

In sum, the FCS students’ entrepreneurial intentions model provides unique and valuable insight into the role and productive use of entrepreneurial intentions-based model in higher education environment contexts. The model offers researchers valuable tool for understanding the process of choosing program of study and becoming an entrepreneur. The results reveal how the levels or degree of perceived entrepreneurial ability may translate into professional attitudes and intentions. The structural model suggests that perceptions of leadership behavior and entrepreneurial intensity may lead to positive attitudes and intentions in a program of study and business ownership career.
Implications

Theoretical implications

Findings of this study have practical and theoretical implications. Theoretically, the findings provide an understanding of what may influence students' attitudes and intentions to study entrepreneurship for a business career based on an entrepreneurial intentions model. Given that results confirm recent research findings by Krueger et al. (2000) that demonstrate the predictive value of entrepreneurial intentions models in providing validity for entrepreneurial behavior or action, this study endorses further research applying formal models of entrepreneurial intentions.

Leadership behavior and entrepreneurial intensity appear to add explanatory value above and beyond other significant predictors, such as measures of desirability and feasibility of entrepreneurship, and propensity to act, that have been established previously (Ajzen, 1987; Krueger et al., 2000; Shapero, 1982). In this study, I attempted to build upon previously developed intentions-based models by examining the effect of a set of behaviors or characteristics (entrepreneurial intensity and leadership) that are closely related to qualities of an entrepreneur (Davidsson, 1995; Krueger; 1993; Krueger et al., 2000; Morris, 1998; Shapero, 1982). Results of this study suggest that entrepreneurial intensity and leadership behavior play an important role affecting attitudes and intentions in entrepreneurial process. Future studies need to build upon this work by applying this to a wide variety of research contexts. FCS scholars may consider exploring how entrepreneurial intensity and leadership behavior can be infused into curriculum. Prior curricula-related action concerning entrepreneurial behavior has focused on strategic planning (Shane & Venkataraman, 2000), and improvisation of the entrepreneurship process (Hmieleki & Corbett, 2006). Future
research may consider investigating, through a longitudinal approach, whether FCS students do, in fact, study and pursue a career in entrepreneurship. Although entrepreneurial intensity and leadership behavior are not the only factors affecting entrepreneurial attitudes and intentions, it will shed more light on the ability to understand antecedents to entrepreneurial actions.

The current study was more of a snapshot. There is need for longitudinal research to examine relationships between the exogenous variables introduced in this study (entrepreneurial intensity and leadership behavior, entrepreneurial attitudes, and entrepreneurial intentions over time). An immediate extension of this research includes testing the FCS students’ entrepreneurial intentions model with students on a longitudinal basis and inclusion of various areas of FCS (for tracking respondents in the present research to see whether they study and pursue a career in entrepreneurship). Current results pertain only to perceived leadership and entrepreneurial intensity influence on entrepreneurial attitudes and intentions of apparel and textiles FCS students. Multi-group analyses will be conducted next to compare the impact of specific teaching strategies on students’ entrepreneurial attitudes and intentions.

**Practical implications**

Findings of this study have practical implications for rural economic development and in turn impact on life quality of individuals and families. Policy makers and academic leaders contend that the U.S. economy would benefit from having increased number and better-prepared entrepreneurs (Bailey, 2003; Henderson, 2002). Early identification of entrepreneurial potential of prospective students based on their attitudes, entrepreneurial intensity and leadership behavior has important implications for economic development on
several accounts. It will provide basis for making informed decisions about programs of study. Economic diversification is the key to long-term economic well being in rural society (Barkley, 1995). Awareness of FCS related career options such as in apparel retail, hospitality, and interior design may enhance career opportunities for students in rural communities, and strengthen economic development. Further, knowledge of students’ entrepreneurial intensity, leadership behavior, attitudes and intentions may be useful foundation for the development of appropriate curriculum and FCS entrepreneurial learning modules to prepare competent future entrepreneurs. Innovativeness, a process of developing an opportunity to create value is central to entrepreneurship (Drucker, 1985). Innovative and proactive entrepreneurs are needed to enhance competitiveness of FCS-related businesses such as apparel retail, interior design, and hospitality small businesses. Teaching and learning strategies in FCS, for example, need not focus only on teaching relevant technical skills, but also increase perceptions of desirability and feasibility of entrepreneurship among students. The learner has to perceive that actual use of the entrepreneurial skill and knowledge acquired in FCS is feasible. This conclusion is supported by research on self-efficacy (Bandura, 1986, 1995; Chen et al., 1998; Davidsson, 1995; Krueger & Brazeal, 1994).

The results also suggest it may be possible, through entrepreneurship coursework and training, to build confidence among students and nurture entrepreneurial process skills that enhance positive attitudes and intentions. Entrepreneurship as a process is teachable and sustainable over time. Morris (1998) suggests the entrepreneurial process is a consolidation of various factors that may result in a number of entrepreneurial events, which can vary considerably in intensity. Research should be conducted to determine types of teaching strategies that build on students’ profile, including demographics and their business
experiences prior to entering college, resulting in a process or a series of activities that enable students to assimilate and develop positive attitudes, leading to entrepreneurial career intentions. Further, with refined measures of entrepreneurial intensity and leadership behavior, entrepreneurship educators can be better informed in the design of course content and overall curriculum development.

**Study Limitations and Future Research**

The study has some limitations. This study represents an initial test of the inclusion of entrepreneurial intensity and leadership behavior in the entrepreneurial intentions model. The FCS students’ entrepreneurial intentions model provides plausible representation of the entrepreneurial intentions theory as conceptualized and serves as the basis for final conclusions. Further testing of the theory is necessary, however, for generalization of results beyond this study.

Second, respondents were FCS students in their early stages of college education. They may not have decided on the program of study, and the thought of starting business may be remote. While practitioners may be skeptical about operationalizing the findings on students’ entrepreneurial perceptions, studies have shown that students and managers respond in similar ways to strategic decisions (Bateman & Zeithaml, 1989). Previous research also has indicated that using a student sample may be more appropriate when investigating individual differences and career intentions (Crant, 1996). It is also important to note that respondents are studying FCS, a technical field, and have the potential to start diverse firms in industries such as food services, hospitality, apparel design and retailing,
housing, and child services. FCS students represent an important population from which future entrepreneurs will emerge.

In sum, this study attempted to link students’ entrepreneurial behavioral tendencies (entrepreneurial intensity and leadership behavior) to attitudes and intentions. Findings indicate that entrepreneurial intensity and leadership behavior provide additional information concerning why FCS students intend to study and pursue a business ownership career path, beyond what previous intentions models (Ajzen, 1987; Krueger, 1993; Shapero, 1982) found regarding the entrepreneurship process. For example, FCS students’ perceptions of their charismatic behavior had significant relationship with entrepreneurial feasibility or capacity to perform entrepreneurial activities. Further, perceived FCS students’ proactiveness was significantly associated with career intentions. It is appropriate to suggest that FCS students participating in various learning contexts do form perceptions of entrepreneurship, entrepreneurial attitudes, and intentions. These students may be clustered based on their attitudes, entrepreneurial intensity and leadership behavior so that appropriate teaching strategies are used to enhance entrepreneurial attitudes and intentions. An environment that supports positive entrepreneurial attitudes and intentions presents a viable venue for preparing competent entrepreneurs with desirability, feasibility, and propensity to act on opportunities. Global markets and employment patterns demand graduates who create jobs or can be self-employed. Developing and transitional economies also present rich entrepreneurial research opportunities and applications of the FCS entrepreneurial intentions model tested in this study. Future research should explore if FCS students do actually own business after graduation. More research should be conducted to confirm the generalizability of the Entrepreneurial Intentions Model for FCS Students to other populations.
APPENDIX A

IOWA STATE UNIVERSITY
OF SCIENCE AND TECHNOLOGY

September 8, 2005

Dear participant:

This study is directed to undergraduate students enrolled in an orientation course that introduces entrepreneurship as one of the options for students’ major in Family and Consumer Sciences (FCS). The purpose of this study is to identify and gain a better understanding of a teaching strategy that best fosters critical thinking in undergraduate students. It is hoped that as a participant you will gain information that will benefit you personally by expanding career options in FCS, as well as impact on your life quality and that of your family and community.

You are invited to participate in a web-based entrepreneurship self-assessment questionnaire located at: http://www.classweb.hs.iastate.edu/surveys/Mhango/

Your individual responses will be kept in strict confidence. The principal researcher will use a protected password only, to access data from the web-based pretest and posttest. Results will be published in summary form only. There are no foreseeable risks from participating in this study. You will be compensated for participating in this study by getting extra credit in the course.

Your participation in this study is completely voluntary. By participating, you give the researchers your consent. The questionnaire will take no more than 20-25 minutes of your time. We greatly appreciate your participation. We will have a separate sheet for you to sign so that you can receive the extra credit points, as arranged by your course instructor.

You are encouraged to ask questions at any time during this study. For further information about the study contact Mary Mhango, e-mail address: wezi@iastate.edu, Phone: 515-292-2688. If you have any questions about the rights of research subjects or research-related injury, please contact Ginny Austin Eason, IRB Administrator, (515) 294-4566, austingr@iastate.edu, or Diane Ament, Research Compliance Officer (515) 294-3115, dament@iastate.edu.

Sincerely,

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E-mail: niehmlin@iastate.edu
INVESTIGATOR STATEMENT

I certify that the participant has been given adequate time to read and learn about the study and all of their questions have been answered. It is my opinion that the participant understands the purpose, risks, benefits and the procedures that will be followed in this study and has voluntarily agreed to participate.

(Signature of Person Obtaining Informed Consent)  (Date)
APPENDIX B

FORMULA FOR CALCULATING CONSTRUCT RELIABILITY AND VARIANCE

EXTRACTED:

CONSTRUCT RELIABILITY =

\[ \frac{(\sum \text{standardized estimate})^2}{(\sum \text{standardized estimate})^2 + \sum \text{indicator measurement error}} \]

VARIANCE EXTRACTED =

\[ \frac{\sum \text{of squared standardized estimate}}{\sum \text{of squared standardized estimate} + \sum \text{indicator measurement error}} \]

This assessment is designed to help you do a self-assessment of your personal entrepreneurial profile and your intentions to take more courses and pursue an entrepreneurial career in Family and Consumer Sciences related field. In addition, information will be useful to examining the effectiveness of the recently developed learning modules as instructional resources. Please answer the items honestly and to the best of your ability. Select only one response for each item.

Section I: Entrepreneurial Self-Awareness, Values, and Skills

A. Self-Awareness

The questions below ask about your awareness of your personal qualities. Select the rating that best describes your agreement with each statement.

<table>
<thead>
<tr>
<th>How do you see yourself in terms of your personal qualities?</th>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>v1.1 I see business opportunities that may have potential commercial values.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>v1.2 I like taking ideas and making something of them.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>v1.3 I am creative and able to come up with new ideas on how to do things more efficiently.</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>v1.4 I am innovative and I am able to meet challenges and solve problems.</td>
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<tr>
<td>v1.5 I am motivated by success and driven to do well.</td>
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<tr>
<td>v1.6 I am a dynamic person and I can provide vision, hope and energy to those I am working with.</td>
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<tr>
<td>v1.7 I am a hard working person and I do what it takes to succeed.</td>
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<tr>
<td>v1.8 I am flexible and I adapt to changes and surprises quickly and successfully.</td>
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<tr>
<td>v1.9 I am a risk taker and I would be able to successfully manage risk associated with creating and growing a business.</td>
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<tr>
<td>v1.10 I am open to learning and I am always searching for new information to improve my task or business.</td>
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<tr>
<td>v1.11 I am resourceful and I am able to</td>
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</tbody>
</table>
meet challenges and solve problems.

### B. Personal Values

Consider your personal values in connection with entrepreneurship. Please evaluate your personal values for entrepreneurship.

<table>
<thead>
<tr>
<th>How do you see yourself in terms of your personal qualities?</th>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>v2.1 I value a sense of accomplishment in what I set out to do.</td>
<td>1</td>
<td></td>
<td></td>
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<tr>
<td>v2.2 Self-employment is important to me.</td>
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<tr>
<td>v2.3 Making profit is very important to me in business.</td>
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<tr>
<td>v2.4 My goal in life is to define myself through my own work.</td>
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<tr>
<td>v2.5 I desire and pursue success.</td>
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<tr>
<td>v2.6 I value feedback on my performance.</td>
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<tr>
<td>v2.7 I value balance between work and personal life.</td>
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<tr>
<td>v2.8 I value family and friends' support and encouragement.</td>
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<tr>
<td>v2.9 I desire community support in my business undertaking.</td>
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<tr>
<td>v2.10 I desire happiness in my work and exciting life.</td>
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<tr>
<td>v2.11 I like solving problems according to my own standards.</td>
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<tr>
<td>v2.12 I value opportunities to innovate and create new ideas, processes, products, or services.</td>
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<tr>
<td>v2.13 I value competition.</td>
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<tr>
<td>v2.14 I value accountability for important tasks.</td>
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</tbody>
</table>
C. Decision-Making and Problem Solving

The questions below ask about how you make decisions and solve problems. Please assess the following decision making and problem solving abilities as they apply to you.

<table>
<thead>
<tr>
<th>How do following statements apply to you?</th>
<th>Not at all 1</th>
<th>A little 2</th>
<th>Sometimes 3</th>
<th>Frequently 4</th>
<th>Very frequently 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>v3.1 I am able to seek out information from others.</td>
<td></td>
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<tr>
<td>v3.2 I am able to identify business opportunities.</td>
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<tr>
<td>v3.3 I network with people to gain information for my project.</td>
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<tr>
<td>v3.4 I am capable of developing new products or services for business venture.</td>
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<tr>
<td>v3.5 I provide others with new ways of looking at things.</td>
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<tr>
<td>v3.6 I encourage others to rethink ideas not previously questioned.</td>
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<tr>
<td>v3.7 I enable others to think about old problems in new ways.</td>
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<tr>
<td>v3.8 I usually count on being successful in everything I do.</td>
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<tr>
<td>v3.9 I am good at getting what I want.</td>
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<tr>
<td>v3.10 I enjoy convincing others of my opinions.</td>
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<tr>
<td>v3.11 I would feel comfortable with partnership or joint ventures.</td>
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<tr>
<td>v3.12 I regularly network with people to gain information for my projects.</td>
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<tr>
<td>v3.13 I have and continue to build a resource network.</td>
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</tr>
</tbody>
</table>

D. Leadership Behavior

Consider your leadership skills in connection with entrepreneurship. Please evaluate the leadership skills listed below as they apply to you.

<table>
<thead>
<tr>
<th>How do following leadership skills apply to you?</th>
<th>Not at all 1</th>
<th>A little 2</th>
<th>Sometimes 3</th>
<th>Frequently 4</th>
<th>Very frequently 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>v4.1 I am a model others tend to follow.</td>
<td></td>
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<tr>
<td>v4.2 I help people vision what can be accomplished if we work together.</td>
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<tr>
<td>v4.3 I lead and encourage people to reach goals with or without my input.</td>
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<tr>
<td>v4.4 People can count on me to express appreciation for a job well done.</td>
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</tbody>
</table>
I inspire others to consider new ways of looking at things.

I like to assume responsibility.

I like to take the lead in group work.

I am often a step ahead of others.

I often give others advice and suggestions.

I enjoy convincing others of my opinion.

SECTION II. Entrepreneurship

A. Tendency to Achieve

The questions below ask about your tendency to achieve. Please indicate the level of your agreement with each statement.

<table>
<thead>
<tr>
<th>How do you see yourself in connection with entrepreneurship?</th>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>v5.1 I desire and pursue success.</td>
<td></td>
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<tr>
<td>v5.2 I have little fear of failure.</td>
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<tr>
<td>v5.3 I attribute success or failure to myself rather than to others and circumstances.</td>
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<tr>
<td>v5.4 I desire feedback on my performance.</td>
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<tr>
<td>v5.5 I persevere despite repeated failure.</td>
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<tr>
<td>v5.6 Becoming successful in entrepreneurship is something I want to do for me.</td>
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<tr>
<td>v5.7 I enjoy completing tasks.</td>
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<tr>
<td>v5.8 I return to uncompleted tasks and finish them.</td>
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<tr>
<td>v5.9 I have realistic levels of aspiration.</td>
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<tr>
<td>v5.10 I have a future orientation.</td>
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<tr>
<td>v5.11 If I were independently wealthy, I would still own a business for the challenge of it.</td>
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<tr>
<td>v5.12 When I perform well I know it is because of my desire to achieve.</td>
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<tr>
<td>v5.13 I will become an entrepreneur because I cherish the feeling of performing a useful service.</td>
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<tr>
<td>v5.14 I feel a real sense of accomplishment when I come up with a good project idea.</td>
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<tr>
<td>v5.15 I put in great effort sometimes in order to learn something new.</td>
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</tbody>
</table>
B. Attitude toward Entrepreneurship

Please indicate the level of your agreement with each statement.

<table>
<thead>
<tr>
<th>How do you see yourself in connection with entrepreneurship?</th>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>v6.1 I will do whatever it takes to make my job or project a success.</td>
<td></td>
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<tr>
<td>v6.2 I plan to have my own business in future.</td>
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<tr>
<td>v6.3 I believe entrepreneurship is about risk taking.</td>
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<tr>
<td>v6.4 I believe entrepreneurship is about innovation.</td>
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<tr>
<td>v6.5 I believe entrepreneurship is about being proactive.</td>
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<tr>
<td>v6.6 I would like to make a significant contribution to the community by developing a successful business.</td>
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<tr>
<td>v6.7 I would rather own my own business than earn a higher salary working for someone else.</td>
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<tr>
<td>v6.8 It is important for me as an entrepreneur to understand and accept risk in order to start or operate my own business.</td>
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<tr>
<td>v6.9 I would be willing to have conflict with my family in order to operate my own business.</td>
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<tr>
<td>v6.10 I would run my own business to increase my family's status and prestige.</td>
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</tbody>
</table>
### SECTION III. Intensions to Study Entrepreneurship and Own Business

**Entrepreneurial Intensions**

The questions below ask about your intentions to take courses and follow a career that involves entrepreneurship. Please indicate the level of your agreement with each statement.

<table>
<thead>
<tr>
<th>What do you see yourself doing in future regarding entrepreneurship?</th>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>v7.1</strong> I will take more courses in entrepreneurship to gain more knowledge and understanding.</td>
<td></td>
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<tr>
<td><strong>v7.2</strong> I intend to participate in entrepreneurial internship program.</td>
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<tr>
<td><strong>v7.3</strong> I plan to take courses that will improve my business management skills.</td>
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<tr>
<td><strong>v7.4</strong> I plan to take courses for technical skills in business.</td>
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<tr>
<td><strong>v7.5</strong> I will participate in business workshops.</td>
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<tr>
<td><strong>v7.6</strong> I will take courses that enable me to learn about operating my own business.</td>
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<tr>
<td><strong>v7.7</strong> I will look for summer jobs in family business or lifestyle business to learn more about these businesses.</td>
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<tr>
<td><strong>v7.8</strong> I intend to operate my own business in future.</td>
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</tr>
<tr>
<td><strong>v7.9</strong> I would rather have my own business than pursue another promising career.</td>
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</tr>
<tr>
<td><strong>v7.10</strong> I plan to run my own business to have more flexibility in my personal and family life.</td>
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</tr>
<tr>
<td><strong>v7.11</strong> I would run my own business to continue a family tradition.</td>
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</table>
SECTION IV. Personal Information

A. Demographic Information

The following questions ask about your personal background. Information provided will be kept confidential.

1. a. Student ID #
   b. Course #
   c. Degree Program

2. What year are you in college? a. Freshman  
   b. Sophomore  
   c. Junior  
   d. Senior  
   e. Other (specify)

3. What is your age? a. 18-20 years  
   b. 21-23 years  
   c. 23-26 years  
   d. More than 26 years

4. What is your gender? a. Male  
   b. Female

5. a. Do you have experience working in a business?  a. Yes  
   b. No
   b. If yes, what kind of business does your family have?
   c. If yes, how many years have they owned the business?

6. Did you work part-time or summer jobs while in high school?  a. Yes  
   b. No

7. a. Did your parents own a business?  a. Yes  
   b. No
   b. If yes, what kind of business does your family have?
c. If yes, how many years have they owned the business? ________________

**B. Other Business-related Life Experiences**

Please assess your life experiences.

<table>
<thead>
<tr>
<th>How do the following statements apply to you?</th>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>v8.1 I have watched my parents run a family business and I would like to be able to run it in future.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>v8.2 I have interacted with people who own businesses to learn about business ownership.</td>
<td></td>
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<tr>
<td>v8.3 I listen to business success stories from the media.</td>
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<tr>
<td>v8.4 I have interacted with successful business people in the past and I would like to have my own business.</td>
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<tr>
<td>v8.5 I have observed people go out of business so I will not own business.</td>
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<tr>
<td>v8.6 High rate of unemployment made me consider becoming self-employed.</td>
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</tbody>
</table>
REFERENCES


models to study the absence-taking process. *Journal of Applied Psychology, 74*, 300-
316.


attitudes to entrepreneurship as a career. *Career Development International, 5*(6),
279-287.


Inc.


Scientific Software International, Inc.


