

**An evaluation of the levels of entrepreneurship and competitive advantages
in small midwestern agritourism businesses**

by

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TABLE OF CONTENTS

LIST OF FIGURES.....	iv
LIST OF TABLES.....	v
ABSTRACT.....	vi
CHAPTER 1. INTRODUCTION	1
1.1 Background.....	1
1.2 Problem Statement.....	4
1.3 Study Objectives.....	6
1.4 Definitions of Terms.....	6
CHAPTER 2. REVIEW OF LITERATURE	9
2.1 Agritourism.....	9
2.2 Major Factors of Entrepreneurship.....	10
2.2.1 Locus of Control	11
2.2.2 Profitability and Market-driven Propensity	12
2.2.3 Family Connection.....	13
2.2.4 Personal Pursuits/Need For Achievement	14
2.2.5 Innovation/Creativity Propensity	15
2.3 Entrepreneurship Strategy Typologies	17
2.4 Economic Impact.....	18
2.5 Joint Marketing/ Marketing Alliance	19
2.6 Environmental Sustainability	20
2.7 Public/socioial Awareness.....	20
CHAPTER 3. RESEARCH METHODOLOGY AND DESIGN	23
3.1 Sample	23
3.2 Survey Instrument.....	23
3.3 Data Collection	28
3.4 Data Analysis.....	29
3.4.1 Evaluation of Underlying Assumptions of SEM	29
3.4.1.1 Normality.....	29
3.4.1.2 Outliers	34
3.4.1.3 Missing Data.....	34
3.4.1.4 Reliability	35
3.4.1.5 Construct Validity.....	36
3.4.2 Multicollinearity	42
3.4.3 Confirmatory Factor Analysis.....	42
3.4.4 Structural Equation Modeling.....	43
CHAPTER 4. RESULTS	46
4.1 Demographic Characteristics.....	46

4.2	Confirmatory Factor Analysis (CFA).....	52
4.3	Structural Model.....	54
CHAPTER 5. CONCLUSION.....		63
5.1	Overview of Findings.....	63
5.2	Discussion and Practical Implications of Model 1.....	65
5.3	Discussion and Practical Implications of Model 2.....	71
5.4	Theoretical Contributions.....	75
5.5	Limitations and Future Research.....	77
REFERENCES.....		79
APPENDIX A: SURVEY OF LEVELS OF ENTREPRENEURSHIP AND COMPETITIVE ADVANTAGES IN SMALL MIDWESTERN AGRITOURISM BUSINESSES.....		89
APPENDIX B: APPROVAL OF THE USE OF HUMAN SUBJECTS.....		95

LIST OF FIGURES

Figure 1. Conceptual model 1 of entrepreneurship with major factors 17

Figure 2. Conceptual model 2 of entrepreneurship strategies and advantages 22

Figure 3. Confirmatory Factor Analysis – 1st Model 51

Figure 4. Confirmatory Factor Analysis – 2nd Model..... 52

Figure 5. Standardized Coefficients for Paths in the Structural Model 1 55

Figure 6. Standardized Coefficients for Paths in the Structural Model 2 57

LIST OF TABLES

Table 1. Constructs and Items of the First Part of Survey	25
Table 2. Constructs and Items of the Second Part of Survey.....	27
Table 3. Distribution for the Observed Variables.....	30
Table 4. Scale/Item Measurement Properties	38
Table 5. Latent Variable Squared Correlation Matrix	40
Table 6. Demographic Characteristics of the Sample.....	48
Table 7. The Summary of Construct Information.....	49
Table 8. Regression Weights of Paths in Confirmatory Factor Analysis	53
Table 9. Summary of Support for Hypotheses based on the Results of SEM	58

ABSTRACT

Agritourism is a business concept that merges two areas (e.g., agricultural and travel/tourism) to open up new profitable markets and provide travel experiences for the purpose of enjoyment, education, or active involvement in the activities of a farm or operation (e.g., Aronoff & Ward, 1995; Hegarty & Przezbórska, 2005). Bock (2004) stated that agritourism plays a significant support role for many agricultural enterprises, while Kunwar (2004) suggested that agritourism experiences are becoming a desirable option in today's leisure society. With an explicit need to generate tangible benefits (e.g., diversified income sources and increased public appreciation), farmers are expected to become increasingly entrepreneurial in their business approaches, including adopting business plans for agritourism; seeking professional advice; becoming involved in regional and larger-scale tourism marketing initiatives; and increasing profitability through diversification (Getz & Carlsen, 2000).

However, a number of previous studies have indicated that many farmers are unsuccessful in running agritourism businesses due to their lack of understanding of entrepreneurship concepts and strategies (Colton & Bissix, 2005; McGehee & Kim, 2004; Kunwar, 2004). In addition to entrepreneurial motivations, some studies have addressed the characteristics and performance of the farm and agritourism entrepreneur (Gilmore, Carson, & Cummins, 2002; Russell & Faulkner, 2004). The framework of this study is a modification of two business strategy concepts (e.g., defender and analyzer) that attempts to investigate the perceptions of business owners by combining six factors of entrepreneurship (e.g., locus of control, firm profitability, market-driven propensity, family connection, personal pursuits, and innovation/creativity) to decision making. The model is also designed

to address potential impacts to enhance agritourism enterprises' competitiveness. The model incorporates the variables of economic impact, joint marketing, environmental sustainability, and public/social awareness. These decision-making strategies and potential impacts have been widely used in marketing research (De Kok & Uhlaner, 2001; Jayasinghe, Thomas, & Wickramasinghe, 2008). The study aims to answer three key questions: 1) How do the levels of locus of control, firm profitability, market-driven propensity, family connection, personal pursuits, and innovation/creativity influence farmers' entrepreneurial awareness in agritourism business; 2) How do the two types of business strategies (defender and analyzer) impact farmers' decisions in running agritourism business; and 3) Do entrepreneurship and strategies directly impact agritourism businesses' competitiveness (e.g, economic impact, joint marketing, environmental sustainability, and public/social awareness)? The results of the present study are of importance to both academics and industry practitioners.

CHAPTER 1. INTRODUCTION

1.1 Background

The travel and tourism industry is one of the largest and most dynamic industries in today's economy. Statistical data indicates that the travel and tourism sector was expected to contribute 3.2% to the United States' GDP in 2012 (Smeral, 2012). In response to changing business climates, evolving consumer preferences, and intensifying pressures on farm viability, farms are increasingly turning to diversity enterprise/income, one of the most promising of which is agritourism (Nickerson, Black, & McCool, 2001). Agritourism is often touted as a "green" and/or non-traditional business that is easy to develop and that rapidly yields results. Barbieri and Mahoney (2009) argued that agritourism is increasingly recognized as a means of enterprise diversification for agricultural producers, particularly for its ability to increase cash flow to farm and ranch operations and to their surrounding communities.

Farmers successfully engaging in agritourism are reaping tangible benefits, including diversified income sources, a buffer from fluctuating markets, new opportunities to engage family members in farm operations, and increased public appreciation (Getz & Carlsen, 2000). The potential benefits of agritourism extend beyond the farm operation. Agritourism activities can create positive interactions between non-farmers and farmers and can raise awareness about agriculture, which ultimately benefits farmers in helping garner public support for farm retention policies (Colton & Bissix, 2005).

Examples of agritourism opportunities presently include outdoor recreation (fishing, hunting, wildlife photography, horseback riding); educational experiences (farm and cannery

tours, cooking classes, wine tastings, cattle drives, ranch work experiences); entertainment (harvest festivals, corn mazes); hospitality services (farm/ranch stays, guided tours, outfitter services); on-farm direct sales (u-pick operations and roadside stands); and off-the-farm direct sales (farmers' markets, county/state fairs, and special events) (Lise, 2001; Meert, VanHuylbroeck, Vernimmen, Bourgeois, and Van Hecke, 2005; Nickerson et al., 2001). The growth of agritourism is not a phenomenon unique to the Midwestern United States. Agritourism is emerging as an important product and market diversification strategy for farmers across the U.S. It provides cash flow needed by many farms challenged by declining profitability. Barbieri and Mahoney (2009) stated that nature- and agricultural-based tourism will be the fastest growing segment of the travel and tourism industry.

With an explicit need to generate tangible benefits (e.g., diversified income sources and increased public appreciation), farmers are expected to become increasingly entrepreneurial in their business approaches, including adopting business plans for agritourism; seeking professional advice; becoming involved in regional and larger-scale tourism marketing initiatives; and increasing profitability through diversification (Getz & Carlsen, 2000). Similarly, Meert et al. (2005) found that the majority of successful agritourism farmers judged their personal skills as the most important factor for success, and that size of enterprise and economies of scale were also viewed as critical factors. However, a number of previous studies have indicated that many farmers are unsuccessful in running agritourism businesses due to their lack of understanding of entrepreneurship concepts and strategies (Colton & Bissix, 2005; McGehee & Kim, 2004; Kunwar, 2004). In addition to entrepreneurial motivations, some studies have addressed the characteristics and performance

of the farm and agritourism entrepreneur (Gilmore, Carson, & Cummins, 2002; Russell & Faulkner, 2004).

In Gilmore et al. (2002) study, they identified the relationship between farm activities and performance, with a variety of activities shown to be specifically useful in generating greater revenue. They also found that the household incomes of agritourism farmers are significantly higher than those of other farm diversifiers. In addition, agritourism may create job opportunities for young family members and encourage youth retention in rural areas.

In this study, the adoption of farm business and marketing strategies did appear to contribute to success, and membership in business and agriculture associations also brought benefits, as reflected in gross farm income. Russell and Faulkner's (2004) analysis of agritourism entrepreneurs identified the influence of education, revealing that farmers who have diversified into agritourism tend to have higher levels of both business/marketing and agricultural education. They also found that agritourism entrepreneurship is considered an important "household" rather than "individual farmer" strategy. Indeed, the role of family connection has been a recurring theme within agritourism research (Morrison, Breen, & Ali, 2003; Sharma & Upneja, 2005). On a more fundamental level, Arasli (2002) argued that many variables other than family collaboration and education affect the level of entrepreneurship in agritourism business success. Thus, it is necessary to explore the variables of entrepreneurship and its competitive advantages as applied to the specific context of the agritourism business.

1.2 Problem Statement

From a research perspective, little is known about the awareness and level of entrepreneurship skills of farmers and perceptions based on the types of strategies and potential impacts of operating an agritourism business. Previous studies have examined issues such as poor agriculture commodity prices (Colton & Bissix, 2005), rising production costs (Middleton & Hawkins, 1998), farm/ranch diversification (Gilmore et al., 2002), globalization (Weaver & Fennell, 1997), the differences between agritourism and other farm ventures (Lobo et al., 1999), and farmers' motivations that have led family farms to explore the viability of alternative economic strategies (Clarke, 1999) such as agritourism. Prugl (2004) investigated agritourism operators' perceptions of the opportunities and challenges associated with agritourism. Clarke (1999) contended that many farming families are seeking ways for younger family members to stay on the farm and that one such strategy is to view urban tourists as a potential revenue source. Morrison et al. (2003) investigated the influence of farmers' knowledge in running agritourism businesses, while Barbieri and Mahoney (2009) explored intention to continue using on-farm direct sales from the perspective of farmers.

The framework of this study is a modification of two business strategy concepts (e.g., defender and analyzer) that attempts to investigate the perceptions of business owners by combining six factors of entrepreneurship (e.g., locus of control, firm profitability, market-driven propensity, family connection, personal pursuits, and innovation/creativity) to decision making. The model is also designed to address potential impacts to enhance agritourism enterprises' competitiveness. The model incorporates the variables of economic impact, joint marketing, environmental sustainability, and public/social awareness. These

decision-making strategies and potential impacts have been widely used in marketing research (De Kok & Uhlaner, 2001; Jayasinghe, Thomas, & Wickramasinghe, 2008).

The study aims to answer three key questions: 1) How do the levels of locus of control, firm profitability, market-driven propensity, family connection, personal pursuits, and innovation/creativity influence farmers' entrepreneurial awareness in agritourism business; 2) How do the two types of business strategies (defender and analyzer) impact farmers' decisions in running agritourism business; and 3) Do entrepreneurship and strategies directly impact agritourism businesses' competitiveness (e.g, economic impact, joint marketing, environmental sustainability, and public/social awareness)?

The results of the present study are of importance to both academics and industry practitioners. Broadly speaking, this study makes three main contributions. First, this is the first agritourism study that combines the two specific social psychology concepts of locus of control (LC) and personal pursuits (PP) in investigating business owners' entrepreneurship awareness. Second, this research employs a dual business strategy route based on the assumption that there are two types of decision making involved in running agritourism businesses: that of the defender and that of the analyzer. Last, this study serves as a guide and offers a theoretical foundation for future research on a broad range of entrepreneurship training programs. From a practical perspective, this study represents the 'big picture' of the entrepreneurship and affective components of farmers running agritourism businesses, and provides guidance for business owners in developing successful agritourism businesses, meeting customers' expectations, and creating competitive strategies that are unique in comparison with other agritourism businesses.

1.3 Study Objectives

The objectives of the present study are to: (1) identify the primary influential factors of entrepreneurship in agritourism businesses; (2) examine agritourism business owners' perceptions of the opportunities and challenges faced by agritourism; and (3) investigate primary entrepreneurship strategies and their potential to increase agritourism enterprise competitiveness. This study is expected to provide guidance for agritourism farmers in improving the long-term profitability of farm-run agritourism businesses.

1.4 Definitions of Terms

Throughout the present study, the following terms are utilized for the purpose of conceptualizing entrepreneurship and defining its strategies with regard to methods for increasing agritourism enterprise competitiveness:

Agritourism: A specific type of rural tourism in which the hosting house must be integrated into an agricultural estate and inhabited by the proprietor, and that allows visitors to take part in agricultural or complementary activities on the property (Marques, 2006, p. 151).

Entrepreneurship: A way of thinking and acting that is opportunity obsessed, holistic in approach, and leadership balanced (Pizam & Milman, 1993). Entrepreneurship involves consistently thinking and acting in ways designed to uncover new opportunities that are then applied to provide value (Riley & Szivas, 2003).

Entrepreneur: Someone who exercises initiative by organizing a venture to take advantage of an opportunity and, as the decision maker, decides what, how, and how much of a good or service will be produced (Gartner, 1990).

Family farming: A family farm is a farm owned by a family in which family members make the important management decisions and provide most of the labor (Getz & Carlsen, 2005).

Locus of control orientation: A belief about whether the outcomes of our actions are contingent on what we do (internal control orientation) or on events outside our personal control (external control orientation) (Gonzalez & Zimbardo, 1985, p. 25).

Market-driven propensity: A business orientation that is based on understanding and reacting to the preferences and behaviors of players within a given market structure (Homburg, Workman, & Jensen, 2002).

Firm profitability: Expressed in terms of several popular statistics that measure one of two generic types of performance: "How much they make with what they've got" and "How much they make from what they take in" (Morrison et al., 2003).

Innovation and creativity: Characterized as doing something new as an idea, product, service, market, or technology in a new or established organization (McKercher, 1999).

Personal pursuits/ need for achievement: An individual's need to meet realistic goals, receive feedback, and experience a sense of accomplishment (Pearlin, 1989).

Defenders: Businesspersons who attempt to seal off a portion of a total market to create a stable set of products and customers (Miles & Snow, 1986).

Analyzers: Businesspersons who attempt to maintain a strong position in a core product market but seek expansion into new product markets (Miles & Snow, 1986).

Joint marketing/ marketing alliance: A partnership of at least two companies on the value chain level of marketing with the objective to tap the full potential of a market by bundling specific competences or resources (Varadarajan, 2010).

Environmental sustainability: Meeting human needs without compromising the health of ecosystems (e.g., maintaining waste within assimilative capacities; harvesting within regenerative capacities of renewable resources; depleting non-renewable resources at the rate at which renewable substitutes are developed) (Steer & Lutz, 1993).

Public/social awareness: Making a target audience aware of a product, service, or issue (e.g. potential issues and legal complications for agritourism operators) (Ollenburg & Buckley, 2007).

CHAPTER 2. REVIEW OF LITERATURE

This chapter introduces the concept of agritourism and provides a brief discussion of the distinct constructs commonly associated with entrepreneurship and the two types of business strategy concepts (defender and analyzer) utilized in this study.

2.1 Agritourism

Agritourism is a business concept that merges two areas (e.g., agricultural and travel/tourism) to open up new profitable markets and provide travel experiences for the purpose of enjoyment, education, or active involvement in the activities of a farm or operation (e.g., Aronoff & Ward, 1995; Hegarty & Przezbórska, 2005). Bock (2004) stated that agritourism plays a significant support role for many agricultural enterprises, while Kunwar (2004) suggested that agritourism experiences are becoming a desirable option in today's leisure society. Greater numbers of urban families are looking to farm/ranch vacations as a leisure time "escape" (Slater, 2001). Such experiences provide a different experience from urban daily life in a context that is perceived as very "American" (Nickerson et al., 2001). In the last few years, a number of studies have widely recognized that agritourism has a central relationship to value-added production, direct farm marketing, and rural development (Baron, 2004; McGehee & Kim, 2004; Clarke, 1999). While most agritourism opportunities are seasonal with the majority occurring during production seasons, value-added products don't necessarily face those restrictions. Producing value-added products from perishable agricultural products provides an opportunity for producers to expand their sales seasons and to increase the value of their products through processing or packaging (Marques, 2006). Direct farm marketing is widely recognized by consumers and

producers and encourages marketing relationships between farmers and customers, thus boosting opportunities for repeat sales and increased opportunities to connect with new consumers (Hegarty & Przezbórska, 2005). Bock (2004) also stated that farmers have greater control over their products and thus better opportunities to maintain quality until they reach customers.

By producing for specialty or niche markets and providing tourism experiences for a visiting public, agritourism development can be a vital strategy for diversifying and boosting profits, especially for smaller farms and ranches (Colton & Bissix, 2005). Not surprisingly, such efforts not only enable farmers to diversify operations beyond agricultural production, but also contribute to overall rural development (McGehee & Kim, 2004). Therefore, there is very good reason to believe that agritourism can provide much-needed additional cash flow for improved financial management, and growing numbers of farmers are embracing agritourism to improve their economic viability (Lobo et al., 1999).

2.2 Major Factors of Entrepreneurship

Entrepreneurship is an important force behind success in any industry. The subject of entrepreneurship has attracted much attention in both the United States and internationally over the past three decades (Shane & Venkataraman, 2000). In a dynamic and rapidly evolving economy, entrepreneurship is just as relevant and important in hospitality and tourism as in other emerging sectors in modern economies. The hospitality and tourism industries are major contributors to national economies and their growth, and are guaranteed to grow both in terms of their quantity and quality (Dees, 2002; Li, 2008). However, there are inherent challenges in reaching growth targets due to factors such as workforce skills,

capacity, and availability; new product and service development; and product/service delivery methods. Entrepreneurial activities generally develop newly combined means of production, new products, new markets, new methods of manufacturing/distribution, new sources of material, new management, or new forms of organization (Schumpeter, 1934). Hence, entrepreneurship is necessary for overcoming these challenges and achieving targets in hospitality and tourism industries.

A number of studies have identified and examined the factors that help businesses successfully develop entrepreneurship opportunities (Crane & Crane, 2007; Jayasinghe, et al., 2008). The factors include locus of control (Shaver & Scott, 1991), profitability/market-driven propensity (Morrison et al, 2003), family connection (Getz & Carlsen, 2005), personal pursuits/need for achievement (Pearlin, 1989), innovation/creativity (McKercher, 1999), and self-efficacy (Austin, Howard, & Jane, 2006). Among these factors, the first five have been widely investigated in a number of studies (Slotte-Kock & Coviello, 2010). Therefore, this chapter seeks to discuss the nature and extent of influence of the first five factors.

2.2.1 Locus of Control

Locus of control refers to a generalized belief that a person can or cannot control his or her own destiny (Rotter, 1966). Those who ascribe control of events to themselves are said to have an internal locus of control and are referred to as internals. People who attribute control to outside forces are said to have an external locus of control and are termed externals (Hoy, 1997; Kaufmann & Welsh, 1995). While some studies have not succeeded in demonstrating differences in locus of control between entrepreneurs and managers (Boone & De Brabander, 1993), many studies have pointed out that the founders of new businesses tend

to have greater internal locus of control than do non-founders (Boone, De Brabander, & van Witteloostuijn, 1999; Hoy, 1997), and that the success of existing companies was also related to greater internal locus of control (Begley & Boyd, 1987). An internal locus of control has been one of the psychological characteristics most often cited as predictive of entrepreneurship (Frese, 2009; Kaufmann & Welsh, 1995).

One important interpretation of research relevant to locus of control, entrepreneurs, and the business environment comes from Gilad (1982). Gilad theorized that the influence of locus of control on perceptual alertness (i.e. ability to see opportunities in the environment) explained the influence of locus of control on entrepreneurs. In essence, it indicated that internals are alert, discover opportunities, and scrutinize their environment to find information needed to formulate the optimal approach to developing those opportunities. Similarly, Morris et al (2002) argued that a person with an internal locus of control is more likely to believe that environmental factors (e.g., the economy) can be influenced rather than passively accepted. Thus, a correlation is believed to exist between entrepreneurs and the possession of an internal locus of control (Schindehutte, Morris, & Kocak, 2008).

2.2.2 Profitability and Market-driven Propensity

According to the definition of entrepreneurship, entrepreneurs are perceived as more profitability- and market-driven than other people (Clarke, 1999). Market-driven propensity was the earliest identified entrepreneurial characteristic. Varadarajan (2010) described an entrepreneur as the individual who assumed the marketing opportunity for a firm. In fact, Mill included the term opportunity-bearing to distinguish an “entrepreneur” from a “manager”. As has been shown in many studies (Ateljevic & Doorne, 2000; Getz & Petersen,

2005), the opportunities associated with running a business venture are related to the skills of the decision-maker. According to Ateljevic and Doorne (2000), entrepreneurial functions consist of direction, control, superintendence, and opportunity-bearing. Morrison (2006) found that the opportunity-taking dimension is positively related to the performance (e.g, profitability) of entrepreneurs. Clarke (1999) stated that entrepreneurs' propensity to take advantage of opportunities may lie in the distinction between two kinds of business scenarios: purely chance-related opportunity, and skill-related opportunity. The difference between the two types of opportunity is the extent to which the decision-maker perceives control over the outcome. In addition, his/her perception of the situation is based on his/her previous experience (Frese, 2009).

2.2.3 Family Connection

The relationship of an entrepreneur's family connection to his or her business can be a significant factor in determining success or failure (McNally, 2001). Family connection suggests that the family's willingness to provide resources encompasses critical variables such as access to markets, sources of supply, capital, and even new ideas (Steier & Greenwood, 2000). A number of studies have investigated the influence of the family on entrepreneurial behavior (Hoy & Verser, 1994; Dyer & Singh, 1998). For instance, McNally (2001) indicated that entrepreneurs often come from homes in which the father or mother was self-employed. Baron and Markman (2000) stated that the influence of family connection on the degree of entrepreneurship is significant and positive. In addition, one of the most important relationships related to entrepreneurship is family members' employment

(Baron, 2004). This relationship can have a tremendous impact on the entrepreneur, the business, and the family.

2.2.4 Personal Pursuits/Need For Achievement

The need for achievement theory of McClelland (1961) is one of the most widely applied theories on entrepreneurship. According to its traditional definition, the need for achievement is the impetus that motivates an individual to struggle for success and perfection (Sagie & Elizur, 1999). Individuals who have a strong need to achieve typically want to solve problems themselves; set targets and strive for these targets through their own efforts; demonstrate higher performance in challenging tasks; and are innovative in seeking new and better ways to improve their performance (Littunen, 2000; Utsch & Rauch, 2000). As such, the achievement motive involves a process of planning and striving for excellence (Morone & Testa, 2008).

Compared with other factors, need for achievement is considered to be a learned characteristic of entrepreneurship (McClelland, 1961), and previous research has shown that achievement motivation (Sagie & Elizur, 1999) does change over time and can be developed. McClelland and Koestner (1992) stated the importance of the achievement motive for business development. Similarly, Shane & Venkataraman (2000) revealed that the founders of new businesses have higher levels of need for achievement than do non-founders. Thus, the significance of need for achievement as a factor in entrepreneurship has been widely demonstrated. Based on the results of numerous comparative studies regarding entrepreneurs and non-entrepreneurs, it appears that the need for achievement has a positive and significant relationship to the degree of entrepreneurship (Littunen, 2000; Morone & Testa, 2008).

2.2.5 Innovation/Creativity Propensity

Innovativeness is conceived as one of the factors that influence an entrepreneurship opportunity (Hult, Snow, & Kandemir, 2003; Nieto & Quevedo, 2005), and has often been shown as one of the most important strategic orientations for firms in achieving long-term success (Noble, Sinha, & Kumar, 2002). Innovativeness has a significant effect on entrepreneurs' performance (Olsen & Sallis, 2006). Martins and Terblanche (2003) argued that a successful entrepreneur is a combination of an innovative thinker and a doer. The entrepreneur sees an opportunity for a new product, service, approach, policy or way of solving an old problem (Olsen & Sallis, 2006). In fact, the implementation of innovative strategies is often what truly distinguishes the entrepreneur from the non-entrepreneur. It is exactly this thinking-doing combination that gives entrepreneurial efforts that extra-special appeal. Similarly, Roehrich (2004) suggested that innovativeness is the most significant component of the entrepreneurial personality; it is a factor distinguishing entrepreneurs from less innovative managers and business owners.

Following Roehrich, Ottenbacher and Gnoth (2005) revealed that the entrepreneur seeks to have an impact on an existing system (with an idea or service). Appiah-Adu and Singh (1998) found that the influence of innovativeness propensity on the degree of entrepreneurship is significant and positive. The results of Verhees and Meulenbergs' (2004) study revealed that the effect of business market intelligence on innovation depends on the entrepreneur's innovativeness in a specific domain. When controlling for various organizational cultures (e.g., clan and hierarchy), Olsen and Sallis (2006) concluded that market orientation and innovativeness are key determinants of entrepreneur performance. These findings are significant to hospitality and tourism industry practitioners, who must

continually strive to be innovative in order to achieve lower costs and higher quality outputs (Ottenbacher & Gnoth, 2005). Based on the discussion above, this study therefore proposes the following hypotheses:

H1: Locus of control has a positive influence on awareness toward entrepreneurship in agritourism business.

H2: Profitability has a positive influence on awareness toward entrepreneurship in agritourism business.

H3: Market-driven propensity has a positive influence on awareness toward entrepreneurship in agritourism business.

H4: Family connection has a positive influence on awareness toward entrepreneurship in agritourism business.

H5: Personal pursuits/need for achievement has a positive influence on awareness toward entrepreneurship in agritourism business.

H6: Innovation/creativity propensity has a positive influence on awareness toward entrepreneurship in agritourism business.

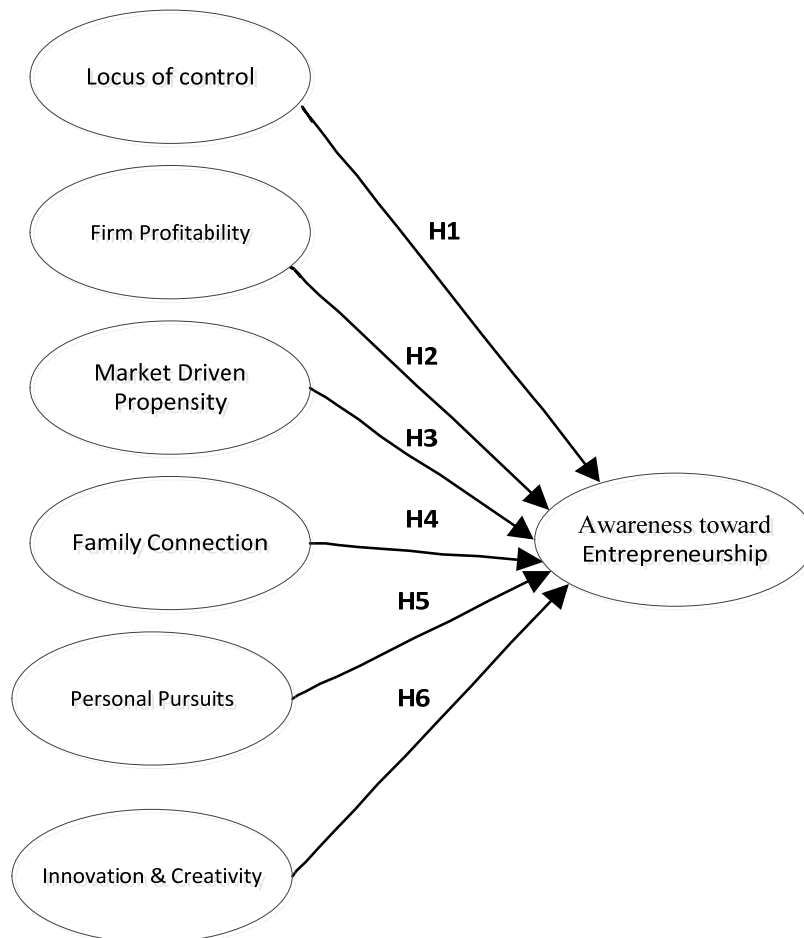


Figure1. Conceptual model 1 of entrepreneurship with major factors

2.3 Entrepreneurship Strategy Typologies

Business strategy is concerned with the organization-wide decisions that focus on achieving competitive advantage. One of the most dominant frameworks of business strategy is the Miles and Snow's (1986) typology. Miles and Snow (1986) identified four types of methods that firms use to address entrepreneurial problem. Among the four types, the main two strategies (e.g, analyzer and defender) are commonly applied to the hospitality and tourism industry (Varadarajan, 2010; Colton & Bissix, 2005; Lise, 2001). Analyzers require an external focus on both competitors (to develop an in-depth understanding of their

customer value propositions) and on customers (to understand their perceptions of the strengths and weaknesses of competitive offerings, in order to develop and bring their “new and improved” products to market) (Meert et al., 2005; Gilmore et al., 2002). Among the strategy types, analyzers are the most competitive. They have the dual challenge of competing with prospectors for early adopters by introducing more innovative, higher-quality, or lower-priced versions of prospectors’ products, and of competing with other analyzers and with defenders in the mass market to protect the core products and markets that generate the necessary resources for their entrepreneurial activities (Dees, 2002).

In contrast, defenders focus on efficiency through standardized practices in both operations and marketing, rather than on effectiveness stemming from creativity (Dyer & Singh, 1998). Defenders tend to be mechanistic, with coordination achieved through formal rules, procedures, and integration devices (Noble et al., 2002). With regard to price competition, defenders benchmark both prices and cost structures through their outward focus on competitors.

2.4 Economic Impact

In depressed agricultural markets, farmers are often faced with two options: alter the existing farms to adopt more production or seek alternative sources of income (Birley & Westhead, 1994). Alternative sources often mean off-farm employment (Clarke, 1999). However, the option of providing profitable recreation activities plays a significant support role for many agricultural operators: “Farm families are under increasing pressure as the income threshold required for a viable business continues to rise. Farm-based tourism is typically viewed as one way of boosting family incomes” (Brüderl & Preisendrfer, 1998, p.

219). Income derived from providing recreation activities is usually supplemental. Therefore, farm tourism can help level income flow by producing a profitable income combination (e.g., agriculture sector and tourism sector) during market fluctuations (Greenbank, 1999; Sorensen & Sorenson, 2003).

2.5 Joint Marketing/ Marketing Alliance

In the past few years, a number of studies have widely viewed marketing alliances as agreements among enterprises to work together to attain some strategic objective (Rao, Qu, & Ruekert, 1999; Rothaermel & Deeds, 2006). According to Sivadas and Dwyer (2000), a marketing alliance can be structured either as a distinct corporate entity in which alliance partners hold an equity position, or as a distinct inter-organizational entity to which the organizational partners commit resources and skills without sharing equity in the relationship. Overall, such relationship may take the form of equity sharing as in joint ventures; and non-equity forms such as joint marketing, cross-distribution, joint bidding activities, and research/development partnerships (Varadarajan & Cunningham, 1995).

2.6 Environmental Sustainability

Human activity-induced climate change is a reality. In the United States, the effects of global warming are now noticeable. Increasing average temperatures contributed significantly to the 2007 drought (e.g., Georgia) and some of the worst hailstorms and cyclones in U.S. history have been experienced in the last decade (Zeppel & Muloin, 2008). In the tourism industry, environmental sustainability aims to ensure that tourism development remains a positive experience for local communities, tourists, agritourism enterprises, and

other tourism entities, while avoiding damage in the environmental and cultural systems of farms and rural areas (Nickerson et al., 2001). Environmental safeguards against potential problems in agritourism include conserving natural resources, saving energy, protecting the local environment, not engaging in livelihoods that are a threat to the ecosystem, and avoiding capacity overload during peak production periods (Buckley, 2002).

Not surprisingly, environmental consciousness and sustainable development will form the context within which businesses will need to work in the future. For instance, operators may consider renewable energy resources such as solar, wind, and water power; ground source heat pumping; and biomass energy from wood, waste, and energy crops. Accordingly, sustainability has an important impact on an enterprise's value (e.g., brand value and customer value, etc.), which has been confirmed in many marketing studies (Lee & Moscardo, 2005; Powell & Ham, 2008).

2.7 Public/Social Awareness

Agritourism promotes economic development and helps educate the public about the important contributions of agriculture to the country's economy and quality of life (Colton & Bissix, 2005; McGehee & Kim, 2004). Nickerson et al. (2001) stated that agritourism can lead to good neighbor relations and garner public support for farm retention policies. In addition, Lobo et al. (1999) stated that good relations can help farmers to assess tourists' awareness of issues that affect agriculture such as production and direct-marketing methods used by growers. As tourists participate directly in agricultural enterprises, the education of the general public can be very important in increasing political and social support for the agrarian economy (Marques, 2006). Moreover, such awareness and education can reduce

conflicts over farm practices and strengthen non-farm public support for the existence of farms (Hegarty & Przezbórska, 2005). Based on the discussion above, this study therefore proposes the following hypotheses:

H7: Entrepreneurship strategy (defenders) has a positive influence on economic impacts in agritourism business.

H8: Entrepreneurship strategy (analyzers) has a positive influence on economic impacts in agritourism business.

H9: Entrepreneurship strategy (defenders) has a positive influence on joint marketing in the agritourism industry.

H10: Entrepreneurship strategy (analyzers) has a positive influence on joint marketing in the agritourism industry.

H11: Entrepreneurship strategy (defenders) has a positive influence on environmental sustainability in the agritourism industry.

H12: Entrepreneurship strategy (analyzers) has a positive influence on environmental sustainability in the agritourism industry.

H13: Entrepreneurship strategy (defenders) has a positive influence on public awareness of the agritourism industry.

H14: Entrepreneurship strategy (analyzers) has a positive influence on public awareness of the agritourism industry.

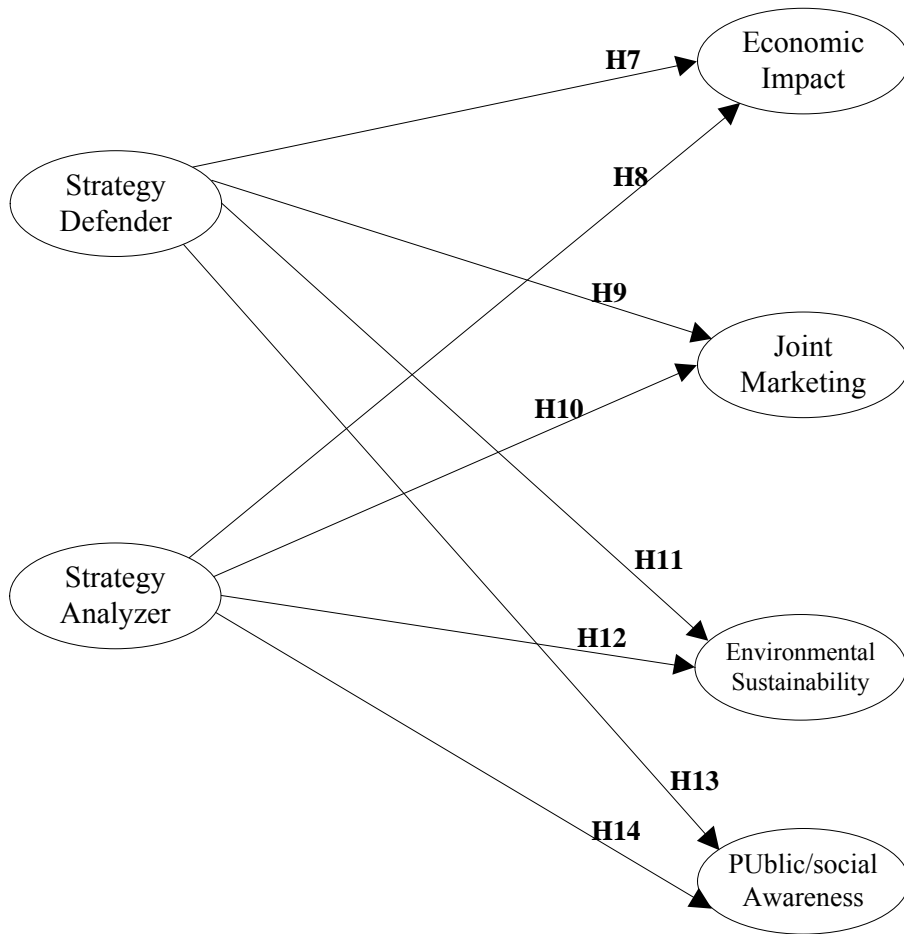


Figure2. Conceptual model 2 of entrepreneurship strategies and advantages

CHAPTER 3. RESEARCH METHODOLOGY AND DESIGN

This chapter introduces the research methods utilized to test the research questions presented in Chapter 2. The sampling and data collection methods, the survey instrument, and the statistical analysis process are discussed in the following sections.

3.1 Sample

The initial sample frame, which was used for purposive and snowball samplings, consisted of the attendees of the Iowa Farm Bureau Young Farmer Conference (IFBYFC). The sample frame was chosen for convenience; as such, it may not be entirely representative. However, it facilitated study referrals, and included members from other state-wide agriculture conferences. Following approval of the Institutional Review Board (IRB) of Iowa State University, the preliminary questionnaire was developed and distributed to potential respondents (both male and female), who were at least 18 years of age. Prior to starting the first part of the survey, participants were asked whether they had ever operated agritourism businesses. Only those who confirmed that they had been or were operators of agritourism businesses at the time of the study were eligible to complete the questionnaire.

3.2 Survey Instrument

The preliminary questionnaire was pilot tested with a convenience sample of 30 young farmers in the Young Farmer Conference (YFC) in Iowa. The pilot study was undertaken to refine the questionnaire instrument and assess farmer participation levels during December 2012. Based on the results of the pilot study, the questionnaire instrument was revised to best fit the focus of the 13 primary constructs for final research. Minor

modifications were also made to the questionnaire wording based on the feedback of the respondents in the pre-test. The final questionnaire included three sections: (1) level of entrepreneurship and affective variables; (2) entrepreneurship strategies and competitive advantages; and (3) demographic information. The first part of the questionnaire measured six entrepreneurship constructs and affective variables of operators of small agritourism businesses (locus of control, firm profitability, market-driven propensity/opportunity alertness, family connection, personal pursuits and innovation/creativity).

All of these measurement items in the final survey were selected from previous studies with some selection criteria, including reliability and validity. More specifically, In model 1, locus of control, firm profitability, market-driven propensity, family connection, personal pursuits, innovation/creativity, awareness toward entrepreneurship were adopted from the measurement scales of Shaver and Scott (1991), Ateljevic and Doorne (2000), Russell and Faulkner (2004), Chrisman, Chua, and Sharma (2005), Morone and Testa (2008), Nieto and Quevedo (2005), and Sarkar, Echambadi, and Harrison (2001). All items were measured with five-point Likert-type scales ranging from 1 (*strongly disagree*) to 5 (*strongly agree*) (see Table 1).

Table 1. Constructs and Items of the First Part of Survey

<p>Locus of Control (Shaver & Scott, 1991)</p> <p>LC1: There is a direct connection between how hard I work and the job performance I get in my agritourism business.</p> <p>LC2: In my case getting what I want has little or nothing to do with luck in the operation of my agritourism business.</p> <p>LC3: Many times I feel that I have little influence over the things that happen in the operation of my agritourism business.</p>
<p>Firm Profitability (Ateljevic & Doorne, 2000)</p> <p>FP1: It is important to offset fluctuations in farm revenues for a farm.</p> <p>FP2: It is important to generate revenues during off-season for a farm.</p> <p>FP3: It is important to reduce overall farm debt for a farm.</p>
<p>Market-driven Propensity (Russell & Faulkner, 2004).</p> <p>MD1: It is important to interact with customers and/or educate customers on agriculture.</p> <p>MD2: It is important to provide current customers with new agriculture products.</p> <p>MD3: It is important to respond to a market need/opportunity and/or to increase/diversify the market for a farm.</p>
<p>Family Connection (Chrisman et al., 2005)</p> <p>FC1: It is important to keep the farm in the family.</p> <p>FC2: It is important to provide employment for family members.</p> <p>FC3: It is important to continue farming.</p>
<p>Personal Pursuits (Morone & Testa, 2008)</p> <p>PP1: Capitalizing on an interest or hobby is important to me.</p> <p>PP2: Facing a new challenge is important to me.</p> <p>PP3: Enhancing personal/family quality of life is important to me.</p>
<p>Innovation/Creativity (Nieto & Quevedo, 2005)</p> <p>IC1: It is important to invest in new facilities and/or services (e.g., products/process innovation) in my agritourism business.</p> <p>IC2: It is important to open new markets.</p> <p>IC3: It is important to utilize new sources of supply in my agritourism business.</p> <p>IC4: It is important to invest in new facilities and/or services (e.g., products/process</p>
<p>Awareness toward Entrepreneurship (Sarkar, Echambadi, & Harrison, 2001)</p> <p>AE1: An entrepreneur is a person who establishes a business of his own</p> <p>AE2: One can set up a business with the knowledge of entrepreneurship</p> <p>AE3: The term entrepreneurship means the ability to organize capital, labour and land to set up a business</p> <p>AE4: A potential entrepreneur needs sufficient business management concepts to set up a business of his own.</p>

The second part of the survey included questions regarding the constructs of entrepreneurship strategies and agritourism businesses' competitive advantages. The Miles and Snow (1986) and Colton and Bissix (2005) measurement scales were employed for analyzing two constructs: strategy-defender and strategy-analyzer. These scales were chosen because of their good fit with the hospitality and tourism context. The respondents were asked to give their opinions on the importance of the two constructs (defender and analyzer) in operating their agritourism businesses. All items were measured with five-point Likert-type scales ranging from 1 (*strongly not consider important*) to 5 (*strongly consider important*). The scales of economic impact and environmental sustainability from Sorensen and Sorenson (2003) were used. For assessing joint marketing and public/social relationships, the Rothaermel and Deeds' (2006) scales were adopted (see Table 2). The items were measured with five-point Likert-type scales ranging from 1 (*strongly disagree*) to 5 (*strongly agree*).

Table 2. Constructs and Items of the Second Part of Survey

Construct and Measurement Items
<p>Strategy - defender (Miles & Snow, 1986; Colton & Bissix, 2005)</p> <p>SD1: Pricing below competitors.</p> <p>SD2: Trade/consumer sales promotion.</p> <p>SD3: Operating efficiency (e.g., cost control, product cost reduction).</p> <p>SD4: Improving quality of existing agritourism product(s).</p> <p>SD5: Staff and/or employee training.</p>
<p>Strategy - analyzer (Miles & Snow, 1986; Colton & Bissix, 2005)</p> <p>SA1: Observing others perform activities.</p> <p>SA2: New products/services development.</p> <p>SA3: Manufacturing process improvements and innovation.</p> <p>SA4: Serving special market segment(s).</p> <p>SA5: Advertising is still important for my farm.</p>
<p>Economic impact (Sorensen & Sorenson, 2003)</p> <p>EI1: The economic benefits of agritourism are greater than the disadvantages.</p> <p>EI2: There is a direct connection between management and marketing strategies and profitability of my agritourism business.</p>
<p>Joint marketing (Rothaermel & Deeds, 2006)</p> <p>JM1: Farmers' networks are useful to me in the operation of my agritourism business.</p> <p>JM2: Professional associations are useful to me in the operation of my agritourism business.</p> <p>JM3: Support/Partner groups (e.g., trade union) are useful in the operation of my agritourism business.</p> <p>JM4: The partner group(s) has influenced my agritourism business to change the policies and practices with respect to sales and promotion, etc.</p>
<p>Environmental sustainability (Sorensen & Sorenson, 2003)</p> <p>ES1: Enhancing environmental quality (e.g., air, water, and soil) is important to me.</p> <p>ES2: The existence of natural areas is important to me, although visitors do not visit them.</p>
<p>Public awareness (Rothaermel & Deeds, 2006)</p> <p>PA1: It is important to increase awareness of agricultural issues and values among the public.</p> <p>PA2: It is important to promote inter-regional, inter-cultural communication and understanding among the public.</p>

The third part of the survey elicited demographic information from respondents regarding education field, gender, and age. Two open-ended questions were also included: (1) What type of agritourism business organization have you or are you currently involved in? and (2) How many employees, including yourself, work in your agritourism business?

3.3 Data Collection

With the assistance of the Iowa Farm Bureau, the data utilized in this research was obtained from four state-wide agriculture conferences in the state of Iowa, including the Practical Farmers of Iowa Annual Conference, the Iowa Women in Agriculture Annual Women's Conference, the Iowa Organic Conference, and the Annual Beginning Farmers Conference) during January 2013 over a four-week period. The major reasons for selecting these four state-wide agriculture conferences were the number of members (e.g, more than 100 or 150 members), the purpose of a conference (e.g., beginning farming), the types of activities (e.g, workshops, presentations, and display), and the time frame of the conference (e.g., two or three days). At each conference, the present author and two to three professional staff of the Iowa Farm Bureau distributed the survey. During the survey process, the research team adopted a one-to-one interview approach to collect information from the members of the four state-wide agriculture conferences.

3.4 Data Analysis

A two-step structural equation modeling (SEM) analysis process was completed as part of this research. First, confirmatory factor analysis (CFA) was used to test the scales for the measurement of specific constructs proposed in a previous research model (Anderson & Gerbing, 1988), following which SEM was conducted .

3.4.1 Evaluation of Underlying Assumptions of SEM

3.4.1.1 Normality

One of the assumptions of SEM is the normal distribution for continuous variables. Normality is concerned with the distribution of the individual variables. Skew and kurtosis were used to test normality of data distribution (see Table 3). Absolute values of skew indexes are advised to be less than 3.0. The absolute values of the kurtosis index are advised to be less than 10 (Ferron & Hess, 2007). The skewness in this study ranged from -0.178 to 0.196, and the kurtosis ranged from -1.248 to 2.387. Therefore both, skewness and kurtosis satisfied the requirement of normality.

Table 3. Distribution for the Observed Variables

Construct/ Items	N= (527)			
	Mean	SD	Skew	Kurtosis
Locus of control				
LC1: There is a direct connection between how hard I work and the job performance I get in my agritourism business.	4.41	1.263	0.196	-0.953
LC2: In my case getting what I want has little or nothing to do with luck in the operation of my agritourism business.	4.17	1.113	0.091	-1.210
LC3: Many times I feel that I have little influence over the things that happen in the operation of my agritourism business.	3.26	1.348	-0.298	-1.248
Firm profitability				
FP1: It is important to offset fluctuations in farm revenues for a farm.	4.72	.945	-0.174	0.944
FP2: It is important to generate revenues during off-season for a farm.	4.82	.956	-0.109	0.975
FP3: It is important to reduce overall farm debt for a farm.	4.79	.924	-0.051	0.790
Market Driven				
MD1: It is important to interact with customers and/or educate customers on agriculture.	4.36	1.138	-0.086	1.805
MD2: It is important to provide current customers with new agriculture products.	4.58	1.227	-0.084	1.745
MD3: It is important to respond to a market need/opportunity and/or to increase/diversify the market for a farm.	4.56	1.251	-0.178	2.387
Family connection				
FC1: It is important to keep the farm in the family.	3.78	1.524	-0.269	-0.384
FC2: It is important to provide employment for family members.	3.25	1.348	-0.137	-0.248
FC3: It is important to continue farming.	3.64	1.276	-0.245	-0.275

Table 3. (continued)

Construct/ Items	N= (527)			
	Mean	SD	Skew	Kurtosis
Personal Pursuits				
PP1: Capitalizing on an interest or hobby is important to me.	4.49	1.105	-0.342	0.061
PP2: Facing a new challenge is important to me.	4.17	1.181	-0.292	0.072
PP3: Enhancing personal/family quality of life is important to me.	4.82	1.219	-0.336	0.021
Innovation/Creativity				
IC1: It is important to invest in new facilities and/or services (e.g., products/process innovation) in my agritourism business.	4.26	1.291	-0.817	1.016
IC2: It is important to open new markets.	4.89	1.123	-0.751	1.365
IC3: It is important to utilize new sources of supply in my agritourism business.	4.45	1.207	-0.797	1.409
IC4: It is important to invest in new facilities and/or services (e.g., products/process	4.71	1.284	-0.731	1.066
Awareness toward entrepreneurship				
AE1: An entrepreneur is a person who establishes a business of his own	4.83	1.148	-0.372	0.600
AE2: One can set up a business with the knowledge of entrepreneurship	4.58	1.161	-0.682	0.466
AE3: The term entrepreneurship means the ability to organize capital, labour and land to set up a business	4.86	1.205	-0.341	-0.145
AE4: A potential entrepreneur needs sufficient business management concepts to set up a business of his own.	4.94	1.188	-0.512	0.768

Table 3. (continued)

Construct/ Items	Mean	N= (527) SD	Skew	Kurtosis
Strategy - defender				
SD1: Pricing below competitors.	4.77	1.281	-0.618	0.616
SD2: Trade/consumer sales promotion.	4.72	1.344	-0.688	0.379
SD3: Operating efficiency (e.g., cost control, product cost reduction).	4.73	1.474	0.025	-0.439
SD4: Improving quality of existing agritourism product(s).	4.62	1.283	-0.691	0.369
SD5: Staff and/or employee training.	4.26	1.205	-0.043	-0.210
Strategy - analyzer				
SA1: Observing others perform activities.	4.73	1.269	-0.095	0.407
SA2: New products/services development.	4.17	1.319	-0.232	0.194
SA3: Manufacturing process improvements and innovation.	4.93	1.245	-0.198	0.523
SA4: Serving special market segment(s).	4.21	1.207	-0.797	1.409
SA5: Advertising is still important for my farm.	4.95	1.256	-0.212	0.533
Economic impact				
EI1: The economic benefits of agritourism are greater than the disadvantages.	4.88	1.267	-0.437	0.340
EI2: There is a direct connection between management and marketing strategies and profitability of my agritourism business.	4.35	1.356	-0.901	0.783
Joint marketing				
JM1: Farmers' networks are useful to me in the operation of my agritourism business.	4.74	1.062	-0.447	0.394
JM2: Professional associations are useful to me in the operation of my agritourism business.	4.37	1.265	-0.292	0.072
JM3: Support/Partner groups (e.g., trade union) are useful in the operation of my agritourism business.	4.62	1.290	-0.336	0.021
JM4: The partner group has influenced my agritourism business to change the practices with respect to sales and promotion, etc.	4.58	1.178	-0.571	0.420

Table 3. (continued)

Construct/ Items	Mean	N= (527) SD	Skew	Kurtosis
Environmental sustainability				
ES1: Enhancing environmental quality (e.g., air, water, and soil) is important to me.	3.47	1.361	-0.618	0.616
ES2: The existence of natural areas is important to me, although visitors do not visit them.	3.86	1.415	-0.043	-0.210
Public/social awareness				
PA1: It is important to increase awareness of agricultural issues and values among the public.	4.78	1.169	-0.095	0.407
PA2: It is important to promote inter-regional, inter-cultural communication and understanding among the public.	4.36	1.209	-0.232	0.194

3.4.1.2 Outliers

Outliers may affect the results of SEM, even when the remainder of the data is well distributed. Univariate outlier is defined as those more than three SD away from the mean ($z > 3$). Outliers are remedied through correcting errors or dropping the cases of transforming variables (Murawski, Payakachat, & Koh-Knox, 2008). No outliers were found by the inspection of frequency distributions, and univariate measures of skewness and kurtosis. Mahalanobis distance is used to detect multivariate outliers. A careful examination of Mahalanobis distance did not reveal a multivariate outlier. Therefore, no cases were removed from further data analysis.

3.4.1.3 Missing Data

There are mainly three approaches used to deal with missing data, which include pairwise deletion, listwise deletion, and replacement. Pairwise deletion excludes an observation from a calculation only when it is missing a value needed for that particular calculation. The advantage of pairwise deletion is that it does not lead to substantial decrease in the sample size. The disadvantage of pairwise deletion is that the parameters of the model are calculated based on a different sample size (Kim & Curry, 1977). Pairwise deletion may lead to out of bound values resulting in nonpositive definite/singular covariance matrices, negative variances, and so on. Pairwise deletion is not recommended for SEM (Schreiber, Nora, Stage, Barlow, & King, 2006). Listwise deletion eliminates observations where there is any data value missing. Listwise deletion is used under the assumption that data is missing completely at random, and it leads to unbiased parameter estimates. Listwise deletion

approach discards other information that the respondent provides, and it significantly reduces the sample size (Kim & Curry, 1977). Data replacement helps maximize the effect of present data. When the missing data sample is too large, it is not reasonable to delete all the missing data. Replacement using some specific criteria is the best way because scholars could interpret the results similar to analysis with no missing items. Since there are a few missing values on individual items, this study adopted the common replacement approach, mean substitution, to deal with missing data (Acock, 2005). The author replaced each missing value for a variable with the average of the observed values.

3.4.1.4 Reliability

The reliability of a measure is advised by the agreement of two efforts to measure its construct using a maximally similar method (Campbell & Fiske, 1959). It is featured by the “repeatability” of a measure, and types of reliability include a measure’s stability over time or subjects (Nunnally & Bernstein, 1994). Four types of reliability were calculated, which included individual item reliability (e.g., Cronbach Alpha & R²), composite reliability of the overall scale, and the average variance extracted (AVE) from the subscale (see Table 4). Cronbach Alpha was used to test the individual item reliability and the cutoff point is advised to be more 0.7 (Moss et al., 1998); while composite reliability and AVE were used to test the reliability of the construct or the latent variables. For a scale to be reliable, this study also conducted R² measure. The R² value associated with each construct-to-item equation is a measure of the reliability of an individual item (Byrne, 1998). Ferron and Hess (2007) stated that the value of R² ranges from 0 to 1; the greater value shows a better fit of the model.

Composite reliability is the reliability of a summated scale, and average variance extracted (AVE) is the variance in the indicators explained by the common factor. Composite reliability is advised to be above 0.7 (Hair et al., 1998), and AVE is advised to be greater than 0.5 (Bagozzi & Yi, 1988). The Cronbach alpha of the 13 constructs in the present study ranged from 0.82 to 0.96, R2 from 0.51 to 0.82, composite reliability from 0.82 to 0.97, and AVE ranged from 0.64 to 0.85 (see Table 4).

3.4.1.5 Construct Validity

Construct validity is concerned in part with a measure's correspondence of other constructs. Measures of other constructs should be valid and reliable, and their correspondences with the target measure should also be theoretically sound (Cronbach & Meehl, 1955). Construct validity is typically advised using correlations. The correlations with a target measure and their plausibility are argued to support or undermine its construct validity. Construct validity mainly includes convergent and discriminant validity (Shuttleworth, 2009). Convergent validity is the degree to which an operation is similar to (converges on) other operations that it theoretically should also be similar to. Convergent validity indicates that the assessment is related to what it should theoretically be related to (Anderson & Gerbing, 1988). Confirmatory factor loadings can be evaluated from the measurement model by determining whether each indicator's estimated maximum likelihood loading on the underlying construct is significant (Anderson & Gerbing, 1988). As illustrated in Table 4, all confirmatory factor loadings were significant at the 0.001 level. Therefore, convergent validity of the measures in this study was satisfactory. Discriminant validity

describes the degree to which the operationalization is not similar to (diverges from) other operationalizations that it theoretically should not be similar to. Discriminant validity was evaluated by comparing the AVE values with the squared correlations between constructs (Fornell & Larcker, 1981). The results showed that the squared correlations between pairs of constructs were all less than the AVEs, which indicated acceptable discriminant validity (see Table 5).

Table 4. Scale/Item Measurement Properties

Constructs	Items	Cronbach's Alpha	R2	Composite Reliability	AVE	CFA Item Loading
Locus of control		0.88		0.94	0.79	
	LC1		0.848			0.921***
	LC2		0.823			0.947***
	LC3		0.661			0.803***
Firm Profitability		0.87		0.95	0.83	
	FP1		0.799			0.894***
	FP2		0.706			0.840***
	FP3		0.893			0.945***
Market Driven		0.92		0.94	0.81	
	MD1		0.686			0.828***
	MD2		0.832			0.912***
	MD3		0.823			0.907***
Family Connection		0.82		0.89	0.64	
	FC1		0.624			0.790***
	FC2		0.601			0.775***
	FC3		0.511			0.715***
Personal Pursuits		0.87		0.92	0.82	
	PP1		0.801			0.895***
	PP2		0.897			0.947***
	PP3		0.726			0.852***
Innovation/Creativity		0.88		0.93	0.77	
	IC1		0.729			0.854***
	IC2		0.759			0.871***
	IC3		0.837			0.915***
	IC4		0.669			0.818***

Note: *** Significant at the 0.001 level.

Table 4. (continued)

Constructs	Items	Cronbach's Alpha	R2	Composite Reliability	AVE	CFA Item Loading
Awareness toward Entrepreneurship		0.94		0.96	0.85	
	AE1		0.839			0.916***
	AE2		0.872			0.934***
	AE3		0.669			0.818***
	AE4		0.857			0.926***
Strategy Defender		0.89		0.92	0.72	
	SD1		0.697			0.835***
	SD2		0.810			0.901***
	SD3		0.640			0.802***
	SD4		0.702			0.838***
	SD5		0.663			0.814***
Strategy Analyzer		0.91		0.95	0.85	
	SA1		0.867			0.931***
	SA2		0.806			0.898***
	SA3		0.834			0.913***
	SA4		0.823			0.907***
	SA5		0.856			0.925***
Economic Impact		0.88		0.94	0.78	
	EI1		0.869			0.932***
	EI2		0.632			0.795***
Joint Marketing		0.92		0.93	0.81	
	JM1		0.686			0.828***
	JM2		0.887			0.942***
	JM3		0.846			0.920***
	JM4		0.771			0.878***
Environmental Sustainability		0.87		0.90	0.68	
	EM1		0.716			0.846***
	EM2		0.651			0.807***
Public Awareness		0.92		0.94	0.79	
	PA1		0.764			0.874***
	PA2		0.724			0.851***

Note: *** Significant at the 0.001 level.

Table 5 Latent Variable Squared Correlation Matrix

	1	2	3	4	5	6	7
1. Locus of Control	0.79						
2. Firm Profitability	0.20	0.83					
3. Market Driven	0.25	0.27	0.81				
4. Family Connection	0.24	0.29	0.15	0.64			
5. Personal Pursuits	0.26	0.28	0.36	0.14	0.82		
6. Innovation/Creativity	0.41	0.22	0.40	0.40	0.42	0.77	
7. Awareness toward Entrepreneurship	0.37	0.49	0.50	0.27	0.35	0.55	0.85

Entries under the diagonals are the latent construct correlations. Entries on the diagonal are AVE.

Table 5. (continued)

	1	2	3	4	5	6
1. Strategy Defender	0.72					
2. Strategy Analyzer	0.12	0.85				
3. Economic Impact	0.37	0.46	0.78			
4. Joint marketing	0.22	0.30	0.48	0.81		
5. Environmental sustainability	0.16	0.17	0.12	0.20	0.68	
6. Public/social Awareness	0.14	0.38	0.18	0.23	0.36	0.79

Entries under the diagonals are the latent construct correlations. Entries on the diagonal are AVE.

3.4.2 Multicollinearity

Multicollinearity may lead to a nonpositive definite covariance matrix due to high correlations among variables. Pearson correlations among observed variables were evaluated first. Several observed variables had moderate bivariate correlations, which indicated that the data might violate the collinearity assumption. Therefore, a collinearity diagnostic test was further conducted to assess multicollinearity. Collinearity may be indicated by a Variable Inflation Index (VIF) greater than 10, conditional index scores of 15 or higher, and variance proportions greater than 0.9. No indicators had a VIF value greater than 10 and no corresponding variance proportions were greater than 0.9. Thus, the results suggested that the data did not violate the assumption of multicollinearity in this study.

3.4.3 Confirmatory Factor Analysis

In confirmatory factor analysis, a model is constructed in advance with the number of latent variables determined by the context of the research, whether latent variables influencing observed variables are specified, and the direct effects of latent variables on observed variables fixed to zero or some other constant. Measurement errors may correlate with each other. The covariance of latent variables can be estimated or fixed to some specific value, and parameter identification is also required (Harman, 1976). Since the theoretical framework and the measurement scales of each variable in the conceptual model have a strong theoretical base, factor analysis in this study was based on theory testing. Therefore, CFA was an appropriate approach for this research.

3.4.4 Structural Equation Modeling

Structural equation modeling (SEM) was used to examine the hypothesized relationships among the constructs in the study. By using SEM, the causal relationships among theoretical constructs can be presented visually in an effective way to analyze the model (Byrne, 1998). SEM can be used to model constructs as latent variables which, as opposed to observable variables, are not directly observed but are rather inferred (through a mathematical model) from other variables that are observed and directly measured. SEM offers the ability to capture the unreliability of measurement in a model, which allows for estimating the structural relations between latent variables (Marcoulides & Moustaki, 2002).

Generally speaking, SEM involves a two-step approach: (1) examination of a measurement model; and (2) examination of a structural model (Byrne, 1998). In this study, the measurement model was first examined through confirmatory factor analysis. The fit of the measurement model was tested to determine whether the observed variables (indicators of the latent constructs) were generated by the corresponding latent constructs. The overall fit and the regression paths were analyzed in this endeavor. Second, the hypothesized model (the full SEM model) was tested to validate specified casual linkages among constructs. This subsequent analysis involves simultaneously examining the hypothetical relationships among the constructs (Kline, 2005).

The Amos 18.0 structural equation analysis package was used to conduct the analysis, and the maximum likelihood procedure was employed to estimate the measurement models and structural models. The indices of the goodness of fit between the hypothesized model and the data were examined to determine if the model adequately explained the data. In addition, a modification process was applied to the selected model to determine whether the

model could be further improved to represent a good fit to the data and adequately describe the meaningful relationships among the constructs. In the maximum likelihood procedure, a chi-square test is the most common goodness-of-fit test. However, this test may be misleading if: 1) the model is relatively complex; 2) there is a large sample size; and 3) there is violation of the assumption of multivariate normality (Joreskog & Sorbom, 1993). Therefore, several other fit indices may be required, such as the goodness-of-fit index (GFI); adjusted goodness-of-fit index (AGFI) (Hu & Bentler, 1999; Joreskog & Sorbom, 1993); comparative fit index (CFI) (Bentler, 1990; Hu & Bentler, 1999); normed fit index (NFI) (Maruyama, 1998), and root mean square error of approximation (RMSEA) (Kline, 2005).

The chi-square test is best for models with $N=75$ to $N+100$. For $N>100$, the chi-square is almost always significant since the magnitude is affected by the sample size. The chi-square is also affected by the size of correlations in the model; the larger the correlations, the poorer the fit (Jöreskog, 1971). With regard to the chi-square to df Ratio, there are no consistent standards for what is considered an acceptable model. Some authors have suggested a ratio of 2 to 1. In general, a low chi-square to df ratio indicates a better fitting model (Hu & Bentler, 1999). Additionally, sample size provides the basis for the estimation of sample error and impacts on the ability of the model to be correctly estimated (Steiger, 1990). As with any statistical method, the critical question is how large a sample is needed. Hoelter (1983) mentioned that although sample size needed is affected by the normality of the data and estimation method that researchers use, the generally agreed-on value is 10 participants for every free parameter estimated. Although there is no consensus on the recommended sample size for SEM (Garver & Mentzer, 1999), McQuitty (2004) proposed a 'critical sample size' of 200. In other words, as a rule of thumb, any number above 200 is

viewed to provide sufficient statistical power for data analysis. The goodness-of-fit index (GFI) and adjusted goodness-of-fit index (AGFI) address the issue of parsimony by incorporating a penalty for the inclusion of additional parameters. The GFI and AGFI can be classified as absolute indexes of fit because they essentially compare the hypothesized model with no model at all (Byrne, 1998). Values of GFI and AGFI close to 0.90 reflect a good fit. These indices are affected by sample size and can be large for poorly specified models (Joreskog & Sorbom, 1993). The comparative fit index (CFI) is one of a class of fit statistics known as incremental or comparative fit indexes. It assesses the relative improvement in model fit compared with a baseline model. A rule of thumb for the CFI is that a value greater than roughly 0.90 and less than 1.0 indicates good model fit (Bentler, 2005). The normal fit index (NFI) represents the incremental fit measure, which measures the proportionate improvement in fit by comparing a target model with a more restricted, nested baseline model. Bentler (2005) suggested that although researchers typically interpret values greater than .90 as acceptable for incremental fit indexes (NFI), Maruyama (1998) considered values that exceed .80 are regarded as acceptable. The root mean square error of approximation (RMSEA) takes into account the error of approximation in the population and asks the question, "How well would the model, with unknown but optimally chosen parameter values, fit the population covariance matrix if it were available?" (Obst & White, 2005). According to Hu and Bentler (1999), RMSEA should be less than .05 ideally. However, RMSEA values ranging from 0.05 to 0.10 indicate mediocre fit (MacCallum, Browne, & Sugawara, 1996).

CHAPTER 4. RESULTS

This chapter displayed the results of the data analysis, which included demographic characteristics of the sample, descriptive statistics of the variables, measurement, and Structural Equation Modeling (SEM) test.

4.1 Demographic Characteristics

A member list of 700 was used and a total of 584 questionnaires were collected. The response rate was 83.28%. Responses that included one or more unanswered sections were removed. After deleting the invalid surveys, 527 responses were kept for further analysis. Table 6 presents the demographic profile of the respondents. In addition to demographic characteristics (i.e., gender, age, and education field), respondents' information regarding the type of agriourism business, types of agritourism ventures, and the number of employees were included.

Overall, the largest group of the agritourism ventures was farm direct sale (33.9%, e.g., pick-your-own produce), followed by agri-recreation and sports (21.1%, e.g, horseback riding and hunting), agri-accommodation (19.2%. e.g., farm stay and B&B), agri-food services (12.7%), wine tasting & tour (8.7%), and cultural tourism (4.4%). In terms of gender, respondents were predominantly males (89%) with female representing only 11% of the sample. Majority of respondents were grouped in the 35-49 years of age range (80.65%), followed by the 30-34 years of age group (9.68%). The majority of all respondents (67.6%) indicated that they had earned agriculture related education (23%) or business related education (30.2%). Most of the participants were Americans. Respondents were evenly

distributed in their year of school. The majority of number of employees was between 3 and 4 (59.6%), followed by 1-2 (26.9%), 5-6 (12.9%), and above 7 (0.6%). In terms of type of agriourism business, majority of respondents (63.5%) were family business, followed by self-employed/ independent contractor (28.4%), and partnership (8.1%) (see Table 6).

Table 6. Demographic Characteristics of the Sample

Demographic Characteristics	Items	Frequency	Percentage
Types of Agritourism Ventures			
	Agri-accommodation (e.g, farm stay and B&B)	101	19.2
	Agri-food services	67	12.7
	Direct sales (farm market)	179	33.9
	Agri-recreation and sports	112	21.1
	Cultural tourism	23	4.4
	Wine tasting & tour	45	8.7
Gender (<i>n</i>= 527)			
	Male	469	89
	Female	58	11
Age (<i>n</i>= 527)			
	18-29	32	6.1
	30-34	51	9.7
	35-39	178	33.7
	40-44	155	29.4
	45-49	92	17.5
	50-54	12	2.3
	55-59	5	0.9
	60+	2	0.4
Education Field (<i>n</i>= 527)			
	Agriculture related	356	67.6
	Business related	159	30.2
	Other	12	2.2
Agriourism Business (<i>n</i>= 527)			
	Family business	334	63.5
	Self-employed/Independent contractor	151	28.4
	Partnership	42	8.1
	Management team	0	0.0
# of employees (<i>n</i>=527)			
	1-2	142	26.9
	3-4	314	59.6
	5-6	68	12.9
	7-8	3	0.6

There were thirteen constructs in the study, which included locus of control, firm profitability, market driven, family connection, personal pursuits, innovation/creativity, awareness toward entrepreneurship, strategy defender, strategy analyzer, economic impact, joint marketing, environmental sustainability, and public awareness. The mean of the responses for each construct ranged from 3.56 to 4.73 (see Table 7). Family connection had the lowest mean, and awareness toward entrepreneurship had the highest.

Table 7. The Summary of Construct Information

Construct	Mean	SD
1. Locus of Control	3.95	1.24
2. Firm Profitability	4.64	0.94
3. Market-driven Propensity	4.51	1.20
4. Family Connection	3.56	1.37
5. Personal Pursuits	4.49	1.17
6. Innovation/Creativity	4.58	1.23
7. Awareness toward Entrepreneurship	4.73	1.18
8. Strategy Defender	4.62	1.32
9. Strategy Analyzer	4.59	1.26
10. Economic Impact	4.61	1.31
11. Joint Marketing	4.58	1.20
12. Environmental Sustainability	3.67	1.39
13. Public/social Awareness	4.57	1.19

4.2. Confirmatory Factor Analysis (CFA)

Confirmatory factor analysis (CFA) was conducted to evaluate the overall fit of measurement items in the conceptual model. The CFA tested how well all the measured variables represent the number of constructs. The first measurement model consisted of seven factors (e.g., locus of control, firm profitability, market driven, family connection, personal pursuits, innovation/creativity, and awareness toward entrepreneurship) with 23 measurement items. Hu and Bentler (1999) suggest using a combinational strategy that a GFI ≥ 0.90 , CFI ≥ 0.90 , and an RMSEA ≤ 0.05 for model fit assessment. All the results of CFA model were: $\chi^2 (209) = 574.116$, $df = 209$, $p = 0.000$, $\chi^2/df = 2.746$, GFI=0.937, AGFI=0.917, CFI=0.942, NFI= 0.910, RMSEA=0.034 (see Figure 3). These results indicated an acceptable fit between the model and the data. The standardized coefficients of all paths were found to be significant at the level of 0.001. All the correlations among the seven latent constructs in the confirmatory factor analysis were positive and ranged from 0.388 to 0.737 (see Table 8).

The second measurement model specified six factors: strategy defender, strategy analyzer, economic impact, joint marketing, environmental sustainability, and public awareness. MacCallum et al. (1996) also considered values of GFI ≥ 0.80 , CFI ≥ 0.80 , and an RMSEA ≤ 0.08 to indicate mediocre fit. In testing the model, all indices did provide a satisfactory result and all path estimates were highly significant: $\chi^2 (156) = 558.012$, $p = 0.000$, $\chi^2/df = 3.577$, GFI=0.904, AGFI=0.884, CFI=0.921, NFI= 0.906, RMSEA=0.061 (see Figure 4). Thus, the model was accepted (see Figure 4). Correlations between these six factors were positive and between 0.337 and 0.687, respectively (see Table 8).

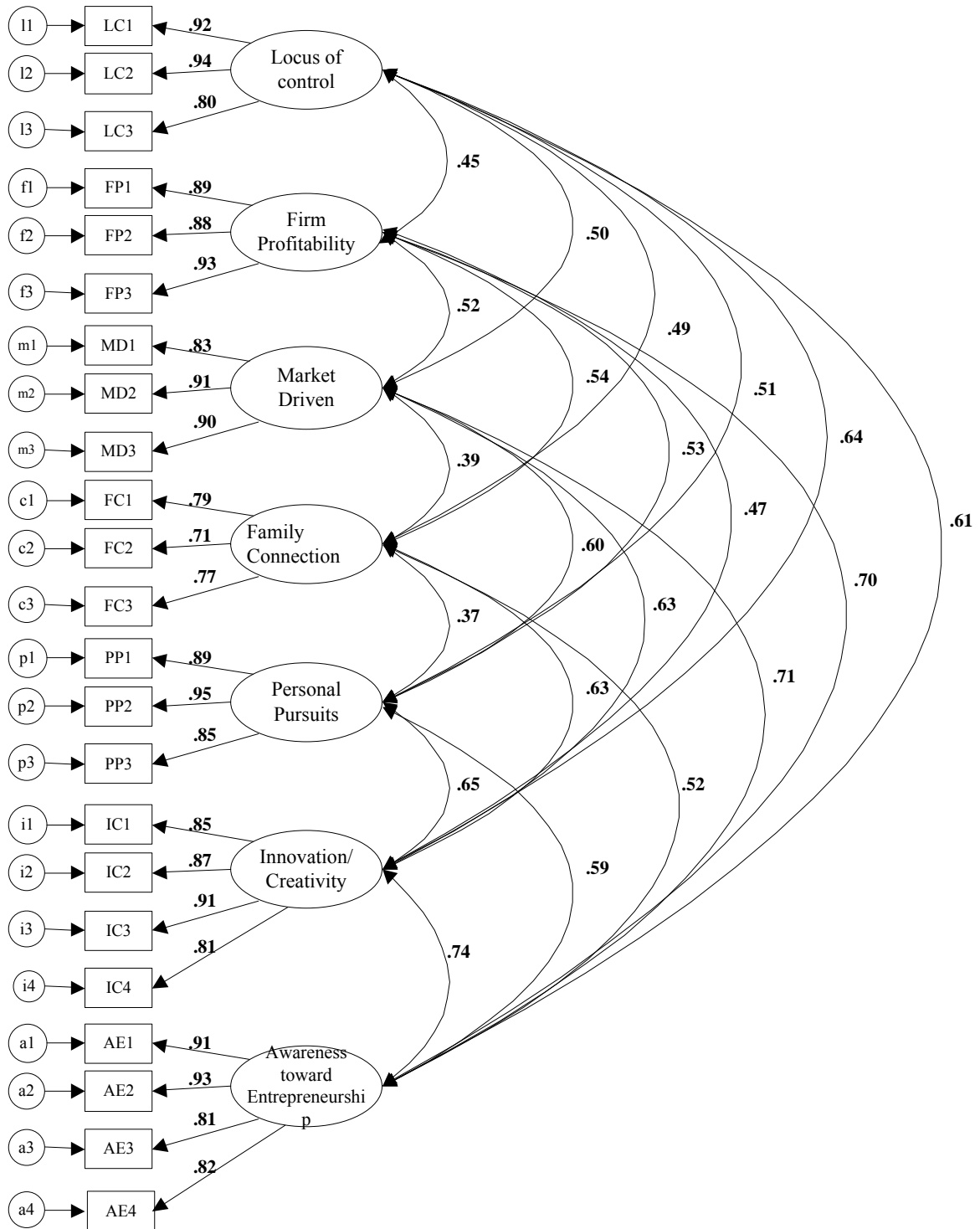


Figure 3. Confirmatory Factor Analysis – 1st Model

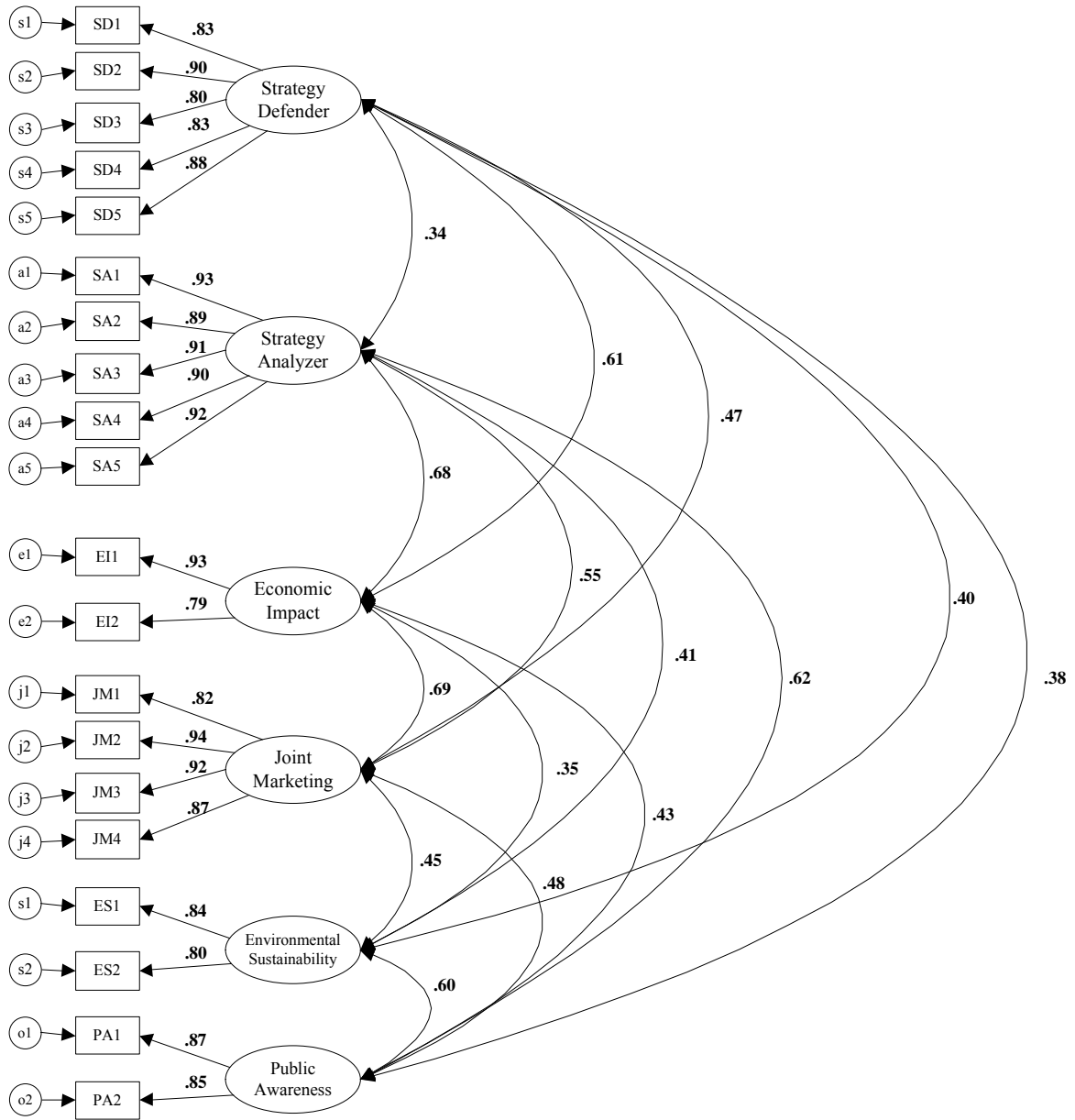


Figure 4. Confirmatory Factor Analysis – 2nd model

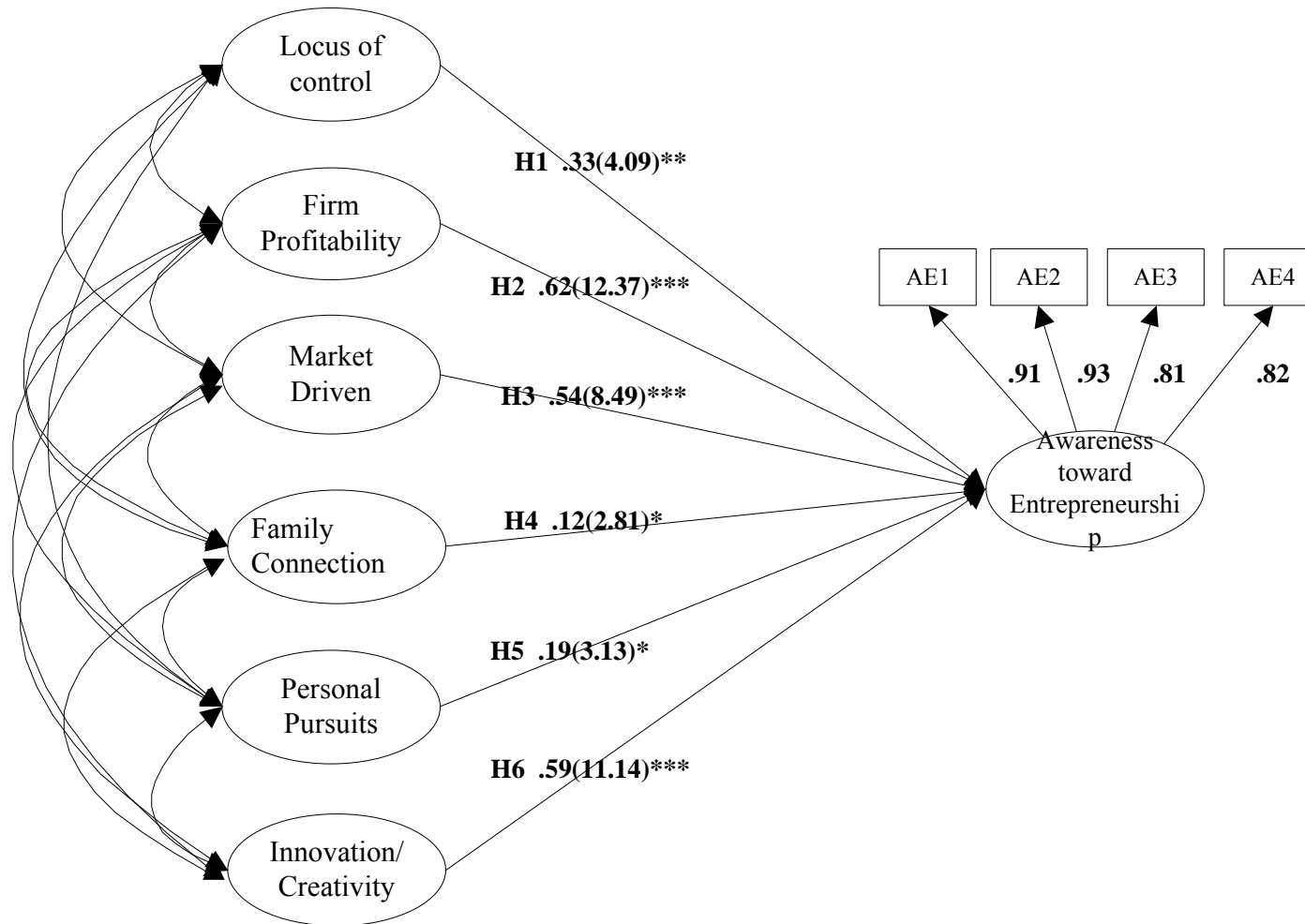
Table 8. Regression Weights of Paths in Confirmatory Factor Analysis

Paths	Correlation
Locus of Control and Firm Profitability	0.454
Locus of Control and Market-driven Propensity	0.501
Locus of Control and Family Connection	0.492
Locus of Control and Personal Pursuits	0.515
Locus of Control and Innovation/Creativity	0.643
Locus of Control and Awareness toward Entrepreneurship	0.612
Firm Profitability and Market-driven Propensity	0.520
Firm Profitability and Family Connection	0.543
Firm Profitability and Personal Pursuits	0.527
Firm Profitability and Innovation/Creativity	0.471
Firm Profitability and Awareness toward Entrepreneurship	0.706
Market-driven Propensity and Family Connection	0.388
Market-driven Propensity and Personal Pursuits	0.604
Market-driven Propensity and Innovation/Creativity	0.633
Market-driven Propensity and Awareness toward Entrepreneurship	0.714
Family Connection and Personal Pursuits	0.371
Family Connection and Innovation/Creativity	0.633
Family Connection and Awareness toward Entrepreneurship	0.519
Personal Pursuits and Innovation/Creativity	0.652
Personal Pursuits and Awareness toward Entrepreneurship	0.593
Innovation/Creativity and Awareness toward Entrepreneurship	0.737
Strategy - Defender and Strategy – Analyzer	0.337
Strategy - Defender and Economic Impact	0.612
Strategy - Defender and Joint Marketing	0.478
Strategy - Defender and Environmental Sustainability	0.403
Strategy - Defender and Public/social Awareness	0.476
Strategy - Analyzer and Economic Impact	0.681
Strategy - Analyzer and Joint Marketing	0.554
Strategy - Analyzer and Environmental Sustainability	0.413
Strategy - Analyzer and Public/social Awareness	0.622
Economic Impact and Joint Marketing	0.687
Economic Impact and Environmental Sustainability	0.351
Economic Impact and Public/social Awareness	0.430
Joint Marketing and Environmental Sustainability	0.446
Joint Marketing and Public/social Awareness	0.482
Environmental Sustainability and Public/social Awareness	0.604

4.3 Structural Model

The first structural model shown in Figure 5 proposed the causal relationships among seven exogenous constructs (e.g., locus of control, firm profitability, market driven, family connection, personal pursuits, innovation/creativity, and awareness toward entrepreneurship). A structural equation model was estimated using a maximum-likelihood estimation procedure. Hu and Bentler (1999) suggest using a combinational strategy that a GFI ≥ 0.90 , CFI ≥ 0.90 , and an RMSEA ≤ 0.05 for model fit assessment. The result indicated that the overall fit was satisfactory: $\chi^2(209) = 574.116$, $df = 209$, $p = 0.000$, $\chi^2/df = 2.746$, GFI = 0.937, AGFI = 0.917, CFI = 0.942, NFI = 0.910, RMSEA = 0.034 (see Figure 5).

In addition, Figure 5 illustrates standardized path coefficients (β) for each significant path of the conceptual model. The t values (displayed in parentheses in Figure 5) for all path coefficients were positive and significant between the level of 0.01 and 0.1, suggesting that all hypothesized paths assist in the prediction of awareness toward entrepreneurship. These results provide evidence that supports the convergent validity (e.g., AVE) of the indicators (Anderson & Gerbing 1988). All hypotheses were supported (see Figure 5). In particular, the paths of locus of control, firm profitability, market driven, family connection, personal pursuits, and innovation/creativity were all positively related to awareness toward entrepreneurship (H1, H2, H3, H4, H5, and H6 were supported).

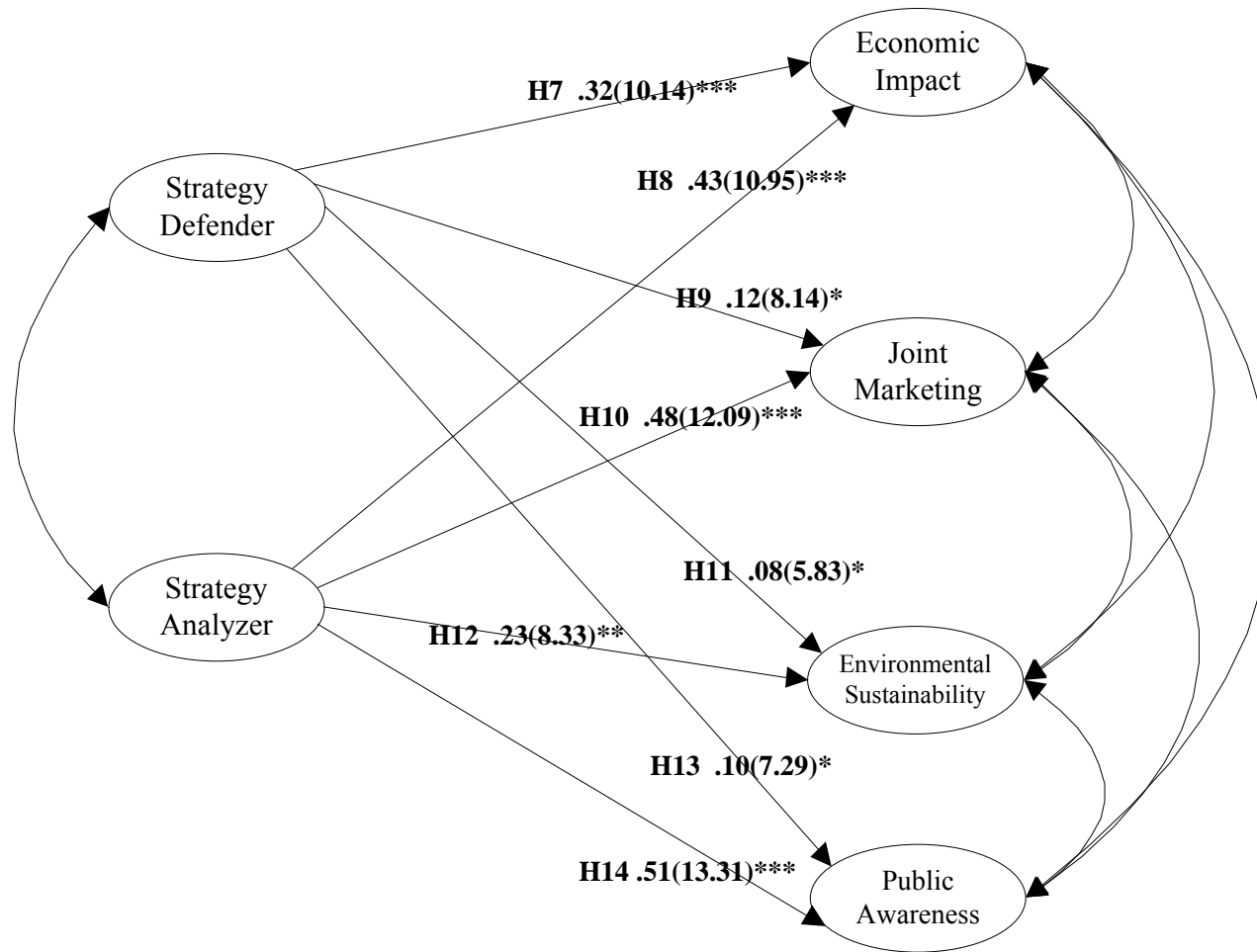


Note. *p<0.1, **p<0.05, ***p<0.01

Figure 5. Standardized Coefficients for Paths in the Structural Model 1

The second measurement model consisted of six exogenous constructs: strategy - defender, strategy - analyzer, economic impact, joint marketing, environmental sustainability, and public awareness. MacCallum et al. (1996) also suggested values of $GFI \geq 0.80$, $CFI \geq 0.80$, and an $RMSEA \leq 0.08$ to indicate mediocre fit. The results of the second structural model did provide acceptable result with a chi-square value of 558.012 ($df = 156$), which was significant between the level of 0.01 and 0.1. Other fit indices revealed a moderate fit ($\chi^2/df = 3.577$, $GFI=0.904$, $AGFI=0.884$, $CFI=0.921$, $NFI= 0.906$, $RMSEA=0.061$). Standardized factor loadings (path coefficients) are shown in Figure 6. The findings indicated that standardized path coefficients (β) for the four paths from strategy - defender to economic impact ($\beta =0.32$), from strategy - analyzer to economic impact ($\beta =0.43$), from strategy - analyzer to joint marketing ($\beta =0.48$), from strategy- analyzer to public awareness ($\beta =0.51$) were statistically significant at the 0.01 level (H7, H8, H10, and H14 were supported). In addition, the relationship from strategy - analyzer to environmental sustainability ($\beta =0.23$) was proven to be significant at the level of 0.05 (H12 was accepted).

Moreover, the three paths from strategy - defender to joint marketing ($\beta =0.12$), from strategy - defender to environmental sustainability ($\beta =0.08$), and from strategy- defender to public awareness ($\beta =0.10$) were found to be significant at the level of 0.1 (H9, H11 and H13 were accepted). Although all of the paths were statistically significant, some of the standardized coefficients (H9, H11, and H13) were less than 0.2 suggesting that these relations could be weak and unimportant (Bollen, 1989).



Note. *p<0.1, **p<0.05, ***p<0.01

Figure 6. Standardized Coefficients for Paths in the Structural Model 2

Table 9. Summary of Support for Hypotheses based on the Results of SEM

Hypothesis	Paths	Weights	P	Proposed Effect
H1	Locus of Control to Awareness toward Entrepreneurship	0.331	***	+
H2	Firm Profitability to Awareness toward Entrepreneurship	0.624	***	+
H3	Market Driven to Awareness toward Entrepreneurship	0.544	***	+
H4	Family Connection to Awareness toward Entrepreneurship	0.120	*	+
H5	Personal Pursuits to Awareness toward Entrepreneurship	0.187	*	+
H6	Innovation/creativity to Awareness toward Entrepreneurship	0.194	***	+
H7	Strategy - defender to Economic Impact	0.586	***	+
H8	Strategy - defender to Economic Impact	0.425	***	+
H9	Strategy - defender to Joint Marketing	0.122	*	+
H10	Strategy - analyzer to Joint Marketing	0.478	***	+
H11	Strategy - defender to Environmental Sustainability	0.084	*	+
H12	Strategy - analyzer to Environmental Sustainability	0.235	**	+
H13	Strategy- defender to Public Awareness	0.102	*	+
H14	Strategy- analyzer to Public Awareness	0.514	***	+

*p<0.1, **p<0.05, ***p<0.01

CHAPTER 5. CONCLUSION

5.1 Overview of Findings

As discussed in the literature review, agritourism holds the promise of becoming an important economic activity across the United States. Arasli (2002) addressed agritourism business as an effective strategy to promote a more diverse and sustainable rural economy. Marques (2006) stated that agritourism is a type of entrepreneurial venture that adds value to farm activities. In the context of both economic and social transition, entrepreneurship is increasingly becoming one of the most important aspects of modern farming (Dees, 2002). Therefore, farmers are strongly advised to develop an understanding of entrepreneurship concepts and strategies to maintain competitiveness (Colton & Bissix, 2005).

This study integrated the primary influential factors of entrepreneurship from general management studies into a research model focused on agritourism businesses. The present study also investigated primary entrepreneurship strategies and their potential to improve agritourism enterprise competitiveness. Specifically, the relationships were explored between intrinsic variables of entrepreneurship (e.g. locus of control, firm profitability, market-driven propensity, family connection, personal pursuits, and innovation/creativity) and awareness toward entrepreneurship concepts, entrepreneurship strategies (e.g., defender and analyzer), and agritourism business competitiveness (e.g. economic impact, joint marketing, environmental sustainability, and public/social awareness) in the context of agritourism-based businesses and/or agritourism destinations. Confirmatory factor analysis (CFA) and structural equation modeling (SEM) was utilized to explore these relationships.

From the empirical results of path analysis, all of the hypothesized relationships were supported. In particular, the paths of locus of control, firm profitability, market-driven propensity, family connection, personal pursuits, and innovation/creativity to awareness toward entrepreneurship were positive (H1, H2, H3, H4, H5, and H6 were accepted). In addition, the paths of strategy – defender, strategy – analyzer, economic impact, joint marketing, and public awareness were all statistically significant at the 0.01 level (H7, H8, H10, and H14 were supported). The path from strategy- analyzer to environmental sustainability had positive relationships at the level of 0.05 (H12 was accepted). Finally, the paths from strategy - defender to joint marketing, from strategy - defender to environmental sustainability, and from strategy - defender to public awareness all had positive relationships at the level of 0.1 (H9, H11, and H13 were accepted).

This research confirmed factors of entrepreneurship and entrepreneurship strategies as antecedents of awareness toward entrepreneurship and agritourism business competitiveness in two separate structural models. To date, few previous studies have examined business owners' entrepreneurship awareness using specific social psychology concepts (e.g., locus of control and personal pursuits) in the hospitality and tourism industries. Moreover, this study employed a dual business strategy route based on the assumption that there are two types of decision making involved in the operation of agritourism businesses (e.g., defender and analyzer).

5.2 Discussion and Practical Implications of Model 1

Collectively, the results provide strong support for previous research and the conceptual framework of the entrepreneurship relationship. First, the relationship between locus of control and awareness toward entrepreneurship is significant in this research, which is consistent with the result of Gonzalez and Zimbardo (1985) that locus of control (internal and external) is significantly related to entrepreneurship in the metal industry. Locus of control is a personality dimension that ascribes individuals as possessing either an internal or external locus of control. Internals perceive the world and the things that happen to them as within their control, while externals view the world and the things that happen to them as a matter of luck or fate and thus beyond their control (Shaver & Scott, 1991). Studies on locus of control show that internals have a strong belief that business outcomes (e.g., income and customer loyalty) are within their control, while externals have the opposite belief (Morrison et al., 2003). The finding is also consistent with the results of several studies that suggested that internals tend to have higher awareness of entrepreneurship than do externals (Barbieri & Mahoney, 2009).

Second, firm profitability and market-driven propensity positively influence awareness toward entrepreneurship. This result supports the findings reported by previous scholars, such as Morrison et al. (2003), who verified the importance of the level of firm profitability and market-driven propensity (e.g. offsetting fluctuations in farm revenues, generating revenues during off seasons, interacting with customers, and increasing/diversifying markets) in building high awareness toward entrepreneurship in business services firms.

Firm profitability and market-driven propensity focus on the capacity of business owners to learn from markets and/or the marketplace. To enter into a new market segment, businesses should constantly evaluate the marketplace for new opportunities (Hegarty & Przezbórska, 2005). Because knowledge of market preferences (e.g., customer needs and wants) reduces the degree of incompatibility of new products with customer needs, it is likely to enhance the adoption and success of new products and/or services (Crane & Crane, 2007). This has been examined in numerous marketing-orientated studies with regard to market-driven entrepreneurs in the automotive industry (Dees, 2002; Li, 2008; Shane & Venkataraman, 2000).

Based on the research of Jayasinghe et al. (2008), firm profitability and market-driven propensity are defined as the capacity of the entrepreneur to acquire, disseminate, and use market information for business change when needed. Given that a fundamental activity of entrepreneurship is to not only create new products ahead of competitors but also to create them ahead of the recognition of an explicit need by customers, firm profitability and market-driven propensity are identified as important characteristics of entrepreneurs. Such propensities enhance a deeper understanding of the marketplace and assist in achieving objectives by focusing on customers' potential needs (Ateljevic & Doorne, 2000), and often aid in minimizing risk and maximizing success with through communication with customers (Getz & Petersen, 2005; Morrison, 2006).

While the conceptualization of firm profitability and market-driven propensity involves learning from both customer needs and competitor activities, the empirical findings of this study reported that firm profitability and market-driven propensity are critical factors for entrepreneurs pursuing marketing-based competitive strategies. In addition, firm

profitability and market-driven propensity are often defined in terms of the characteristics of key decision makers within a firm, particularly the personality traits and sociocultural characteristics of these decision makers (Gartner, 1990; Riley & Szivas, 2003).

Third, family connection positively led to entrepreneurship, which is consistent with the findings of Getz and Carlsen's (2000) study. Not surprisingly, the relationships of family members in an agritourism business can be a significant factor in determining the business's success (Sharma & Upneja, 2005). A family member may become involved in an agritourism business as a member of the operating team. The advantages consist of (1) the family can be together; (2) the income is shared by the whole family; and (3) trust (McNally, 2001; Steier & Greenwood, 2000). However, little empirical work has actually been done to demonstrate a connection between family involvement and business performance. McNally (2001) argued that family businesses may have a competitive advantage, since family members likely trust one another (thus reducing monitoring costs). Baron (2004) also suggested that family businesses have high intentionality in terms of their level of perseverance and commitment to see the business succeed. Regardless of whether such family involvement leads to higher or lower performance, entrepreneurs have generally chosen to employ family members.

Fourth, this research revealed that the personal pursuits and innovation/creativity components influenced awareness of entrepreneurship in the agritourism business context. This study reported empirical findings that personal characteristics and psychological factors (e.g., personal pursuits) are significant in investigating what factors influence the understanding of entrepreneurship concepts. This verified existing research: (1) a study by De Kok and Uhlaner (2001) on the structural relationship between 'pursues worthwhile goals' and 'strives toward personal growth' (e.g., personal theories) in building

entrepreneurial awareness in business services firms; and (2) studies by McKercher (1999) and Jayasinghe et al. (2008) reporting the positive relationship of innovation on entrepreneurship in tourism and hospitality contexts. Furthermore, this study found a positive effect of creativity in entrepreneurial businesses, which is also supported by the findings of Meert et al. (2005) in the information technology industry.

The description of personal pursuits is related to entrepreneurship characteristics, which are discussed in the context of psychology. A personal pursuit is a personality characteristic that has implications for motivation and action. It is a belief in the rich potential of changes that can be made to improve oneself and/or one's goals (McGehee & Kim, 2004; Kunwar, 2004). Personal pursuits include various aspects, such as values and vision. People with high levels of personal pursuits take responsibility for their own growth, and their lives' courses are not fully determined by external forces; rather, they can be chosen. Such individuals focus on solutions for problems, no matter whom or what has caused them. For individuals with low levels of personal pursuits, their behavior might be determined by social environment, whereas people with high levels of personal pursuits are mindful of their values and choose their paths of action as driven by their own values. Furthermore, they have vision and create meaning in life by striving toward ambitious goals; they are goal-oriented and imagine what could be and set goals in line with their vision. In the context of entrepreneurship, it is consistent with previous studies that entrepreneurship is significantly related to personal pursuits (De Kok & Uhlaner, 2001; Riley & Szivas, 2003).

The degree of innovativeness and/or creativity coupled with the ability to think how are the key factors that distinguish and elevate a successful entrepreneur from the non-entrepreneur (Nieto & Quevedo, 2005). In the context of entrepreneurship in the tourism and

leisure sector, innovativeness and creativity have often been conceived as key factors that influence an entrepreneurship opportunity (McKercher, 1999; Nieto & Quevedo, 2005). From this perspective, Jayasinghe et al. (2008) described innovativeness as the application of ideas that are new for a business in order to create added value either directly for the enterprise or indirectly for its customers, regardless of whether the added value is embodied in products, processes, or marketing systems (e.g., investment in new facilities and/or services, near-to-market developments, initial market diffusion). For business owners, a high degree of entrepreneurship concepts has the potential to boost productivity and enhance profits (Noble et al., 2002). Therefore, innovativeness has a significant effect on entrepreneurs' performance, which is necessary for overcoming challenges (e.g., meeting rapidly changing demands) in the tourism and leisure industries and in achieving outcomes.

During the survey process, respondents (agritourism business owners) expressed a desire to participate in entrepreneurship education programs to acquire more knowledge about entrepreneurship, and showed a positive attitude toward entrepreneurship. Their strong desire to know more about entrepreneurship may be explained by the high percentage of the 18-39 age groups (around 50%) who actually want to develop long-term competitiveness for their own agritourism businesses. However, most have neither the knowledge nor the learning experiences to become entrepreneurs. Also, some of their education field, ventures of business, and target markets may make it difficult for them to become effective and/or knowledgeable business owners. Thus, the local government agency (e.g, Iowa Farm Bureau), non-for-profit organizations, and educational institutes should initiate entrepreneurship programs that help new generation farmers achieve their aspirations. Such educational programs need to provide learning opportunities that address the basic concepts

and skills of entrepreneurship. They also need to clarify how these concepts and understandings relate to the competitive market system (e.g., agritourism) and the public policy decisions that affect its operation.

The discussions in this study clearly indicate that the six major factors have a strong impact on entrepreneurship among agritourism business owners. Entrepreneurship education providers would benefit from the findings of this study. The promoters of such programs also can develop marketing strategies to encourage enrollment in programs based on the impact factors of entrepreneurship that farmers are concerned with as indicated in this study. Based on the findings, two types of entrepreneurship education program can be developed to address these considerations for agritourism business owners, including awareness and experience-based curriculum. The entrepreneurship awareness programs can offer several entrepreneurship awareness components targeted for agritourism business owners between the ages of 18 and 44. The programs are also advised to strive to make entrepreneurship accessible to new generation farmers, the ages of 18 and 35, not producer-only farmers by giving them an opportunity to explore the domain of entrepreneurship. It seeks to expose participants to some basic principles (e.g, market-driven and innovation/creativity) and practices they would need to achieve successful business ventures.

To foster entrepreneurship awareness, organizations and universities should notice the characteristics of these major factors (e.g., locus of control, firm profitability, market-driven propensity, family connection, personal pursuits, and innovation/creativity) and create appropriate types of specialized programs and/or workshops. The program's entrepreneurship awareness can consist of: participation in contests and simulations that reinforce awareness of entrepreneurship concepts and understandings, presentations of personal business venture

case studies by successful entrepreneurs, explore issues concerning entrepreneurship, work on personal networking, and exercises for personal empowerment and growth. The potential effect of awareness education on perceptions of entrepreneurship can be explained through social psychology concepts including locus of control and personal pursuits.

The entrepreneurship experience-based programs can be designed for new generation farmers and their partners with different age group. It is developed for farmers who already have some knowledge and skills of agritourism entrepreneurship and aim to identify new business opportunities, create a business feasibility plan, and initiate a business venture. The program features entrepreneurship-orientated seminars, workshops, business feasibility plan competitions, and a mentorship component. Experience-based learning also focuses on core entrepreneurship and market concepts including opportunity recognition, business idea generation, the marshaling of resources for venture initiation, and the role and impact of entrepreneurship in the agritourism market.

5.3 Discussion and Practical Implications of Model 2

The results of the study also show significant relationships between the two strategic orientations (defender and analyzer) and potential competitiveness in agritourism businesses. This finding appears to adequately support the previous literature. This area is crucial for agritourism business owners and farmers in their efforts to follow the most appropriate strategies for their businesses. In addition, as predicted by foundation theories, the defender and analyzer business strategies are associated with inferior and superior competitiveness respectively in all performance measures (e.g., joint marketing, environmental sustainability, and public awareness), except in the measurement of economic impact.

Agritourism businesses that employ the defender strategy have a narrow product focus and stress production efficiency. Defenders emphasize cost-efficiency and therefore rely heavily on formal manufacturing procedures and cost control (e.g., trade/consumer sales promotions and pricing below competitors). As a result of this narrow focus, these businesses rarely need to make major adjustments in their technology, structure, or methods of operation, and they devote their primary attention to improving the efficiency of existing operations. Owners with a defender orientation are experts in their businesses' limited areas of operation but do not seek other perspectives for new opportunities and/or initiatives (e.g., public/social relations and joint marketing). They emphasize production aspects, pay close attention to the bottom line, and are characterized as conservative in their outlook. Because defenders are less likely to take risks, they tend to lag behind industry competitors in innovation, seeking only proven opportunities and/or initiatives in their areas of expertise. Defenders seek to protect their core activities and exploit the majority of their resources in controlling and protecting their narrow product markets through lower prices and higher quality of goods and services. Moreover, defenders businesses do not adopt environmental issues as core initiatives in their strategic decisions. Their resource commitment and operational involvement in this matter is minimal, with a limited range of businesses' investments. For defender businesses, there are fewer motives to develop environmentally friendly strategies in response to social pressure.

In contrast to defenders, analyzer businesses focus on efficiency and productivity when the market is stable and seek to move into new domains by evaluating their competitors' activities and strategies when the market is dynamic. These strategies are usually associated with the availability of multiple options, low formalization, excellent

public relationships, and great control in environmental initiatives (De Kok & Uhlaner, 2001; Jayasinghe et al., 2008). These businesses do everything that defenders do but in moderation, and at the same time are imitators that take other businesses' promising ideas and implement them successfully. Analyzers balance risks and returns by following competitors into new markets and improving on their green initiatives. They seek flexibility as well as stability, adopting structures that can accommodate both stable and changing business climates. In a stable climate, they operate routinely and efficiently through the use of formalized structures and processes. However, in more dynamic climates, they assess their competitors closely for new ideas and then rapidly adopt those that appear to be the most promising.

Analyzer businesses are also inclined to develop procedures and green initiatives to continually respond to environmental issues. In fact, this is the most sustainable and strategically advantageous position for a business subjected to strong social pressure about environmentalism. Generally speaking, environmental demands are imposed mainly by government regulation, customers, and community. Analyzer-oriented businesses are willing to incorporate environmental issues into their strategic decisions. Their strategies may include eco-efficient and pollution preventative practices (e.g., passive solar heating and water efficiency) that require investment in changes in processes, products, and operations to reduce energy and material use. Most customers today consider themselves to be environmentally aware, and being concerned about the environment is now a mainstream phenomenon. Customers exert pressure on businesses to engage in environmentally friendly practices (Greenbank, 1999). The public is increasingly influenced by a company's reputation with respect to the environment when making purchasing decisions (Gerbaud & York, 2007) and demands more environmentally friendly initiatives (e.g., non-chemical

fertilizers). Additionally, a majority of consumers indicated that businesses should reduce greenhouse gas emissions. Increased environmental awareness by the public creates an opportunity for businesses to win new customers by operating in an exemplary way with respect to environmental issues (Esty & Winston, 2006). Furthermore, a visible commitment to reducing businesses' environmental impact can help foster strong relationships with customers, employees, and communities.

When looking at future trends, analyzer-orientated strategies (e.g., observing other businesses' activities; developing manufacturing process improvements and innovations; investing in advertising; and serving special market segments) should be an inherent part of the operating context for any business to be competitive in the hospitality and tourism industries. In a changing business climate, analyzer-oriented businesses typically create change and innovation in the marketplace to which competitors are forced to react or follow. In addition, a business's value will increasingly be measured not just by traditional financial performance, but by a combination of both financial and non-financial performance. Disclosure of businesses' non-financial performance will include areas such as public awareness/impact, corporate governance, and management of environmental issues.

The public can provide valuable social support and financial support when a business works to build and maintain positive relationships and a sound reputation with customers, the local community, and the general public. Moreover, businesses are advised to cooperate with other local businesses (e.g, joint marketing). An agritourism business can provide its visitors with brochures that list other local and/or related businesses, which cultivates the community's economic development. For example, the owner of bed-and-breakfast might suggest to a neighbor that they offer horseback rides and then encourage visitors at the B&B

to take trail rides. An entire community can be expected to acquire benefits from this type of collaboration. Furthermore, for hospitality and tourism businesses, environmental sustainability initiatives have proven that it is possible to strike a balance between the environmental, social, and economic bottom lines by improving business efficiency, driving innovation, and building customer loyalty. There is no inherent conflict between competitiveness and sustainability. Instead, businesses need to develop green initiatives that contribute to operational and environmental improvements. The general public's focus on environmental issues indicates that it is not just a passing phase and can be anticipated to continue in the long term.

5.4 Theoretical Contributions

This study contributes to the body of knowledge about entrepreneurship by investigating measures for six major factors: locus of control, firm profitability, market-driven propensity, family connection, personal pursuits, and innovation/creativity. The study also contributes to our understanding of the role of entrepreneurial activities in the strategy dialogue (e.g., defender and analyzer). Furthermore, the model captures the critical role of two types of business strategies (defender and analyzer) in the development of agritourism business competitiveness (e.g., economic impact, joint marketing, environmental sustainability, and public/social awareness). In conclusion, the importance of entrepreneurship pervades all sectors of the economy and all types of organizations, but in the hospitality and tourism industries entrepreneurship is particularly crucial for competitiveness and productivity gains (Blackburn & Kovalainen, 2008). In fact, an awareness of the importance of entrepreneurship in the hospitality and tourism industries is

not new, with evidence of entrepreneurial activity in these industries since 1978 (Ioannides & Petersen, 2003).

However, interest in entrepreneurship has increased in recent years as its critical role in economic activity and/or growth has received greater recognition (Kokkranikal & Morrison, 2002). Similarly, the potential of the hospitality and tourism sectors for generating income for many supporting sectors should be viewed as a source of strong contribution to national economies (Hwang & Lockwood, 2006). Furthermore, the contribution of entrepreneurs in the hospitality and tourism industries is also key in the economic growth of a community. Thus, the success of hospitality and tourism destinations is highly dependent on the crucial role played by entrepreneurs. It is important to note, however, that not all entrepreneurs with these traits (e.g., a passion for business, the ability to manage risk) or characteristics (e.g., taking advantage of the opportunities; creativity and innovation) will be automatically successful in business. Other significant traits and characteristics are critical for business success, including managerial skills (e.g., communication and listening skills, leadership abilities, teamwork skills) and organizational abilities (e.g., organizing, staffing, directing, and controlling) and are required for business growth and maintenance.

5.5 Limitations and Future Research

Inferences drawn from this study should take into account the limitations of our sample and the methodology used. First, this research aimed to investigate agritourism businesses only. More types of businesses in the hospitality and tourism industries should be investigated in future research to determine whether the results of this study are applicable to other types of businesses. Second, the sample investigated was comprised of only agritourism business owners and/or farmers within the state of Iowa. Although these business owners and/or farmers belong to one of the largest segments of a tourism sector, the sample may not be representative of general business owners in other states, and the study results would be different if the research had drawn a broader sample from different types of businesses. To validate these findings, future research should be directed toward developing credible methods of testing preconceived hypotheses, using control groups, using appropriate sample sizes, and conducting long-term studies.

Third, socio-demographic variables such as farm household income, household farm attachment, and farm household composition should be included in future analysis in order to obtain a more thorough analysis of the dual-route process (e.g., strategy – defender and strategy - analyzer). These variables might have a significant influence or moderating effect in the proposed model. In addition, future studies may employ additional factors such as customer involvement, emotional values, and hedonic values, which may influence the relationships in the conceptual model. Conducting research using these variables could help investigate the role of consumer participation behavior in agritourism businesses. Last but not the least important, this study implemented a traditional approach of replacing missing-data method, mean substitution. However, it should be aware that mean substitution may

cause some uncertainty and/or cause a bias (Schreiber et al., 2006). Therefore, scholars may consider other supportive procedures (e.g., multiple imputation, MI and maximum likelihood, ML) to replace missing values for future research.

The benefits of entrepreneurship education have been much stated by researchers and educators, but there has been little research that attempts to measure the influence of education. Therefore, an investigation of whether education can influence entrepreneurial perceptions (e.g., of general public and of entrepreneurs) should be undertaken in future research. Lastly, the present study proposed two final consequences, which were the intrinsic variables toward awareness of entrepreneurship and the two types of strategies that directly impact agritourism business competitiveness. Future research may investigate other consequences such as brand commitment, brand equity, and place attachment.

REFERENCES

- Acock, A. C. (2005). Working with missing values. *Journal of Marriage and Family*, 67(4), 1012-1028.
- Anderson, J. C., & Gerbing, D.W. (1988). Structure equation modeling in practice: A review and recommended two-step approach. *Psychological Bulletin*, 103(3), 411–423.
- Appiah-Adu, K., & Singh, S. (1998). Customer orientation and performance: A study of SMEs. *Management Decision*, 36(6), 385–394.
- Arasli, H. (2002). Gearing total quality into small-and medium-sized hotels in North Cyprus. *Journal of Small Business Management*, 40(4), 350–359.
- Aronoff, C. E., & Ward, J. L. (1995). Family-owned businesses: A thing of the past or a model of the future? *Family Business Review*, 8(2), 121–130.
- Ateljevic, I., & Doorne, S. (2000). Staying within the fence: Lifestyle entrepreneurship in tourism. *Journal of Sustainable Tourism*, 8(5), 378–392.
- Austin, J., Howard, S., & Jane, W. (2006). Social and commercial entrepreneurship: Same, different, or both? *Entrepreneurship Theory and Practice*, 30(1), 1–15.
- Barbieri, C., & Mahoney, E. (2009). Why is diversification an attractive farm adjustment strategy? Insights from Texas farmers and ranchers. *Journal of Rural Studies*, 25(1), 58–66.
- Bagozzi, R. P., & Yi, Y. (1988). On the evaluation of structural equation models. *Journal of the Academy of Marketing Science*, 16, 74-94.
- Baron, A. (2004). The cognitive perspective: A valuable tool for answering entrepreneurship's basic "why" questions. *Journal of Business Venturing*, 19(2), 221–239
- Baron, R.A., & Markman, G. D. (2000). Beyond social capital: How social skills can enhance entrepreneurs' success. *Academy of Management Executive*, 14(1), 106–116.
- Begley, T. M., & Boyd, D. P. (1987). Psychological characteristics associated with performance in entrepreneurial firms and smaller businesses. *Journal of Business Venturing*, 2(1), 79–93.
- Bentler, P. M. (1990). Comparative indexes in structural models. *Psychological Bulletin*, 107(2), 238–246.
- Bentler, P. M. (2005). *EQS 6 structural equation modeling manual*. Encino, CA: Multivariate Software.

- Birley, S., & Westhead, P. (1994). A taxonomy of business start-up reasons and their impact on firm growth and size. *Journal of Business Venturing*, 9(1), 7–31.
- Blackburn, B., & Kovalainen, A. (2008). Researching small firms and entrepreneurship: Past, present and future. *International Journal of Management Reviews*, 11(2), 127–148.
- Bock, B. (2004). Fitting in and multi-tasking: Dutch farm women's strategies in rural entrepreneurship. *Sociologia Ruralis*, 44(3), 245–260.
- Bollen, K. A. (1989). A new incremental fit index for general structural equation models. *Sociological Methods & Research*, 17, 303–316.
- Boone, C., De Brabander, B., & van Witteloostuijn, A. (1999). Locus of control and strategic behaviour in a prisoner's dilemma game. *Personality and Individual Differences*, 27(4), 695–706.
- Boone, C., & De Brabander, B. (1993). Generalized vs specific locus of control expectancies of chief executive officers. *Strategic Management Journal*, 14(8), 619–625.
- Brüderl, J., & Preisendrfer, P. (1998). Network support and the success of newly founded businesses. *Small Business Economics*, 10(2), 213–225.
- Buckley, R. (2002). Tourism and biodiversity in north and south. *Tourism Recreation Research*, 27(1), 43–51.
- Byrne, B. M. (1998). *Structural equation modeling with LISREL, PRELIS, and SIMPLIS: Basic concepts, applications, and programming*. Mahwah, NJ: Lawrence Erlbaum Associates, Inc.
- Campbell, D. T., & Fiske, D. W. (1959). Convergent and discriminant validation by the multitrait-multimethod matrix. *Psychological Bulletin*, 56, 81–105.
- Chrisman, J. J., Chua, J. H., & Sharma, P. (2005). Trends and directions in the development of a strategic management theory of the family firm. *Entrepreneurship Theory and Practice*, 29(3), 555–576.
- Clarke, C. (1999). Marketing structures for farm tourism: Beyond the individual provider of rural tourism. *Journal of Sustainable Tourism*, 7(1), 26–47.
- Colton, J., & Bissix, G. (2005). Developing agritourism in Nova Scotia: Issues and challenges. *Journal of Sustainable Agriculture*, 27(1), 91–112.
- Crane, F. G., & Crane, E. C. (2007). Dispositional optimism and entrepreneurial success. *The Psychologist-Manager Journal*, 10(1), 13–25.

- Cronbach, L.J. & Meehl, P.E. (1955). Construct validity in psychological tests. *Psychological Bulletin*, 52, 281-302.
- Dees, J. G. (2002). *Strategic tools for social entrepreneurs: Enhancing the performance of your enterprising nonprofit, nonprofit law, finance & management series*. Indianapolis, IN: Wiley.
- De Kok, J., & Uhlaner, L. M. (2001). Organization context and human resource management in the small firm. *Small Business Economics*, 17(4), 273–291.
- Dyer, J.H., & Singh, H. (1998). The relational view: Cooperative strategy and sources of interorganizational competitive advantage. *Academy of Management Review*, 23(3), 660–679.
- Esty, D. C., & Winston, A. S. (2006). *Green to gold: How smart companies use environmental strategy to innovate, create value, and build competitive advantage*. New Haven, CT: Yale University Press.
- Ferron, M., & Hess, R. (2007). Estimation in SEM: A concrete example. *Journal of Educational and Behavioral Statistics*, 32(1), 110–120.
- Fornell, C., & Larcker, D. (1981). Evaluating structural equation models with unobservable variables and measurement error. *Journal of Marketing Research*, 18 (1), 39–50.
- Frese, M. (2009). Towards a psychology of entrepreneurship: An action theory perspective. *Foundations and Trends in Entrepreneurship*, 5(6), 437–496.
- Gartner, B. (1990). What are we talking about when we talk about entrepreneurship? *Journal of Business Venturing*, 5(1), 15–28.
- Garver, M. S., & Mentzer, J. T. (1999). Logistics research methods: Employing structural equation modeling to test for construct validity. *Journal of Business Logistics*, 20(1), 33-57.
- Gerbaud, R. R., & York, A. S. (2007). Stock market reactions to knowledge-motivated acquisitions. *Advances in Mergers & Acquisitions*, 6(1), 127–156.
- Getz, D., & Petersen, T. (2005). Growth and profit-oriented entrepreneurship among family business owners in the tourism and hospitality industry. *International Journal of Hospitality Management*, 24(2), 219–242.
- Getz, D., & Carlsen, J. (2000). Characteristics and goals of family and owner-operated business in the rural tourism industry and hospitality sectors. *Tourism Management*, 21(6), 547–560.

- Getz, D., & Carlsen, J. (2005). Family business in tourism: State of the art. *Annals of Tourism Research*, 32(1), 237–258.
- Gilad, B. (1982). On encouraging entrepreneurship: An interdisciplinary approach. *Journal of Behavioral Economics*, 11(1), 132–163.
- Gilmore, A., Carson, D., & Cummins, D. (2002). Competitive advantage in small to medium-sized enterprises. *Journal of Strategic Marketing*, 10(3), 205–223.
- Gonzalez, A., & Zimbardo, G. (1985). Time in perspective: A Psychology Today survey report. *Psychology Today*, 19(1), 21–26.
- Greenbank, P. (1999). The pricing decision in the micro-business: A study of accountants, builders and printers. *International Small Business Journal*, 17(3), 60–73.
- Hair, J., Anderson, R., Tatham, R., & Black, W. (1998). *Multivariate data analysis*. (5th ed.). Upper Saddle River, NJ: Prentice Hall.
- Harman, H. H. (1976). *Modern factor analysis* (3rd ed.). Chicago: University of Chicago Press.
- Hegarty, C., & Przebórska, L. (2005). Rural and agri-tourism as a tool for reorganizing rural areas in old and new member states – a comparison study of Ireland and Poland. *International Journal of Tourism Research*, 7(2), 63–77.
- Hoelter, D. R. (1983). The analysis of covariance structures: Goodness-of-fit indices. *Sociological Methods and Research*, 11, 325–344.
- Homburg, C., Workman, P., & Jensen, O. (2002). A configurational perspective on key account management. *Journal of Marketing*, 66(2), 38–60.
- Hoy, F. (1997). Relevance in entrepreneurship research. In D. L. Sexton, & R. W. Smilor (Eds.), *Entrepreneurship 2000* (pp. 361–377). Chicago, IL: Upstart.
- Hoy, F., & Verser, T.G. (1994). Emerging business, emerging field: Entrepreneurship and the family firm. *Entrepreneurship Theory and Practice*, 19(1), 9–23.
- Hu, L. T., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling*, 6(1), 1–55.
- Hult, G. M., Snow, C. C., & Kandemir, D. (2003). The role of entrepreneurship in building cultural competitiveness in different organizational types. *Journal of Management*, 29(3), 401–426.

- Hwang, L.-J., & Lockwood, A. (2006). Understanding the challenges of implementing best practices in hospitality and tourism SMEs. *Benchmarking: An International Journal*, 13(3), 337–354.
- Ioannides, D., & Petersen, T. (2003). Tourism ‘non-entrepreneurship’ in peripheral destinations: A case study of small and medium tourism enterprises on Bornholm, Denmark. *Tourism Geographies*, 5(4), 408–435.
- Jayasinghe, K., Thomas, D., & Wickramasinghe, D. (2008). Bounded emotionality in entrepreneurship: An alternative framework. *International Journal of Entrepreneurial Behavior & Research*, 14(4), 242–258.
- Jöreskog, K. G. (1971). Simultaneous factor analysis in several populations. *Psychometrika*, 57(2), 239–251.
- Jöreskog, K. G., & D. Sorbom. (1993). *LISREL VIII Manual*. Mooresville, IN: Scientific Software.
- Kaufmann, P., & Welsh, D. (1995). Locus of control and entrepreneurship in the Russian Republic. *Entrepreneurship Theory and Practice*, 20(1), 43–56.
- Kokkranikal, J., & Morrison, A. (2002). Entrepreneurship and sustainable tourism: The houseboats of Kerala. *Tourism and Hospitality Research*, 4(1), 7–20.
- Kline, R. B. (2005). *Principles and practice of structural equation modeling*. NY: The Guilford Press.
- Kim, J., & Curry, J. (1977). The treatment of missing data in multivariate analyses. *Sociological Methods & Research*, 6, 215–240.
- Kunwar, N. (2004). Decision-making pattern among rural families of western Uttar Pradesh. *Farm Science Journal*, 13(2), 138–139.
- Lee, W. H., & Moscardo, G. (2005). Understanding the impact of ecotourism resort experiences on tourists’ environmental attitudes and behavioural intentions. *Journal of Sustainable Tourism*, 13(6), 546–565.
- Li, L. (2008). A review of entrepreneurship research published in the hospitality and tourism management journals. *Tourism Management*, 29(5), 1013–1022.
- Littunen, H. (2000). Networks and local environmental characteristics in the survival of new firms. *Small Business Economics*, 15(1), 59–71.
- Lise, H. (2001). Farming the tourist: The social benefits of farm tourism in southland, New Zealand. *Pacific Tourism Review*, 4(1), 171–177.

- Lobo, R. E., Goldman, G. E., Jolly, D. A., Wallace, B. D., Schrader, W. L., & Parker, S. A. (1999). Agritourism benefits agriculture in San Diego County. *California-Agriculture*, 53(6), 20–24.
- MacCallum, R. C., Browne, M. W., & Sugawara, H. M. (1996). Power analysis and determination of sample size for covariance structure modeling. *Psychological Methods*, 1, 130–149.
- Marcoulides, G. A., & Moustaki, I. (2002). *Latent variable and latent structure models*. Mahwah: Lawrence Erlbaum Associates.
- Marques, H. (2006). Searching for complementarities between agriculture and tourism - the demarcated wine-producing regions of northern Portugal. *Tourism Economics*, 12(1), 147–160.
- Martins, E., & Terblanche, F. (2003). Building organizational culture that stimulates creativity and innovation. *European Journal of Innovation Management*, 6(1), 64–74.
- Maruyama, G. M. (1998). *Basics of structural equation modeling*. Thousand Oaks, CA: Sage.
- McClelland, D. C. (1961). *The achieving society*. New York, NY: D. Van Nostrand & Co.
- McClelland, D. C., & Koestner, R. (1992). The achievement motive. In C. P. Smith (Ed.), *Motivation and Personality: Hand Book of Thematic Content Analysis*. London, UK: Cambridge University Press.
- McGehee, N. G., & Kim, K. (2004). Motivation for agri-tourism entrepreneurship. *Journal of Travel Research*, 43(2), 161–170.
- McKercher, B. (1999). A chaos approach to tourism. *Tourism Management*, 20(4), 425–434.
- McNally, S. (2001). Farm diversification in England and Wales – what can we learn from the farm business survey? *Journal of Rural Studies*, 17(2), 247–257.
- McQuitty, S. (2004). Statistical power and structural equation models in business research. *Journal of Business Research*, 57(2), 175–183.
- Meert, H., VanHuylbroeck, G., Vernimmen, T., Bourgeois, M., & Van Hecke, E. (2005). Farm household survival strategies and diversification on marginal farms. *Journal of Rural Studies*, 21 (1), 81–97.
- Middleton, V. T. C., & Hawkins, R. (1998). *Sustainable tourism: a marketing perspective*. Oxford, UK: Butterworth-Heinemann.

- Miles, R. E., & Snow, C. C. (1986). Network organizations: New concepts for new forms. *California Management Review*, 28(1), 62–73.
- Morone, P., & Testa, G. (2008). Firms growth, size and innovation: An investigation into the Italian manufacturing sector. *Economics of Innovation and New Technology*, 17(4), 311–329.
- Morrison, A. (2006). A contextualisation of entrepreneurship. *International Journal of Entrepreneurial Behaviour and Research*, 12(4), 192–209.
- Morrison, A., Breen, J., & Ali, S. (2003). Small business growth: Intention, ability, and opportunity. *Journal of Small Business Management*, 41(4), 417–425.
- Morris, M. H., Schindehutte, M., & La Forge, R. W. (2002). Entrepreneurial marketing: A construct for integrating emerging entrepreneurship and marketing perspectives. *Journal of Marketing Theory and Practice*, 10(4), 1–19.
- Moss, S., Prosser, H., Costello, H., Simpson, N., Patel, P., Rowe, S., Turner, S., Hatton, C., (1998). Reliability and validity of the PAS-ADD checklist for detecting psychiatric disorders in adults with intellectual disability. *Journal of Intellectual Disability Research*, 42(2), 173–183.
- Murawski, M.M., Payakachat, N., & Koh-Knox, C. (2008). Factors affecting job and career satisfaction among community pharmacists: A structural equation modeling approach. *Journal of the American Pharmacists Association*, 48 (5), 610-620.
- Nickerson, P., Black, J., & McCool, S. (2001). Agritourism: Motivations behind farm/ranch business diversification. *Journal of Travel Research*, 40 (1), 19–26.
- Nieto, M., & Quevedo, P. (2005). Absorptive capacity, technological opportunity, knowledge spillovers, and innovative effort. *Technovation*, 25(10), 1141–1157.
- Noble, C., Sinha, R., & Kumar, A. (2002). Market orientation and alternative strategic orientations: A longitudinal assessment of performance implications. *Journal of Marketing*, 66(4), 25–39.
- Nunnally, J. C., & Bernstein, I. H. (1994). *Psychometric theory* (3rd ed.) NY: McGraw-Hill.
- Obst, P. L., & White, K. M. (2005). Three-dimensional strength of identification across group membership: A confirmatory factor analysis. *Self and Identity*, 4(1), 69–80.
- Ollenburg, C., & Buckley, R. (2007). Stated economic and social motivations of farm tourism operators. *Journal of Travel Research*, 45(4), 444–452.

- Olsen, N. V., & Sallis, J. (2006). Market scanning for new service development. *European Journal of Marketing*, 40(5), 466–484.
- Ottenbacher, H., & Gnoth, J. (2005). How to develop successful hospitality innovation. *Cornell Hotel and Restaurant Administration Quarterly*, 46(2), 205–222.
- Pearlin, I. (1989). The sociological study of stress. *Journal of Health and Social Behavior*, 30(3), 241–256.
- Pizam, A., & Milman, A. (1993). Predicting satisfaction among first-time visitors to a destination by using the Expectancy Disconfirmation Theory. *International Journal of Hospitality Management*, 12(2), 197–209.
- Powell, R. B., & Ham, S. H. (2008). Can ecotourism interpretation really lead to pro-conservation knowledge, attitudes and behavior? Evidence from the Galapagos Islands. *Journal of Sustainable Tourism*, 16(4), 467–489.
- Prugl, E. (2004). Gender orders in German agriculture: From the patriarchal welfare state to liberal environmentalism. *Sociologia Ruralis*, 44(4), 349–372.
- Rao, A., Qu, L., & Ruckert, R. (1999). Signaling unobservable product quality through a brand ally. *Journal of Marketing Research*, 36(2), 258–268.
- Riley, M., & Szivas, E. (2003). Pay determination: A socioeconomic framework. *Annals of Tourism Research*, 30(2), 446–464.
- Roehrich, G. (2004). Consumer innovativeness: Concepts and measurements. *Journal of Business Research*, 52(4), 621–677.
- Rothaermel, T., & Deeds, L. (2006). Alliance type, alliance experience and alliance management capability in high-technology ventures. *Journal of Business Venturing*, 21(4), 429–460.
- Rotter, J. B. (1966). Generalized expectancies for internal versus external control of reinforcement. *Psychological Monographs: General and Applied*, 80(1), 1–28.
- Russell, R., & Faulkner, B. (2004). Entrepreneurship, chaos and the tourism area lifecycle. *Annals of Tourism Research*, 31(3), 556–579.
- Sagie, A., & Elizur, D. (1999). Achievement motive and entrepreneurial orientation: A structural analysis. *Journal of Organizational Behavior*, 20(3), 375–387.
- Sarkar, M., Echambadi, R., & Harrison, J. S. (2001). Alliance entrepreneurship and firm market performance. *Strategic Management Journal*, 22, 701–711.

- Schindehutte, M., Morris, M. H., & Kocak, A. (2008). Understanding market-driving behavior: The role of entrepreneurship. *Journal of Small Business Management*, 46(1), 4–26.
- Schreiber, J. B., Nora, A., Stage, F. K., Barlow, E. A., & King, J. (2006). Reporting structural equation modeling and confirmatory factor analysis results: A review. *The Journal of Educational Research*, 99, 323–337.
- Schumpeter, J. A. (1934). *The theory of economic development*. London, UK: Oxford University Press.
- Shane, S., & Venkataraman, S. (2000). The promise of entrepreneurship as a field of research. *The Academy of Management Review*, 25(1), 217–226.
- Sharma, A., & Upneja, A. (2005). Factors influencing financial performance of small hotels in Tanzania. *International Journal of Contemporary Hospitality Management*, 17(6), 504–515.
- Shaver, K. G., & Scott, L. R. (1991). Person, process, choice: The psychology of new venture creation. *Entrepreneurship Theory and Practice*, 16(2), 23–45.
- Shuttleworth, M. (2009). Convergent validity and discriminant validity. Retrieved Jan 23, 2013, from <http://www.experiment-resources.com/convergent-validity.html>
- Sivadas, E., & Dwyer, F. (2000). An examination of organizational factors influencing new product success in internal and alliance-based processes. *Journal of Marketing*, 64(1), 31–49.
- Slater, R. J. (2001). Urban agriculture, gender, and empowerment: An alternative view. *Development Southern Africa*, 18(5), 635–650.
- Slotte-Kock, S., & Coviello, N. (2010). Entrepreneurship research on network processes: A review and ways forward. *Entrepreneurship Theory and Practice*, 34(1), 31–57.
- Smeral, E. (2012). International tourism demand and the business cycle. *Annals of Tourism Research*, 39 (1), 379–400.
- Sorensen, J. B., & Sorenson, O. (2003). From conception to birth: Opportunity perception and resource mobilization in entrepreneurship. *Advances in Strategic Management*, 20(1), 89–117.
- Steer, A., & Lutz, E. (1993). Measuring environmentally sustainable development. *Finance & Development*, 30(4), 20–23.

- Steiger, J. H. (1990). Structural model evaluation and modification: An interval estimation approach. *Multivariate Behavioral Research*, 25, 173–180.
- Steier, L., & Greenwood, R. (2000). Entrepreneurship and the evolution of angel financial networks. *Organization Studies*, 21(2), 163–192.
- Utsch, A., & Rauch, A. (2000). Innovativeness and initiative as mediators between achievement orientation and venture performance. *European Journal of Work & Organizational Psychology*, 9(1), 45–62.
- Varadarajan, R. (2010). Strategic marketing and marketing strategy: Domain, definition, fundamental issues and foundational premises. *Journal of the Academy of Marketing Science*, 38(2), 119–140.
- Varadarajan, P., & Cunningham, M. (1995). Strategic alliances: A synthesis of conceptual foundations. *Journal of the Academy of Marketing Science*, 23(4), 282–296.
- Verhees, F. J., & Meulenbergh, M.T. (2004). Market orientation, innovativeness, product innovation, and performance in small firms. *Journal of Small Business Management*, 42(2), 134–154.
- Weaver, B., & Fennell, D. (1997). The vacation farm sector in Saskatchewan: A profile of operations. *Tourism Management*, 18(6), 357–365
- Zeppel, H., & Muloin, S. (2008). Conservation benefits of interpretation on marine wildlife tours. *Human Dimensions of Wildlife*, 13(4), 280–294.

**APPENDIX A: SURVEY OF LEVELS OF ENTREPRENEURSHIP AND
COMPETITIVE ADVANTAGES IN SMALL MIDWESTERN AGRITOURISM
BUSINESSES**

Dear Participant,

We are conducting a survey on entrepreneurship in Iowa agritourism businesses. I would greatly appreciate it if you were to fill out a short survey. It will take no more than 10 minutes to complete. Volunteers must be 18 or older to participate. You may skip any question you do not feel comfortable answering. Your responses are anonymous and will be used only for research purposes.

Respondents will have the chance to get a \$50 gift card. The winners will be individually contacted by e-mail in March, 2013.



Thank you very much. I greatly appreciate your time!

Lanlung(Luke), Chiang
Ph.D. Student
Department of Apparel, Education Studies, & Hospitality Management
College of Human Sciences, Iowa State University

Section 1. The purpose of the survey is to evaluate entrepreneurship in Iowa agritourism businesses. Therefore, we are interested the agritourism activities your farm or business offers. Please select as many options below as apply:

- Agri-accommodation (farm stay, agri-motel, agri-camping, etc)
- Agri-food service (home meals, canteen, restaurants, etc.)
- Direct sales (direct sales of agriculture products to farm visitors, farm and enterprise shops, etc.)
- Agri-recreation and sports (horseback riding, hunting, fishing, visiting gardens)
- Cultural tourism (historic farms, museums of folk art and agriculture, folk family celebrations and festivals, etc.
- Others (please apply _____)
- None of the above (If this option is selected, please terminate the survey)

Section II In this section, we are interested in your evaluation of entrepreneurship in your agritourism business. Please rate the following statements on a scale of 1-5 (1=strongly disagree; 3=neutral; 5=strongly agree).

	<i>Strongly disagree</i>		<i>Neutral</i>		<i>Strongly agree</i>	
1. There is a direct connection between how hard I work and the job performance I get in my agritourism business.	1	2	3	4	5	
2. In my case getting what I want has little or nothing to do with luck in the operation of my agritourism business.	1	2	3	4	5	
3. Many times I feel that I have little influence over the things that happen in the operation of my agritourism business.	1	2	3	4	5	
4. It is important to offset fluctuations in farm revenues for a farm.	1	2	3	4	5	
5. It is important to generate revenues during off-season for a farm.	1	2	3	4	5	
6. It is important to reduce overall farm debt for a farm.	1	2	3	4	5	

7. It is important to interact with customers and/or educate customers on agriculture.	1	2	3	4	5
8. It is important to provide current customers with new agriculture products.	1	2	3	4	5
9. It is important to respond to a market need/opportunity and/or to increase/diversify the market for a farm.	1	2	3	4	5
10. It is important to keep the farm in the family.	1	2	3	4	5
11. It is important to provide employment for family members.	1	2	3	4	5
12. It is important to continue farming.	1	2	3	4	5
13. Capitalizing on an interest or hobby is important to me.	1	2	3	4	5
14. Facing a new challenge is important to me.	1	2	3	4	5
15. Enhancing personal/family quality of life is important to me.	1	2	3	4	5
16. It is important to invest in new facilities and/or services (e.g., products/process innovation) in my agritourism business.	1	2	3	4	5
17. It is important to open new markets.	1	2	3	4	5
18. It is important to utilize new sources of supply in my agritourism business.	1	2	3	4	5
19. It is important to invest in new facilities and/or services (e.g., products/process innovation) in my agritourism business.	1	2	3	4	5
20: An entrepreneur is a person who establishes a business of his own.	1	2	3	4	5
21: One can set up a business with the knowledge of entrepreneurship					
22: The term entrepreneurship means the ability to organize capital, labour and land to set up a business.	1	2	3	4	5

23: A potential entrepreneur needs sufficient business management concepts to set up a business of his own.

24. The economic benefits of agritourism are greater than the disadvantages.	1	2	3	4	5
25. There is a direct connection between management and marketing strategies and profitability of my agritourism business.	1	2	3	4	5
26. Farmers' networks are useful to me in the operation of my agritourism business.	1	2	3	4	5
27. Professional associations are useful to me in the operation of my agritourism business.	1	2	3	4	5
28. Support/Partner groups (e.g., trade union) are useful in the operation of my agritourism business.	1	2	3	4	5
29. The partner group(s) has influenced my agritourism business to change the policies and practices with respect to sales and promotion, etc.	1	2	3	4	5
30. Enhancing environmental quality (e.g., air, water, and soil) is important to me.	1	2	3	4	5
31. The existence of natural areas is important to me, although visitors do not visit them.	1	2	3	4	5
32. It is important to increase awareness of agricultural issues and values among the public.	1	2	3	4	5
33. It is important to promote inter-regional, inter-cultural communication and understanding among the public.	1	2	3	4	5

4. Into which of the following age groups do you belong to?

- 18-29 30-34 35-39 40-44
 45-49 50-54 55-59 over 60

5. How would you best describe your education field?

- Agriculture related Business related
 Other (Please specify: _____)

Thank you so much for your time and help.

APPENDIX B: APPROVAL OF THE USE OF HUMAN SUBJECTS

IOWA STATE UNIVERSITY
OF SCIENCE AND TECHNOLOGY

Institutional Review Board
Office for Responsible Research
Vice President for Research
1138 Pearson Hall
Ames, Iowa 50011-2207
515 294-4566
FAX 515 294-4267

Date: 12/13/2012
To: Lanlung (Luke) Chiang
7E MacKay Hall
CC: Dr. Liang Tang
12 MacKay Hall
From: Office for Responsible Research
Title: Evaluate the Level of Entrepreneurship and Develop Competitive Advantages in Small Agritourism Business
IRB ID: 12-621
Study Review Date: 12/13/2012

The project referenced above has been declared exempt from the requirements of the human subject protections regulations as described in 45 CFR 46.101(b) because it meets the following federal requirements for exemption:

- (2) Research involving the use of educational tests (cognitive, diagnostic, aptitude, achievement), survey or interview procedures with adults or observation of public behavior where
 - Information obtained is recorded in such a manner that human subjects cannot be identified directly or through identifiers linked to the subjects; or
 - Any disclosure of the human subjects' responses outside the research could not reasonably place the subject at risk of criminal or civil liability or be damaging to their financial standing, employability, or reputation.

The determination of exemption means that:

- **You do not need to submit an application for annual continuing review.**
- **You must carry out the research as described in the IRB application.** Review by IRB staff is required prior to implementing modifications that may change the exempt status of the research. In general, review is required for any modifications to the research procedures (e.g., method of data collection, nature or scope of information to be collected, changes in confidentiality measures, etc.), modifications that result in the inclusion of participants from vulnerable populations, and/or any change that may increase the risk or discomfort to participants. Changes to key personnel must also be approved. The purpose of review is to determine if the project still meets the federal criteria for exemption.

Non-exempt research is subject to many regulatory requirements that must be addressed prior to implementation of the study. Conducting non-exempt research without IRB review and approval may constitute non-compliance with federal regulations and/or academic misconduct according to ISU policy.

Detailed information about requirements for submission of modifications can be found on the Exempt Study Modification Form. A Personnel Change Form may be submitted when the only modification involves changes in study staff. If it is determined that exemption is no longer warranted, then an Application for Approval of Research Involving Humans Form will need to be submitted and approved before proceeding with data collection.

Please note that you must submit all research involving human participants for review. **Only the IRB or designees may make the determination of exemption, even if you conduct a study in the future that is exactly like this study.**

Please be aware that **approval from other entities may also be needed.** For example, access to data from private records (e.g. student, medical, or employment records, etc.) that are protected by FERPA, HIPAA, or other confidentiality policies requires permission from the holders of those records. Similarly, for research conducted in institutions other than ISU (e.g., schools, other colleges or universities, medical facilities, companies, etc.), investigators must obtain permission from the institution(s) as required by their policies. **An IRB determination of exemption in no way implies or guarantees that permission from these other entities will be granted.**