

THE FLORIDA STATE UNIVERSITY
COLLEGE OF EDUCATION

FLORIDA CERTIFIED MINORITY BUSINESS ENTERPRISE ADOPTION AND
UTILIZATION OF ELECTRONIC COMMERCE

By

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A dissertation submitted to the
Department of Education and Leadership Policy Studies
in partial fulfillment of the
requirements for the degree of
Doctorate of Philosophy

Degree Awarded:
Summer Semester, 2011

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I would like to dedicate this dissertation to my family and friends for their undying encouragement, love and support on this journey and throughout all of my educational aspirations, especially, Lavern N. Nelson, my mother, a kind and loving, strong and wise woman of God. I am forever grateful.

ACKNOWLEDGEMENTS

I would first like to acknowledge my Heavenly Father Who gives me my daily guidance and strength which allows me to seek and accomplish my goals.

I would like to acknowledge my family for paving the way and laying such a strong foundation for me to build upon. Their countless prayers, encouragement and words of wisdom are priceless. I would also like to acknowledge my friends who are just as close as family that kept me encouraged and let me know that I wasn't on this journey by myself.

I would like to acknowledge and share my deepest gratitude and most sincere appreciation to my Directing Professor, Dr. Peter B. Easton for persevering with me throughout the time it took me to complete this research and write the dissertation. His guidance and encouragement continued to give me hope through the years. He was my guardian angel throughout the entire process, going over and beyond on my behalf when necessary. With the guidance of Dr. Easton, I was able to assemble an outstanding team of scholars for my committee. I would like to thank my committee members: Dr. Earl Klay, Dr. Jeffrey Milligan, Dr. Sande Milton and Dr. Linda Schrader for their guidance during this journey who have generously given their time and expertise to better my work. I thank them for their contribution and their good-natured support.

I would also like to acknowledge and thank my colleagues in the State of Florida – Office of Supplier Diversity for their support and allowing me to pursue this endeavor during my tenure with the office.

I would like to thank everyone who helped make this dissertation possible and offer blessings to all of those who supported me in any respect.

TABLE OF CONTENTS

List of Tables	v
List of Figures	vi
Abstract	vii
1. INTRODUCTION	1
2. LITERATURE REVIEW	12
3. METHODOLOGY	50
4. QUANTITATIVE DATA.....	95
5. QUALITATIVE DATA	133
6. ANALYSIS AND CONCLUSIONS.....	157
APPENDICES.....	167
REFERENCES.....	172
BIOGRAPHICAL SKETCH.....	191

LIST OF TABLES

1	Breakdown of Florida Businesses by Minority Status and Registration	58
2	Breakdown of Registered Businesses in Florida by Minority Status and Certification	59
3	Collection of Quantitative Data	66
4	Specific Variable and Survey Item	68
5	Scale Item Analysis	72
6	Revised Specific Variable and Survey Item	74
7	Steps of the Constant Comparative Analysis Procedure for Electronic Commerce Utilization	77
8	Elements in Methodology Used to Answer Research Questions	91
9	Demographic Characteristics	98
10	Business Characteristics	99
11	Exposure to Electronic Commerce	100
12	Use of Electronic Commerce	101
13	Attitudes and Opinions Concerning Electronic Commerce	102
14	Age and Gender Relationship	106
15	Age and Sales Relationship	107
16	Gender and Education Level Relationship	107

17	Gender and Minority Classification Relationship	108
18	Gender and Industry Relationship	108
19	Gender and Number of Employees Relationship	109
20	Gender and Number of Years in Business Relationship	109
21	Gender and Sales Relationship	110
22	Gender and Location Relationship	110
23	Education Level and Minority Classification Relationship	111
24	Education Level and Industry Relationship	111
25	Education Level and Number of Employees Relationship	112
26	Education Level and Number of Years in Business Relationship	112
27	Education Level and Sales Relationship	113
28	Education Level and Location Relationship	113
29	Education Level and Gender Relationship	114
30	Minority Classification and Industry Relationship	114
31	Minority Classification and Number of Employees Relationship	115
32	Minority Classification and Number of Years Relationship	115
33	Minority Classification and Sales Relationship	116
34	Minority Classification and Location Relationship	116
35	Age and Indices Group Means	119

36	Education Level and Indices Group Means	121
37	Industry and Indices Group Means	122
38	Number of Employees and Indices Group Means	124
39	Number of Years and Indices Group Means	125
40	Sales and Indices Group Means	126
41	Minority Classification and Indices Group Means	127
42	Gender and Indices Group Means	128
43	Indices Group Means Significance	129
44	Exposure to Electronic Commerce with Components of Disposition Correlations	131
45	Inter-correlation of Exposure, Disposition and Use Indices	131
46	Electronic Commerce Use with Components of Disposition Correlations	132
47	CMBE Interview Participant Characteristics	137
48	FAMBEO Participant Characteristics	138

LIST OF FIGURES

1	Innovation-Decision Process Model	23
2	Small Business Learning Framework	37
3	Heuristic Scheme of Presumed Relationships	61

ABSTRACT

African and Hispanic American businesses lag behind in the utilization of electronic commerce. As the global market expands, electronic commerce utilization will be important to the survival of these businesses. This research sought to identify the factors that motivate, as well as, the obstacles that hinder the adoption and utilization of electronic commerce among African-American and Hispanic-American certified minority business enterprises (CMBEs) in the state of Florida. Rogers (2003) innovation characteristics were used to measure the perceptions of electronic commerce. The conceptual model used in this study consisted of several independent variables: the characteristics of the owner; characteristics of the business; the owner's exposure to electronic commerce; and the owner's utilization of electronic commerce which were shown to have some influence in the use of electronic commerce. The level of electronic commerce utilization was thought to be dependent on the independent variables. Theories of adult learning were also used to further identify factors that may motivate and/or hinder the learning and skills that are a prerequisite for electronic commerce adoption and develop learning strategies to promote the adoption and utilization of electronic commerce. Two research strategies were used: (1) a quantitative analysis of survey data, and (2) a qualitative analysis with interview data. Findings from the surveys and interviews identified the business environment, capital to implement and the lack of technical knowledge as major factors influencing the use of electronic commerce.

CHAPTER ONE

INTRODUCTION

Background

In the space of a few years entire industries have been radically transformed, hundreds of thousands of new businesses have been spawned and fortunes made and lost by entrepreneurs and investors, all as a result of digital technologies (pg.1, Chen, 2005). The emergence and spread of electronic commerce have greatly influenced the behavior of both retailers and consumers (Cao, 2005, p.1). Electronic commerce potentially extends the market reach of small businesses, expanding opportunities and creating new demand; yet it also requires much new learning on their part. Investigating just how e-commerce affects small business and how small business owners are learning both to accommodate to it and to benefit by it is therefore a critical topic in the field of adult education itself. Electronic commerce in the USA was projected to reach \$204 billion in 2008, a 17 percent increase over the preceding year (Forester Research, 2007); between 1999 and 2009 its share in overall US retail sales grew from 0.5% to 3.7%, more than a seven-fold increase (ITIF, 2010: 25). In the United States, for example, while most sectors were experiencing a downturn in the first quarter of 2009, online retail sales for 80 retailers rose by an average of 11 percent (OECD, 2009). The economic crisis is also driving more businesses online, attracted to the Internet as a means to increase visibility and markets at relatively low cost.

Today, one third of the nation's population is composed of minorities and, by the year 2050, it is estimated this group will represent more than half the people living in the United States. Minority firms increased at a historic rate between 1997 and 2002, adding 4 million firms (MBDA, 2008). Arguably, the future economic success of our nation in the global market will depend in good part on the growth and expansion of minority-owned businesses (Department of Commerce, 2008). Even though minority businesses are well positioned to tap part of the growing minority market, they are currently less well situated with respect to use of internet and access to electronic technology. As computer and Internet use continues to flourish, there is a concern that not all groups are benefiting equally from these technologies. Small and medium-sized enterprises (SMES) are not adopting e-commerce with the same speed as their larger

counterparts (Kartiwi and MacGregor, 2007). A variety of adoption barriers have been documented in numerous studies (Kaynak, Tatoglu, & Kula, 2005; Stockdale & Standing, 2004; Taylor & Murphy, 2004). The fear is that minorities, the less educated and poorer individuals may continue to fall further behind in an increasingly digital age (Scanian and Austin, 2008).

With a fast growing minority population that will account for 50 percent of the Nation's demography by 2050, America's success in a highly competitive global market may increasingly depend on the innovation and strength of minority business enterprises (MBDA, 2008). The increasing proportion of national retail and commerce activity that will concern and originate from the minority population seems likely to create opportunities for consumer and business sales in precisely those areas where minority businesses, if correctly positioned, could have a real competitive advantage. Such trends could ultimately alter the relationships between corporate America and communities that have traditionally been under-served by the business sector. The importance of the small business sector or of "small and medium enterprises" (SME) as the cornerstone of most economies is widely recognized (Abdullah & Bakar, 2000; Hall, 2002; National Office of Information Economy, 2002). This is not only borne out by the number of SMEs (almost 90% of the total number of businesses across the world), but also by their significant role in creating employment opportunities (Hall, 2002). The role of SMEs is further highlighted in studies by Abdullah and Bakar (2000) and Urata (2000) that suggest that SMEs are vital to the emergence of healthy private sectors.

Businesses that do not regularly use electronic commerce to conduct their affairs need training and support in order to successfully use this tool (Harrigan et al., 2010). This situation constitutes a challenge for adult education, because the related training needs are evident. Knowles's concept of andragogy is probably the best-known set of principles or assumptions to guide adult learning practice. As we shall see in Chapter 2, one of his central principles is that "adult learners' readiness to learn is linked to coping with real life situations" (Merriam, Caffarella & Baumgartner 2007, p.79); and the opportunities and requirements of electronic operations are manifestly one of the most current of these for SME owners. Adult education has traditionally addressed three distinct types of needs and goals: those of individuals, those of institutions, and those of society as a whole (Knowles, Holton, & Swanson, 1998). Arguably, electronic commerce lies at the intersection of all three of those realms of social life. Learning about it may benefit minority business enterprises (MBEs) in two ways: First, initiating their

personnel to electronic commerce may also serve as an entry into the global market. Second, business practices that incorporate internet operations could improve the productivity and efficiency of the MBEs. However, neither a strategy nor an appropriate training program can be designed without careful assessment of the current knowledge, skills and attitudes of MBEs with respect to electronic commerce and of their felt needs in that regard. Related policy and practice must be based on a good understanding of the characteristics of MBEs as well as the barriers and challenges that they face in adopting or adapting to this sort of innovation.

Electronic commerce has been growing orders of magnitude faster than the economy as a whole, as indicated by the figures for recent increases cited above. Projections for the total volume of Internet commerce over the first part of the 21st century typically ranged between hundreds of billions and trillions of dollars, depending on who was doing the projection (U.S. Department of Commerce, 2002). The use of the WWW as a new type of retailing facility, by-passing the traditional store and establishing a direct link with the customer, is still limited, but it is developing quickly (Lin & Yu, 2006). Internet usage for business purposes, on the other hand, is growing rapidly; the statistics speak for themselves. A recent marketing report released by Forrester Research in 2010 indicates online sales among businesses have continued to experience double-digit growth right through the economic downturn and that electronic commercial outlets in general are well-placed to benefit from the thinning out of storefront retailers that the recession promotes. According to U.S. Census Bureau E-Stats report released May 28, 2009, in 2007, e-commerce grew faster than total economic activity in three of the four major economic sectors covered by the E-Stats report. The four sectors are manufacturing, merchant wholesale trade, retail trade, and selected services. Manufacturers led all industry sectors, with e-commerce accounting for 35 percent (\$1,856 billion) of total shipments. Merchant wholesalers, including manufacturing sales branches and offices, ranked second with e-commerce accounting for 21.2 percent (\$1,226 billion) of total sales. Retailers' e-commerce sales increased by 18.4 percent.

Available information from national authorities suggests that business to customer (B2C) e-commerce is expanding rapidly but that its total volume remains relatively low, especially when compared to traditional retail and business to business (B2B) e-commerce. In the United States, for example, B2C e-commerce retail sales have grown many-fold since 2000, rising to USD 133 billion in 2008, up 5 % from 2007. It still accounts for less than 4 % of total retail sales

(US Census Bureau, 2009a). B2B, on the other hand, generates USD 3.1 trillion in sales, accounting for over 27 % of total B2B transactions. According to a survey, 66 % of “online Americans” purchased a product on-line in 2007, up from 46 % in 2000 (Pew Internet & American Life Project, 2008, p. 2).

One of the main drivers underlying e-commerce growth is the rising number of individuals connected to the Web particularly in the developed world, where the portion of Internet users has risen more than five-fold from the late 1990s, to 62 % of the population in 2007 (OECD, 2009). More recently, broadband penetration and the growing use of mobile devices have further boosted e-commerce. Broadband subscriptions have surged in the OECD area with a compound annual growth rate of 44 % since 2000. The presence of e-retailers is another important factor influencing e-commerce activity. In the United States, for example, a comparatively high level of e-commerce activity is due, in part, to many large successful Internet-only retailers, such as Amazon.com, as well as the presence of most major “bricks and mortar” retailers online. According to an EC report, in countries where there is a high proportion of retailers selling online, more consumers also purchase products or services on-line (EC, 2009a, p. 68).

The financial and economic crisis appears to be giving e-commerce a boost as consumers search for ways to reduce expenditures by purchasing items on-line. Businesses are also being attracted to the Internet as it provides a means to increase visibility and markets at relatively low cost during a period of financial hardship. In the United States, while most economic sectors were experiencing a downturn in the first quarter of 2009, online retail sales for 80 retailers rose by an average of 11 %; about 70 % of both consumer brand manufacturers and multichannel retailers reported online sales increases (eMarketer, 2009). Craigslist, the “free classifieds” site is expected to generate USD 100 million revenues in 2009, a 23 % increase from 2008 (AIM Group, 2009). Amazon generated net revenue of USD 177 million in the first quarter of 2009, an increase of 24 % from the first quarter of 2008.

Evidence of the increasing importance of electronic commerce and internet applications for business thus abounds. Yet the literature suggests that minority businesses face major obstacles to participation in e-commerce (Kaynak, Tatoglu, & Kula, 2005; Stockdale & Standing, 2004; Taylor & Murphy, 2004). Unless these barriers are identified, addressed, and

eliminated, minority businesses will be discouraged from participating in and benefiting one of the forefront sectors of the 21st century economy.

Statement of the Problem

The use of Internet technology among small businesses is expected to expand rapidly as owners become aware of the potential for process efficiencies and cost savings and knowledgeable about the technical and organizational procedures involved. In fact, the ITIF reports that by 2009 fully 80% of US businesses had websites (2010: 19), though the United States was only tied for sixth in this category among industrialized countries worldwide. Yet, while e-commerce has gained in popularity in recent years, students of the situation have suggested that small firms may be lagging behind their larger counterparts in the adoption of e-commerce. Pratt (2002) in a study for the Small Business Administration (SBA) found that large firms have moved more quickly in adopting web-based business practices than SMEs. A study by the U.S. Department of Commerce (Buckley and Montes 2002) examined the extent to which small and medium-sized enterprises are investing in information technology, participating in online activities, and assisting their employees with the use of computers. The study found that SMEs invest less than their larger counterparts on a per employee basis in two categories of IT investment: computers and communications. Information collected from interviews during this study indicated that many businesses lack the very basic level of technical knowledge to effectively use the Internet, use e-mail, conduct searches, etc.

These same challenges have created a pressing need for improved and broadened adult education in the area of electronic commerce and procurement – and they pose a technical problem: how does one most effectively facilitate the learning that must take place for minority small business owners to acquire e-commerce competence? Not much has been researched or written on the subject. In a classic work on the dynamics of demand for adult education, Patricia Cross (1981) cites several trends in our society that recurrently create imperatives for adult education. First are demographic trends that result in larger numbers and proportions of adults in the population. A second influence is social change factors, like the advent of equal opportunity provisions. The third influence arises from technology itself and the knowledge explosion that it provokes.

Each of these three factors is at work in the growth of electronic commerce.

Demographic changes are manifestly instrumental, particularly when one considers the rising

proportion of minorities and the increase in their presence in the small business sector. Social change and claims for equal opportunity are also important. Finally, technology is obviously at the heart of the e-commerce phenomenon and, just as Cross predicted, has provoked an explosion of knowledge and a revolution in the way in which business is conducted. The Minority Business Development Agency (MBDA) of the federal government concludes that minority small businesses are required not only to change their behavior but to adjust the entire way in which they do business in the 21st century in order to benefit from the opportunities of a globalizing society. MBDA also stresses that educating the MBE community will be one key impetus for this kind of change (U.S. Department of Commerce, 2008). One critical way of helping minority business enterprises to master this challenge is to provide well-adapted learning opportunities and training programs. This can't be done unless we have a better understanding of the characteristics and existing behaviors and attitudes of MBEs with respect to this area and are adept at using existing educational and innovation adoption theory to probe the factors that underlie current practices. Very little such work has been done. Understanding these challenges and barriers is essential if we are to develop learning strategies and policies that optimally address the needs of the minority business community and effectively support their continuing education of electronic commerce. In short, the problem to be addressed is the gap in the utilization and adoption of electronic commerce between minority businesses and non-minority businesses, our insufficient knowledge of the dynamics of that shortfall and the role of adult education in remedying the situation.

Purpose of Research

According to the 2000 U.S. Census, African Americans constitute 14.6% of the population of the State of Florida, compared to a national percentage of 12.3% (U.S. Census Bureau, 2000). Persons of Hispanic or Latino origin made up 16.8% of Florida's population compared to the national figure of 12.5% (U.S. Census Bureau, 2000). Both proportions are expected by Census Bureau to increase dramatically by 2050. This research will focus particularly on African and Hispanic American minority business enterprise owners in the state of Florida. These two groups are the largest minority groups in the United States and – even more preponderantly – in the state of Florida as well. The MBEs to be contacted in this research are certified minority business enterprises (CMBEs) that have been identified as bona-fide minority businesses by the state of Florida's Office of Supplier Diversity (OSD), which

administers the state's minority business enterprise (MBE) program. This program provides educational and technical assistance to help MBEs grow and survive. According to data gathered from OSD, African and Hispanic Americans are the two largest ethnic minority groups of CMBEs in Florida.

Though Internet has expanded dramatically in the United States, the U.S. Department of Commerce pointed out in a 2002 study that four population groups were distinctly less likely to be Internet users:

- People in households with low family incomes
- Adults with low levels of overall education
- Hispanics
- Blacks

Also, a study by the U.S. Department of Commerce, *Keys to Minority Entrepreneurship* released in September of 2002, found that in general, minority business owners have lower family incomes and less formal education than their non-minority counterparts. In a report entitled, *A Nation Online* in February 2002, individuals with these same characteristics were grouped with the two largest minority groups in the United States which are Hispanics and African Americans as being less likely to utilize electronic commerce. Arguably, the future of small-business growth will be driven by Hispanic and African American business enterprises. In 1982, minorities owned 7 percent of U.S. firms; 20 years later, they owned 18 percent. Black-owned firms increased by 45 percent in just five years from 1997 to 2002; Hispanic-owned firms increased 31 percent (SBA, 2007).

In 2002, Hispanics or Latinos constituted the largest minority business community (SBA, 2007). Hispanics are both the nation's fastest growing major ethnic group and its largest minority (MBDA, 2008). Yet there is a clear discrepancy between representation of minorities in the population at large and their representation in the business community. In 2006, for example, Blacks constituted 11.8 percent of the total population, owned 5.0 percent of firms, and accounted for only 0.99 percent of total receipts. Hispanics represented 13.5 percent of the total United States population, owned 6.55 percent of businesses and accounted for just 2.48 percent of total receipts. Asians and Pacific Islanders represented about 4.1 percent of the total population, owned 4.72 percent of businesses, and accounted for 3.7 percent of total receipts (SBA, 2007).

The likelihood of Black and Hispanic Americans increasing their share of receipts and businesses to more equitable proportions is at least partly related to their mastery of new modes of transaction like e-commerce. The central purpose of this research is therefore to identify the factors most closely associated with African and Hispanic American businesses adoption of e-commerce in Florida, the obstacles and challenges that seem to impede it at the present time, and the strategies that hold greatest promise for facilitating needed learning on the part of minority business enterprises by these two groups.

Research Questions

To accomplish this purpose, the following research questions are formulated as guideposts for the study:

1. What business and personal characteristics are most associated with the adoption and non-adoption of e-commerce by minority business enterprises?
2. What “agents” or facilitating factors are most effective in promoting adoption of e-commerce and overcoming the obstacles and barriers to its use within the same population group?
3. What are the principal barriers to the adoption and utilization of electronic commerce among Florida certified minority business owners? What challenges do minority businesses encounter when engaging in e-commerce?
4. What are some of the preferred strategies currently being used by certified minority businesses to learn about electronic commerce and other dimensions of electronic technology usage in their businesses?
5. How and how well do existing theory regarding adult learning and adoption of innovation help to understand the dynamics of this process and to highlight promising directions for future study?

The proposed research constitutes an exploratory study, given the absence of major empirical studies in this area. The research questions therefore are designedly not “causal,” in the quantitative sense of that term, but rather formulated to guide the researcher in laying the foundation for reflection on the dynamics of the innovation and learning process involved, in hopes that follow-on studies may come progressively closer to clarifying causal relations.

Significance of Research

Minority business enterprises, particularly African and Hispanic American are an increasingly critical component of the Florida and U.S. economies (SBA, 2009 and MBDA, 2008). Minority businesses are a significant growth sector of the market and, as such, it is important to understand how these businesses are participating, or are positioned to participate, in the digital economy. Despite growing Internet use by all businesses, there have been no comprehensive studies on the use of e-commerce by minority owned businesses in the State of Florida. Minority business enterprises, particularly African and Hispanic American are an increasingly critical component of the U.S. economy (MBDA, 2008). This research will provide information about the personal characteristics, adopter determinants, barriers and challenges of electronic commerce adoption by the two largest minority groups in Florida. Findings from this research will then provide a foundation to begin developing and promoting learning strategies for electronic commerce utilization.

Definitions

The following definitions will be used for the purpose of maintaining clarity in his research:

- Minority Business Enterprise (MBE) – In the census and official State of Florida documents, this term refers to businesses whose proprietor is Black, Hispanic, Asian, Pacific Islander, or American Indian/Alaska Native, or -- in the case of businesses with multiple owners -- where 51% of the stock interest, claims or rights are held by members of the groups mentioned above.
- Small Business/ Small and Medium Enterprises (SMEs) – These terms are used in current literature and official reports in varying, often overlapping and sometimes interchangeable ways. Cut-off criteria may be specified in terms of number of employees, gross sales or total wage and salary bill. Official usage is often established at the state or county level in the United States. When a distinction is drawn between small and medium-sized businesses, for example, the former are frequently understood to have up to 100 employees and the latter from 101 to 500. We will use the terms interchangeably and consider them to refer to businesses having up to 500 employees and annual receipts of up to \$5 million.

- Hispanic-owned businesses - are those where the proprietor identified his or her origin as Cuban, Mexican, Mexican American, Chicano, Puerto Ricans, Spaniard, and Hispanic Latin American.
- Digital Divide – term used to describe an individual or community’s lack of access to computers, training and online resources. It refers to a gap between those who have reasonable opportunities to access technology tools and those that do not.
- Electronic Commerce – refers to the transaction of business via the Internet

Limitations of the Research

There are several limitations in this research. First, the majority of the data used for the study was based upon information collected from the 2000 Census and the 2002 Survey of Business Owners (SBO) administered by the U.S. Department of Census. This was the most current comprehensive data available at the time of the research. The Survey of Business Owners is conducted every five years. The data analysis for the 2007 SBO will take place during the latter half of 2010 thru 2011. Second, research subjects are limited to certified African and Hispanic American business enterprises in Florida and the patterns observed in them may not be generalizable to non-certified entrepreneurs in Florida or to minority business people in other states, since the definition of a minority business can vary from state to state depending on current state laws. Third, as explained above, the basic ambitions of the research lie more in initial illumination of the topic than in establishment of causal relationships.

Finally, both the dissertation and the research questions that it is designed to answer focus on the factors *within* Florida’s African-American and Hispanic-American small business enterprise communities that appear most closely associated with and most likely to explain differences in the adoption of electronic commerce as well as the role that different forms of adult education play in expediting this process. By the same token, however, the study does not deal in depth with differences *between* majority and minority business owners in the state, though there are evidently numerous factors of that type that might be investigated and would be valuable topics of further research. The issue of minority-majority comparison has a number of important ramifications – e.g. with respect to the impact of access to credit on electronic commerce adoption or the role that language plays in this regard, particularly among the Hispanic-American population. These topics should be kept in mind as important background

conditions but do not enter directly into the data collected for the present dissertation or into its analysis.

CHAPTER TWO

LITERATURE REVIEW

Introduction

Chapter Two is devoted to developing a conceptual framework for the research and to laying a groundwork of familiarity with the growth and nature of electronic commerce and minority business enterprises. The chapter begins with the conceptual literature that frames the topic and provides guidance for data collection and analysis designed to answer the essential research questions posed in Chapter One. The two master frames of reference from a theoretical point of view are constituted by the diffusion of innovation and understandings of the dynamics of adult learning, though empirical work on the dynamics of small business and its use of electronic commerce will also be reviewed.

Adoption of an innovation like electronic commerce is naturally influenced by the characteristics and situation of adopters themselves. The adoption is also governed by the nature of the individual's exposure to the innovation as well as by his or her perception of opportunities for beneficial use of the new technology. The diffusion of innovation constitutes an important aspect of adult education, because it necessitates that some people learn new behaviors and skills, and others provide the necessary information or instruction. Adult learning theory thus provides a focus for judging the quality and efficacy of the subject's exposure to the innovation.

The review of conceptual literature contained in this chapter begins with material on the diffusion of innovation. The subsequent section is devoted to an overview of research on the dynamics of adult learning and adult education, and their effects on innovation adoption behaviors. Several important subtopics that bear most directly on learning in minority and small business environments will be considered as well: informal education, learning communities, the workplace as a learning venue, and the variations in learning styles that may be characteristic of minority adults. The third portion of the chapter examines what may be learned from existing empirical research on minority small business owners, on small business characteristics, and on the adoption of the innovation of e-commerce by such firms. A few summary perceptions of the overall conceptual framework are offered in conclusion to the chapter and then operationalized in the research design proposed in Chapter Three.

Diffusion of Innovation

Diffusion of Innovation theory seeks to explain how innovations are adopted in a population – in effect, to examine with care this instance of adult learning and behavioral change, which may take place at both individual and collective levels. An innovation is an idea, behavior, or object that is perceived as new by its audience (Robinson, 2009). E. M. Rogers' (2003 [1983]) classic work *The Diffusion of Innovation* offers an analysis of the process whereby an innovation is communicated to or diffused through populations or social systems over time. Understanding the social system of a community is important when considering the utilization and adoption of innovations like e-commerce (Pease & Rowe, 2005). Diffusion refers to a type of social change. Spontaneous diffusion is often distinguished from directed or managed diffusion (Rogers, 2003). The former refers to an unplanned spread of information, whereas the latter describes the deliberate attempt to spread the innovation or new idea. Wejnert (2002) posits that the adoption process is not uniform and differs based on the nature of the innovation itself, the innovators, and the environmental context in which the organization is placed.

As Robinson (2009) points out, the theory of the diffusion of innovations takes a radically different approach from that espoused in most other theories of social change. Instead of focusing on the process of persuading individuals to adopt changes, the theory's focus is primarily on the evolution or "reinvention" of products and behaviors so that they better fit the needs of the individuals and groups for which they are designed and on their propagation through the social medium.

The State of Florida is introducing a new way of doing business with state government through electronic commerce and procurement. Electronic commerce could be considered an innovation when it applies to certified minority businesses in the state. This new method of procuring goods and services could alter the practices of companies that do business with the state of Florida, especially minority businesses. As recently as 2009 approximately 70% of certified minority small businesses in the State did not make use of it (Florida Office of Supplier Diversity, 2010). These minority business enterprises will not be able to fully participate in the state's procurement process.

Diffusion Theory

Diffusion of Innovations offers three types of insights into the process of social change that have been tested and refined in more than 6000 research studies and field tests (Robinson, 2009). (A sample of the most seminal and recent work on the topic is reviewed in the next subsection.) Those insights concern:

- the qualities that make an innovation spread successfully;
- the role of peer-to-peer communication and peer networks in the diffusion dissemination process; and
- the nature and influence of the varying needs of different user segments on adoption.

In Roger's theory, individuals' perceptions of five attributes of the innovation predict its rate of adoption. He considers the perceptions of potential adopters as absolutely central to the diffusion process (Rogers, 2003, p. 266). Robinson (2009) credits Rogers with pinpointing five characteristics of an innovation that are perceived by potential adopters and determine the success of its diffusion.

1. Relative advantage – The degree to which an innovation is perceived as better than the idea it supersedes by a particular group of users, measured in terms that matter to those users, like economic advantage, social prestige, convenience, or satisfaction.
2. Compatibility with existing values and practices – The degree to which an innovation is perceived as being consistent with the values, past experiences, and needs of potential adopters.
3. Complexity/Simplicity and ease of use – The degree to which an innovation is perceived as difficult or relatively easy to understand and use.
4. Trialability – The degree to which an innovation can be experimented with on a limited basis.
5. Observability or manifest character of results – The degree to which the results of an innovation are visible to others.

Diffusion scholars have found relative advantage to be one of the strongest predictors of an innovation's rate of adoption. Relative advantage is a ratio of the expected benefits and the costs of adoption of an innovation (Rogers, 2003, p 223). The nature of the innovation determines what specific type of relative advantage (economic, social, and the like) is important to adopters, although the characteristics of the potential adopters may also affect which specific subdimensions of relative advantage are most important (Rogers, 2003, p.229). The relative

advantage of an innovation, as perceived by members of a social system, is positively related to its rate of adoption (Rogers, 2003, p.233). Compatibility of an innovation with a preceding idea can either speed up or retard its rate of adoption. Old ideas are the main mental tools that individuals utilize to access new ideas and give them meaning (p. 243). The compatibility of an innovation, as perceived by members of a social system, is positively related to its rate of adoption (p. 249). On the other hand, the complexity of an innovation, as perceived by members of a social system, is negatively related to its rate of adoption (Rogers, 2003, p. 257). New ideas that can be tried on the installment plan are generally adopted more rapidly than innovations that are not divisible (p. 258). The observability of an innovation, as perceived by members of a social system, is positively related to its rate of adoption (p. 258). The easier it is for individuals to see the results of an innovation, the more likely they are to adopt it. Rogers (2003) postulated that innovations would be more likely to succeed and more readily adopted if the relative advantage conferred by their introduction was clearly evident; if the innovation was compatible with the culture of the organization, its operations and its view of the world; if the innovation was not too complex; and if it was "trialable" and could be readily observed prior to adoption (Pease & Rowe 2003a, 2003b; Pease, Rowe & Wright 2003). According to Rogers (2003), these five qualities determine between 49 and 87 percent of the variation in the adoption of new products.

Roger's model of diffusion of innovation provides a framework for identifying the motivators and obstacles to the utilization of any new procedure like electronic commerce. Roger's theory delineates three areas in which one can potentially identify factors that help and/or hinder to the spread of a change. They are (a) the characteristics and attributes of the innovation itself (b) those of the change agent; and (c) those of the subjects and their social systems. Looking at an innovation from the perspective of these attributes and their particular values for any given segment of the population (e.g. certified minority business enterprises) should provide a framework for identifying motivators and obstacles to adoption of the practice. Understanding how organizations decide to change is critical in making sure such change and the methods by which this change is introduced are effective. The various Diffusion of Innovation models helps to identify reasons for the unsuccessful implementation of change.

Diffusion Research. Diffusion of Innovation studies focus on the identification of variables in all three aforementioned determinates of the speed of diffusion. From an historical

perspective, studies on innovation in organizations have evolved, moving from a focus on organizational innovativeness to a focus on the complex nature of the innovation process itself (Zaltman, et. al., 1973; Rogers, 2003). Early measures of implementation included the following:

- average extent that adopted practices were being used (Zmud, 1982);
- stage of adoption-implementation (Ettlie, et, al., 1984),
- behaviors and activities associated with a particular innovation's use; and measures of the time lag between the different stages of adoption-implementation (Tornatsky and Klein, 1982).

These studies looked at what variables made an organization more or less innovative – factors like organizational size or organizational structure -- and they generally investigated some type of computer-based technological innovation (Rogers, 2003). Researchers have moved from studying determinants of a yes-no adoption decision to studying implementation of diffusion and innovation as a process. Rogers (1983) points out that “diffusion research has reached a point in which its contributions are highly regarded, both in providing theoretical understanding of human behavior change and at the level of practice and policy” (p. 87). The fact that most criticisms of diffusion research address the methods employed in conducting studies rather than the theoretical concepts underlying them provides evidence for this point (Downs & Mohr, 1976; Tornatzky & Klein, 1982).

With respect to electronic commerce, an important contextual factor that might impact innovation is the overall maturity level of the organization's use of technology. Therefore, it will be important to assess an MBE's level of technology use, which may serve as a primer for the adoption of electronic commerce and/or some of its components. Pease and Rowe (2005) explore issues that influence the diffusion of innovation as it relates to the adoption of e-commerce by small and medium enterprises (SMEs) particularly in regional areas in Australia. This research study outlines the causal factors responsible for the lack of utilization among the SMEs. The main reasons cited for the lack of utilization are a lack of time, lack of awareness and a lack of business opportunities. Brown (2002) identifies a number of factors limiting the adoption of e-commerce:

- E-commerce may be seen to be a distraction from core business.
- Significant perceived cost and risks may be associated with its adoption.
- A lack of strategic vision may impede making adoption decisions.

- The value and benefits of e-commerce to individual SMEs may not be recognized.

Most SMEs adopt e-commerce in a “just-by-chance” or casual manner, rather than as a consequence of systematic consideration and planning (Engsbo et al. 2001; Scupola 2002). Jocusen (2002, p14) describes the decision making process of SMEs as being in fact much less complex than what is suggested by theoretical frameworks: adoption decisions are based on “extensive use of learned competencies in the form of ‘perceived’ rationality” and relies on “rudimentary analytical tools.” The lack of technology awareness is also identified by Brown (2002) as a substantial obstacle to the uptake of e-commerce. Understanding how organizations decide to change (Moseley 2000) is critical to making sure change (and the methods by which this change is introduced) is effective. Diffusion of Innovation models help to identify reasons for the unsuccessful implementation of change (Baskerville & Pries-Heje, 2001).

Al-Qirim (2007) finds that technologies diffuse more quickly and smoothly if organizational innovativeness is part of a firm’s culture. The study “Exploring the relationships between information technology adoption and business process reengineering” by Lee, Chu, and Tseng (2009) investigates the effects of information technology on business process reengineering from intra- and extra-organizational perspectives. The results indicate that organizational innovation, market pressure and competitive intensity positively affect information technology adoption. Sarkar and Singh (2006) conclude that electronic commerce and enterprise resource planning technologies may change business practices to re-optimize business processes which lead to increased efficiency and improved performance. In many cases, firms change the organizational structure to align with the adopted technologies in order to obtain positive business performance and better operational efficiency (Kang, Park, & Yang 2008). Various research studies report discovery of critical success factors or determinants of IT adoption. Pan and Jang (2008) discover that technology readiness, size, perceived barriers and production and operations improvements positively influenced adoption. Al-Qirim (2007) finds that organizational readiness (cost/financial and technical resources), industry competition and government pressure are the most important determinants of electronic commerce adoption. The literature suggests that a firm’s innovative culture, market pressure, competition intensity and dynamic environment are important determinants affecting IT adoption and usage (Ching, Chu, & Tseng, 2009). Isom and Jarczyk (2009) examine the drivers of innovation for small businesses. Their study suggests that innovation increases significantly as small businesses

increase employee headcount. Perline, Axtell, and Teitelbaum (2006) found similar results with respect to the survival rates of firms and the firm size. Innovation and firm values are key drivers for business success. Their respective roles are vital in creating and improving goods and services, developing market demand, meeting market expectations, and increasing shareholders' wealth (Isom and Jarczyk, 2009).

Critique of Diffusion Research. Over the past 30 years, the theory has been criticized for favoring the wealthy and increasing inequalities (Stephenson, 2003). Criticisms to the theory began in the late 1960s when the diffusion of innovation theory was applied to international development. According to Ruttan (1996), initial criticism of the theory focused on methodological problems with the research, but interest in the theory declined as it began to be viewed as a source of inequity. These problems stemmed from the assumption that benefits resulting from the adoption of the innovation spread and become homogeneous. Other criticism came from the business and marketing perspectives. Downs and Mohr (1976) severely criticize the theory, contending that it needs to be organized around attributes of both the innovations and the organizations adopting them (Stephenson, 2003).

Rogers himself (2003) recognizes four major criticisms of diffusion research. They concern: pro-innovation bias; individual-blame bias; recall problems; and the issue of equality. One of the most serious shortcomings of diffusion research is its pro-innovation bias. This problem is one of the first biases to be recognized (Rogers & Shoemaker, 1971). The pro-innovation bias is the implication in diffusion research that an innovation should be diffused and adopted by all members of a social system, that it should be diffused more rapidly, and that the innovation should be neither re-invented nor rejected. This bias leads diffusion researchers to ignore the study of ignorance about innovations, to underemphasize the rejection or discontinuance of innovations, to overlook re-invention, and to fail to study anti-diffusion programs designed to prevent the spread of bad innovations. Successful diffusion leaves a rate of adoption that can be retrospectively investigated by diffusion researchers, while an unsuccessful diffusion effort does not leave visible traces that can easily be reconstructed. A rejected and/or discontinued innovation is likely to be investigated by a diffusion researcher. This makes it more difficult to pose methodological problems of classifying what adoption means.

Individual blame bias is another criticism. Sometimes diffusion research accepts a definition of the problem that researchers are to study from the sponsors of their research. The individual blame bias is reflected in diffusion research when researchers uncritically accept someone else's definition of blame as a scientific cause and not on the basis of empirical evidence. Another possible reason for individual blame bias is that some researchers may feel that while it may be impossible to change the system blame factors, individual blame is more amenable to change. Also, individuals are often more accessible for study by researchers than are systems. The individual-blame bias is a tendency for diffusion research to side with the change agencies that promote innovations rather than with the individuals who are potential adopters. Individual-blame is the tendency to hold an individual, rather than the system of which the individual is a part, responsible for his or her problems. This bias suggests that there are some factors in the adoption of an innovation that deal directly with individual characteristics and not the innovation itself. "If the shoe doesn't fit, there's something wrong with your foot," is implied in this bias. More emphasis is placed on how the individual attempts to adopt the innovation than on how the characteristics of the innovation fit into the system of which the individual is a part.

The "recall problem" is another frequently-cited weakness of diffusion research (Rogers, 1995). Adoption is something that happens over time, and much of the data therefore depends on subjects' recollections of when they actually adopted the changed behavior or attitude, a rather unreliable point of reference. Respondents have to reconstruct their past history of innovation experiences. If data about a diffusion process are only gathered at one point in time, the investigator must identify and describe actual adoption behaviors through the respondent's recall. This is a weak foundation on which to base the measurement of such an important variable.

Lastly, there is a potential problem with the consideration of distributional impacts and social equity in diffusion research. Who benefits from the innovation? What strata of society end up adopting it? Such issues were not much considered in early diffusion research. More recent studies have shown that innovation diffusion processes often widen the socioeconomic gap between the higher and lower classes in a social system (Rogers, 2003). The powerful elite will intentionally encourage the development of technologies that maintain or further their class standing. New technology can further inequalities between upper and lower classes.

Diffusion of Innovation Process Model. What model of adoption behavior do the theory and the empirical studies reviewed above suggest? What role does the model accord to processes of adult learning? This section is devoted to examining the implications of the diffusion of innovation theory and studies for understanding the framework of innovation-related behavioral change, and for identifying the agents or facilitating factors that may be the most effective in promoting the adoption of new practices and overcoming the obstacles and barriers to their use in group settings. The innovation-decision process model is grounded in the experience of diffusion of agriculture innovations in the United States in the 1940s. Characterizing the central problem of innovation as adoption, early research attempts to explain how U.S. Agricultural Extension Agents were able to persuade farmers to adopt innovations such as hybrid corn (Rogers, 2003). With its publication in Rogers' (1962) book on Diffusion of Innovations, the Innovation-Decision Process model became the most widely accepted conceptual framework for studying the diffusion process. The innovation decision process is the process through which an individual (or other decision making unit) passes from first knowledge of an innovation, to forming an attitude toward the innovation, to a decision to adopt or reject, to implementation of the new idea, and to confirmation of this decision.

Rogers conceptualizes the Innovation-Decision Process Model as an element within an overall innovation development process. According to Rogers (1983) "the innovation-development process consists of all of the decisions, activities, and their impacts that occur from recognition of a need or problem, through research, development, and commercialization of an innovation, through diffusion and adoption of the innovation by users, to its consequences" (p. 135). Because the concern of this study is the diffusion and adoption of electronic commerce in the minority business community, it is the decision phase of this sequence that is the most important. The innovation-decision process is essentially an information-seeking and information-processing activity in which an individual is motivated to reduce uncertainty about the advantages and disadvantages of an innovation (Rogers, 2003, p. 172). This model represents "a series of actions and choices over time through which an individual or an organization evaluates a new idea and decides whether or not to incorporate the new idea into ongoing practice" (Rogers, 1983, p. 163). The Innovation-Decision Process model provides a framework for examining the actions and choices that may affect the diffusion and adoption of electronic commerce in the minority business community.

A number of the pre-existing characteristics of the decision making unit are already present in the knowledge stage, and influence the diffusion process. Rogers' conceptualization of the Innovation-Decision Process Model (IDPM), in fact, highlights these prior conditions that must be considered before the innovation decision process begins. These conditions are previous practices, the need to be fulfilled or the problem to be solved, innovativeness of the decision-making unit, and the norms of the social systems. IDPM assumes that the adoption process is continuous (Rogers 1995). A decision to adopt or reject an innovation can change in the future if more knowledge and persuasion become available to the decision-making unit. It can also change due to the realities faced during the implementation process. The speed and course of the individual adoption process is influenced by prior conditions, perceived characteristics of the innovation, characteristics of the individual, and the use of communication channels. Consideration of a new idea does not go beyond the knowledge function if an individual does not define the information as relevant to his or her situation, or if sufficient knowledge is not obtained to become adequately informed, so that persuasion can then take place (Rogers, 2003, p. 174).

The Innovation-Decision Process model consists of five stages. Rogers (2003) defines these stages as:

1. Knowledge. Occurs when an individual (or other decision-making unit) is exposed to the innovation's existence and gains some understanding of how it functions.
2. Persuasion. Occurs when an individual (or other decision-making unit) forms a favorable or unfavorable attitude towards the innovation.
3. Decision. Occurs when an individual (or other decision-making unit) engages in activities that lead to a choice to adopt or reject the innovation.
4. Implementation. Occurs when an individual (or other decision-making unit) puts an innovation to use.
5. Confirmation. Occurs when an individual (or other decision-making unit) seeks reinforcement or an innovation-decision already made, but he or she may reverse this previous decision if exposed to conflicting messages about the innovation (p. 164).

The aspect of the model that is of particular relevance to the adoption of e-commerce in the minority business community is the suggested influence that perceived attributes of the innovation have upon the Persuasion stage of the model. Figure 1 hereafter illustrates the

relationship of the attributes. These attributes are gathered from Rogers' Innovation Decision Process Model Persuasion stage. As mentioned previously, most researchers subscribe to the belief that diffusion of an innovation is a process made up of a series of stages with factors influencing the process at each stage.

During the persuasion stage in the innovation-decision process, the individual forms a favorable or unfavorable attitude toward the innovation. Attitude is a relatively enduring organization of an individual's beliefs about an object that predisposes his or her actions. If an individual obtains awareness of an innovation and perceives that the/she may need the innovation, Rogers (2003) believes that the individual then seeks additional information about the innovation to make an adoption decision. The active seeking of information concerning the innovation that signals movement from the Knowledge stage to the Persuasion stage also signals a change in the type of thinking employed by the individual. Whereas the mental activity at the Knowledge stage was mainly cognitive (or knowing), the main type of thinking at the Persuasion stage is affective (or feeling). Until an individual knows about a new idea, of course, he or she cannot begin to form an attitude towards it (Rogers, 2003, p175). At the Persuasion stage the individual becomes more psychologically involved with the innovation. In the case of the Innovation-Decision Process Model, an individual's attitude predisposes his/her action to adopt or not adopt an innovation. Rogers (2003) theorizes that a person's perceptions toward attributes or characteristics of the innovation shape his or her attitude.

Chigona and Licker (2008) use Rogers' diffusion of innovations theory as a framework. They note that diffusion of innovations explains most of the adoption patterns with all five of the attributes of innovations influencing adoption. According to Chigona and Licker, there are four unique perspectives and one blended perspective from which to view the phenomenon of technological change. These are, respectively, characteristics of the technology itself, characteristics of the organizations experiencing the change of technology, characteristics of those managing the technological change and characteristics of the environment within which the change is being effected (Chigona and Licker, 2008). Each of the four perspectives focuses on a set of primary influences on change.

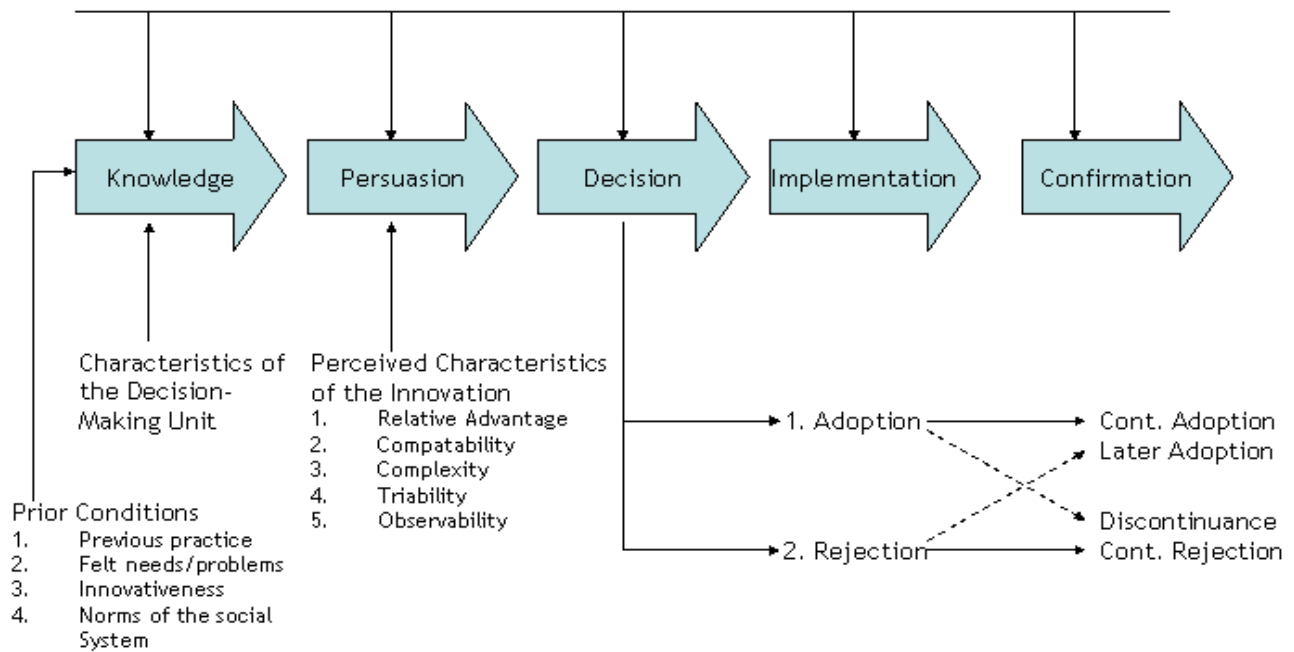


Figure 1. Innovation Decision Process Model.

From Diffusion of Innovations, Rogers, 2003

Adult Education

It was suggested at the beginning of this chapter that work on the diffusion of innovation has traditionally been closely allied with adult education, and that adult learning is central to the process. In fact, the connection is more than theoretical; in both North American and European traditions, it is historical as well. As noted, Rogers' original work on his model and theory was inspired to a considerable degree by the experience of agricultural extension. On both sides of the Atlantic, "extension" is a word first used for adult education outreach, and the roots of organized adult education lie to a considerable extent in agricultural extension work, though as adult educators began to professionalize they became for a time a bit embarrassed by their forbears in muddy boots. Whatever the case, minority small business adoption of an innovation like electronic commerce cannot be understood or researched without incorporating an appreciation of the relevant literature on adult learning to insights from the tradition of diffusion studies.

This section of Chapter Two is therefore dedicated to exploration of that topic. I will first discuss the general tradition of adult education and adult learning research, then consider three

subfields of adult education that are particularly relevant to the topic of this dissertation – informal education, learning communities and workplace learning – and conclude the section with an examination of how the learning modalities and preferences identified may vary with the culture and ethnicity of the learner, and, in particular, among African-American and Hispanic small business people.

Theories of Andragogy. Andragogy is a key term in understanding adult education. Defined as the “art and science of helping adults learn” (Knowles, 1990, p.54), “an intentional and professionally guided activity that aims at a change in an adult person” (Knowles et al., 1998, p. 60), and “a way of thinking about working with adult learners” (Merriam & Brockett, 1997, p. 135), andragogy has “exercised a significant influence on the practice of adult education” (Pratt, 1988, p. 160). It is claimed to be the “best-known theory of adult learning” (Merriam & Caffarella, 1991, p. 249), and “synonymous with the education of adults” (Pratt, 1988, p. 160).

The Andragogical model is based on a series of assumptions about the adult learner, which Knowles originally advanced on the basis of his professional experience and research (Merriam, Caffarella & Baumgartner 2007):

1. Adults need to know why they need to learn.
2. Adult learners prefer to be in charge of their own learning.
3. The adult learner’s varied life experiences serve as rich resources in the learning environment.
4. Adult learners’ readiness to learn is linked to coping with real-life situations.
5. Adults’ orientation to learning is different from children and is most likely life and/or task centered.
6. Though adults are interested by the practical applications of their learning, their strongest impetus typically comes from internal motivators like the desire for increased self-esteem, improved quality of life, enhanced responsibility and personal job satisfaction (Knowles, 1990, p. 57-63).

Each of these has potential applications to the diffusion of innovation. The first principle concerning adults’ insistence on knowing why they should learn things proposed to them and, by implication, their unwillingness to do so simply because others are doing it or the training sequence is officially sanctioned underlines a key characteristic of any innovation diffusion

process: such behavioral change only comes about if the intended beneficiary understand what is in it for them. The second principle of andragogy, self-directed learning, assumes that adult learners –can and do engage in taking control of their learning, assume ownership for their learning, are capable of weighing different learning strategies that they feel are best for their particular learning needs, and can motivate themselves to engage and complete a learning task ” (Knowles et al., 1998, p. 135-136). As noted by Tennant and Pogson (1995), the concept of self-directed learning, –is firmly entrenched in contemporary thinking about adult education” (p.121).

The third core principle of andragogy posits that an adult’s previous experience is as important a factor in the learning environment as any outside resources brought to bear (Knowles et al., 1998, p. 143). Darkenwald and Merriam (1982) note that learning in adulthood –occurs as very different individuals react to commonalities of human experience over their life span” (p. 88). These researchers defined adulthood as –an accumulation of life experiences, which creates a reservoir for learning that cannot be denied” (Darkenwald & Merriam, 1982, p. 86). The accumulation of adult learners’ life experiences differentiate s them from child learners. These experiences act as unique and individualistic learning tools. They provide a –rich resource for learning” (Knowles et al., 1998, p. 139). However, experience can at the same time hinder learning when the learner holds fixed expectations about what education should look and feel like. As Cranton (2000) points out, –People tend to be more comfortable with familiar teaching methods from their past educational experiences” (p. 133).

Readiness to learn, the fourth core andragogical principle, suggests that an adult becomes ready to engage in a learning activity –when [and only when] their life situation creates a need to know” (Knowles et al., 1998, p. 144). Aslanian (2001) studied 1500 adult students undergoing a life transition -- in particular a careerchange -- and found that the transition served as the trigger for returning to school. A separate study by Apps (1981) confirms much the same finding by demonstrating that adult students returning to post-secondary education are influenced by a readiness to enhance professional growth, self esteem, long-range economic security, social status, peer opinion and respect within the family – all motivations of the life situations they were traversing.

The fifth principle concerning orientation to learning asserts that adults are less focused on subject matter and curriculum than children and more life- and task-centered in their study. Smith (2001) finds that an adult learner’s level of interest in a learning activity is directly related

to the extent to which he/she is able to connect that activity to life and work. Darkenwald and Merriam (1982) reported that adults are more prone to “engage in education that will improve occupational performance or enhance competence or satisfaction in their family roles” (p. 180). Merriam and Cafarella (1991) remind us, however, that adult learner motivation is complex and subject to change (p. 86).

The sixth and final andragogical principle maintains that, in the final analysis, the strongest impulses for learning among adults are internal ones. Knowles et al. (1984) point out that “the more potent motivators are internal including self-esteem, recognition, better quality of life, greater self-confidence, and self-actualization” (p. 12). Once again, andragogy locates the core of adult learning in the individual’s own perceptions and experience – an approach quite analogous to the principles of innovation diffusion theory.

The General Adult Education Tradition. Over the past 40 years, andragogy has become the dominant adult education framework. It has been described as “the preeminent and persistent practice-based, instructional method” (Rachal, 2002, p. 211), a “guiding principle on how best to educate adults” (Beder & Carrea, 1998, p. 75), and, a “set of guidelines for effective instruction of adults” (Feuer & Gerber, 1988, p. 35). Lawson (1997) stated “the paradigm of andragogy continues to be a powerful influence in the field (of adult education) by its influence on shaping how we think about the delivery of services to adults” (p.10).

For some adult educators, andragogy has become “the theory of adult education” (Merriam & Brockett, 1997, p. 135), and a “badge of identity because it grants them a sense of their distinct professional identity” (Brookfield, 1986 p. 91). As Feuer and Gerber (1988) noted, the andragogical badge offers both educators and trainers their unique identity by “earving out a specific content domain, a formal, theory-based body of knowledge to be nurtured and cultivated” (p. 32). Educators who subscribe to andragogical principles, often called “andragogues” (Cranton, 2000, p. 14), feel the most appropriate way to design learning is to keep the adult learner at the center or the focus of the learning experience by utilizing instructional strategies which best meet adult learner needs. The design of adult specific knowledge acquisition involves “choosing problem areas for learning, designing units of experiential learning, utilizing indicated methods and materials and arranging them in sequence according to the learners’ readiness and aesthetic principles (Knowles, 1990, p. 133).

Andragogical methods can be applied to any form of adult learning; in fact, the term learning itself stands for the act or process by which behavioral change, knowledge, skills, and attitudes are acquired (Knowles, Holton, Swanson, 1998). Knowles's concept of andragogy is probably the best-known set of principles or assumptions to guide adult learning practice, and actually tells us more about the characteristics of adult learners than about the nature of learning itself (Merriam, Caffarella & Baumgartner 2007, p.79).

Adult Learning Facilitators and Barriers. One of the corollaries of the andragogical principles examined above is a focus on the "barriers and facilitators" that either impede or promote new learning on the part of adults. It is a topic of evident relevance to the issue of innovation among minority small business people. Moreover, it can be applied at the organizational as well as the individual level. In fact, in the interests of better understanding the challenges and obstacles that minority small business owners face and identifying possible strategies for promoting job-related learning on their part, can be useful to view the business itself as somewhat an "adult" individual – the majority of these firms being in fact sole proprietorships – and to test the applicability to this situation of insights into the barriers and facilitators for learning researched over the years with respect to individual adults. Patricia Cranton defines three relevant orientations to adult learning; subject, consumer and "emancipatory" orientations.

- The goal of subject-oriented learning is the acquisition of content, whether facts, concepts, problem-solving strategies, or technical or practical skills (Cranton, 1994). In adult education, subject oriented learning has always had its place: obtaining knowledge and skills related to a learner's discipline, profession, or trade (Idem, 1994). Learning may be passive or active. The learner observes skills as demonstrated by the expert educator, practices those skills, and achieves some competency in reproducing the behaviors advocated by the educator (Idem, 1994).
- Consumer oriented learning takes place when an individual (group, institution, society) expresses a need to learn, looks to the educator for fulfillment of those needs, and then proceeds to learn under the educator's auspices (Idem, 1994). Learners identify their needs, set objectives based on those needs, select materials and resources that are relevant to their learning, choose the strategies by which they will meet their objectives and

evaluate their own progress. This learning orientation is perhaps primarily a product of the culture in which it was conceived.

- Emancipatory learning is defined as a process that enables people to remove constraints on their own lives. It is a process of freeing ourselves from forces that limit our options and our control over our lives, forces that have been taken for granted or seen as beyond our control (Idem, 1994). Mezirow writes, “Emancipatory learning often is transformative” (Mezirow, 1991, p.88). Mezirow (1991) also describes emancipatory knowledge as that “gained through critical self-reflection as distinct from the knowledge gained from our technical interest in the objective world or our practical interest in social relationships.

Cyril Houle (1961) also identified three separate learning orientations held by adults. First is the goal oriented learner who uses education as a means of achieving some other goal. These learners see education as a means of responding to a personal need. Second, activity oriented learners participate in education for the sake of the activity itself and the social interaction. Thirdly, learning oriented persons seek knowledge for its own sake. Morstain and Smart (1974) identified a scheme of six-factors for learning which extends Houles’s typology (Merriam & Caffarella, 1998, pp. 54-55):

1. Social Relationships – This factor reflects participation in order to make new friends or meet members of the opposite sex.
2. External Expectations – These participants are complying with the wishes or directives of someone else with authority.
3. Social Welfare – This factor reflects an altruistic orientation; learners are involved because they want to serve others or their community.
4. Professional Advancement – This factor is strongly associated with participation for job enhancement or professional advancement.
5. Escape/Stimulation – This factor is indicative of learners who are involved as a way of alleviating boredom or escaping home or work routine.
6. Cognitive Interest – These participants, identical to Houle’s learning-orientated adults, are engaged for the sake of learning itself.

It has become evident that learners’ motivations for participating in adult education are many, complex, and subject to change. The most robust explanation of participation is likely to

be found in considering both the psychological and sociological perspectives (Merriam, Caffarella, and Baumgartner, 2007).

Cultural Differences and Learning Styles

Current theories of adult learning have been criticized for their lack of cultural understanding and the roles that race, economics, and gender play in the learning transaction (Rowland, 2000). Numerous studies support the assumption that adult learners want content to be relevant to their lives and offer potential for immediate application (Bishop-Clark and Lynch, 1992; Donaldson, Flannery, and Ross-Gordon, 1993; Migletti and Strange, 1998; Ross-Gordon, 1991; Ross-Gordon and Brown-Haywood, 2000). Studying cultural traditions, norms, practices, values, and learning styles can assist in effectively designing and delivering program services that are directly related to various ethnic communities (Ross-Gordon, 2003). Knowledge about individuals and their communities can be used to develop specific strategies and policies that are relevant to the needs of a particular cultural group (Guion & Walker, 2005).

There are many components of cultural learning styles, including differences between cultures regarding eye contact, gestures, physical distance, body language, time, touch, silence, and space (Guion & Walker, 2005). The cultural learning styles identified in various studies listed below, which have been found to be most prevalent for African Americans and Hispanic/Latinos Americans, are intended as flexible guidelines for expanding teaching practices to meet the needs of diverse audiences (Davis, G. & Rimm, S., 1997; Dresser, N., 1996; Education Alliance at Brown University, 2002; Lynch, E. & Hanson M., 1997; McPhatter, A., 1997; Murphy, E. & Nesby, T., 2002; Nash, K., 1999; Robinson, L., 1998; Sparks, S., 2000; Srebalus, D., & Brown, D., 2001; Ting-Toomey, S., 1999; and Vasquez, J., 1990). These studies suggest that individual African American learning styles identified incorporate experience with independent action and self-sufficiency; a physical action orientation (learning by doing); learning quickly through hands-on experience, manipulative materials, and multiple stimuli; a people orientation (focusing on people rather than objects); a tendency to view things in their entirety--not in separate pieces; and a preference for the oral mode of presentation in learning.

African Americans' Learning Style. An approach to adult learning that integrates the various dimensions of the lives of African American learners must be researched for the future growth of the field of adult education (Rowland, 2000). The basic models of learning, development, and program planning in adult education have often been developed with little

concern for the unique needs of African Americans (Colin, 1994). For example, Flannery (1995) argues that three of the main theories of adult education—*andragogy*, *self-directed learning*, and *perspective transformation*—focus heavily on the individual and do not recognize the value of groups. She observes that some racial and ethnic groups, such as African Americans, place greater emphasis on *communal values*.” Flannery explains that *communal values* include knowledge which is valued, how learning occurs, [and] communication patterns of working together for the good of the community” (pp. 153-154). Flannery contends that adult learning theories must be mindful of the influence of social, historical, and economic roles in adult education and *must* acknowledge that people and cultures vary in how they learn” (p. 156). Theories *must* become inclusive and give voice to all people and groups, allowing missing voices (women, working-class persons, persons of color) to narrate their diverse stories of how and where they learn, and about their values of learning” (p. 156).

These studies (Davis, G. & Rimm, S., 1997; Dresser, N., 1996; Education Alliance at Brown University, 2002; Lynch, E. & Hanson M., 1997; McPhatter, A., 1997; Murphy, E. & Nesby, T., 2002; Nash, K., 1999; Robinson, L., 1998; Sparks, S., 2000; Srebalus, D., & Brown, D., 2001; Ting-Toomey, S., 1999; and Vasquez, J., 1990) have also revealed that Hispanic/Latino American learning styles incorporate value cooperative group learning -- not competitive learning; communicating fluently in native language (Spanish) within the family and ethnic community; less independence and more modesty; the use of intuitive reasoning (making inferences) naturally; an eagerness to try out new ideas and work collaboratively; and a value history, oral tradition, and visual/kinesthetic learning.

Hispanic Americans’ Learning Style. Research on the learning styles of Hispanic-Americans in particular is limited. Within the Latino groups, the majority of studies have focused on the learning styles of Mexican-American elementary school children. Several investigations (Dunn, Griggs, & Price, 1993; Jalali, 1988; Sims, 1988; Yong and Ewing, 1992) have compared various ethnic groups of students in elementary school through college levels using a measure that identifies 21 elements of learning style grouped into five categories.

The first category is environmental learning style elements including sound, temperature, design, and light (Dunn, Griggs, & Price, 1993; Jalali, 1988; Yong & Ewing, 1992). Emotional learning style elements that include responsibility, structure, persistence, and motivation of the individual make up the second category. The third category consists of sociological learning

style elements which are concerned with the social patterns in which one learns. Fourth, physiological learning style elements related to time of day, food and drink intake, perception, and mobility were identified. The fifth category -- psychological learning style elements -- relates to global versus analytical processing. The construct of field dependence/independence is a component of this learning style. Field dependent individuals are more group-oriented and cooperative and less competitive than field independent individuals (Hudgens, 1993). Hispanic-Americans are a very diverse group and include distinct subcultures that differ significantly as to custom, values, and educational orientation (Griggs & Dunn 1995).

Valuing Cultural Learning Styles. Valuing cultural learning styles, background knowledge, and life experiences is an important component of building meaning for culturally diverse learners. Every ethnic group has a preferred means for gathering, transferring, interpreting, and processing information. There are many modes and methodologies to the learning process, and each cultural community has ways of receiving and processing information that are more efficient and natural for them. Researchers report that youth and adults at all levels find greater motivation and perform at higher levels when instructional methods complement learning styles (Vaszuez, 1990). Teaching in a way that is culturally congruent with the learning style of a particular group is an ongoing challenge; therefore, teachers should be aware of cultural group characteristics. They should emphasize the learning style strengths of each individual and try to match instructional resources and methods to individual environmental, emotional, physiological, and psychological preferences

Learning in Small Businesses

If adult education experience and adult learning theory are allied in a number of ways to the experience and theory of innovation diffusion, it is also obvious that the kind of knowledge acquisition involved is usually not the type carried out in organized classrooms or continuing professional education sessions, though these vehicles for learning may enter into the picture at particular points in time. It is more often a question of learning in workplace, informal and community settings. There is, in fact, a significant tradition and literature within the adult education field on each of these topics.

Informal, Nonformal and Formal Education. Adults frequently create learning spaces outside of formal educational boundaries (Stein & Imel, 2002). Adult learning and education constitute an ensemble of activities, including, in addition to formal education: incidental

learning which occurs as people live, work and engage in social action; informal education and learning in which people teach and learn from each other (Idem, 2002). The European Commission (2001) Communication on Lifelong Learning: formal, non-formal, and informal learning presents the following definitions:

1. Formal learning: learning typically provided by an education or training institution, structured (in terms of learning objectives, learning time or learning support) and leading to certification. Formal learning is intentional from the learner's perspective.
2. Non-formal learning: Learning that is not provided by an education or training institution and typically does not lead to certification. It is, however, structured (in terms of learning objectives, learning time or learning support). Non-formal education is intentional from the learner's perspective.
3. Informal learning – Learning resulting from daily life activities related to work, family or leisure. It is not structured (in terms of learning objectives, learning time or learning support) and typically does not lead to certification. Informal learning may be intentional but in most cases it is non-intentional (or "incidental"/random) (p32-33).

Livingstone's (2001) review of literature on adults' formal, non-formal and informal learning draws on the traditions and writings around adult and continuing education. He drew the several conclusions. First, formal education occurs when a teacher has the authority to determine that people designated as requiring knowledge effectively learn a curriculum taken from a pre-established body of knowledge whether in the form of age-graded and bureaucratic modern school systems or elders initiating youths into traditional bodies of knowledge (p2). Secondly, non-formal education or further education occurs when learners opt to acquire further knowledge or skill by studying voluntarily with a teacher who assists their self-determined interests, through use of an organized curriculum, as in the case in many adult education courses and workshops (p. 2). Thirdly, informal education or training occurs when teachers or mentors take responsibility for instructing others without sustained reference to intentionally-organized body of knowledge in more incidental and spontaneous learning situations, such as guiding them in acquiring job skills or in community development activities (p2). Lastly, informal learning is an activity involving the pursuit of understanding knowledge or skill which occurs without the presence of externally imposed curricular criteria...in any context outside the pre-established curricula of educative institutions (p4).

Informal education can take place in a variety of physical and social settings: there is no regular or prescribed form. The timescales involved are likely to be highly variable and are often influenced by the dynamics of the institution(s) in which the work is taking place. One aspect of informal education noted by many is the extent to which participants have control over the content of learning. The nature of informal education is voluntary. People choose whether to engage in the process or not. The whole purpose of informal education is to develop forms of thinking and acting that fit the situations that people find themselves in. Formal education will tend to take place in a "sole-use" setting; have a more explicit and codified curriculum; show different forms of time structuring; consist of voluntary or involuntary participation; ; may or may not involve dialogical processes; and may not demonstrate an active appreciation of the people's cultures and social networks.

Informal education is a special set of processes which involve the adoption of certain broad ways of thinking and acting so that people can engage with what is going on. It cannot be simplistically defined by a set of curricular aims. The adoption of an innovation may be viewed as an instance of informal education from an adult education point of view because individuals and communities have to be given information about the innovation and how to utilize it. Knowledge has to be shared and communicated among individuals in a community through some channel. Reviewing the role of informal education in the adoption of an innovation is necessary because the diffusion of information about an innovation is not in a formal setting, but more likely in an informal setting.

Diffusion is the process in which an innovation is communicated through certain channels over time among the members of a social system (Rogers, 2003, p. 5). A social system is a kind of collective learning system in which the experiences of the earlier adopters of an innovation, transmitted through interpersonal networks, determine the rate of adoption of their followers (Rogers, 2003). Communication is a process in which participants create and share information with one another in order to reach a mutual understanding. This definition implies that communication is a process of convergence as two or more individuals exchange information in order to move toward each other in the meaning that they give to certain events (Idem, p. 6). These actions are similar to those which take place in informal education. Based on the definitions presented previously, informal situations are defined as occurring in social interaction between family members, friends, acquaintances and so on. The use of education in

the workplace is a communication channel in which there is an information exchange relationship between a pair of individuals.

Learning Communities. Learning frequently occurs in naturally forming communities around educational, environmental, social, and civic life situations (Stein & Imel, 2002).

Learning in a community is a tool used by individuals to deal with local issues. In a learning community, a space is created where a diversity of views and ideas can be shared and honored and sustainable relationships formed (Stein & Imel, 2002). Through learning communities, participants create the content, develop learning approaches, and situate learning in a specific context. By participating in a learning community, citizens actively confront issues and move toward a common future (Sussmuth, 1998). The learning that occurs in community emphasizes the social or communal as opposed to the individual (Barab & Duffy, 2000).

There are several common themes in learning communities (Stein & Imel, 2002). First, adult learners voluntarily create learning spaces related to the time and place in which problems are situated. In community learning, adults voluntarily agree to learn about and take action on some aspect(s) of their communal situation. Second, learning in community produces content situated in the daily life concerns of the members. The experience of learning in a community creates collective knowledge owned by the members. Learning is cooperative, purposeful, and designed to strengthen a group's ability to learn from and apply wisdom to everyday life situations. Third, it encourages citizens to produce local knowledge. Lastly, a learning community may be viewed as a learning laboratory where adults can come together based on their experiences with real issues, gain knowledge, access community resources coordinated for the benefits of their learning, and take action as a result of their learning.

Business Learning Environments. The learning environment is an important factor to review when developing strategies to address the needs of the MBEs. The nature of the setting has an impact on what can be done. Educators need to explore how a setting is experienced and how this dynamic influences who takes part and how they function. What educators do is contribute to the development of the context and conditions, allowing the desired 'internal' change known as learning to occur. Learning as opposed to training is more appropriate to a business environment in which jobs are constantly changing. Workplace learning should include such aspects as allowing opportunities for critical reflection, providing work practices and places -- and time -- for workers to talk share information and to work and learn collaboratively, and

mentoring and coaching to provide an inductive mindset and learning skill, for example. The basis for participation and learning in the workplace are constituted by the goals, activities and culture of the work practice. Approaches to work practice are often intentionally organized to structure workers' access to their required knowledge to sustain the practice. Workplace goals and practices determine the tasks and activities engaged in by individuals, and which individuals engage in what activities.

Insight into the factors affecting individual and organizational learning in a small business, and specifically the learning relationships unique to the small business environment, were researched by Kelliher and Henderson (2006). This research presented ways in which organizational learning can be facilitated and impeded in the small business environment. Kelliher and Henderson (2006) address this gap through the application of Crossan et al.'s Organizational Learning Framework (Crossan et al., 1997, 1999) to a small business context, followed by a critical review of the suitability and relevance of this learning framework in such an environment. Having established a theoretical basis for learning in small business, the researchers develop a comprehensive "small business learning framework", supported by empirical evidence generated through a longitudinal case study carried out in a small business in the Republic of Ireland over a two-year period.

This framework acknowledges the impact of a small workforce, an owner-centered culture and a simple organizational structure on learning, as well as the time and resource constraints specific to small businesses which may alter the learning dynamic evident in larger organizations. The framework also takes account of the learning challenges brought about by external influences unique to a small business environment. Organizational learning is the process of change in individual and shared thought and action, which is affected by and embedded in the institutions of the organization (Crossan et al., 1997). Several writers (for example, Crossan et al., 1997, 1999; Dover, 2003; Nonaka, 1994; Templeton et al., 2002, among others) have developed learning frameworks to explain organizational learning from a large firm perspective, and each points to three learning levels (individual, group, organization), which ultimately contribute to organizational learning in the modern business environment. Notably, researchers urge the facilitation of learning at each level of the organization (Dover, 2003; Richter, 1998), and learning at all organizational levels is being cited as a critical dimension in a firm's success (Crossan et al., 1997, 1999; Richter, 1998).

In general, these frameworks assume that learning is emergent in nature, beginning with the individual's personal construct (Kelly, 1955; Wyer et al., 2000) which in turn forms the basis for group learning and action, and eventually results in collective understanding within the organization (Finger and Burgin Brand, 1999). Specifically, it is widely accepted that small firms face "resource poverty", which forces them to operate under severe time, financial and expertise constraints (Hill and McGowen, 1999; Roper, 1999; Welsh and White, 1981). Thus, the small firm may not have sufficient resources to facilitate emergent learning in this setting. Learning new capabilities can therefore be quite problematic in the small firm environment (Pil and Holweg, 2003), as emphasis is often placed on immediately applicable learning (Chaston et al., 1999; Lawless et al., 2000) to the detriment of staff training and development (Keep, 1989; Storey and Cressy, 1995). Furthermore, small firms present unique internal characteristics, which encapsulate an informal decision making process emulating from the owner (Brown, 2000), a simple organizational structure, and a business culture built on personal relationships and open communication channels (Bell and Menguc, 2004; Harvey et al., 1998), each of which has an impact on organizational learning in this environment

Figure 2 explains some of the micro-level issues at play in the small business learning environment. It considers the unrelenting interaction between the small business owner and environmental influences, between the owner/organization and the individual employees, and between all players and technology. The challenge for the small organization is to manage the tension between what is known, what must be retained, and what needs to be learned. The authors point to three pertinent issues shaping micro-level interactions: the dynamic role played by the owner, the need for an adequate communication infrastructure to be in place to support learning, and finally, recognition that learning takes place at the owner and individual level in a more integrated and cohesive manner than would be the case in a large organization setting.

Characteristics and Situation of Small Businesses

The Small Business Administration report (2004) on "Trends in Electronic Procurement and Electronic Commerce and Their Impact on Small Businesses" examined the extent to which businesses are utilizing Internet and electronic information technologies in government procurement. It also investigated whether small businesses in industries that successfully adopt e-commerce have an advantage in competing for procurement dollars, and includes a survey of existing evidence on the implementation of electronic procurement in these industries. In

industries where small businesses obtain a significant share of federal procurement dollars (i.e. greater than 25 percent of the total), small firms are likely to use e-procurement tools (SBA, 2004).

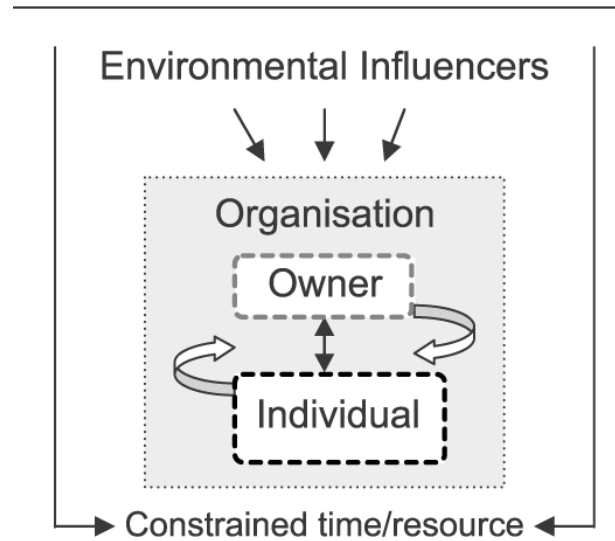


Figure 2. Small Business Learning Framework.
Kelliher and Henderson (2006)

Buckley and Montes (2002), in a study for the U.S. Department of Commerce, examined the extent to which small and medium-sized enterprises (SMEs) are investing in information technology, participating in online activities, and assisting their employees with the use of computers. The study found that SMEs invest less than their larger counterparts on a per employee basis in two categories of IT investment: computers and communications (Buckley and Montes 2002). Information collected from interviews during this study indicated that many businesses lack the very basic level of technical knowledge to effectively use the Internet, use e-mail, conduct searches, etc. Earlier literature affirmed that over one-quarter of all businesses were “on-line” by 2003 and e-commerce in its broadest form was expected to continue to grow at an annual average rate of 33 percent per year (BCG 2000; Pratt 2002). Business to business purchasing using the Internet has also increased significantly in recent years with larger firms leading the way. Approximately 20 percent of all companies purchase on-line (Forrester 2001) and approximately three-quarters of all companies now have websites (Keough 2001).

Small and medium-sized enterprises (SMEs) are not adopting e-commerce at the same speed as their larger counterparts. Kartiwi and MacGregor (2007) examined the correlation and underlying factors of barriers to e-commerce as perceived by SME owners/managers in Indonesia, a developing economy. It then compared these with SME owners/manager perceptions from Sweden, a developed economy. The findings suggested that developed economies are more concerned with technical issues than with organizational barriers with developing economies. The five highest barriers for both Sweden and Indonesia were:

1. E-commerce is not suited to our products/services.
2. E-Commerce is not suited to our way of doing business.
3. We don't have the technical knowledge in the organization to implement e-commerce.
4. E-commerce is not suited to the ways our clients (customers and/or clients) do business.
5. We do not have time to implement e-commerce.

These barriers have been well-documented in numerous research studies. However, the relationship between these barriers has not been fully examined, particularly in developing countries. A number of studies (Kaynak, Tatoglu, & Kula, 2005; Stockdale & Standing, 2004; Taylor & Murphy, 2004) have suggested that much of the literature concerned with e-commerce use (or lack of use) in SMEs has been undertaken in developed countries (particularly, but not exclusively the U.S., Europe, and Scandinavia).

Demographics of Small Business. In 2002, MBEs represented almost 18 percent (4.1 million) of classifiable firms. Classifiable firms refers to all U.S. firms less publicly held firms, foreign firms, non-profits and other firms whose ownership cannot be classified in terms of race, ethnicity, and/or gender. These MBEs also grossed eight percent of all annual gross receipts (\$668 billion) and employed nine percent of all paid employees (4.7 million) (U.S. Department of Commerce, 2006). From 1997 until 2002, minority-owned businesses grew in number at a higher pace than non-minority firms. MBEs increased at a rate of 35 percent, with the number of minority firms growing from 3 million in 1997 to over 4.1 million MBEs in 2002. The growth in minority firms also exceeded the growth of the minority population (25 percent) during the same period. There are various degrees of concentration within the U.S. of minority business enterprises. Fifty-seven percent of all minority businesses in the nation resided in California, Texas, New York and Florida in 2002; and between 1997 and 2002, the fastest growth in the

number of minority firms occurred in Nevada, Georgia, New York, Florida, and Minnesota (U.S. Department of Commerce, 2006).

Small firms make two indispensable contributions to the American economy, according to the Office of Advocacy's white paper entitled "The New American Evolution: The Role and Impact of Small firms." First, they are an integral part of the renewal process that pervades and defines market economies. The 2000 U.S. Census Bureau provided statistics of U.S. Businesses using the employment size of the enterprise (see Table 2). Most minority-owned businesses have no employees, including 89 percent of Black-owned businesses, 83 percent of American Indian- and Alaska Native- owned, 82 percent of Hispanic-owned, and 68 percent of Asian- and Pacific-Islander-owned firms (U.S. Small Business Administration, 2001). Almost all firms with paid employees had fewer than 100 employees: 98.1 percent of those owned by non-minorities and about 99 percent of those owned by the various minority groups. Minority-owned firms with fewer than 100 employees were owned by 47 percent Asians or Pacific Islanders, 35 percent by Hispanics, 15 percent by Blacks and 6 percent by American Indians and Alaska natives (Idem, 2001).

In 2002, there were approximately 22.9 million small businesses in the United States, according to the Office of Advocacy estimates (Office of Advocacy, June 2003). Small businesses are important to the U.S. economy (SBA, May 2003). Several statistics regarding the significance of small business firms to the U.S are cited by the Small Business Administration's Office. Small firms (SBA, May 2003):

- Represent more than 99.7 percent of all employers.
- Employ more than half of all private sector employees
- Pay 44.5 percent of total U.S. private payroll
- Generate 60 to 80 percent of net new jobs annually
- Create more than 50 percent of non-farm private gross domestic product (GDP)
- Are employers of 39 percent of high tech workers (such as scientists, engineers, and computer workers)
- Are 53 percent home-based and 3 percent franchises

Survey of Business Owners' Information. Further insight into the situation of minority small business is provided by The Survey of Business Owners (SBO) formerly known as the Survey of Minority- and Women-Owned Business Enterprises is conducted as part of the

Economic Census required by law to be taken every five years for years ending in '2' and '7.' This survey provides the only comprehensive, regularly collected source of information on business enterprises by gender, Hispanic or Latino origin, and race. The State of Minority Business Enterprises: An Overview of the 2002 Survey of Business Owners was compiled by the U.S. Department of Commerce's Minority Business Development Agency (MBDA) in August of 2006. This report analyzed data from the 2002 Survey of Business Owners (SBO) and the 1997 Survey of Minority-Owned Business Enterprises (SMOBE) get a better understanding of minority-owned businesses as it relates to all U.S. businesses. Some trends in the growth of minority-owned businesses and the minority population in the U.S. are revealed in this analysis. The Survey of Business Owners (SBO), released by the U.S. Census Bureau was formerly known as the Survey of Minority-Owned Business Enterprises (SMOBE), was first conducted in 1969, and has been produced every 5 years since 1972.

Analysis of the 2002 SBO began in August of 2006. This data was still being analyzed in March of 2008. In the meantime, the 2007 SBO was being conducted. The 2007 Survey of Business Owners was sent to approximately 2.4 million businesses. Businesses were asked to provide information about their characteristics and the characteristics of their owners. Estimates from this survey will be available beginning July 2010. The 2007 Economic Census measures business activity during calendar year 2007. Census forms were mailed to more than 4.7 million companies in late 2007 and early 2008. Businesses received a census form if, based on best available information, they had one or more paid employees and had significant production (of goods or services) within their industry or area. Economic Census statistics are collected and published primarily by "establishment." An establishment is a business or industrial unit at a single physical location that produces or distributes goods or performs services, for example, a single store or factory. Many companies own or control more than one establishment, and those establishments may be located in different geographic areas and may be engaged in different kinds of business. By collecting separate information for each establishment, the Economic Census can include detailed data for each industry and area. The Economic Census provides a detailed portrait of the Nation's economy once every five years, from the national to the local level. The Economic Census is conducted every five years, in years ending in '2' and '7.' Data from the 2007 Economic Census are being released on a flow basis starting in July 2010, extending through June 2011.

Adoption of E-commerce in Small Businesses. Studies concerning the actual adoption of e-commerce by small businesses constitute the third major section of the literature reviewed for this dissertation. It is unfortunately not a very thick and deep source, but a number of significant tendencies and processes have been documented. Despite government support and the exponential growth of e-commerce, it is mainly the larger businesses that have reaped the benefits of internet technology (Riquelme, 2002). In contrast, the rate of e-commerce adoption in the small business sector until recently remained relatively low (Magnusson, 2001; Poon and Swatman, 1998; Van Akkeren and Cavaye, 1999). Compared to large corporations, small businesses have limited markets, capacities and resources; and they operate in a less complex organizational structure (Abate and Moser, 2003).

This initial sluggish pace of e-commerce diffusion into small businesses has been attributed to various barriers or impediments that are faced by such firms. A number of different e-commerce adoption barriers have been documented in research studies (Lawrence, 1997; Puro and Campbell, 1998; Quayle, 2002; Riquelme, 2002; Van Akkeren and Cavaye, 1999). Some of these include the high costs associated with e-commerce, lack of technical resources and expertise to implement e-commerce, the complexity of e-commerce technology and the difficulty of measuring the return on investment. Along with the research examining barriers to e-commerce adoption, there have been attempts by many authors to formalize and group these barriers into a tentative model (Van Akkeren and Cavaye, 1999; Quayle, 2002). In a study for the Small Business Administration (SBA), Pratt (2002) found that although the Internet offers significant opportunities for small firms to expand, it is large firms that have moved more quickly in adopting web-based business practices. Pratt notes that 77 percent of larger firms have websites, compared to 58 percent for firms with fewer than 10 employees. Websites provide small firms the ability to reach new customers, improve their competitive positions, and increase sales. Furthermore, many small firms who do not currently have websites intend to implement them in the future (Pratt, 2002). E-commerce is not only a good business idea, but ~~it~~ is a business imperative, because it brings fundamental alternations to the way entire business relationships are conducted” (PC Magazine, 2002). Removing traditional boundaries of time and space and providing opportunities for any type of business, the internet has become a new way to expand existing business opportunities or to start a new venture (Abate and Moser, 2003). E-commerce technology has the potential to become a major source of competitive advantage to

small businesses because it is a cost-effective way of reaching customers globally and facilitating competition on par with larger counterparts (MacGregor and Vrazalic, 2005).

Small and Medium Enterprises (SMEs) Adoption of E-Business

Small and medium enterprises (SMEs) are a major part of the industrial economies (Eikebrokk and Olsen, 2007). It has been assumed that successful adoption and use of e-business in the SME segment is crucial for survival. E-business is defined as the range of online business activities for products and services, both business-to-business (B2B) and business-to-consumer (B2C), through the Internet (Jeon, Han and Lee, 2006). E-business usually implies a rethinking of business models, the network, and system infrastructure (Eikebrokk and Olsen, 2007). There are several research streams that explored e-business success. One views e-business technologies as special IT investments and claims that the success of e-business can be derived from studies of them. Another stream of work used the metrics to describe success in e-commerce in net-enabled or net enhanced organizations. A third stream of research on e-business success and related measures emanated from the work of Amit and Zott (2001), who reviewed theories within the entrepreneurship and strategic management literature to explore theoretical foundations of value creation in e-business. These research streams all shared the idea that e-business technologies represented something new and resulted in new forms of business that were not previously practical or possible (Eikebrokk and Olsen, 2007).

Determinants of SMEs Adoption of an Innovation. According to literature on technological innovation, several variables have been identified as possible determinants of the adoption of an innovation. Kimberly and Evanisko (1981) identified three predictors of innovation adoption: CEO characteristics, organizational characteristics, and environmental characteristics. Tornatzky and Fleischer (1990) listed three factors influencing the technological innovation decision: the organizational factor, technological factor and environmental factor. Thong (1999) identified four variables for information systems (IS) adoption from the technological innovation literature: CEO characteristics, IS characteristics, organizational characteristics, and environmental characteristics. Research regarding SMEs and e-commerce adoption by Stansfield and Grant (2003) in Scotland suggested that lack of knowledge, skills, and support were the main barriers of adopting e-commerce by small businesses. Resources and core competency are important in the successful utilization of new technology; only businesses

with access to significant e-business competency can expect to succeed with their efforts (Daniel & Wilson, 2003).

Research has emphasized the role of competencies for achieving and sustaining competitive advantage. A study by Eikebrokk and Olsen (2007) identified three competencies; e-business strategy, IT – business process integration and systems and infrastructure capabilities that increase the likelihood of e-business success for SMEs. Information technology (IT) adoption is critical to the growth of an economy (Nasco, Toledo and Mykytyn, 2008). Mensah et al. (2005) suggested that e-commerce could be particularly important for the development of SMEs while Andam (2003) espouses that e-commerce promises better business for SMEs. Although there are many potential advantages of e-commerce (Awad, 2004; Schneider, 2004; Turban et al., 2004), the use of it in small businesses remains limited. The sluggish pace of e-commerce diffusion into small businesses has been attributed to various barriers/inhibitors that are faced by these organizations (MacGregor and Vrazalic, 2005). Thulani, Tofara and Langton (2010) found that though SMEs in Gweru, Zimbabwe appeared to have adopted electronic commerce related technologies, the usage level of these technologies was still in its infancy, while the predominant use of electronic commerce applications was for communication/informative purposes.

The development of appropriate skills, under-investment in staff training and poor knowledge of the internet start-up process were identified as central barriers to e-business implementation and growth (Fillis and Wagner, 2005). The challenge for the small firm owner-manager is the ability to develop and exploit the appropriate set of competencies which e-business requires (Chaston, 2001). Jones et al. (2003) mentions the importance of web-based commerce strategy from an entrepreneurial marketing perspective (Collinson and Shaw, 2001). Ramsey et al. (2003) believe that e-business decision-making in the small firm is mostly directed by the intuitive competencies of the entrepreneurial owner-manager. The literature has shown that entrepreneurial ability has a positive impact on firstly identifying the opportunity and consequently the ability to develop e-business (Chaston et al., 2003; Jones et al., 2003). The literature reviewed also showed that there are industry-specific factors that may inhibit or promote e-business development (Drew, 2003; Smyth and Ibbotson, 2001).

Stockdale and Standing (2004) came up with four categories of barriers: lack of resources and knowledge, skills levels of employees, security concerns and e-readiness of the small

businesses. On the other hand Lawson, Alock, Cooper, and Burges (2003) grouped e-commerce barriers into technical and social barriers. According to Nasco, Teledo and Mykytyn (2008) research on electronic commerce adoption in Chilean SMEs, managers who had positive attitudes toward e-commerce adoption intended to adopt e-commerce in the near future. Chilean managers who perceived social pressure from people and other firms to adopt e-commerce reported higher intentions to adopt e-commerce in the future. Results from this study showed that over 70% of the variance in the intention to adopt e-commerce among managers/owners of SMEs in Chile was explained by the Theory of Planned Behavior. This theory posits that intention is determined by the individual's attitude, the degree to which a person has a favorable or unfavorable evaluation of the behavior in question, and subjective norm, the perceived social pressure to perform or not to perform the behavior (Ajzen, 1991).

Jeon, Han, and Lee (2006) investigated the determining factors of the successful adoption of e-business by small and medium enterprises in Korea using survey data. Empirical results from this research suggested that the important determinants of the successful adoption of e-business were: the CEO's knowledge of information technology (IT)/e-business, relative advantages and benefits from implementing e-business, governmental support, and the globalization strategy. Each of these four characteristics consists of several sub-factors. The CEO characteristics consisted of the CEO's knowledge of IT and e-business and the CEO's attitude toward innovation (Harrison et al., 1997). E-business characteristics reflected three aspects for implementing e-business operations: the compatibility/complexity issue, the relative advantage and benefits issue, and the adoption cost issue (Thong, 1999). Organizational characteristics covered employees' knowledge of IT and e-business technology and business size. Environmental characteristics included industry competition, governmental support and the firm's global orientation (Child et al., 2003).

Determinants of Small Business Website Adoption. Small business marketing context plays an important role with internet adoption. Website adoption for small businesses is not a standardized process, with a wide variety of websites being adopted in the level of sophistication and relevance they have for target customers and company value (Simmons, Armstrong and Durkin, 2008). Developments in information technology have ceaselessly had profound marketing implications for small businesses. The opportunities presented by e-commerce participation for small businesses relate to the leveraging of inherent strengths to create

competitive advantage (Simmons, Armstrong and Durkin, 2008). Critically, within the website adoption context, the marketing function has been identified as a key driver of website adoption, with websites viewed as essentially marketing tools (Datta et al., 2005; Evans and Mathur, 2005; Jones et al., 2003; Kierzkowski et al., 1996; Marcolin et al., 2005; Martin and Matlay, 2003; Pflughoeft et al., 2003; Phippen, 2004; Quinton and Harridge-March, 2003; Rowley, 2004; Sellitto et al., 2003; Teo and Tan, 2002; Varadarajan and Yadav, 2002).

Several researchers have argued that the degree to which a business successfully adopts complex innovations such as websites, depends on the extent and nature of its marketing orientation (Atuahene-Gima and Ko, 2001; Elliott and Boshoff, 2005; Hoffman and Novak, 1997; Hurley and Hult, 1998; Jones et al., 2003). This supported by other researchers, who argue that a marketing orientation enhances the learning in the business that is crucial during the implementation of a technological innovation such as the internet (Hoffman and Novak, 1997; Morgan et al., 1998). In the small business context, Jones et al. (2003) argue that a marketing orientation allows them to use their websites to maintain a competitive advantage facilitating customer, market and technological intelligence among other benefits. Martin and Matlay (2003) found that effective website adoption stemmed from small businesses, which recognized the value of websites in terms of their usefulness in the marketing effort, with websites viewed as essential marketing tools.

Most diffusion of innovation models, including seminal work by Tornatzky and Klein (1982) and Rogers (1995), assume that a key generic determinant of adoption for organizations, large and small is how potential adopters perceive this innovation. Building upon models of the diffusion of innovations, Jones et al. (2003), in the context of website adoption, are that perception of the potential value offered by a website forms the basis of an e-vision. Within the perception of website value determinant, two integral components have been identified as important: perception of benefits and perception of costs/barriers (Simmons, Armstrong and Durkin, 2008).

The literature on small businesses emphasizes the inherent characteristics and ability of owner/managers as key determinants of the nature and level of business conducted (Carson and Gilmore, 2000; Gilmore et al., 1999; Hill, 2001). Specifically, Jones et al (2003) stated that small business owners/managers with marketing ability are more able to access the required how to knowledge, which provides web-based commerce adopters with an understanding of how to use

the innovation effectively. Martin and Matlay (2003) found that effective website adoption stemmed from small business owner/managers who recognized the value of websites in terms of their usefulness in the marketing effort. Fillis and Wagner (2005) found that the degree of entrepreneurial orientation of small business owner/managers was an important factor in relation to their e-business adoption. Sadowski et al (2002) and Fillis Wagner (2005) reveal that the industry culture will impact on small businesses in their adoption of websites. The sophistication and relevance of websites adopted by small businesses is therefore contended to be significantly impacted by the adoption norms within their specific industry sector (Simmons, Armstrong and Durkin, 2008).

E-Commerce and Minority Business

The specific area of diffusion innovation of interest in this study is minority business adoption of electronic commerce. Despite their limitations, minority business enterprises are a significant contributor to employment growth and economic expansion in the U.S. (MBDA, 2008). The Minority Business Development Agency identified three keys to entrepreneurial success for minority business enterprises: access to capital, availability of education and adoption of technology (MBDA, 2002). The proposed research will focus not just on minority small business adoption and utilization of e-commerce and the factors that facilitate and/or hinder it, but, more precisely, on the situation in this regard with respect to African American and Hispanic small businesses. According to a recent business profile report from the U.S. Small Business Administration, the number of Black-owned firms increased by 45 percent in just five years from 1997 to 2002; and the total of Hispanic-owned firms increased by 31 percent (SBA, 2007). In 2002, there were 1,197,567 African American-owned businesses and 1,573,464, Hispanic American-owned businesses (SBA, 2009). These two groups had more businesses than other minority groups, such as Asian-Americans, Native American and Hawaiian and Pacific Islanders.

Minority Business and the Internet. A number of studies have documented the fact that minorities – with the exception of Asian-Americans (Merrick, 2001) – are less likely to use computers and internets than their White American counterparts at all stages of life. Calvert et al. (2005) used national survey data to demonstrate that Hispanic and African American families are substantially less likely to have computers and internet access at home for children to use than are majority members of the population. Smith (2005) finds similar patterns among college

students and recent graduates. Moody et al. (2003) and Varma (2006) address the fact that data show Computer Science Departments and IT employment are still less accessible to minority individuals than to majority ones.

What underlies these patterns? Stanley (2003) probed behind the statistics through ethnographic research with 100 low-income African-American and Hispanic adults in San Diego and found ~~three~~ three non-cost-related psychosocial obstacles that significantly undermine motivation for acquiring computer skills: relevance [to their own lives], fear and self-concept” (p. 407). She concludes that ~~a~~ more complex relationship exists between ethnicity, identity and attitudes associated with computers than previously examined: this relationship may better explain why some people are choosing not to use computers at this time.” Morrison, Oladunjoye and Rose (2006) find that Hispanic business leaders in the United States ~~do~~ not perceive themselves as being particularly competent in using the Web no matter what their computer capability may be” (p. 16). It is something of a foreign medium. Although Parrish, writing in Black Enterprise in 1997, maintained that ethnic differences in computer ownership and usage could be entirely accounted for by wealth and purchasing power differentials, it appears that some other psychological and cultural factors may be at stake that must be taken into account in the proposed research.

Research by Scanian and Austin (2008) explored the disparity in technical usage between races in order to determine whether the divide between White and minority computer use, Internet access, and e-commerce is based on more than simple income and educational differences. Significant differences in how minorities and Whites view the relevance of computers, the Internet could not be determined by income and educational differences alone. The U.S. Department of Commerce’s National Telecommunications and Information Administration (NTIA) monitor who is being left behind in the digital age. In their first report they noted significant gaps in computer ownership and Internet penetration based on race, income, rural locations and age (Scanian & Austin, 2008). In Scanian and Austin’s research, results confirmed a statistically significant gap in both computer ownership and Internet access (conditional on computer ownership) between Whites and their Black and Hispanic counterparts. The gap was found to also persist to browsing for product information and shopping online, where both are conditional on having Internet access. The results indicate that Blacks and Hispanics are less willing to shop online than are Whites even after controlling for income,

education, security concerns, broadband access, and a variety of demographic variables. This implied that Blacks and Hispanics still do not see the same underlying benefits of shopping online as Whites. Findings of this research suggest that there is still a need for technical education and online experience for low income minorities along with a need for more targeted content to draw minority users online.

Conclusion

The Internet has drastically changed the role of technology in businesses today. The small business sector is an important participant in technological innovation, which contributes in important ways to economic growth (Small Business Administration, 2007). Electronic commerce is having an increasing impact on the way in which business is conducted. Successful companies of the future will be entirely electronically enabled: Internet initiatives will likely be inseparable from the rest of the company and tightly integrated in all their core business processes (Cassidy, 2002). As with any new innovation, there must be a learning period regarding the innovation.

Rogers' (2003) innovation decision process model begins with a knowledge stage that is influenced by the socioeconomic characteristics, personality variables, and communication behavior of the individual(s) who are deciding whether or not to use the innovation. This model also identifies the characteristics of the innovation in the persuasion stage. Characteristics of the innovation such as the relative advantage, compatibility, complexity, trialability, and observability of the innovation are reviewed and researched during this stage. Knowledge of these characteristics assists in determining the various motivators and obstacles present when a new innovation is identified.

Although the number of small businesses using the Internet is on the rise, most of them face a number of obstacles that include, but are not limited to, costs, uncertainty about benefits, lack of technological knowledge and skills, security concerns, and customer service concerns. These factors are arguably magnified under minority small business owners, whose firms are centered on the lower end of the size and revenue distribution and more subject to business risk. The relatively sluggish pace of e-commerce diffusion into small businesses has been attributed to various barriers or impediments that are faced by these organizations. Small businesses have

been slow to adopt new technologies; the increasingly technological nature of the workplace is prompting them to increase their spending on training to gain knowledge and skills in various technologies, such as electronic commerce, to survive. As employers are less readily finding workers with appropriate skills, they have had to provide more training for current employees and to modify technology to match the skills of available workers.

Theories of adult learning are useful when trying to determine why individuals/communities, such as MBEs, decide whether or not to adopt and/or utilize electronic commerce. The adult education literature allows for the identification of various learning orientations, motivations, barriers and obstacles to learning. Some of these factors are identified using the characteristics of the innovation and the decision making unit. In order to provide a better framework for understanding the decision making unit (the MBE community) in this research, literature regarding informal education, learning environments, workplace learning, and learning in the small business environment are addressed.

The situation of MBEs, along with the growth and nature of electronic commerce, were also discussed to provide an overview of the climate in which MBEs are operating. A review of this literature identified some characteristics of the MBEs and the innovation that may affect knowledge and/ or adoption of electronic commerce. Information about the characteristics will be further elaborated on using both adult education and diffusion of innovations literature. This literature assists in the identification and categorization of MBE learning orientations, motivations, barriers, obstacles to learning, the characteristics of the decision making unit (MBEs) and the innovation.

The literature reviewed suggests the beginning of a framework for researching the problem that will be further explicated in Chapter Three. This framework combines an awareness of the salient characteristics of minority small businesses, owners and their environment with examination of their learning behaviors and exposure to innovation in order to consider what effect these phenomena appear to have both on their perception of the innovation and their effective adoption of it. Patterns discovered in this regard can then be compared to those identified in the literature and previous research, even if the latter has not frequently dealt with the specific case of minority small business.

CHAPTER THREE

METHODOLOGY

Purpose and Research Questions

This chapter sets forth the methodology used to answer the research questions posed in Chapter One. The purpose of the research is to identify the factors most closely associated with adoption of e-commerce by certified African-American and Hispanic-American business enterprise owners in Florida, the obstacles and challenges that seem to impede it at the present time, and the strategies that hold greatest promise for facilitating needed learning on their part. To operationalize and accomplish this purpose, the following research questions were formulated as guideposts for the study:

1. What business and personal characteristics are most associated with the adoption and non-adoption of e-commerce by minority business enterprises?
2. What “agents” or facilitating factors are most effective in promoting adoption of e-commerce and overcoming the obstacles and barriers to its use within the same population group?
3. What are the principal barriers to the adoption and utilization of electronic commerce among Florida certified minority business owners? What challenges do minority businesses encounter when engaging in e-commerce?
4. What are some of the preferred strategies currently being used by certified minority businesses to learn about electronic commerce and other dimensions of electronic technology usage in their businesses?
5. How and how well do existing theory regarding adult learning and adoption of innovation help to understand the dynamics of this process and to highlight promising directions for future study?

Basic Research Design

The literature review discussed theory and cited existing research that is relevant to the purpose of this study. However, nothing that constitutes a well developed and fully-tested analysis of the factors most closely associated with minority business adoption of electronic commerce was found. This research therefore necessarily has an exploratory character. It is

devoted to generating understandings about the nature of electronic commerce adoption in the minority business enterprise community and about potential causal relationships that can begin to serve as a basis for theorizing and explaining adoption and non-adoption of electronic commerce by this population.

To this end, a mixed research design or strategy that includes both quantitative and qualitative components and in which the two approaches inform one another to fulfill the purpose of the study was used. While quantitative methods may provide a high level of measurement precision and statistical power, qualitative methods supply a greater depth of information about the factors that explain the phenomena observed. The use of different research methods allows the investigator to build on the strengths of each method and to compensate for their weaknesses (Matveev, 2002). The weakness of the quantitative method design lies mainly in its failure to ascertain deeper underlying meanings and explanations of electronic commerce use – things that it is not yet possible to “nail down” in quantitative variables or indicators. Qualitative methods help to compensate for this weakness, because they allow the cognitive and affective components of electronic commerce utilization to be explored in greater depth through interviewing the MBEs.

At the same time, the weaknesses of the qualitative method (e.g. potential bias introduced by the subjective judgment of the researcher/interviewer) can be alleviated by cross-checking perceptions with the results of descriptive survey and statistical analysis. In addition, the sort of socio-demographic profile of minority business enterprises (MBEs) in Florida established as part of the descriptive quantitative phase of the study allowed a roughly representative sample to be drawn for the qualitative interview and analysis. Marsh, et al. (1978) noted] that quantitative research may confirm or deny the representativeness of a sample group for such qualitative research.

Quantitative and qualitative procedures were used to elicit information from the research participants on the utilization and adoption of electronic commerce. Quantitative and closed-ended data on respondent characteristics, experiences and perspectives were gathered using a survey instrument. A questionnaire was given to Florida Certified African and Hispanic American minority business enterprises to gather information on their demographics, business characteristics, perceptions, and use and knowledge of technology and electronic commerce. The information gathered from the questionnaire was the impetus for the qualitative inquiry to

begin. Respondents to the questionnaire were asked to indicate whether or not they would be willing to participate in an interview. Face to face and telephone interviews with those small business owners who agreed to participate was one of two means for collecting the qualitative data. Interviewing administrators of minority business programs throughout the state of Florida was the second means. The members of the Florida Association of Minority Business Enterprise Officials (FAMBEO) were interviewed regarding the MBEs' responses to the survey questions and the findings of the cross-tabulation results. This data yielded a more realistic "feel" for the dynamics of electronic commerce adoption by certified minority business enterprises, the kind of insight that cannot be as easily harvested from the numerical data and statistical analysis provided by the quantitative research dimension of the study. The interviews conducted assisted in interpreting the initial findings from analysis of the quantitative data.

Organization of the Chapter

This chapter presents information regarding the research design for the study. Since the research relied on both quantitative and qualitative inquiry, an explanation of data collection procedures of both types is presented, starting with the quantitative portion of the study. Information regarding the population and sample used for the quantitative inquiry covers the following items:

1. Definitions of the population and sample
2. Demographics of the population
3. Sampling strategy
4. Anticipated response rate

This information is followed by a discussion of the specification and operationalization of the variables used in this research. Information is then presented about the design, development, and administration of the research instrument used to collect the quantitative data. Next, qualitative data collection procedures are presented starting with the identification of the population and sample; the specification and development of themes; and the instrumentation and conduct of interviews. A discussion of the analysis and synthesis of the quantitative and the qualitative data is then presented, followed by specification of measures taken to safeguard reliability and validity during the data collection and analysis.

Quantitative Data Collection

Population and Sample

The target population of this study is all minority business owners in the State of Florida. The sample within that population is both elite and purposive and it is articulated in two tiers – one for the quantitative portion of the study and one for the qualitative portion. For both phases of the research, data collection was limited first to African-American and Hispanic small business owners in the State, who together represent 43.4% of all Florida small businesses that are categorized as minority-owned and 89.5% of the ethnically-defined sector of that population. Female-owned small businesses are also categorized as minority firms in Florida and constitute 51.5% of the entire group. The study is thus purposefully focused on a particular large portion of the minority small business owner population, one defined by ethnic and cultural criteria, in order to ensure a relatively coherent sample.

The second limitation on the sample was its restriction to certified African and Hispanic American small business owners, a select or “elite” group that has obtained authorization, as explained below, to bid on state contracts for vendor services. It comprises 2,845 small business owners but represents only 0.8% of the overall group of African-American and Hispanic small business owners in the state. The rationale for this limitation was twofold: On the one hand, the procedure ensured accessibility, since certified minority small business owners are registered with the State and are directly contactable for either survey or in-depth interview purposes. On the other, in a sector of the economy – small business, and minority small business in particular – where the majority of firms are sole proprietorships with only very local operations and limited exposure to electronic technology, this sampling strategy guaranteed a larger dosage of businesses that were at the upper end of the distribution with respect to revenue and breadth of operations and that therefore had, on the average, greater exposure to e-commerce alternatives, since firms that become certified vendors with the state constitute to some degree such an “elite” stratum. Though this option made it less likely that the sample would be statistically representative of the larger population, it did make it possible to better capture the experience and reflections of small business owners beginning to experience the influence of internet technology, an outcome that was judged more important in this exploratory type of research than strict statistical representation. A few additional remarks about the demographics of minority

small business in Florida and the process of certification help the reader better understand the nature of the study sample.

There are several steps to be becoming certified as a minority business in the State of Florida. A company must first register in the state's vendor database. Registration consists of the company creating a vendor profile in the database that includes contact information and service and product codes. The company then submits documentation supporting their claim of being minority owned and controlled from a checklist supplied by the Office of Supplier Diversity. Upon review of documentation by a certification officer, a decision is made to accept or reject an application. Once a company is certified, they are placed in an online certified minority business enterprise directory. For reporting purposes, the services and/or products of these businesses are broken down into four industries. The four industries are architectural & engineering, construction, commodities, and contractual services. Basic information on these businesses is available in the state's vendor database otherwise known as MyFloridaMarketPlace (MFMP). Some definitions of the terms officially used to describe different subgroups among Florida minority businesses will help to portray the nature and dimensions of this group.

1. Business enterprise – a business that is engaged in commercial transactions for profit
2. Small Business Enterprise – a business that is
 - a. independently owned and operated;
 - b. has a net worth of not more than \$5 million; and
 - c. employs 200 or fewer full-time, permanent employees -- or one that has been recognized as an 8(a) certified small business by the federal government.
3. Registered Business Enterprise – A business that has entered its identification data into the State of Florida's Procurement Database (MyFloridaMarketPlace) in order to qualify as a vendor that can provide goods and services to State agencies and universities.
4. Minority Business Enterprise (MBE) - a business enterprise that is:
 - a. Engaged in commercial transactions (for profit).
 - b. Domiciled in Florida.
 - c. Owned at least 51% by minority persons who are: permanent residents of the Florida; and who are African Americans, Hispanic Americans, Native Americans or Non-Minority American Women
 - d. Managed and controlled by minority persons of the same description.

- e. Performing a useful business function by:
 - i. currently serving customers other than state or local government agencies
 - ii. operating as a regular dealer of commodities,
 - iii. making sales regularly from goods maintained in stock; and
 - iv. carrying out its responsibility to perform, manage and supervise work.
- 5. Certified Minority Business Enterprise (CMBE) – a registered business enterprise that meets both criteria of small and minority business enterprises and has been confirmed and approved by the Florida Department of Management Services – Office of Supplier Diversity.
- 6. African American - a person having origins in any of the racial groups of the African Diaspora (Florida Statute 288.703)
- 7. Hispanic American - a person of Spanish or Portuguese culture who is a citizen of – the United States with origins in Spain, Portugal, Mexico, South America, Central America, or the Caribbean, regardless of race (Florida Statute 288.703)

Demographics. The most current comprehensive information regarding the demographics of these groups comes from the 2002 Survey of Business Owners. Please note that information from the 2007 Survey of Business Owners will not be released until June 2011. In 2002, there were 1,539,326 firms identified in the State of Florida (U.S. Department of Commerce, Census Bureau, 2002). A firm is a business organization or entity consisting of one domestic establishment (location) or more under common ownership or control with or without paid employees. The decomposition of this group by ethnic category is indicated in Table 1 below, which also includes the number of women-owned business enterprises.

This research focused on a sub-group of the businesses defined as Certified Minority Business Enterprises by the state of Florida. The population of interest was limited to Certified Minority Business Enterprises with African and Hispanic American ownership. These two groups were selected because they are the two largest minority business groups in both the state's vendor database and the 2002 Survey of Business Owners administered by the United States Census Bureau. These businesses have registered in the state's vendor database and have submitted documentation proving their minority status.

The population and theoretical sample consisted of certified minority business enterprises (CMBEs) that have a minority designation of African-American and

Hispanic-American in the Florida Certified Business Enterprise Database. In 2005, as is evident in Table 2 hereafter this group numbered 2,845 firms. Questionnaires were mailed to the registered owners of all such firms. The actual sample consisted of those CMBEs from the group who in fact responded to the survey. The Florida Certified Business Enterprise Database, otherwise known as the Vendorstrator, is a database of all State-certified minority, women, and service-disabled veteran business enterprises (CBEs). The Office of Supplier Diversity maintains this database, which is in the Florida Department of Management Services. The dimensions of the various groups involved are indicated in Tables 1 and 2. Table 2 makes it evident that 40% of registered minority small businesses in Florida are certified and that this proportion rises to 45% for the subgroup of registered African-American and Hispanic small businesses. Table 1 shows all vendors that are registered in MyFloridaMarketPlace compared to the total number of firms that are in Florida. As indicated by the figures in Table 2, there is a significantly greater number of unregistered business enterprises than registered.

Sampling Strategy. The subjects for the quantitative portion of this research are Florida certified African and Hispanic American business enterprises as identified by the Statewide Inter-Local Database (Vendorstrator). An initial breakdown of minority business enterprises by ethnicity was coded in Vendorstrator for easy identification. The original sample consisted of 1,454 certified African American and 1,391 Hispanic American business enterprises. The “sampling strategy” was therefore to attempt to reach all of the businesses in the two subgroups of interest totaling 2,845 African and Hispanic American minority business in Florida, according to the data that were available at the time of the survey as shown in Table 2. Prior to the mailing of the surveys, a report identifying the 2,845 certified African and Hispanic Americans was ran in preparation for the mailing of the surveys. The data in this report was cleaned and filtered which resulted in the decrease of the number of certified African and Hispanic American firms that could be used in the sample. A review of the companies listed in the report showed that a significant number of the firms in the database had multiple duplicate entries; owners that owned more than one certified business; or an expired certification date. A clean up of the data left a total of 1402 companies in the sample which consisted of 723 certified African American and 679 Hispanic American business enterprises. The electronic commerce survey was mailed to this sample.

Specification and Operationalization of Variables

What principal factors or variables affect decisions made by minority business enterprises (MBE) about whether or not to utilize electronic commerce? Information regarding the characteristics of MBEs and their businesses was critical to the conduct of this research. There are many variables that may affect the adoption of electronic commerce utilization by the MBEs. Rogers' model of diffusion of innovation provided a framework for identifying the motivators and obstacles to the utilization of any new procedure like electronic commerce (Rogers, 2003). Rogers' theory delineated three areas in which one can potentially identify factors that promote and/or impede the spread of a change. They are (a) the characteristics and attributes of the innovation itself; (b) those of the change agent; and (c) those of the subjects and their social systems.

Table 1

Breakdown of Florida Businesses by Minority Status and Registration

Population Group	Total number of firms	Percent of entire state	Number of unregistered firms	Number	<u>Registered firms</u>		
					Pct. own ethnic group	Pct. all minority group	Pct. of entire state
African-American (AA)	102,074	6.6%	98,819	3,255	3.2%	22.8%	5.6%
Hispanic-American (HA)	266,828	17.3%	263,818	3,010	1.1%	21.1%	5.2%
<i>Subgroup Total AA & HA</i>	<i>368,902</i>	<i>24.0%</i>	<i>362,637</i>	<i>6,265</i>	<i>1.7%</i>	<i>43.8%</i>	<i>10.8%</i>
Asian-American	41,342	2.7%	40,545	797	1.9%	5.6%	1.4%
Native American	1,798	0.1%	1,501	297	16.5%	2.1%	0.5%
Non-minority Women*	437,494	28.4%	430,565	6,929	1.6%	48.5%	11.9%
<i>Subgroup Total Other Minority</i>	<i>480,634</i>	<i>31.2%</i>	<i>472,611</i>	<i>8,023</i>	<i>1.7%</i>	<i>56.2%</i>	<i>13.8%</i>
Minority Group Total	849,536	55.2%	835,248	14,288	1.7%	100.0%	24.6%
Non-minority Group Total	689,790	44.8%	646,048	44,510	6.5%		75.7%
STATEWIDE TOTAL	1,539,326	100.0%	1,480,520	58,798	3.8%		100.0%

*Non-minority Women refers to non-ethnic females

Source: U.S. Department of Commerce, Census Bureau, 2002 & MyFloridaMarketPlace, June 2005.

Table 2

Breakdown of Registered Businesses in Florida by Minority Status and Certification

Population Group	Total number of registered firms	Percent of all Florida registered firms	Certification among registered firms		
			Certified	Percent certified	Non-certified
African-American (AA)	3,255	0.2%	1,454	51%	1,801
Hispanic- American (HA)	3,010	0.2%	1,391	49%	1,619
<i>Subgroup Total AA & HA</i>	<i>6,265</i>	<i>0.4%</i>	<i>2,845</i> <i>(sample)</i>	<i>45%</i>	<i>3,420</i>
Asian-American	797	0.1%	268	34%	529
Native American	297	0.02%	74	25%	223
Non-minority Women*	6,929	0.5%	2,510	36%	4,419
<i>Subgroup Total Other Minority</i>	<i>8,023</i>	<i>0.5%</i>	<i>2,852</i>	<i>36%</i>	<i>5,171</i>
Minority Group Total	14,288	1.0%	5,697	40%	8,591
Non-minority Group Total	44,510	99.0%			44,510
STATEWIDE TOTAL	58,798	100.0%	5697	10%	53101

*Non-minority Women refers to non-ethnic females

Source: *MyFloridaMarketPlace, June 2005*

In recent years, researchers have moved from studying determinants of a “yes-no” adoption decision to studying implementation of diffusion and innovation as a process (Rogers, 2003). The same three categories of circumstances remain important, however, from a process point of view. According to Habegger (1988), researchers have found that (1) perceived attributes of innovations, (2) personal characteristics of potential users, and (3) organizational and environmental characteristics continue to be the factors most important to explaining the innovation decision and to understanding the process by which it is reached. With respect to electronic commerce, an important contextual factor that might impact the adoption of innovation and illuminate how it comes about is the overall level of maturity of an organization’s

use of technology. And in the case of this particular research, which focuses on the adult learning requirements and facilitators of innovation adoption, the category “personal characteristics of potential users” was further differentiated into general personal characteristics and “learning and educational behaviors” that may reveal particular connections to innovation adoption.

After the publication of Roger’s book on Diffusion of Innovations in 1962, the Innovation-Decision Process model became the most widely accepted conceptual framework for studying the diffusion process (Habegger, 1988; Lancaster & Taylor, 1988). Because this study focused on the diffusion and adoption of electronic commerce in the minority business community, the Innovation-Decision Process model constituted the most relevant framework for the study. The innovation-decision process is essentially an information-seeking and information-processing activity in which an individual is motivated to reduce uncertainty about the advantages and disadvantages of an innovation in order to reach a decision (Rogers, 2003, p. 172).

The interaction of background, independent and dependent variables in this research is complex because we are modeling a living situation in the field, not an experiment constructed in the laboratory where the researcher controls which variables come into play. An heuristic scheme for picturing their conceptual relations is presented in Figure 1 below. When laid out graphically in this manner, the conceptual scheme bears a distinct resemblance to a “path analysis” model for statistical analysis. This diagram has great value as thinking and conceptualizing tool, but it is not meant to represent an actual model for statistical path analysis. Rather it is a way of mentally organizing and portraying things, what the research scientist might call a “heuristic” – and it served as a framework for reflection on both the quantitative and qualitative data of the study.

The background and contextual variables are essentially fixed for the purpose of this analysis. To their right or further ahead in the “flow” one finds two types of independent variables and then the dependent one. From a quantitative research perspective, the elements investigated were categorized into the dependent variable (DV), which represented the effect produced or the actual decision about electronic commerce; the independent variables (IVs), which delineated the most important causal factors that contributed to determining these effects; and the contextual or control variables (CVs), which indicated background conditions that may condition the activity of the IVs, but are not subject to categories of variables. Each of these is discussed and specified briefly.

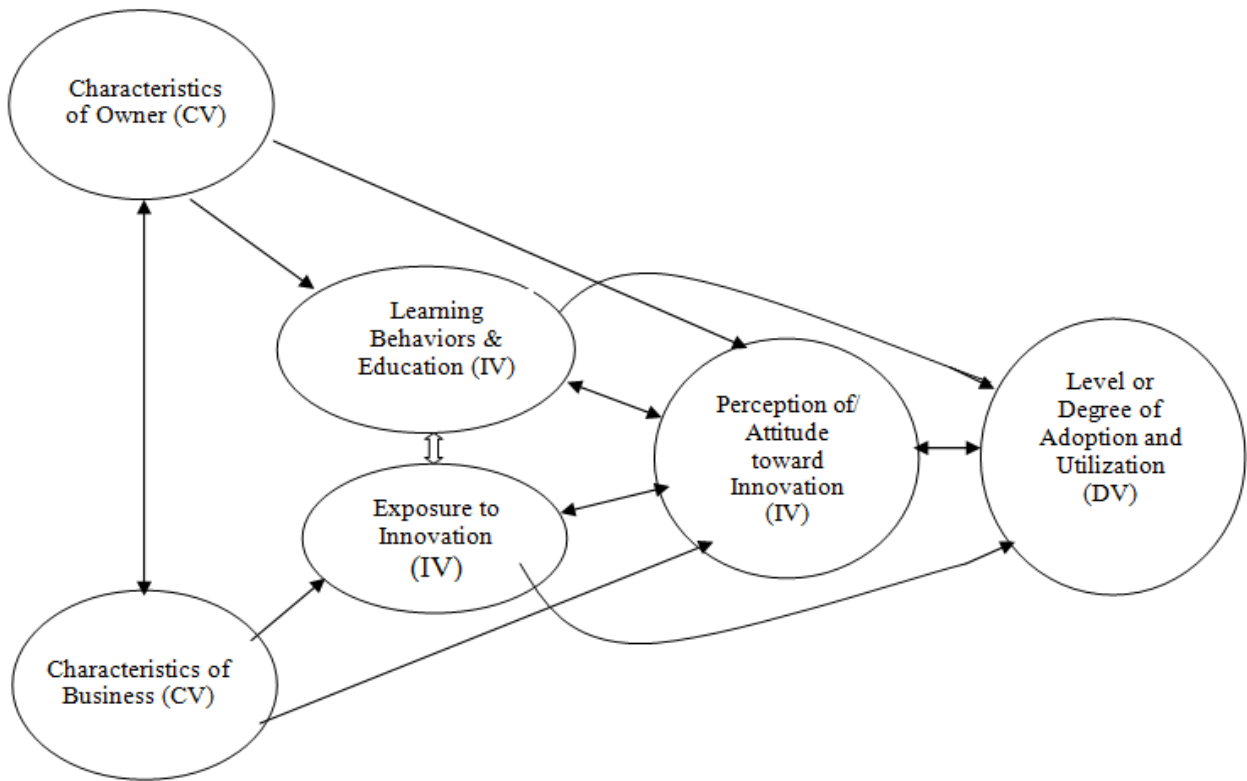


Figure 3. Heuristic Scheme of Presumed Relationships

Contextual Variables. The contextual variables basically include characteristics of the socio-economic context (e.g. demand for businesses of this type in the local economy), characteristics of the business itself (type of commercial activity, size of firm) and of the business owner him or herself (age, previous experience, gender).

Independent Variables. The independent variables (IV) were those factors that may have changed during the period covered by the study and constitute – on the grounds of prior theoretical analysis based on the existing literature – the prime elements likely to influence the state and level of the dependent variable. They are of at least two types: (1) the nature of the CMBE’s experience with the innovation, including their patterns of learning about it; and (2) the perception of the innovation by the CMBE or his/her attitudes regarding it.

The first independent variable is the nature of the CMBE’s experience with the innovation (electronic commerce). It was measured by assessing the computer/internet

experience of the CMBE and their learning behaviors regarding this technology.

Computer/Internet experience referred to the CMBEs knowledge of the computer and the internet, as well as the frequency, duration, length, and nature of their usage (such as working online, checking e-mail, reading online news, and information search) (Cao and Mokhtarian, 2005; Raine 2010). Generally, internet usage is positively associated with the intention to use e-shopping (e-commerce) and with actual use (e.g. Bellman et al., 1999; Forsythe and Shi, 2003). Education and information technology training (Liao and Cheung, 2001) and internet knowledge (Goldsmith and Goldsmith, 2002; Le et al., 1999) were also found to positively impact consumers' e-shopping intention and adoption. In-home shopping experiences will also be used to assess the CMBE's exposure to electronic commerce. In-home shopping experience referred to shopping activities conducted by mail, telephone, catalog, TV, and internet. In general, consumers' in-home shopping experience increases the likelihood of purchasing online (Cao and Mokhtarian, 2005). Specifically, Eastin (2004) found that prior usage of the telephone for product acquisition positively affects consumers' adoption of e-shopping. Similarly, Lunn and Suman (2002) found that previous purchases by mail and phone are positively associated with purchasing online. Also, previous purchases from catalogs were found to have positive influences on the spending and adoption of e-shopping (Lohse et al., 2000; Cho 2004).

Sample survey items used to gather this information include but were not limited to the following areas:

1. Internet usage
2. Computer experience
3. On-line purchasing experiences
4. Training on computers

These items may include (a) length and/or frequency of experience and (b) nature or quality of experience, as well as (c) agency of that experience (demand from clients, pressure from competitors, modeling from peers, and publicity by vendors, CPE by professional or public bodies).

The second independent variable is the perception of the innovation by the CMBE or his/her attitudes regarding it, which corresponded to the characteristics of relative advantage, compatibility, trialability, observability, and complexity and so forth prominently discussed in the dissemination of innovation literature and reviewed in chapter two. It seems evident that in

most (but not necessarily all) circumstances, IVs of type (a) precede and exercise some causal influence on IVs of type (b) – that is, the nature of one’s exposure to an innovation has an influence on one’s attitudes toward it, in obvious interaction with one’s own previous experience and characteristics. In fact, this is just another demonstration of the interest of a “path analytic” type diagram: it isn’t limited to restrictive and simplistic categorization of IVs and DVs, but is able to portray some of the more complex interaction that there may be among correlated factors and so more suggestively depict the actual causal interaction.

The opinions of the CMBEs regarding the utilization of electronic commerce were solicited. The first independent variable is exposure to the innovation electronic commerce by both the owner and the business. The computer literacy of business owners can influence their rate of technology adoption (Kirby and Turner, 1993; Thong and Yap, 1995). If owners are unaware of or do not understand the technologies available, they are unlikely to adopt them. A small business will be reluctant to adopt innovative IT unless there is a specific request for it by trading partners and/or customers (Kirby and Turner, 1993; Thong and Yap, 1995). If this external pressure to adopt is not present in the industry sector, then the business owner may perceive the technology as a waste of resources.

The next set of independent variables is Rogers’ (2003) perceived attributes of innovation. The independent variables are relative advantage, compatibility, complexity, trialability and observability. Relative advantage is the degree to which an innovation is perceived as being better than the idea or practice that it potentially supersedes. This is often assessed in terms of economic profitability. Compatibility refers to the degree to which an innovation is perceived as consistent with existing values, past experiences, and needs of potential adopters. An idea that is more compatible is less uncertain to the potential adopter and fits more closely with the individual’s situation (Rogers, 2003, p. 240). Complexity is the degree to which an innovation is perceived as relatively difficult to understand and use. The complexity of an innovation, as perceived by members of a social system, is negatively related to its rate of adoption (Rogers, 2003, p. 257). “Trialability” is the degree to which an innovation may be tested and experimented with on a limited basis by those potentially interested in its adoption. The trialability of an innovation, as perceived by the members of a social system, is positively related to its rate of adoption (Rogers, 2003, p. 258). Finally, observability is the degree to which the results of an innovation are visible to others. Some procedures are easily observed and their

results can be graphically communicated to other people, whereas others are difficult to observe or to describe to others (Rogers, 2003, p 258).

These five attributes provided a standard classification scheme for opinions about electronic commerce. The individuals' perceptions of these attributes may help to predict an innovation's rate of adoption. The five perceived attributes of innovations have been most extensively investigated and have been found to explain about half of the variance in rates of innovation adoption (Rogers, 2003, p.222). Change agents must understand how potential adopters perceive new ideas. Such perceptions count in the nature of the diffusion process (p.266).

Dependent Variable. The dependent variable in the conceptual model is the level or degree of utilization of electronic commerce. For the purpose of this research, electronic commerce was defined as transacting business on the Internet: that is, the buying and selling of goods and services online. The CMBE's familiarity and utilization of technology was assessed. Utilization of electronic commerce was assessed by probing individual CMBEs about the amount of time they spent on the computer and the amount of on-line purchasing.

This information was gathered from the questionnaires. A CMBE's degree or level of utilization refers to his or her current level of use of online procurement and related technologies. This may be indicated by the various technology applications employed over or at a given period of time. For example, is the business in an early stage with a website for information purposes only or does it have a site that allows complete purchase transactions online?

These factors may be thought of as potentially relating to each other in a patterned form derived from literature on the topic and loosely represented by the graphic scheme portrayed in Figure 1 above. Note once again that this is a purely heuristic scheme designed to stimulate and organize exploratory inquiry into the topic rather than a statistical model to be tested. A diagram like this can obviously be drawn in a number of different ways, each defensible. It mainly serves as a way for organizing thought, handling data as they come in and constantly rethinking the causal scheme – that is the meaning of a “heuristic” or “heuristic device,” which Merriam-Webster defines as involving or serving as an aid to learning, discovery, or problem-solving by experimental and especially trial-and-error methods <heuristic techniques> <a heuristic assumption>; also : of or relating to exploratory problem-solving techniques that utilize self-educating techniques (as the evaluation of feedback) to improve performance. In the version

presented in Figure 1 above, each of the ovals or “hexagons” (with the exception perhaps of the DV) could be thought of as a block of variables rather than a single variable. That is obviously the case of “attitudes toward innovation,” given the different measures of this concept proposed by Rogers. But it is just as obviously the situation with respect to “experience with the innovation,” which could include, as suggested above, pressure from clients, competition from other businesses, direct educational intervention by agencies or educational institutions as much as chance contact or reading advertisements

Design and Development of Instruments

The instrument for collection of the quantitative data consisted of multiple choice questions plus items and rating scales designed to measure the main concepts of the conceptual framework illustrated in Figure 1. More specifically, the items required for collection of each of the types of quantitative data described above and specific survey items are detailed in Table 3.

Summated rating scales were used to develop individual “scores” on attitudes and perceptions about electronic commerce, as well as on degree of exposure to and adoption of this innovation. Summated rating procedures and multidimensional scaling are among the most frequently used tools in the social sciences (Spector, 1992), they provide a means for measuring abstract forces that influence social interaction. All of the main variables and concepts in Figure 1 above are fundamentally abstract ones. They are gauged by assessing respondent reactions or information regarding different aspects of the underlying concept that manifest themselves in measurable behaviors or attitudes. Items of this type whose specifications demonstrably derive from the same parent concept and whose results closely inter-correlate constitute a multidimensional cluster that can be scored to yield a measure of the intensity of the underlying construct (Borg, 2005; Spector, op. cit.)

Spector (p. 8 ff.) prescribed several steps in developing reliable and valid summated or multidimensional scales for social science and educational inquiry that must be completed in order to have a reliable and valid instrument for measurement. First, the construct must be clearly and precisely defined and its components or dimensions identified. This definition guided subsequent scale development. Second comes the design of the scale itself, which involved devising candidate item stems and response choices for each of the dimensions of the concept that have been identified, plus associated instructions for respondents. The third task was pilot testing of the resulting instrument in order to determine whether it is well understood by

respondents and to clarify potential confusions. Following this, in stage four, the researcher conducts a more rigorous pre-test by administering the corrected instrument to another set of respondents and then analyzing results to see if the items under each concept –eohere” and inter-correlate, as well as how their reliability might be improved by reformulation or pruning of extraneous elements. Finally, one attempts to validate and norm the scales, at least to the degree possible and applicable. This means on the one hand to verify what the numbers and measures in fact mean, principally by examining their correlation with other known attributes of existing constructs and theories; and, on the other hand, to establish estimates of the distribution of scores across relevant populations.

Table 3
Collection of Quantitative Data

Variable category	Specific variable or variable group	Type(s) of item required
Dependent	Level or degree of adoption	Multiple choice questions
Independent	Exposure to innovation <ol style="list-style-type: none"> 1. Awareness of electronic commerce 2. Extent of use of electronic commerce 	Multiple choice questions
	Perception of attitude toward innovation <ol style="list-style-type: none"> 1. Perceived relative advantage 2. Perceived compatibility 3. Perceived trialability 4. Perceived observability 5. Perceived complexity 	Likert type scale
Control/Contextual	Characteristics of the owner	Multiple choice questions
	Characteristics of the business	Multiple choice questions

These steps, barring the last (see explanations below), were performed with respect to the constructs of relevance to the proposed research: the five dimensions of the user’s perception of

innovation that are directly derived from Rogers' theory (2003), the concept of degree of exposure to the innovation and that of the degree of adoption of the innovation. Table 4 indicates the items initially devised to tap into various dimensions of these constructs and the response alternatives specified as means of measuring the nature or intensity of the response. The resulting draft instrument was pilot tested with a sample of 57 minority small business respondents from the Tampa region and their opinions were solicited concerning areas lacking in clarity.

This activity provided a basis for revising and improving the items, which were then submitted to a full pre-test with a sample of 71 respondents from the Jacksonville area. Data from responses to the pre-test were then analyzed in SPSS to investigate item inter-correlation within each conceptual cluster, to calculate a measure of internal reliability (Cronbach's alpha) for each, and to determine what improvements in reliability might be obtained by further pruning or consolidating the set of component items. Results of this exercise are portrayed on Table 5.

It is evident there that all measures of the respondents' perceptions of ecommerce as an innovation cohered very well, with Cronbach's alpha coefficients well above or easily improvable to .700, the traditional watermark of reliable multidimensional items – with the exception only of –complexity.” The second question in this group will be eliminated to improve the coefficient to .614. In addition, both of the non-Rogerian constructs – the independent variable –exposure” and the dependent variable –adoption” – performed very well, with indices of .922 and .804 respectively.

Determination of the validity and potential norming of these constructs is not something that was undertaken during the pre-test, as it really depends on obtaining the actual results of the large-scale survey and then examining correlations with other variables of importance and distribution of scores across various subpopulations. The results of the initial pilot test, however and the feedback of those who participated in it provided considerable confidence that the measures have at least good –face validity.”

Table 4
Specific Variable and Survey Item

Specific Variable or Variable Group	Test Survey Items
Level or degree of adoption (Dependent Variable)	<ol style="list-style-type: none"> 1. Does your business have a web-site? 2. How long has your business had a website? 3. Are customers able to order your goods and/or services on your web-site? 4. Are customers able to make payment on the web-site? 5. Approximately what percentage of your revenue is currently generated by e-commerce? 6. Do you make business purchases on-line? 7. Approximately, how many hours do you spend transacting business on the internet a week?
Exposure to innovation (Independent Variable)	<ol style="list-style-type: none"> 1. How often do you shop or purchase items online for personal use? 2. About what proportion of your primary suppliers have websites where items can be viewed and/or purchased? 3. Have you or your staff attended training sessions, seminars or other events regarding electronic commerce? 4. How would you characterize your own level of familiarity with the operation of online commerce?
1. Awareness of electronic commerce, 2. Extent of use of electronic commerce	
Perception of Attitude toward Innovation (Independent Variable)	<ol style="list-style-type: none"> 1. Use of electronic commerce will make my business more competitive. 2. Use of electronic commerce does little to increase my profits in a business like mine. 3. Business costs go up when you use electronic commerce. 4. Businesses with an electronic commerce site have a real competitive advantage. 5. Electronic commerce does not bring in more business for a small business owner. 6. Electronic commerce helps makes a business more productive. 7. Those who do not use electronic commerce will lose business to competitors who have
1. Perceived relative advantage of electronic commerce	
Perception of Attitude toward Innovation (Independent Variable)	
1. Perceived relative advantage of electronic commerce	

Table 4 - continued

Specific Variable
or Variable Group

Test Survey Items

Specific Variable or Variable Group	Test Survey Items
	web-sites where purchases can be made.
	8. Overall there is little net benefit to using electronic commerce.
	9. Transacting business via the internet is more convenient than shopping in a store.
2. Perceived compatibility of electronic commerce	<ol style="list-style-type: none"> 1. Electronic commerce requires too much technical expertise to be feasible for a small business owner. 2. My business industry is strongly encouraging the use of electronic commerce to conduct transactions. 3. In the foreseeable future, my industry will be strongly affected by the use of electronic commerce. 4. Electronic commerce is not widely used in my industry. 5. Most governmental purchasing processes require that I have an electronic commerce system in place in order to do business with them. 6. My client base would have little difficulty using a computer to transact business. 7. My clients are comfortable with putting their personal information online to make a purchase. 8. I would have to acquire additional training to use electronic commerce profitably. 9. My customers are more likely to purchase items in person or by phone and letter than online. 10. The culture of my clients would not support an electronic commerce system. 11. There is external pressure to use electronic commerce.
3. Perceived trialability of electronic commerce	<ol style="list-style-type: none"> 1. To get into electronic commerce, you have to buy into the whole system at major cost. 2. Testing out electronic commerce is more trouble than it is worth. 3. Shifting to electronic commerce requires so many other changes in how you run the business that it is hard to imagine it working

Table 4 - continued

Specific Variable
or Variable Group

Test Survey Items

	<p>in an enterprise like mine.</p> <ol style="list-style-type: none"> 4. It is possible to begin using computers for business by easily manageable steps. 5. One can implement a pilot electronic commerce system without great expense or disruption. 6. Even a partial introduction of electronic commerce into a business can bring real benefits.
4. Perceived observability of electronic commerce	<ol style="list-style-type: none"> 1. It is easy to judge whether an electronic commerce system is benefiting a business. 2. It is hard to separate out the effects of electronic commerce from all the other things that impact your bottom line. 3. Our customer base just wouldn't understand a move to electronic commerce. 4. The costs and benefits of introducing electronic commerce in a business take a long time to establish. 5. Whether computer purchasing and selling is a good fit for a business is not hard to determine. 6. The reasons for adopting electronic commerce can be quite simply explained to the staff and clients of a business.
5. Perceived complexity of electronic commerce	<ol style="list-style-type: none"> 1. The methods of electronic commerce are easy to learn. 2. One has to be very knowledgeable about computers to use electronic commerce. 3. If you can run a business, you can grasp electronic commerce without much difficulty. 4. Too much can go wrong with electronic commerce to make it practical to use. 5. An electronic commerce system is relatively straightforward and understandable. 6. Online purchases are a hassle.
Characteristics of the Owner (Contextual/Control Variable)	<ol style="list-style-type: none"> 1. What is your age? 2. What is your gender?

Table 4 - continued

Specific Variable or Variable Group	Test Survey Items
Characteristics of the Business (Contextual/Control Variable)	3. What educational level have you attained?
	4. What is your ethnic background
	1. What type of business do you own?
	2. How many employees do you have?
	3. How long have you been in business?
	4. Approximately what are your gross sales or revenues in the most recent tax year?
5. How many locations does your business have?	
6. What county or counties is your business in?	

Narrowing Scale Items. The original list of 38 survey items regarding the perceived relative advantage, compatibility, trialability, observability, and complexity of electronic commerce was reduced to 23 items. This was done using a comparison of the Cronbach Alpha if the survey question was deleted. In addition to the comparisons, there was an effort to ensure a balance of positive and negative statements used to measure the perceptions. The final list of survey questions is listed in Table 6.

Pretesting of the Instrument. Preliminary procedures for collecting data were tested at several regional workshops to assess the instruments' validity and reliability. These regional conferences are sponsored by the State of Florida's Office of Supplier Diversity specifically for Certified Minority Business Enterprises (CMBEs). The CMBEs who are the proposed group that this research is targeting were surveyed and interviewed. The instruments that were used revealed certain aspects of the instruments that would need to be revised in order to capture the data necessary for this research. Adjustments and modifications were made to the proposed instruments prior to the next regional conference in an effort to increase the reliability of the instrument so that the data collected would be consistent and generalizable. Modifications of the survey and interview guide happened over a period of time during the course of several regional workshops. These instruments were developed and tested at workshops in Jacksonville, Pensacola, Tampa and Ft. Myers. The instruments were adjusted and modified as the responses and feedback from the CMBEs were collected and analyzed at each regional conference. Results

from the surveys and interviews at the various locations had similar findings. Based upon the responses and feedback that was received from the CMBEs, a survey instrument has been developed to collect the required data necessary to conduct this research.

Table 5
Scale Item Analysis

Scale Item	Cronbach's Alpha	Alpha if Item Deleted
Relative Advantage	.789	
Relative Advantage Question 1		.750
Relative Advantage Question 2		.760
Relative Advantage Question 3		.805
Relative Advantage Question 4		.770
Relative Advantage Question 5		.774
Relative Advantage Question 6		.771
Relative Advantage Question 7		.734
Relative Advantage Question 8		.748
Relative Advantage Question 9		.795
Compatibility	.845	
Compatibility Question 1		.827
Compatibility Question 2		.825
Compatibility Question 3		.821
Compatibility Question 4		.823
Compatibility Question 5		.840
Compatibility Question 6		.833
Compatibility Question 7		.833
Compatibility Question 8		.859
Compatibility Question 9		.814
Compatibility Question 10		.820
Compatibility Question 11		.857
Observability	.793	
Observability Question 1		.806
Observability Question 2		.743
Observability Question 3		.738
Observability Question 4		.718
Observability Question 5		.719
Observability Question 6		.765

Table 5 - continued

Scale Item	Cronbach's Alpha	Alpha if Item Deleted
Complexity	.412	
Complexity Question 1		.213
Complexity Question 2		.614
Complexity Question 3		.394
Complexity Question 4		.129
Complexity Question 5		.420
Complexity Question 6		.324
Trialability	.698	
Trialability Question 1		.763
Trialability Question 2		.596
Trialability Question 3		.594
Trialability Question 4		.614
Trialability Question 5		.671
Trialability Question 6		.681
Exposure	.922	
Exposure Question 1		.935
Exposure Question 2		.883
Exposure Question 3		.905
Exposure Question 4		.867
Utilization	.804	
Utilization Question 1		.763
Utilization Question 2		.766
Utilization Question 3		.743
Utilization Question 4		.786
Utilization Question 5		.800
Utilization Question 6		.772

Table 6
Revised Specific Variable and Survey Item

Specific Variable or Variable Group	Survey Item
Level or degree of adoption (Dependent Variable)	<ol style="list-style-type: none"> 1. Does your business have a web-site? 2. How long has your business had a website? 3. Are customers able to order your goods and/or services on your web-site? 4. Are customers able to make payment on the web-site? 5. Do you make business purchases on-line? 6. Approximately, how many hours do you spend transacting business on the internet a week?
Exposure to innovation (Independent Variable)	<ol style="list-style-type: none"> 1. How often do you shop or purchase items online for personal use? 2. About what proportion of your primary suppliers have websites where items can be viewed and/or purchased? 3. Have you or your staff attended training sessions, seminars or other events regarding electronic commerce? 4. How would you characterize your own level of familiarity with the operation of online commerce?
1. Awareness of electronic commerce, 2. Extent of use of electronic commerce	
Perception of Attitude toward Innovation (Independent Variable)	<ol style="list-style-type: none"> 1. Use of electronic commerce will make my business more competitive. 2. Use of electronic commerce does little to increase my profits in a business like mine. 3. Those who do not use electronic commerce will lose business to competitors who have web-sites where purchases can be made. 4. Overall there is little net benefit to using electronic commerce.
1. Perceived relative advantage of electronic commerce	
2. Perceived compatibility of electronic commerce	<ol style="list-style-type: none"> 1. Electronic commerce requires too much technical expertise to be feasible for a small business owner. 2. My business industry is strongly encouraging the use of electronic commerce to conduct transactions. 3. Electronic commerce is not widely used in my

Table 6 - continued

Specific Variable or Variable Group	Survey Item
3. Perceived trialability of electronic commerce	<p>industry.</p> <ol style="list-style-type: none"> 4. My client base would have little difficulty using a computer to transact business. 5. The culture of my clients would not support an electronic commerce system. <ol style="list-style-type: none"> 1. To get into electronic commerce, you have to buy into the whole system at major cost. 2. Testing out electronic commerce is more trouble than it is worth. 3. Shifting to electronic commerce requires so many other changes in how you run the business that it is hard to imagine it working in an enterprise like mine. 4. It is possible to begin using computers for business by easily manageable steps. 5. One can implement a pilot electronic commerce system without great expense or disruption.
4. Perceived observability of electronic commerce	<ol style="list-style-type: none"> 1. It is easy to judge whether an electronic commerce system is benefiting a business or not. 2. It is hard to separate out the effects of electronic commerce from all the other things that impact your bottom line. 3. The costs and benefits of introducing electronic commerce in a business take a long time to establish. 4. Whether computer purchasing and selling is a good fit for a business is not hard to determine.
5. Perceived complexity of electronic commerce	<ol style="list-style-type: none"> 1. The reasons for adopting electronic commerce can be quite simply explained to the staff and clients of a business. 2. The methods of electronic commerce are easy to learn. 3. One has to be very knowledgeable about computers to use electronic commerce. 4. Too much can go wrong with electronic commerce to make it practical to use.

Table 6 - continued

Specific Variable or Variable Group	Survey Item
	5. An electronic commerce system is relatively straightforward and understandable.
Characteristics of the Owner (Contextual/Control Variable)	<ol style="list-style-type: none"> 1. What is your age? 2. What is your gender? 3. What educational level have you attained so far? 4. What is your ethnic background?
Characteristics of the Business (Contextual/Control Variable)	<ol style="list-style-type: none"> 1. What type of business do you own? 2. How many employees do you have? 3. How long have you been in business? 4. Approximately what are your gross sales or revenues in the most recent tax year? 5. How many locations does your business have? 5. What county or counties is your business in?

Administration of Instruments. A scantron type survey instrument was mailed to all African and Hispanic Americans CMBEs in the Profiler (Vendorstrator) Database. These CMBEs returned the survey via mail using the self-addressed envelope that was enclosed. Data from the survey was collected for forty-five days before the quantitative analysis process began.

Table 7

Steps of the Constant Comparative Analysis Procedure for Electronic Commerce Utilization

Type of Comparison	Analysis Activities	Aim	Questions	Results
1. Comparison within a single certified minority business enterprise interview	Open coding: summarizing core of interview; finding consensus on interpretation of fragments.	Develop categories understanding	What is the core message of the interview? How are different fragments related? Is the interview consistent? Are there contradictions? What do fragments with the same code have in common?	Summary of the interview; Provisional codes (code tree); Conceptual profile; Extended memos.
2. Comparison between interviews within the same ethnic/industry group	Axial coding: formulating criteria for comparing interviews; hypothesizing about patterns and types.	Conceptualization of the subject produce a typology	Is A talking about the same thing as B? What do both interviews reveal about electronic commerce? What combinations of concepts occur? What interpretations exist for this? What are the similarities and differences between interviews A,B, C...? What criteria underlie the comparison?	Expansion of code words until all relevant themes are covered; Description of concepts; Criteria for comparing interviews; Clusters of interview (typology).
3. Comparison of interviews from different ethnic/industry groups	Triangulating the data sources	Complete the picture enrich the information	What does group 1 say about certain themes and what does group 2 have to say about the same themes? What themes appear in group 1 but not in group 2 and vice versa? Why do they see things similarly or differently? What nuances, details or new information does group 2 supply about group 1?	Verification of provisional knowledge of interviewees from group 1; Additional information: Memos

Source: Hennie Boeije, 2003

Qualitative Data Collection

Qualitative data collection in this research consisted of conducting interviews with CMBEs and FAMBEO members that assist businesses using a grounded theory approach. Interviewing is a purposeful interaction in which one person is trying to obtain information from another. It permits researchers to obtain data. Interviews can be both structured and unstructured. Structured interviews have a specific set of questions that will be asked to all participants. In unstructured interviews, the questions are prompted by the flow of the interview.

The interviews in this research were designed to be semi-structured, or a combination of the structured and unstructured approaches to interviewing. Semi-structured interviewing allows the interviewer to go more into greater depth than more formal open-ended survey approaches by providing the opportunity to probe and expand the interviewee's responses. An advantage of the semi-structured interview is that the interviewer is free to follow new leads as they arise during the interview. They are not required to necessarily follow a script, but use a set of questions to guide the conversation. The questions listed below were only used as an outline to begin the interviews. Additional questions were posed as the interview progressed. As the interview advanced, the initial survey instrument responses that were returned were used to probe for further information. Final content was determined by data obtained in initial questionnaires, but the following interview questions are likely avenues of investigation:

1. How has electronic commerce affected the way in which you conduct business?
2. What industry trends do you see as it relates to electronic commerce in your area?
3. How did you learn about electronic commerce?
4. How did you prepare for the implementation of electronic commerce in your business?
5. What type of training/education have you received regarding electronic commerce?
Staff?
6. What are some issues/problems that you have encountered with electronic commerce?
7. What are some of the future affects that electronic commerce will have on the minority business enterprise community?

Population and Sample. The qualitative data collection allowed a more in depth inquiry into some of the findings that were discovered during the quantitative analysis. Johnson, (1995) suggests that technology educators –engage in research that probes for deeper understanding

rather than examining surface features.” He notes that qualitative methodologies are powerful tools for enhancing our understanding of teaching and learning” (p.4). Qualitative research reports are typically rich with detail and insights into participants’ experiences and thus more meaningful (Stake, 1978, p.5). Strauss and Corbin (1990) claim that qualitative data collection can be used to better understand any phenomenon about which little is yet known. It can also be used to gain new perspectives on things about which much is already known, or to gain more in-depth information that may be difficult to convey quantitatively.

Rather than interviewing every CMBE that gave a positive response to participating in an interview and every organization that assists minority businesses, purposeful sampling was used to create a sample. The logic and power of purposeful sampling lie in selecting information rich cases for study in depth (Patton, 2001). The researcher actively selects the most productive sample to answer the research questions. This can involve developing a framework of the variables that might influence an individual’s contribution and will be based on the researcher’s practical knowledge of the research area, the available literature, and evidence from the study itself (Marshall, 1996). Information rich cases are those from which one can learn a great deal about issues of central importance to the purpose of the inquiry. Studying information rich cases yields insights and in-depth understanding rather than empirical generalizations. Purposeful sampling focuses on selecting information rich cases whose study will illuminate the questions under study. This type of sampling is also called judgment sampling. “In judgment sampling, you decide the purpose you want informants (or communities) to serve, and you go out to find some” (Bernard, 2001, p.176).

The same population of certified African and Hispanic American business enterprises that was described in the quantitative section was used in the qualitative portion of this research. However, for the qualitative portion of the research, a purposeful sample was drawn from this population. The “purposeful” sample consisted of a limited number of interviewees chosen from among all respondents to the survey who indicated their willingness to participate in an interview. The sample of CMBES used to gather qualitative data was compiled from surveys that had been completed and returned. The survey asks the CMBE to indicate whether or not they would participate in an interview to provide more in depth information. A purposeful sample was created using this group. CMBEs were selected for interviews according to their owner and business characteristics. Specifically, businesses from each of the minority

classification and industry groups were selected to ensure equitable representation. Another group of interviews was conducted with members from FAMBEO who are designated through various organizations to assist minority businesses. This group is aware of the many issues faced by mbes on a statewide level that will provide more in depth information, particularly on the utilization of e-commerce by these businesses. All interviews were conducted in 2009 and 2010.

Grounded Theory. Grounded theory is a qualitative methodology which derives its name from the practice of generating theory from research which is “grounded” in data. It emphasizes the systematic approach to data collection, handling and analysis. Generating grounded theory involves data being systematically collected through field observations, interviews, meetings and the inspection of documentation where appropriate or possible (Douglas, 2003). Grounded Theory was first established by Glaser and Strauss in *The Discovery of Grounded Theory* (1967). Grounded theory’s methodological emphasis is on actor’s own emergent interpretations and meanings, with minimal researcher intervention. Through constant comparison, coding and analysis of interview and observational data, theory that is grounded in these data emerges (Douglas, 2003).

Glaser’s and Strauss’s personal differences that emerged over the years since their joint publication (1967) saw Glaser (1992) emphasizing the necessity for the researcher to be more creative and less procedural in methodology. Strauss (Strauss and Corbin, 1990) conversely, conveyed a more linear method. Glaser (1992) selects an area (or organization or activity) for study and allows issues to emerge in the course of the research process. Strauss and Corbin (1990) are more specific and prefer to identify a phenomenon or issue for study. Thus Glaser’s approach to the identification and specification of the research issue to be addressed is entirely dependent upon the perceptions of actors and researcher. Strauss and Corbin permit the researcher to predetermine the general subject of inquiry before entering the research site. Glaser also prefers an analytical method that is more general in its frame of reference, while Strauss and Corbin opt for a somewhat more structured set of analytical steps. Glaser’s methodological approach relies primarily upon the constant comparison of different incidents, perceptions, relationships and issues, with the aim of identifying inconsistencies, contradictions, gaps in data and emerging consensus on key concepts and relationships, in grounded theory we do not know until it emerges (Glaser, 1992, p. 95). Strauss and Corbin (1990) are significantly

more prescriptive in specifying the steps to be taken by a researcher in coding and analyzing phenomena.

Specification and Development of Themes. Following the Strauss and Corbin approach, the researcher could elect in advance to focus observation, interviews and archival data gathering on a particular issue. Coding is then oriented around this issue, and a central concept is sought to represent the interplay of subjects' and researcher's perceptions of the nature and dimensions of that being studied. For the purpose of this research, Strauss and Corbin's view of grounded theory was used as a strategy to collect and organize qualitative data. This research elects in advance to focus the interviews on data gathered from the survey analysis. Survey results were used as a guide to further investigate perceptions of electronic commerce utilization.

The information obtained in the quantitative portion of this research was used to identify patterns relating the adoption of ecommerce to subject characteristics, agent behaviors and contextual factors. Themes to be explored through the interviews came from patterns found in the quantitative data. Based on the patterns found, a scripted interview guide was created to further explore potential meanings and consequences of the quantitative findings. This qualitative data assisted in the interpretation of the quantitative results and discern the meaning that stakeholders attach to these phenomena. The qualitative inquiry gave an alternate and in fact a more direct way of inquiring about answers to the basic questions for this research: what factors principally impede or facilitate CMBE use of electronic technology and what measures are most likely to enhance it? Data about CMBE perceptions is also required to assist in determining what factors influence the adoption of electronic commerce in the minority business community. These perceptions may be difficult to convey quantitatively. More in depth research about CMBE perceptions were gathered using the qualitative approach which allowed the CMBEs and FAMBEO members to use personal experiences that are relative to the use of electronic technology when answering the questions. Qualitative data requirements have more to do with the kind of information, opinion and/or "thick description" needed to interpret the quantitative data and discern the meaning that people attach to the ecommerce adoption experience.

Quantitative Data Analysis

Descriptive Phase

Descriptive statistics were used to provide information about the distribution of the variables. These statistics provided measures of central tendency, variability around the mean, and deviation from the normality. Information concerning the spread of the distribution and the stability or sampling error of certain measures may also be provided. Analysis of frequency data using contingency tables were used to manipulate the data to discover the patterns relating the degree of adoption to the following independent variables:

1. Owner characteristics (e.g. education level)
2. Business characteristics (e.g. size of business)
3. Characteristics of electronic commerce (e.g. complexity)
4. Exposure to and experience with technology (e.g. computer usage)

These independent variables assisted in the measuring the degree of adoption and use of electronic commerce, which is the dependent variable. The data collected from the questionnaires and interviews were analyzed using cross-tabulation and by computing Pearson's Chi-square. Chi-square was used to obtain a measure of statistical significance, and phi and Cramer's V were used to measure the strength and association between two variables when one or both are at the nominal level of measurement.

Correlational Phase

This analysis deals with data that has been tabulated. Contingency tables (cross tabulations) recorded the frequency for the values that fall into each possible combination of levels from at least two different factors. Cross-tabulation involves the constructing of a table so that one can see how respondents answered. These tables were used to help look at whether on or more variables are contingent upon that of another. The purpose cross tabulation is to show in tabular format the relationship between two or more categorical variables. This analysis was used to describe the sample and investigate possible relationships between variables. The following variables were used to conduct the cross tabulations:

- Age
- Gender
- Ethnicity

- Educational level
- Industry
- Number of employees
- Number of locations
- Years in business
- On-line purchasing
- Web-site availability
- Web-site purchasing capability
- Perceptions of electronic commerce
- Exposure to electronic commerce
- Use of Electronic Commerce

Cross-tabs can be useful when pairing a demographic question such as ethnicity with an attitudinal question, such as do you think that e-commerce will benefit your company? Cross-tabulation investigates the relationship between two or more variables, responses that fall into different categories. Cross tabulations such as:

- Online purchasing with educational level;
- Age with ethnicity;
- Technology use with industry and educational level;
- Hours on computer per week with amount of purchases made on-line;
- Electronic commerce usage with perceptions of electronic commerce was used to develop the analysis.

The cross-tabulation table analysis provides useful statistics, such as chi-square which provides information about the association between two variables. The independence of the factors were tested. For cross-tabulated data in a contingency table, a measure of association measures the degree of association between the row and column classification variables. A test of independence for a contingency table tests the null hypothesis that the row classification factor and column classification factor are independent. Pearson's Chi-Square will be used to test for independence. The only function of chi-square test is to determine whether the apparent dependence in the sample is due to random variation (i.e. chance). Rejection of the null indicates only that the apparent as reasonably attributable to chance. An additional concern addresses the

fact that a chi-square statistic is often thought of as a test of association (the opposite of independence) between variables. This invalid assumption can create difficulty because a chi-square value is largely dependent on the number of dimensions and sample size, and thus comparisons of one chi-square value with another are often misleading (George and Mallery, 2005). To control for this difficulty, Pearson suggested the phi statistic. The purpose was to standardize a measure of association to values between 0 and 1 (with 0 indicating completely independent variables and a value close to 1 indicating a strong association between variables). However, if one of the dimensions of the cross-tabulation is larger than 2, phi may attain a value larger than 1.0. To control for this, Cramer's V was introduced. This measure does vary between 0 and 1.0 and is a commonly used measure of the strength of association between variables and the chi-square analysis.

Qualitative Data Analysis

The qualitative analysis was done using the constant comparative method. The analytical process involves coding strategies: the process of breaking down interviews, observations, and other forms of appropriate data into distinct units of meaning, which are labeled to generate concepts. As a method of discovery, the constant comparative method is a mixture of systematic coding, data analysis and theoretical sampling procedures which enables the researcher to make interpretive sense of much of the diverse patterning in the data by developing theoretical ideas at a higher level of abstraction than the initial data descriptions.

In the work of Glaser and Strauss constant comparison is important in developing a theory that is grounded in data (Boeije, 2002). Tesch (1990) adopts this view when she calls comparison the main intellectual activity that underlies all analysis in grounded theory. The main intellectual tool is comparison. The method of comparing and contrasting is used for practically all intellectual tasks during analysis: forming categories, establishing the boundaries of the categories, assigning the segments to categories, summarizing the content of each category, finding negative evidence, etc. The goal is to discern conceptual similarities, to refine the discriminative power of categories, and to discover patterns (Tesch, 1990:96). According to Strauss and Corbin (1998) the art of comparison has to do with creative processes and with the interplay between data and researcher when gathering and analyzing data. This method of theory

generation involves a rigorous process of evaluation whereby the data are analyzed iteratively to identify categories, code incidents, and organize the data through theoretical memos. As categories begin to emerge, constant comparison is employed until theoretical saturation is achieved.

Glaser and Strauss (cited in Lincoln & Guba, 1985, p. 339) described the constant comparison method as following four distinct stages:

1. comparing incidents applicable to each category,
2. integrating categories and their properties,
3. delimiting the theory, and
4. writing the theory. (p.339)

The analyst starts by coding each incident in his data in as many categories of analysis as possible. The basic defining rule for the constant comparative method is added. While coding an incident for a category, compare it with the previous incidents coded in the same category. The constant comparison of the incidents very soon starts to generate theoretical properties of the category. This process starts in a small way; memos and possible conferences are short. But as the coding continues the constant comparative units change from comparison of incident with incident to incident with properties of the category which resulted from initial comparison of incidents. The diverse properties of the category start to become integrated. As the theory develops, various delimiting features of constant comparative method set in to curb what could otherwise become an overwhelming task. This occurs at two levels: (1) the theory and (2) the original list of categories proposed for coding. The theory solidifies in the sense that major modifications become fewer and fewer as one compares the next incidents of a category to properties of it. Second, delimiting the theory results in trimming down the original list of proposed categories for coding.

Strauss and Corbin (1998) described three types of coding: open coding, axial coding, and selective coding. Open coding involves the analysis of data. Codes form the basis for later aggregation into concepts (core codes). These are names or labels given by the researcher to events, activities, functions, relationships, contexts, influences and outcomes. The aim of open coding is to begin the unrestricted labeling of all data and to assign representational and conceptual codes to each and every incident highlighted within the data. Open coding allows similar incidents and phenomena to be compared and contrasted with each other, and where

similar were correspondingly coded. The codes themselves provide meaning to the text and may be created by the researchers, or may be taken from the text itself. Axial Coding follows open coding. Once the initial open coding has been done, the researcher then regroups the data. Axial coding then identifies relationships between the open codes, for the purpose of developing core codes. Major (core) codes emerge as aggregates of the most closely interrelated open codes for which supporting evidence is strong (Strauss, 1987; Strauss and Corbin, 1990). Selective Coding requires the selection of the focal core code, that is, the central phenomenon that has emerged from the axial coding process. All other core codes must be related in some way to the focal core code, either directly or indirectly. These codes can be classified as representing context, conditions, actions, interactions, and outcomes. In this way a theoretical framework of interrelated concepts can be developed showing posited relationships between the central concept, i.e. the focal core code representing the central phenomenon identified in response to the questions of, what is the central activity occurring here, what are the conditioning or influencing concepts, what are the observable outcomes and any intervening concepts and variables being represented by the other conceptual codes identified (Strauss and Corbin, 1990).

Analysis of the interviews with the certified minority business enterprises progressed using the constant comparative method as suggested by Hennie Boeije (2002). Boeije suggests using a five step analysis procedure. However, it is emphasized that the number of steps is not important, because that depends on the kind of material that is involved. For the purpose of this research, only the first three steps were used. They are as follows:

1. Comparison within a single interview;
2. Comparison between interviews within the same group; and
3. Comparison of interviews from different groups.

It emerged that the comparisons made differed on four criteria: (1) the data or material involved; (2) the aim; (3) the questions asked and (4) the results see Table 7.

Triangulation and Joint Analysis

Triangulation is the process of building theory from multiple paradigms and layers and of comparing data derived from different sources in order to strengthen the validity of conclusions. Laying the groundwork for triangulation requires defining the subject phenomenon (Bender,

2005). This initial phase delineates boundaries that both constrain and enable theory building (Eisenhardt, 1989). Triangulation in research refers to the combination of theories, data sources, or methods in the study of a single phenomenon and the use of comparison of these multiple sources to confirm key findings and derive a more dimensional understanding to the phenomenon under consideration. The process of triangulation will assist in validating findings of this research. Triangulation is a process for verifying the consistency of findings, useful in guarding against accusations that findings are based on a single method, a single source or a single researcher's biases. Perone and Tucker (2003, p. 2) summarize the matter well:

Triangulation provides confirmation and completeness. Triangulation is not simply combining different types of data, but it attempts to relate the two types of information so as to leave the validity of each type of information intact. The use of triangulation allows researchers to capture a more complete, holistic and contextual portrayal and reveal the varied dimensions of a given phenomena, with each source contributing an additional piece to the puzzle. In using triangulation, bias can be minimized and the validity enhanced (.

Hilton (2004) suggests that triangulation is not the simple combination of different kinds of data but entails 1) the attempt to relate them so as to counteract the threats to validity in each; and 2) the capturing of a more complete, holistic and contextual portrayal of the given phenomenon. She also states that "neither qualitative nor quantitative methods can fully deliver on the promise to establish the truth, however, combined judiciously; the combination of methods can provide more complete insight (Hilton 2004, p.1)." According to Kathy Bowen (1996), there are several benefits of combining qualitative and quantitative methods as one particular strategy of triangulation:

- While the Quantitative design strives to control for bias so that facts can be understood in an objective way, the Qualitative approach is striving to understand the perspective of the program stakeholders, looking to firsthand experience to provide meaningful data.
- The accumulation of facts and causes of behavior are addressed by quantitative methodology as the qualitative methodology addresses concerns with the changing and dynamic nature of reality.
- Quantitative research designs strive to identify and isolate specific variables within the context (seeking correlation, relationships, causality) of the study as the Qualitative

design focuses on a holistic view of what is being studied (via documents, case histories, observations and interviews).

- Quantitative data is collected under controlled conditions in order to rule out the possibility that variables other than the one under study can account for the relationships identified while the Qualitative data are collected within the context of their natural occurrence.
- Both Quantitative and Qualitative research designs seek reliable and valid results. Data that are consistent or stable as indicated by the researcher's ability to replicate the findings is of major concern in the Quantitative arena while validity of the Qualitative findings are paramount so that data are representative of a true and full picture of constructs under investigation.

Perceptions and attitudes about electronic commerce as well as exposure to/experience with technology are compared using the quantitative and qualitative methods. Quantitative data was obtained from surveys. Qualitative data was gathered from those participants who indicated in the survey that they were to participate in an interview and organizations that assist minority businesses. The qualitative data was used to substantiate patterns, relationships and/or associations that may or may have not been discovered during the quantitative analysis. A review of the survey responses compared to the interview responses assisted in further manipulation of the data. The benefits of triangulation also serve to enrich and deepen our understanding of the research environment while seeking convergence, corroboration, and correspondence of results across the different method types (Bowen, 1996).

Two types of triangulation were used in the analysis of this research. The first involved comparing insights obtained from the quantitative data collected by questionnaire with the qualitative findings from interviews and focus groups. The second type of triangulation was carried on within these two bodies of data. For example, the qualitative portion of this research produced interview data from CMBEs as well as testimony from the staff of organizations that assist minority businesses and proceedings of focus groups of FAMBEO members. Comparison among these different types of stakeholder inputs furnished another strong basis for triangulating on and then testing conclusions.

Safeguarding Reliability and Validity

Several strategies were used to increase the survey's validity and reliability, and speculate about the data's accuracy and limitations. The use of a summated rating scale addressed some problems concerning reliability. Multiple items address three problems of reliability, precision, and scope. Use of more than two response choices helped to increase precision. The variety of questions enlarges the scope of what is measured. Multiple items improve reliability by allowing random errors of measurement to average out. If a respondent makes an error on one item indicating "love it" instead of "hate it" the impact on the total score is quite minimal. In fact, errors in one direction will tend to cancel out errors in the other, resulting in a relatively constant total score over time. Multiple items allow even more precision. For example, with a five choice question, people can be placed into five groups on the basis of their responses.

Survey instrument evaluation often called pretesting was conducted. Pretesting has several different goals: to check that the questions are understandable; to assess the likely response rate and the effectiveness of the follow-up procedures; to evaluate the reliability and validity of the instrument; and to ensure that our data analysis techniques match our expected responses (Kitchenham and Pfleeger, 2002). Pilot studies of surveys are performed using the same procedures as the survey, but the instrument is administered to a smaller sample. Pilot studies are intended to identify any problems with the questionnaire itself, as well as with the response rate and follow-up procedures. They may also contribute to the reliability assessment.

Preliminary procedures for collecting data were tested at several regional workshops to assess the instruments' validity and reliability. These regional conferences are sponsored by the State of Florida's Office of Supplier Diversity specifically for Certified Minority Business Enterprises (CMBEs). The CMBEs who are the proposed group that this research is targeting were surveyed and interviewed. The instruments that were used revealed certain aspects of the instruments that would need to be revised in order to capture the data necessary for this research. Adjustments and modifications were made to the proposed instruments prior to the next regional conference in an effort to increase the reliability of the instrument so that the data collected would be consistent and generalizable. Modifications of the survey and interview guide happened over a period of time during the course of several regional workshops. These instruments were developed and tested at workshops in Jacksonville, Pensacola, Tampa and Ft.

Myers. The instruments were adjusted and modified as the responses and feedback from the CMBEs were collected and analyzed at each regional conference. Results from the surveys and interviews at the various locations had similar findings. Based upon the responses and feedback that was received from the CMBEs, a survey instrument and interview guide have been developed to collect the required data necessary to conduct this research. Reliability was evaluated using a test-retest study based on CMBEs that attended regional workshops in different cities. Validity and general acceptability was accepted through in-depth interviews of CMBEs at these workshops.

One way to increase the reliability and validity of a measure is to use a well-established measure that has demonstrated reliability and validity. Sometimes, we have an existing instrument that is considered a “gold standard” that we can compare with a newly devised instrument. Many of the measures in the survey are established measures that have demonstrated fairly high reliability and validity. Most of the minority business questions regarding e-commerce come from widely used national survey instruments. Validity is the extent to which a question or scale is measuring the concept, attribute or property it says it is. The research domain of electronic commerce is particularly challenging, because of the lack of established definitions, and the high volatility of the phenomena (Clarke, 2000). Construct validity is optimized by giving the definition of electronic commerce at the beginning of the self administered questionnaires and the interviews. This helps to ensure that respondents are referencing the same concept when they are answering questions. Validity was also optimized by pre-testing alternative questions designed to measure the same concept at several different regional workshops. The validity of the qualitative findings will be optimized by using the constant comparative method. Constant comparison implies that the researcher decides what data will be gathered next and where to find them on the basis of provisional theoretical ideas. Comparisons that are highly regarded increase the internal validity of the findings. One criterion for qualitative research is that the researcher tries to describe and conceptualize the variety that exists within the subject under study (Boeije, 2002).

Table 8

Elements in Methodology Used to Answer Research Questions

Research Question	Elements in Methodology Used To Answer Question
<p><u>Question #1 –</u></p> <p>What business and personal characteristics are most associated with the adoption and non-adoption of e-commerce by minority business enterprises?</p>	<ul style="list-style-type: none"> ■ Quantitative data analysis of survey data <ul style="list-style-type: none"> ○ Descriptives ○ Cross tabulation ■ Grounded theory – constant comparative method
<p><u>Question #2 –</u></p> <p>What –agents” or facilitating factors are most effective in promoting adoption of e-commerce and overcoming the obstacles and barriers to its use within the same population group?</p>	<ul style="list-style-type: none"> ■ Qualitative analysis of interview data <ul style="list-style-type: none"> ○ Grounded theory – constant comparative method <ul style="list-style-type: none"> ■ Coding ○ Purposeful sampling Triangulation
<p><u>Question #3 –</u></p> <p>What are the principal barriers to the adoption and utilization of electronic commerce among Florida certified minority business owners? What challenges do minority businesses encounter when engaging in e-commerce?</p>	<ul style="list-style-type: none"> ■ Qualitative analysis of interview data <ul style="list-style-type: none"> ○ Grounded theory – constant comparative method <ul style="list-style-type: none"> ■ Coding (Open, Axial, Selective) ○ Purposeful sampling ■ Triangulation
<p><u>Question #4 -</u></p> <p>How do certified minority business owners in Florida presently learn about electronic commerce and other dimensions of electronic technology usage in their businesses and become convinced of their viability?</p>	<ul style="list-style-type: none"> ■ Quantitative data analysis of survey data ■ Qualitative analysis of interview data <ul style="list-style-type: none"> ○ Grounded theory – constant comparative method <ul style="list-style-type: none"> ■ Coding (Open, Axial, Selective) ■ Triangulation

Measurement error arises due to the imperfect nature of the data collection process in surveys (Adam, 2000). The interviewer, the respondent, the questionnaire, and the mode of the data collection are all potential sources of measurement error. The validity of the assessment data indicates how well the underlying idea or concept is captured. Each scale should measure just one concept. This requirement assures clarity of meaning when interpreting patterns of scores. The reliability of the scales embedded in each questionnaire will be determined by calculating the internal consistency of the items using Cronbach’s alpha. Cronbach’s alpha, also known as coefficient alpha α is the most widely used measure of reliability (George and Mallery, 2005).

The alpha statistic measures the internal consistency reliability among a group of items that combine to form a single scale. It indicates how well the different items complement each other in their measurement of different aspects of the same variable or quality (Kitchenham and Pfleeger, 2002). Alpha is measured on the same scale as a Pearson r (correlation coefficient) and typically varies between 0 and 1. The closer the alpha is to 1.00, the greater the internal consistency of items in the instrument being assessed.

Research in electronic commerce is especially challenging. These challenges threaten the validity of this research. Roger Clarke identified some specific difficulties confronting research into electronic commerce (Clarke, 2000):

- Established theories are in short supply. Although the information systems discipline is progressively accumulating a body of theory, and has drawn heavily on reference disciplines, there are relatively few bodies of theory that provide firm foundations on which conventional scientific research can be based;
- Models of consumer behavior are lacking. Although consumer behavior has been the subject of a great deal of research in the broadcast-media/mass-consumption environment, micro-marketing in general and the Internet in particular represent a new context for which few established theories exist;
- The phenomena are [highly] unstable. Most electronic commerce technologies and applications are very new. The technologies and applications are going through rapid maturation. So too are the individuals and organizations who apply them. The period during which the results of a well-performed cross-sectional study are valid may be so short that publication is impossible before the results are outdated;
- Cultural variation is significant. There has been a tendency for information systems researchers to think in terms of 'national cultures' (Hofstede 1980, Watson et al. 1994). There are very substantial variations among national cultures, which result in dramatically different adoption rates, impacts and implications of information systems generally, and electronic commerce in particular. In addition, culture is actually quite distinct from country-of-origin and country-of-residence. In addition to ethnicity, religious context and lingual background, many additional factors influence behavior, such as imposed organizational culture. This is especially relevant to electronic contexts, which transcend national boundaries;

- Cultural boundaries are particularly ill-defined. There are serious difficulties in defining the culture within which any particular study is being undertaken, and hence in defining populations and samples, and in testing respondents and participants in order to detect their conformance or otherwise with the intended profile;
- The researcher is a participant, even a protagonist, in the domain of study. In a context as rapidly changing as electronic commerce, any interview or questionnaire is an opportunity for respondents to learn from the interviewer or questionnaire. Even questionnaires can be a source of education for participants, because, in order to constrain ambiguity, it is important that terms be defined in a glossary. Hence the act of research almost inevitably influences the research domain (Clarke, 2000).

In an effort to control for potential threats the following measures were taken. First, validity was also optimized by pre-testing alternative questions designed to measure the same concept at several different regional workshops. Second, the combination of qualitative and quantitative methods in this research served as a control against threats to internal validity. Results from one method with the use of another method added information and qualify the scores and statistics. Third, the survey instruments and interview questions were developed using components for the conceptual scheme which was created by combining some aspects of various electronic commerce utilization theories. The survey was not based on one theory.

Reliability and validity: application to qualitative research. How one perceives the credibility of data is related to paradigm preferences. Users of qualitative studies may have strong preferences about what constitutes credible evidence. Several techniques can enhance the quality and validity of qualitative data. They are searching for rival explanations; explaining negative cases, triangulation, and keeping data in context (Patton, 1999). A validity and reliability issue for qualitative data is ensuring that the data is representative of a complete picture of the constructs under investigation. The qualitative analysis must have credibility. This depends on 3 distinct but related inquiry concerns: rigorous techniques and methods for gathering and analyzing qualitative data; the credibility, competence, and perceived trustworthiness of the qualitative researcher; and philosophical beliefs or paradigm based preferences such as objectivity versus subjectivity and generalizations versus extrapolations (Patton, 2001).

1. Rigorous technique and data collection methods – What techniques and methods were

used to ensure the integrity, validity, and accuracy of the findings?

2. Credibility of the researcher – What does the researcher bring to the study in terms of qualifications, experience, and perspective?
3. Philosophical belief in qualitative inquiry – What paradigm orientation and assumptions are inherent in this study?

Technical rigor in analysis is a major factor in the credibility of qualitative findings.

Because the researcher is the instrument in qualitative inquiry, a qualitative report must include information about the researcher. What experience, training, and perspective does the researcher bring to the field? What personal connections does the researcher have to the people, program or topic being studied? There is no definitive list of questions that must be addressed to establish investigator credibility. Researchers can distort findings in four ways: 1) Presence of evaluator; 2) Changes in researcher (Instrumentation effect); 3) Biases/predispositions of researcher; and 4) Incompetence – lack of sufficient training or preparation. The principle is to report any personal and professional information that may have affected data collection, analysis, interpretation either negatively or positively in the minds of the users of the findings (Patton, 2001).

Challenges to the trustworthiness of the qualitative data include: credibility (internal validity), applicability (external validity), dependability (reliability), and confirmability (neutrality). Strategies to enhance credibility are prolonged, substantial engagement, persistent observations, peer debriefing, negative case analysis to test emerging theories, progressive subjectivity monitored by researcher, member checks, and triangulation. Transferability is addressed through the use of multiple cases with thick descriptions. A dependability audit may be conducted to track changes in the research focus and show stability over time. Confirmability may be enhanced by minimizing the influence of the researcher's judgment. This may be achieved by: 1) addressing the chain of evidence, track data back to its original source; 2) having a process for reaching conclusions that can be confirmed; and 3) making an explicit process of synthesizing data to reach conclusions.

CHAPTER FOUR

QUANTITATIVE DATA

Introduction

This research has an exploratory character. A mixed method exploratory study was conducted with strategies that included both quantitative and qualitative components fulfill the purpose of this research. It is devoted to generating understandings about the nature of electronic commerce adoption in the certified minority business enterprise community and about potential causal relationships. These findings can begin to serve as a basis for theorizing and explaining the adoption and non-adoption of electronic commerce by this population. Since this is a mixed method exploratory study, the quantitative data will be analyzed mostly in associational terms to help identify factors that may be significant, without any attempt to isolate causal linkages by more advanced multivariate analysis. Chapter 4 is devoted to presenting and analyzing the quantitative data collected.

Data Preparation and Presentation

A heuristic scheme for visualizing conceptual relationships presented in Chapter 3 served as the template for the analysis and presentation of findings. It is a way of mentally organizing and portraying things and serves as a framework for reflection on the quantitative data of the study. From a quantitative research perspective, the elements investigated were categorized into three categories. First, the dependent variable (DV) represented the effect produced or the actual decision about electronic commerce. Second, the independent variables (IVs) delineated the most important causal factors that contributed to determining these effects. Third, the contextual or control variables (CVs) indicated background conditions that may condition the activity of the IVs, but are not subject to categories of variables.

The next section will be devoted to presenting and analyzing the quantitative data collected. First, descriptive statistics on the effective sample of the study will be presented. Second, this will be followed by the examination of the primary measures of association among indicators of the main independent, dependent and control variables of the design. Lastly, is an examination of significant patterns that emerge from the quantitative analysis.

Descriptive Statistics on Survey Respondents

The Effective Sample

The theoretical sample for the study consisted of all the verified certified African and Hispanic American business enterprises in the State of Florida – 1402 in all. Surveys were returned by 491 certified African and Hispanic American business enterprises, for an effective return rate of 35 percent. This group is representative of the entire certified African and Hispanic American small business in the state which represents 0.4% of all Florida registered firms. Normally, comparing demographic characteristics of the effective sample with those of the population would help us to get a better understanding of the sample population. Unfortunately, the state's certified database on the population in question has very little demographic data of any sort. The one exception concerns the ethnicity of the business people. In this one regard, the composition of the group that responded to the survey seems quite close to that of the overall population: 51% African American and 49% Hispanic-American for the overall population, compared to 53% of the former and 47% of the latter among survey respondents.

Demographic Characteristics

The demographic characteristics of the respondents established by analysis of the survey data are presented in Table 9 hereafter. Representation of survey participants from the two minority groups was comparable. There was a slight difference in the number of African American and Hispanic American that responded to the survey. The effective sample was preponderantly male, mostly middle-aged or older: about 75% over 40 years of age. A Bachelor's degree was both the median and mode for educational qualifications with the second majority of respondents possessing higher qualifications. In essence, the respondents constitute an ethnically balanced, predominantly middle-aged and fairly well-educated but predominantly male group.

Business Characteristics

The majority of the businesses were in the contractual services industry, while the least number of companies were in the architectural and engineering industry. These businesses had relatively few employees with two-thirds having five or less working at one location. Seventy percent have been in business for more than five years. Gross sales among these businesses were quite variable, stretching out over the whole range with the two largest groups at the bottom and top. Overall, the businesses in the sample were predominantly from one industry, employing just a few people in a single location bring in a variable amount of sales as shown in Table 10.

Exposure to Online Commerce

In an effort to understand CMBEs' level of familiarity with electronic commerce, information regarding business owners' exposure to online commerce was also captured. CMBEs' exposure was captured by questions probing the type of experiences the owner had with online commerce. This is shown in Table 11. The mean and modal frequency for shopping online is "sometimes" (less than monthly but more than yearly). Fifty one percent said more than half of their suppliers have websites where almost all of the suppliers' goods/services could be viewed and/or purchased. Less than half have ever attended a training session with only 12% having done so more than once or twice. There were different levels of claimed familiarity with online commerce, but weighted toward low side of scale: 62% are no more than "generally familiar" and nearly a third "know very little."

Use of Electronic Commerce

Characteristics of the businesses' use of electronic commerce indicated that about three-quarters of the businesses have a website. Nearly three-quarters of those businesses had their websites for at least three years. A little less than half of these websites were able to take customers' orders online. Less than a quarter enabled their customers to make payment online. Fifty-four percent of the business owners themselves made business purchases online quite often or regularly. Also, at least three hours a week was spent online by 54 percent of the owners. One or two hours a week was the modal category with 35% of the respondents. Fifty-four percent spent at least three hours online a week, through the modal category (35% of respondents) is "one or two hours a week." A portrait of the respondent population's use of electronic commerce is shown in Table 12.

Attitudes and Opinions Concerning Online Commerce

CMBEs were given an opportunity to express their perceptions about electronic commerce. Attitudes regarding online commerce were assessed using the characteristics of an innovation. The perception component consisted of questions regarding characteristics such as advantage, trialability, observability, compatibility, and complexity of electronic commerce. Perceptions of attitudes toward electronic commerce were measured using a Likert type scale. The scale ranged from one for strongly disagree to five for strongly agree on 23 statements that addressed each of the five innovation characteristics. Table 13 shows the average and variance of each question, as well as the overall average for the characteristic.

Table 9

Demographic Characteristics

	Number of Respondents	Percentage of Respondents
Minority Classification		
African American	280	53.0%
Hispanic American	211	47.0%
Gender		
Male	348	70.9%
Female	143	29.1%
Age		
Under 30	4	.080%
31-40	114	23.3%
41-50	182	37.2%
Over 50	189	38.7%
Educational Level		
High School Diploma/GED	90	18.5%
A.A.	31	6.4%
Bachelors	215	44.1%
Masters	129	26.5%
Doctorate	7	1.4%
Other	15	3.1%

The overall average for each characteristic was between 3.22 and 3.59. Trialability yielded the highest average despite the negative judgment on testing electronic commerce not being worth it.

The items eliciting the highest level of agreement were:

1. “It is possible to begin using computers for business by easily manageable steps” under the trialability theme with an average of 4.12;
2. Use of electronic commerce will make my business more competitive” under the advantage theme with an average of 3.81; and
3. “Testing out electronic commerce is more trouble than it is worth” under the trialability theme again with a mean of 3.61.

Ranked first among the characteristic sub-indices is trialability which is followed by a tie for second between advantage and complexity then observability. Compatibility ranks last among the indices as shown in Table 13.

Table 10

Business Characteristics

Information About Business	Number of Respondents	Percentage of Respondents
Industry		
Construction	66	13.6%
A & E	52	10.7%
Commodities	100	20.5%
Contractual Services	269	55.2%
Number of Employees		
None	94	19.5%
One –Two	128	26.6%
Three – Five	98	20.3%
Six – Ten	52	10.8%
Eleven - Twenty	110	22.8%
Time in Business		
First Year	16	3.3%
1 – 2 Years	44	9.0%
3 – 5 Years	87	17.7%
6 -10 Years	158	32.2%
More than 10 Years	186	37.9%
Gross Sales		
Under \$100,000	125	25.6%
\$100,000 - \$200,000	62	12.7%
\$200,000 - \$500,000	101	20.7%
\$500,000 - \$1,000,000	58	11.9%
Over \$1,000,000	142	29.1%
Number of Locations		
One	413	85.2%
Two	49	10.1%
More than Two	23	4.7%

Table 11

Exposure to Electronic Commerce

Question	Number of Respondents	Percentage of Respondents
How often shop/purchase online?		
Never	9	1.8%
Rarely (once or twice)	97	19.8%
Sometimes (several times a year)	202	41.1%
Often (at least monthly)	129	26.3%
Very regularly	54	11.0%
What portions of primary suppliers have web-sites where items can be viewed/purchased?		
None	30	6.1%
A few	146	29.9%
A good number	65	13.3%
More than half	78	16.0%
Almost all	169	34.6%
Attendance of training sessions, seminars or other events regarding electronic commerce		
Never	289	59.6%
Once or Twice	138	28.5%
Several Times	39	8.0%
Frequently	19	3.9%
Familiarity with the operation of online commerce		
Know very little	153	31.5%
Generally familiar	147	30.2%
Understand well and can describes operations to a friend or colleague	104	21.4%
Have had a lot of exposure to it and understand its workings in considerable detail	82	16.9%

Table 12

Use of Electronic Commerce

Question	Number of Respondents	Percentage of Respondents
Does your business have a website?		
Yes	366	74.7%
No	124	25.3%
How long has your business had a website?		
Less than 1 year	13	3.6%
1 – 2 Years	78	21.7%
3 -5 Years	149	41.5%
6 -10 Years	75	20.9%
More than 10 Years	44	12.3%
Are customers able to order goods and/or services on your website?		
Yes	154	42.3%
No	210	57.7%
Are customers able to make payment on the website?		
Yes	85	23.7%
No	273	76.3%
Do you make business purchases online?		
No	42	8.7%
Rarely	115	23.8%
Sometimes	61	12.6%
Quite Often	184	38.1%
Very Regularly	81	16.8%
Approximately how many hours do you spend transacting business on the Internet a week?		
None	51	10.6%
1 or 2 hours a week	168	34.9%
3 -5 hours a week	52	10.8%
6 -10 hours a week	108	22.4%
Over 10 hours a week	103	21.4%

Table 13

Attitudes and Opinions Concerning Electronic Commerce

Theme	Item	Prompt	Average	Var.
ADVANTAGE	21	Use of electronic commerce will make my business more competitive	3.81	1.352
	24*	Overall, there is little net benefit to using electronic commerce	2.96	1.223
	36	Those who do not use electronic commerce will lose business to competitors who have websites where purchases can be made	3.73	.860
	42*	Use of electronic commerce does little to increase profits in a business like mine.	3.55	1.032
	43*	The culture of my clients would not support an electronic commerce system.	3.48	.866
	OVERALL			3.46
TRIALABILITY	22*	Testing out electronic commerce is more trouble than it is worth.	3.61	.952
	27*	Shifting electronic commerce requires so many other changes in how you run business that it is hard to imagine it working in an enterprise like mine.	3.52	.897
	30	It is possible to begin using computers for business by easily manageable steps.	4.12	.391
	32	One can implement a pilot electronic commerce system without great expense.	3.37	.512
	38*	To get into electronic commerce, you have to buy into the whole system at a major cost.	3.58	.656
	OVERALL			3.59
OBSERVABILITY	23	It is easy to judge whether an electronic commerce system is benefiting a business or not.	3.47	.759
	29*	It is hard to separate out the effects of electronic commerce from all other things that impact your bottom-line.	3.36	.817
	34*	The costs and benefits of introducing electronic commerce in a business takes a long time to establish.	3.23	.849
	37*	Whether computer purchasing and selling is a good fit for a business is not hard to determine.	3.36	.708
	41	The reason for adopting electronic commerce can be quite simply explained to the staff and clients of the business.	3.61	.712
	OVERALL			3.35
COMPATABILITY	25*	Electronic commerce requires too much technical expertise to be feasible for a small business owner.	3.55	.958
	28*	Electronic commerce is not widely used in my industry.	3.14	1.568
	33	My business industry is strongly encouraging the use of electronic commerce to conduct transactions.	2.95	1.279
	39	My client base would have little difficulty using a computer to transact business.	3.38	.852
	OVERALL			3.22
COMPLEXITY	26*	One has to be very knowledgeable about computers to use electronic commerce.	3.39	1.044
	31*	Too much can go wrong with electronic commerce to make it practical to use.	3.72	.746
	35	An electronic commerce system is relatively straightforward and understandable.	3.44	.699
	40	The methods of electronic commerce are easy to learn.	3.56	.453
	OVERALL			3.47

Primary Measures of Association

The following section is devoted to measures of association. The underlying causal framework of thought for this research is embodied in the heuristic scheme. Business use of online commerce represented by a compound index was the dependent variable. The independent and intervening ones were represented by exposure to online commerce and attitudes regarding it. Background and control variables consisted of demographic and business characteristics. The scheme for picturing their conceptual relations was presented in the heuristic model of presumed relationships. This model served as the foundation for developing additional compound indices. Three kinds of measures of association were used in analyzing the survey data. The primary measures of association consisted of cross-tabulations, comparisons of group means and correlation coefficients. The following relationships were explored and found to have some associations with each other:

1. Demographic characteristics and business characteristics
2. Demographic and business characteristics with exposure
3. Demographic and business characteristics with use
4. Demographic and business characteristics with attitudes
5. Exposure with use
6. Exposure and Use with attitudes

There were a high number of significant results returned from the cross tab analysis. Associations that showed significant patterns among the control variables in the cross tabulations were examined further using group mean comparisons with the indices and correlations.

Calibration of Indices for Independent and Dependent Variables

Survey data was grouped into five sections. Sections of the survey included: demographic characteristics of the business owner; characteristics about the business; information about the owner's exposure to online commerce; the company's and owner's use of electronic commerce; and the owner's perceptions of the characteristics of electronic commerce. Three compound indices were developed from these sections to help recognize measures of association of multiple variables like those for exposure, use, and groups of attitudinal variables or an overall measure of attitude toward innovation. Summated rating scales were used to develop individual "scores" on attitudes and perceptions about electronic commerce, as well as

on the degree of exposure to and adoption of electronic commerce. Indices were created by calculating the sum of the coded item results and then averaging them to obtain a composite score for each survey participant. The indices were created as follows from survey items. First, the exposure index was composed of four questions that addressed the:

1. frequency of the owner shopping online;
2. proportion of the businesses primary suppliers having a website where goods and services could be purchased;
3. amount staff and owner electronic commerce training, and
4. familiarity of the owner's operation of online commerce.

A test of the reliability of items creating this index yielded an alpha of .689 with the lowest alpha score of .505, if the familiarity question was dropped. The other 3 questions, if deleted would give alpha scores ranging from .625 to .687. These results indicate a fairly reliable index. The second index, use of electronic commerce was composed of five questions that addressed:

1. the number of years business had website;
2. the ability of customers to order on website;
3. the ability of customers to pay on website;
4. business purchases online; and the
5. amount of time spent transacting business online.

A reliability test of items creating this index yielded an alpha of .725 with the lowest alpha score being .636, if the ability to order on the website question was dropped. The other 4 questions, if deleted would give alpha scores ranging from .647 to .706. These results indicate a fairly reliable index.

Before the third index disposition to innovation was created, each characteristic of the innovation, advantage, trialability, observability, and compatibility and complexity electronic commerce had an index created by using a variety of questions to check the reliability. The advantage index was developed using questions which yielded an alpha of .789 with alpha score ranges between .734 and .805 if one of the questions were deleted. Trialability questions yielded an alpha of .698 with alpha score ranges between .594 and .681 if an item was deleted. Observability questions received an alpha score of .793 with score ranges between .719 and .806 if a question was deleted. Questions on compatibility yielded an alpha score of .845 with alpha

ranges .814 and .859 if an item was deleted. Complexity questions yielded an alpha score of .412 with alpha ranges of .213 and .614.

These characteristic indices were used to create the disposition to innovation index. The disposition index is a measure of the owners' overall perceptions and attitudes about electronic commerce. The third index used in this analysis, disposition to innovation was created by totaling the scores for each characteristic index and then averaging them to give every owner a disposition to innovation score. Thus, the disposition to innovation index was derived from the 23 questions about the characteristics of electronic commerce regarding its:

1. perceived advantage of electronic;
2. trialability;
3. observability;
4. compatibility; and
5. complexity.

A test of reliability for the items creating this index yielded an alpha of .854 with the lowest alpha score being .843 and highest being .859, if one of the characteristic questions were dropped. These results indicate a reliable index.

Inter-relationships of Control Variables

Cross-tabulations measured the association between two or more categorical or ordinal variables in this research. The cross tabulations were done to identify any potential relationships among the various components of the research model, which was made up of the characteristics of the owner; characteristics of the business; exposure to and use of the innovation. Associations that showed significance and revealed important patterns or controls in the Cross tabs were further examined. There were many significant associations identified. Significant associations were examined further using the comparison of group means.

The control variables used in this research consisted of owner and business characteristics. Owner characteristics included age, gender, minority classification, and education level. Business characteristics included industry, number of years in business, number of employees, sales and number of locations. Cross tabulations among the control variables were conducted to identify associations. The results presented an overview of the CMBEs that participated in the survey. These tabulations revealed numerous associations that warranted further examination. However, for the purpose of this research, the most significant relationships

among the control variables are presented. The inter-relationships among five key control variables, gender, age, education level, minority classification, and industry are presented to give some background information on the effective sample. The demographic and business related factors were quite interrelated. For example, women tend to work more preponderantly in the contractual services with men, who have the clear edge in construction and A&E, and they have a higher education level. Men on the other hand, tend to have larger firms with more gross sales and number of employees. The cross tabulations indicated more concentration of African American businesses in the contractual services industry than Hispanic Americans with a higher level of education. However, Hispanic American businesses tended to have larger businesses with more gross sales on the average. The majority of business owners were males over the age of 40 with a heavy concentration of businesses in the commodities and contractual services industries for more than 10 years while employing 3 to 20 people and bringing in higher sales. Table 14 through Table 34 provides a detailed breakdown on the interrelationships among the control variables.

Table 14
Age and Gender Relationship

			Gender		
			Male	Female	Total
Age	Up to 40	Count	72	46	118
		% within Age	61.0%	39.0%	100.0%
	Over 40	Count	276	95	371
		% within Age	74.4%	25.6%	100.0%
Total		Count	348	141	489
		% within Age	71.2%	28.8%	100.0%

* $\chi^2 = 7.817, p = .005$

Table 15
Age and Sales Relationship

		Sales			
		Up to \$200,000	Over \$500,000	Total	
Age	Up to 40	Count	72	26	98
		% within Age	73.5%	26.5%	100.0%
	Over 40	Count	115	172	287
		% within Age	40.1%	59.9%	100.0%
Total		Count	187	198	385
		% within Age	48.6%	51.4%	100.0%

* $\chi^2 = 32.63, p=.000$

Table 16
Gender and Education Level Relationship

		EdLevel			
		HS/AA	Master/Doctorate	Total	
Gender	Male	Count	92	81	173
		% within Gender	53.2%	46.8%	100.0%
	Female	Count	29	55	84
		% within Gender	34.5%	65.5%	100.0%
Total		Count	121	136	257
		% within Gender	47.1%	52.9%	100.0%

* $\chi^2 = 7.898, p=.005$

Table 17
Gender and Minority Classification Relationship

			MinClass		
			African American	Hispanic American	Total
Gender	Male	Count	200	148	348
		% within Gender	57.5%	42.5%	100.0%
	Female	Count	80	63	143
		% within Gender	55.9%	44.1%	100.0%
Total	Count	280	211	491	
	% within Gender	57.0%	43.0%	100.0%	

* $\chi^2 = .096, p=.756$

Table 18
Gender and Industry Relationship

			Industry				Total
			Construction	A&E	Commodities	Contractual Services	
Gender	Male	Count	61	41	70	176	348
		% within Gender	17.5%	11.8%	20.1%	50.6%	100.0%
	Female	Count	5	11	30	93	139
		% within Gender	3.6%	7.9%	21.6%	66.9%	100.0%
Total	Count	66	52	100	269	487	
	% within Gender	13.6%	10.7%	20.5%	55.2%	100.0%	

* $\chi^2 = 20.517, p=.000$

Table 19
Gender and Number of Employees Relationship

		Employee			
		0 to 2	3-20	Total	
Gender	Male	Count	148	191	339
		% within Gender	43.7%	56.3%	100.0%
	Female	Count	74	69	143
		% within Gender	51.7%	48.3%	100.0%
Total		Count	222	260	482
		% within Gender	46.1%	53.9%	100.0%

* $\chi^2 = 2.650, p=.104$

Table 20
Gender and Number of Number of Years Relationship

		NoYears			
		First Year/1-2	More than 10	Total	
		Years			
Gender	Male	Count	38	140	178
		% within Gender	21.3%	78.7%	100.0%
	Female	Count	22	46	68
		% within Gender	32.4%	67.6%	100.0%
Total		Count	60	186	246
		% within Gender	24.4%	75.6%	100.0%

* $\chi^2 = 3.231, p=.072$

Table 21
Gender and Sales Relationship

		Sales			
		Up to \$200,000	Over \$500,000	Total	
Gender	Male	Count	119	159	278
		% within Gender	42.8%	57.2%	100.0%
	Female	Count	68	41	109
		% within Gender	62.4%	37.6%	100.0%
Total		Count	187	200	387
		% within Gender	48.3%	51.7%	100.0%

* $\chi^2 = 12.020, p=.001$

Table 22
Gender and Location Relationship

		Two or More			
		One Location	Locations	Total	
Gender	Male	Count	296	49	345
		% within Gender	85.8%	14.2%	100.0%
	Female	Count	117	23	140
		% within Gender	83.6%	16.4%	100.0%
Total		Count	413	72	485
		% within Gender	85.2%	14.8%	100.0%

* $\chi^2 = .390, p=.532$

Table 23
Education Level and Minority Classification Relationship

		MinClass			
		African American	Hispanic American	Total	
EdLevel	HS/AA	Count	49	72	121
		% within EdLevel	40.5%	59.5%	100.0%
	Master/Doctorate	Count	90	46	136
		% within EdLevel	66.2%	33.8%	100.0%
Total		Count	139	118	257
		% within EdLevel	54.1%	45.9%	100.0%

* $\chi^2 = 17.005, p=.000$

Table 24
Education Level and Industry Relationship

		Industry					
		Construction	A&E	Commodities	Contractual Services	Total	
EdLevel	HS/AA	Count	22	5	17	75	119
		% within EdLevel	18.5%	4.2%	14.3%	63.0%	100.0%
	Master/Doctorate	Count	7	28	30	71	136
		% within EdLevel	5.1%	20.6%	22.1%	52.2%	100.0%
Total		Count	29	33	47	146	255
		% within EdLevel	11.4%	12.9%	18.4%	57.3%	100.0%

* $\chi^2 = 20.860, p=.000$

Table 25
Education Level and Number of Employees Relationship

			Employee		
			0 to 2	3-20	Total
EdLevel	HS/AA	Count	50	71	121
		% within EdLevel	41.3%	58.7%	100.0%
	Master/Doctorate	Count	69	67	136
		% within EdLevel	50.7%	49.3%	100.0%
Total		Count	119	138	257
		% within EdLevel	46.3%	53.7%	100.0%

* $\chi^2 = 2.282, p=.131$

Table 26
Education Level and Number of Years in Business Relationship

			NoYears		Total
EdLevel	HS/AA	Count	18	46	64
		% within EdLevel	28.1%	71.9%	100.0%
	Master/Doctorate	Count	18	42	60
		% within EdLevel	30.0%	70.0%	100.0%
Total		Count	36	88	124
		% within EdLevel	29.0%	71.0%	100.0%

* $\chi^2 = .053, p=.818$

Table 27
Education Level and Sales Relationship

		Sales			
		Up to \$200,000	Over \$500,000	Total	
EdLevel	HS/AA	Count	41	62	103
		% within EdLevel	39.8%	60.2%	100.0%
	Master/Doctorate	Count	57	54	111
		% within EdLevel	51.4%	48.6%	100.0%
Total		Count	98	116	214
		% within EdLevel	45.8%	54.2%	100.0%

* $\chi^2 = 2.869, p = .090$

Table 28
Education Level and Location Relationship

		Location			
		One Location	Two or More Locations	Total	
EdLevel	HS/AA	Count	101	14	115
		% within EdLevel	87.8%	12.2%	100.0%
	Master/Doctorate	Count	115	21	136
		% within EdLevel	84.6%	15.4%	100.0%
Total		Count	216	35	251
		% within EdLevel	86.1%	13.9%	100.0%

* $\chi^2 = .554, p = .457$

Table 29
Education Level and Gender Relationship

			Gender		
			Male	Female	Total
EdLevel	HS/AA	Count	92	29	121
		% within EdLevel	76.0%	24.0%	100.0%
	Master/Doctorate	Count	81	55	136
		% within EdLevel	59.6%	40.4%	100.0%
Total		Count	173	84	257
		% within EdLevel	67.3%	32.7%	100.0%

* $\chi^2 = 7.898, p=.005$

Table 30
Minority Classification and Industry Relationship

			Industry				
			Construction	A&E	Commodities	Contractual Services	Total
MinClass	African American	Count	28	32	44	176	280
		% within MinClass	10.0%	11.4%	15.7%	62.9%	100.0%
	Hispanic American	Count	38	20	56	93	207
		% within MinClass	18.4%	9.7%	27.1%	44.9%	100.0%
Total		Count	66	52	100	269	487
		% within MinClass	13.6%	10.7%	20.5%	55.2%	100.0%

* $\chi^2 = 20.860, p=.000$

Table 31
Minority Classification and Number of Employees Relationship

			Employee		
			0 to 2	3-20	Total
MinClass	African American	Count	146	125	271
		% within MinClass	53.9%	46.1%	100.0%
	Hispanic American	Count	76	135	211
		% within MinClass	36.0%	64.0%	100.0%
Total		Count	222	260	482
		% within MinClass	46.1%	53.9%	100.0%

* $\chi^2 = 15.224, p=.000$

Table 32
Minority Classification and Number of Years Relationship

			NoYears		
			First Year/1-2	More than 10	Total
			Years		
MinClass	African American	Count	35	94	129
		% within MinClass	27.1%	72.9%	100.0%
	Hispanic American	Count	25	92	117
		% within MinClass	21.4%	78.6%	100.0%
Total		Count	60	186	246
		% within MinClass	24.4%	75.6%	100.0%

* $\chi^2 1.105, p=.293$

Table 33
Minority Classification and Sales Relationship

		Sales			
		Up to \$200,000	Over \$500,000	Total	
MinClass	African American	Count	138	90	228
		% within MinClass	60.5%	39.5%	100.0%
	Hispanic American	Count	49	110	159
		% within MinClass	30.8%	69.2%	100.0%
Total		Count	187	200	387
		% within MinClass	48.3%	51.7%	100.0%

* $\chi^2 = 33.108, p=.000$

Table 34
Minority Classification and Location Relationship

		Location			
		One Location	Two or More Locations	Total	
MinClass	African American	Count	246	34	280
		% within MinClass	87.9%	12.1%	100.0%
	Hispanic American	Count	167	38	205
		% within MinClass	81.5%	18.5%	100.0%
Total		Count	413	72	485
		% within MinClass	85.2%	14.8%	100.0%

* $\chi^2 = 3.827, p=.050$

Relationship of Control Factors to Principal IVs and DV

The business owners' exposure to electronic commerce, use of electronic commerce, and perception characteristics of electronic commerce are significant factors highlighted in this research. The perception characteristics are reflected in the business owners' attitudes about the advantages or benefits of electronic commerce along with the trialability or ease of use, observability of its advantages, the compatibility with business operations and customers and complexity of use for employees and clients. Each survey participant was given a disposition score. The sum of the characteristic questions were totaled and averaged to create a disposition to electronic commerce score. This score indicated how likely a person was to use electronic commerce based on their attitudes. Survey items related to the use of electronic commerce were grouped together then averaged to create a comprehensive utilization score creating the variable Use. Likewise, comprehensive scores for exposure to and use of electronic commerce were created in the same manner.

The personal and business characteristics of CMBEs were used as control variables to measure associations among the indices. Control factors were examined using the 3 indices electronic commerce exposure, disposition to electronic commerce and electronic commerce use. Group means among the control variables were reviewed, identifying those of significance. Referring back to the heuristic scheme, there's a suggested path that an owner follows. First is the exposure which leads to the disposition, and then eventually some level of use. The comparison of group means helped to target sectors of the control variable where there's a significant difference among the group means of the indices. Significant control variables such as age, education level, and industry were examined.

Age. Age of the business owner is a facilitating factor. A measure of association between the age of the business owner and their exposure to electronic commerce was used to determine if there was a significant relationship. The exposure variable was compiled by taking the average of the 4 survey questions related to exposure to online commerce. These questions addressed the frequency of online shopping as well as the level of familiarity with online shopping. The results of the cross tabulation indicate that there is a significant positive relationship between age and exposure to electronic commerce. The main point is that older business owners generally appeared to make more use of this medium than the younger ones. Based upon the further analysis of owners, results suggested that businesses with owners over 40 are using electronic

commerce more than those under 40, as shown in Table 35. Also, a measure of association between age and the use of electronic commerce for business use was also conducted. The use variable was compiled by taking the average of the use questions. Included in the use variable were questions about business websites as well as the frequency of conducting business on the internet. A significant relationship was also found in this measurement.

The control variable age and 3 indices exposure, disposition and use were compared. Differences among means of owners' age were found. Older owners were exposed to electric commerce more the younger ones. Indications of a relationship among the age and exposure components were indicated in previous cross tabulations. For example, cross tabulations for age and electronic commerce training yielded a chi-square of 38.85, p score of .000 with 9 degrees of freedom which indicated some type of association. Another cross tabulation probing owners' exposure was age and shopping online also produced a chi-square of 23.473, p score of .024 with 12 degrees of freedom. The comparison of this group mean among the exposure index indicated a significant relationships regarding age. Disposition to electronic commerce also differed among the age groups. Older business owners tended to have stronger more favorable perception of the innovation electronic commerce. The greatest difference was found among the comparison of means for the use of electronic commerce which also indicated that older owners tend to use the electronic commerce more than younger business owners. Previous cross tabulations indicated an association between age and use components. For example, age and the amount of business purchases online produced a chi-square of 25.46 with a p score of .013 and 12 degrees of freedom.

Education. A general trend that emerged from the comparison of group means is that the more educated owners used electronic commerce more than those less educated. A measurement of association between the educational level of the business owner and their exposure to and use of electronic commerce was used to determine if there was a significant relationship. Table 36 shows the comparison of group means exposure, disposition and use. The control variable education level and 3 indices were compared. Differences among means of owners' education levels were found. Owners with higher education levels tended to be exposed to electronic commerce than those with lower degrees. The exposure index had the greatest difference among the means. Indications of a relationship among the education level and exposure components were indicated in previous cross tabulations. For example, cross tabulations for education level

and training yielded a chi-square of 50.23, p score of .000 with 15 degrees of freedom which indicated some type of association. Another cross tabulation education and familiarity

Table 35

Age and Indices Group Means

Age		ECExpos	Disposition	ECUse
Up to 40	Mean	4.3325	3.3069	4.0670
	N	118	118	118
	Std. Deviation	2.37552	.66332	2.37178
	% of Total Sum	23.8%	23.3%	22.5%
	% of Total N	24.1%	24.1%	24.1%
Over 40	Mean	4.4236	3.4643	4.4547
	N	371	371	371
	Std. Deviation	2.13625	.49803	2.72795
	% of Total Sum	76.2%	76.7%	77.5%
	% of Total N	75.9%	75.9%	75.9%
Total	Mean	4.4016	3.4264	4.3611
	N	489	489	489
	Std. Deviation	2.19421	.54598	2.64926
	% of Total Sum	100.0%	100.0%	100.0%
	% of Total N	100.0%	100.0%	100.0%

- a. ECExpos : $t=.392, p=.695, \alpha=.05$
b. Disposition: $t= 2.746, p=.006, \alpha=.05$
c. ECUse: $t= 1.386, p=.166, \alpha=.05$

also produced a chi-square of 46.07, p score of .000 with 15 degrees of freedom. The comparison of this group mean among the exposure index indicates a significant relationship regarding education level. Disposition to electronic commerce also differed among education levels. Business owners with more education tended to have more favorable perceptions of the innovation electronic commerce. Owners with higher levels of education tend to use electronic commerce more. Previous cross tabulations indicated an association between education level and use components. For example, education level and business purchases online produced a chi-square of 69.26 with a p score of .000 and 20 degrees of freedom.

Industry. The industry in which the business operates is a significant facilitating factor in the adoption of electronic commerce. According to the survey results, 50 percent of the businesses had suppliers that had webs-sites where items could be viewed and/or purchased. However, 35 percent of the business owners disagreed with the statement, “My business industry is strongly encouraging the use of electronic commerce to conduct business transactions.” A measurement of association between the industry’s use and business exposure and use of electronic commerce was done to determine if there was a significant relationship. A significant relationship between the industry and exposure and use of electronic commerce was found. Business people in the commodities and contractual services industry seem to make much more use of electronic commerce than those in the construction, architectural and engineering industries. The commodities and contractual services industries when compared to the results of the construction and architectural & engineering industries have the highest group means as shown in Table 37.

Table 36

Education Level and Indices Group Means

EdLevel		ECExpos	Disposition	ECUse
HS/AA	Mean	4.0580	3.3540	4.2251
	N	121	121	121
	Std. Deviation	1.94097	.52875	2.69039
	% of Total Sum	44.2%	46.0%	46.4%
	% of Total N	47.1%	47.1%	47.1%
Master/Doctorate	Mean	4.5592	3.4973	4.3399
	N	136	136	136
	Std. Deviation	1.93817	.36717	2.61933
	% of Total Sum	55.8%	54.0%	53.6%
	% of Total N	52.9%	52.9%	52.9%
Total	Mean	4.3232	3.4298	4.2858
	N	257	257	257
	Std. Deviation	1.95186	.45528	2.64844
	% of Total Sum	100.0%	100.0%	100.0%
	% of Total N	100.0%	100.0%	100.0%

- a. ECExpos : $t=2.068, p=.040, \alpha=.05$
b. Disposition: $t= 2.546, p=.011, \alpha=.05$
c. ECUse: $t= .346, p=.730, \alpha=.05$

Table 37

Industry and Indices Group Means

Industry		ECExpos	DisposAvg	ECUse
Construction/ Engineering	Mean	3.9150	3.2306	3.7420
	N	118	118	118
	Std. Deviation	2.03147	.55383	2.24441
	% of Total Sum	21.6%	22.8%	20.7%
	% of Total N	24.2%	24.2%	24.2%
Commodities/ Contractual Services	Mean	4.5484	3.4903	4.5896
	N	369	369	369
	Std. Deviation	2.23086	.52828	2.72664
	% of Total Sum	78.4%	77.2%	79.3%
	% of Total N	75.8%	75.8%	75.8%
Total	Mean	4.3949	3.4274	4.3842
	N	487	487	487
	Std. Deviation	2.19902	.54550	2.64090
	% of Total Sum	100.0%	100.0%	100.0%
	% of Total N	100.0%	100.0%	100.0%

- a. ECExpos : $t=2.742, p=.006, \alpha=.05$
b. Disposition: $t=4.594, p=.000, \alpha=.05$
c. ECUse: $t=3.061, p=.002, \alpha=.05$

The control variable industry and 3 indices were compared. Previous cross tabulations indicated an association between industry and use. For example, industry and supplier websites produced a chi-square of 60.38 with a p score of .000 and 12 degrees of freedom. Further examination of this revealed significant relationships among the commodities and contractual services industries. Differences among means of the four industries were found. Business in the contractual services industry tended to have the greatest amount of exposure to electronic commerce compared to construction with the lowest industry mean. The use index had the greatest difference among the industry means.

Group means of other control variables such as the number of employees, number of years in business, amount of sales, minority classification and gender were also compared among the three indices. Table 38 shows businesses with more employees use electronic commerce more and has a more favorable disposition towards it. Companies that have been in business longer had more exposure, a greater disposition and more use of electronic commerce as indicated in Table 39. Business with sales over \$500,000 tended to be exposed to electronic commerce more and typically used it more than those companies with lower sales as shown in Table 40. African Americans as shown in Table 41 tended to have more exposure, a greater disposition and more use of electronic commerce than Hispanic Americans. Males were also shown to have more exposure, a greater disposition and more use of electronic commerce in Table 42. A summary of the group means detailing the significance test results among the control variables is given in Table 43.

Table 38
Number of Employees and Indices Group Means

Employee	ECExpos	Disposition	ECUse
0 to 2			
Mean	4.5655	3.3631	3.7770
N	222	222	222
Std. Deviation	2.29351	.42799	2.67913
% of Total Sum	47.7%	45.3%	40.6%
% of Total N	46.1%	46.1%	46.1%
3-20			
Mean	4.2755	3.4645	4.7275
N	260	260	260
Std. Deviation	2.12961	.62692	2.48411
% of Total Sum	52.3%	54.7%	59.4%
Total			
Mean	4.4091	3.4178	4.2897
N	482	482	482
Std. Deviation	2.20904	.54621	2.61640
% of Total Sum	100.0%	100.0%	100.0%
% of Total N	100.0%	100.0%	100.0%

- a. ECExpos : $t=1.438, p=.151, \alpha=.05$
b. Disposition: $t= 2.038, p=.042, \alpha=.05$
c. ECUse: $t= 4.038, p=.000, \alpha=.05$

Table 39
Number of Years and Indices Group Means

NoYears		ECExpos	Disposition	ECUse
First Year/1-2 Years	Mean	4.1937	3.3692	3.4992
	N	60	60	60
	Std. Deviation	1.82307	.33908	2.01878
	% of Total Sum	22.3%	23.5%	17.6%
	% of Total N	24.4%	24.4%	24.4%
More than 10	Mean	4.7235	3.5467	5.3022
	N	186	186	186
	Std. Deviation	2.14887	.62142	2.89464
	% of Total Sum	77.7%	76.5%	82.4%
	% of Total N	75.6%	75.6%	75.6%
Total	Mean	4.5943	3.5034	4.8624
	N	246	246	246
	Std. Deviation	2.08307	.57019	2.81253
	% of Total Sum	100.0%	100.0%	100.0%
	% of Total N	100.0%	100.0%	100.0%

- a. ECExpos : $t=1.720, p=.087, \alpha=.05$
b. Disposition: $t= 2.111, p=.036, \alpha=.05$
c. ECUse: $t= 4.483, p=.000, \alpha=.05$

Table 40
Sales and Indices Group Means

Sales	ECEXpos	Disposition	ECUse
Up to \$200,000 Mean	4.4358	3.3400	3.9920
N	187	187	187
Std. Deviation	2.33110	.44497	2.67433
% of Total Sum	46.8%	47.2%	41.5%
% of Total N	48.3%	48.3%	48.3%
Over \$500,000 Mean	4.7155	3.4940	5.2622
N	200	200	200
Std. Deviation	1.96224	.68028	2.48155
% of Total Sum	53.2%	52.8%	58.5%
% of Total N	51.7%	51.7%	51.7%
Total Mean	4.5803	3.4196	4.6485
N	387	387	387
Std. Deviation	2.15013	.58303	2.65048
% of Total Sum	100.0%	100.0%	100.0%
% of Total N	100.0%	100.0%	100.0%

- a. ECEXpos : $t=1.280, p=.201, \alpha=.05$
b. Disposition: $t= 2.616, p=.009, \alpha=.05$
c. ECUse: $t= 4.847, p=.000, \alpha=.05$

Table 41

Minority Classification and Indices Group Means

MinClass		ECEXpos	DisposAvg	ECUse
African American	Mean	4.7007	3.5095	4.5274
	N	280	280	280
	Std. Deviation	2.32320	.49491	2.73247
	% of Total Sum	60.9%	58.4%	59.2%
	% of Total N	57.0%	57.0%	57.0%
Hispanic American	Mean	3.9966	3.3154	4.1387
	N	211	211	211
	Std. Deviation	1.93400	.58801	2.51076
	% of Total Sum	39.1%	41.6%	40.8%
	% of Total N	43.0%	43.0%	43.0%
Total	Mean	4.3981	3.4260	4.3604
	N	491	491	491
	Std. Deviation	2.19040	.54488	2.64387
	% of Total Sum	100.0%	100.0%	100.0%
	% of Total N	100.0%	100.0%	100.0%

- a. ECEXpos : $t=3.568, p=.000, \alpha=.05$
b. Disposition: $t= 3.966, p=.000, \alpha=.05$
c. ECUse: $t= 1.616, p=.107, \alpha=.05$

Table 42
Gender and Indices Group Means

Gender		ECExpos	DisposAvg	ECUse
Male	Mean	4.4775	3.4776	4.7361
	N	348	348	348
	Std. Deviation	2.23251	.50237	2.58448
	% of Total Sum	72.2%	71.9%	77.0%
	% of Total N	70.9%	70.9%	70.9%
Female	Mean	4.2050	3.3006	3.4459
	N	143	143	143
	Std. Deviation	2.07931	.62084	2.57100
	% of Total Sum	27.8%	28.1%	23.0%
	% of Total N	29.1%	29.1%	29.1%
Total	Mean	4.3981	3.4260	4.3604
	N	491	491	491
	Std. Deviation	2.19040	.54488	2.64387
	% of Total Sum	100.0%	100.0%	100.0%
	% of Total N	100.0%	100.0%	100.0%

- a. ECExpos : $t=1.253, p=.211, \alpha=.05$
b. Disposition: $t= 3.302, p=.000, \alpha=.05$
c. ECUse: $t= 5.033, p=.000, \alpha=.05$

Table 43
Indices Group Means Significance

CONTROL VARIABLES	INDEPENDENT AND DEPENDENT VARIABLES					
	EC EXPOSURE		EC DISPOSITION		EC USE	
	<i>t and p</i>	Direction of relationship	<i>t and p</i>	Direction of relationship	<i>t and p</i>	Direction of relationship
Gender	NS	--	t = 3.30 p = .000	Male more disposed	t = 5.03 p = .000	Male use more
Ethnicity	t=3.568 p=.000	African American more exposure	t=3.966 p= .000	African American disposed more	t=1.616 p=.107	African American use more
Age	NS	--	t=2.746 p=.006	Over 40 disposed more	NS	--
Ed Level	t=2.068 p=.040	Master/Doctorate more exposure	t=2.546 p=.011	Master/Doctorate disposed more	NS t=.346 p=.730	--
Nb. Employees	NS	--	t=2.038 p=.042	3 to 20 disposed more	t=4.038 p=.000	3 to 20 use more
Gross sales	NS	--	t=2.616 p=.009	Over \$500,000 disposed more	t=4.847 p=.000	Over \$500,000 use more
Yrs in business	t=1.720 p=.087	>10 years more exposure	t=2.111 p=.036	>10 years disposed more	t=4.483 p=.000	>10 years use more
Industry	t=2.742 p=.006	Commodities/ Services more exposure	t=4.594 p=.000	Commodities/ Services disposed more	t=3.061 p=.002	Commodities/ Services use more

Correlation of IV and DV

The business owners' exposure to electronic commerce, use of electronic commerce, and perception characteristics of electronic commerce are significant factors highlighted in this research. The perception characteristics were reflected in the business owners' attitudes about the advantages or benefits of electronic commerce along with the trialability or ease of use, observability of its advantages, the compatibility with business operations and customers and complexity of use for employees and clients. Correlations between the variables electronic commerce use, exposure, characteristics and disposition were examined. There were some moderate associations among the 3 indices.

Exposure and Disposition Components. Overall, association of the electronic commerce exposure index with characteristic indices was weak as shown in Table 44. Advantage, trialability, observability, and complexity only indicated weak relationships between them and exposure with the highest correlation among them being .354. Compatibility was the only characteristic that showed a moderate association with one's exposure. Electronic commerce's compatibility with existing values and practices and exposure had a moderate relationship. The more an owner was exposed was an indicator of how compatible he perceived electronic commerce to be with the business. Owners that were exposed to electronic commerce perceived that it was more compatible with existing business values and practices. The greater the exposure of the owner; the more compatible electronic commerce was with the business. Perception of relative advantage had the weakest relationship with how much an owner has been exposed to electronic commerce. Changes in the amount of exposure did not appear to have a significant effect on perceived advantages.

Exposure with Disposition Index. Overall, Table 45 shows the association between the exposure and disposition index which indicates a moderate relationship with a correlation coefficient of .429. It would appear that as business owners are exposed more to the characteristics of electronic commerce their attitudes favorably towards electronic commerce. The more business owners are exposed to electronic commerce to observe its compatibility with existing business practices and witness its advantages and complexities, the greater their disposition is towards electronic commerce.

Exposure with Use. Table 45 also shows a moderate association between exposure and use with a correlation coefficient of .554. The more a business owner is exposed to electronic commerce; the more likely he is to use it. The exposure of electronic commerce is moderately related to how much an owner uses it in their business.

Table 44

Exposure to Electronic Commerce with Components of Disposition Correlations

Variable	ECExpos	Adv	Trial	Obsev	Cpat	Cplex
E-Commerce Exposure (ECExpos)	1.00	.242**	.366**	.354**	.454**	.334**
Pearson Correlation	.000	.000	.000	.000	.000	.000
Significance 2-tailed						

** Correlation is significant at the 0.01 level (2-tailed)

Table 45

Inter-correlation of Exposure, Disposition and Use Indices

Variable	ECExpos	Dispos	ECUse
E-Commerce Exposure (ECExpos)	1.00	.429**	.554**
Pearson Correlation	.000	.000	.000
Significance 2-tailed			
Disposition (Dispos)	.429**	1.00	.470**
Pearson Correlation	.000	.000	.000
Significance 2-tailed			
E-Commerce Use (ECUse)	.554**	.470**	1.00
Pearson Correlation	.000	.000	.000
Significance 2-tailed			

** Correlation is significant at the 0.01 level (2-tailed)

Use and Disposition Components

Overall, association of the electronic commerce use with the characteristic indices was weak to moderate with correlations ranging from .293 to .476. shown in Table 46. Observability, complexity and trialability had the weakest associations with the use. Compatibility and advantage indicated moderate associations with compatibility having a correlation of .476 compared to advantage at .441. Electronic commerce's compatibility with existing values and practices will likely predict the use of electronic commerce. The more an owner uses electronic commerce, the greater chance he has of observing the advantages it has in the business. Owners that used electronic commerce perceived that it was more compatible with existing business values and practices. The more use; the more positive are the attitudes towards electronic commerce. Observability had the weakest relationship with how much an owner used electronic commerce. Changes in the amount of use did not appear to have a significant effect on attitudes and perceptions toward electric commerce. Overall, the association between disposition and use indicate a moderate relationship with a correlation coefficient of .479. The more favorable the perceptions or attitudes are about electronic commerce's advantages, trialability, compatibility, complexity, and observability, the more inclined an owner is to use electronic commerce in their business.

Table 46
Electronic Commerce Use with Components of Disposition Correlations

Variable	ECUse	Adv	Trial	Obsev	Cpat	Cplex
E-Commerce Use (ECUse)						
Pearson Correlation	1.00	.441**	.376**	.293**	.476**	.362**
Significance 2-tailed	.000	.000	.000	.000	.000	.000

** Correlation is significant at the 0.01 level (2-tailed)

CHAPTER FIVE

QUALITATIVE DATA

Nature of Sample

Qualitative data collection in this research consisted of conducting interviews with Certified Minority Business Enterprises (CMBEs) and having a group discussion with the Florida Association of Minority Business Enterprise Officials (FAMBEO) that assist businesses. Interviews were both structured and unstructured. CMBE interviews started with structured questions where a specific set of questions was asked to all of the participants. The interviews then became more relaxed and unstructured in nature to allow questions to be prompted by the flow of the interview conversation. Semi-structured interviewing allowed the interview to go into greater depth than more formal open-ended survey approaches by providing the opportunity to probe and expand the interviewee's responses.

The sample group for the qualitative portion of this research was created from those individuals who indicated on the returned survey that they were willing to participate in an interview and FAMBEO members. There were 33 respondents that agreed to an interview. These respondents were grouped by owner and business characteristics. Six of the respondents could not be contacted due to incorrect contact information while 3 others were not available to participate in the interviews due to scheduling conflicts. A total of twenty four businesses participated in the interview process. In addition to the individual interviews, a group discussion with FAMBEO members representing different areas of the state was held.

Qualitative information was gathered from interviews with CMBEs, along with the FAMBEO group discussion. CMBE interviews were conducted both face-to-face and on the telephone. Interviews were scheduled prior to the event to allow participants to select the most appropriate time that would keep them from feeling rushed or being interrupted unnecessarily. The face to face interviews took place during regional business matchmaker workshops coordinated by the Office of Supplier Diversity. During several of these workshops a private room was secured to conduct a total of fourteen face to face interviews. The interviews lasted from 30 minutes to an hour. Some of these sessions were audio recorded and transcribed later while other interviews just consisted of taking notes during the interview session because the

participant did not want to be recorded. Information gathered from these interviews was used to develop additional questions in other interviews. Ten interviews were conducted over the telephone. The telephone interviews were scheduled in advance to allow the owner to set aside uninterrupted time to answer the questions. These interviews also lasted from 30 minutes to an hour. The majority of the telephone interviews were not recorded due to the participants' request. Males participated in the majority of the interviews. Companies in the contractual services and commodities industry were represented the most in this group. The modal level for gross sales of these firms was over 1 million dollars. Most of business had been established for over 10 years. All owners, except for 8 had some college education.

Members of FAMBEO's were sent an invitation to participate in this focus group. This group of minority business and procurement officials took place at the annual statewide business matchmaker in the fall. A total of twelve FAMBEO members participated in this open discussion for a total of 2 hours. The focus group was held in a separate meeting room separate from other conference activities. This meeting was not recorded. However, there was a scribe to take notes. FAMBEO members that participated were predominantly African and Hispanic American with an equal distribution of males and females. The average was between 31 and 50 with 31-40 being the modal level.

Interview Questions

Based upon the findings of the quantitative data, interview questions were formulated to gain a deeper understanding of electronic commerce use among CMBEs. The questions were used as a guide to solicit information about the principal barriers to the adoption and utilization of electronic commerce among certified African and Hispanic American business enterprises in Florida. Each interview began with a brief introduction of the research and the definition of electronic commerce used in this research. Questions used to probe the owner included some of the questions below. The questions listed below are examples of questions that were asked during the interview. Interviewees were not asked all of the questions below. The questions were asked according to the conversation. As the interview advanced, questions were asked to probe for additional information. A total of eighteen questions were asked among the twenty four interviews. They are:

1. What factors do you think influence a minority business to adopt the use of electronic commerce?

2. How has electronic commerce affected the way in which you conduct business?
3. What industry trends do you see as it relates to electronic commerce in your area?
4. How did you learn about electronic commerce?
5. Do you use electronic technology in your business?
6. How did you prepare for the implementation of electronic commerce in your business?
7. What type of training/education have you received regarding electronic commerce?
Staff?
8. What are some issues/problems that you have encountered with electronic commerce?
9. What are some of the future affects that electronic commerce will have on the minority
business enterprise community?
10. How often do you use business technology in your operations?
11. What percentage of your business is done on your web-site?
12. What has your experience been when conducting business on the internet?
13. Why did you decide to have a website for your business?
14. Have your experiences influenced your own decision to use or not use the internet to
implement an electronic commerce system?
15. If you are not using electronic commerce what are the reasons?
16. Are your colleagues using technology or electronic commerce?
17. What would it take for you to implement it in your business operations?
18. How did you learn about this technology? Did you receive any formal training?

Responses from these questions were then grouped according to their similarities and themes were developed.

Themes from Interviews and Small Group Discussions

This section presents the themes identified during the CMBE interviews and group discussion with members of the members FAMBEO. Random comments and examples of the interviewees' thoughts about electronic commerce provide a snapshot of the interviews and discussions. Some insightful thoughts on factors influencing the adoption and use of electronic commerce are presented in this section. The characteristics of the CMBE and FAMBEO interviewees are identified in Table 47 and FAMBEO members characteristics are presented in

Table 48. FAMBEO member are referred to as minority business consultants (MBC). Information disclosing the characteristics of the FAMBEO members is limited. Additional characteristics could not be given without disclosing the identity of the member responding. The primary guiding question was: What factors do you think influence a minority business to adopt electronic commerce?

Interview Themes Embodied in Heuristic Scheme

Personal Characteristics of Certified Minority Business Enterprises

According to the interviews and group discussion age of the owner and education and training background is an influencing factor in the adoption of electronic commerce. The age in which owners started to learn about and how to use technology plays an important role in the adoption of electronic commerce. Often times the owner started learning about technology in an educational setting like school. Themes regarding the personal characteristics of the CMBEs' age and education are discussed hereafter.

Age of the Owner. The age of the owner influences the business' use of electronic commerce. CMBE #20 who is between the ages of 41 and 50 in the A&E industry for five years felt that younger owners were more apt to use electronic commerce:

I'm in the late 40's group. I think that someone in a younger age group, say in their 30's is more computer savvy than those in my generation. Between 25 and 50 you've got to be on top of your game because technology is how a lot of information is shared. Those are the two generations more apt to use technology.

Other interviewees also felt that younger owners were using electronic commerce more. CMBE #21, a Hispanic male over 50 in the contractual services industry went even further to address the problem with older owners as being satisfied with the status quo:

I think that one of the things that might hinder the use of electronic commerce would be change of the status quo. Most people, maybe 50 or older that had not been trained early on in the use of computer or technology maybe a little more resistant to using electronic commerce in their business.

Table 47
 CMBE Interview Participant Characteristics

Interview #	Age	Gender	Ed. Level	Minority Class.	Industry	#Employees	Years in Business	Gross Sales
1	Over 50	Male	MS	Hispanic American	Construction	3 to 5	>10 yrs	\$500,000 - \$1 million
2	31-40	Male	MS	African American	Construction	11 to 20	6-10 yrs	Over \$1 million
3	31-40	Male	HS/GED	Hispanic American	A&E	None	1-2 yrs	\$100,000 - \$200,000
4	Over 50	Male	MS	African American	A&E	None	3-5 yrs	\$200,000 - \$500,000
5	31-40	Male	MS	African American	Contractual Services	None	1-2 yrs	Under \$100,000
6	Over 50	Male	BA	African American	Contractual Services	1 to 2	>10 yrs	\$200,000 - \$500,000
7	Over 50	Male	HS/GED	Hispanic American	Commodities	11 to 20	>10 yrs	Over \$1 million
8	Over 50	Male	AA	Hispanic American	Contractual Services	1 to 2	3-5 yrs	Under \$100,000
9	41-50	Male	HS/GED	Hispanic American	Commodities	11 to 20	>10 yrs	Over \$1 million
10	41-50	Male	PHD	African American	Commodities	1 to 2	1st yr	Under \$100,000
11	41-50	Male	BA	African American	Contractual Services	3 to 5	>10 yrs	\$200,000 - \$500,000
12	Over 50	Male	BA	Hispanic American	Construction	6 to 10	>10 yrs	\$500,000 - \$1 million
13	Over 50	Female	MS	African American	Commodities	1 to 2	>10 yrs	\$100,000 - \$200,000
14	41-50	Male	BA	Hispanic American	Contractual Services	1 to 2	3-5 yrs	\$200,000 - \$500,000
15	41-50	Female	HS/GED	Hispanic American	Contractual Services	6 to 10	6-10 yrs	Over \$1 million
16	41-50	Male	MS	African American	A&E	11 to 20	>10 yrs	Over \$1 million
17	Over 50	Male	HS/GED	African American	Contractual Services	3 to 5	>10 yrs	\$500,000 - \$1 million
18	Over 50	Male	HS/GED	African American	Contractual Services	None	>10 yrs	Under \$100,000
19	Over 50	Male	BA	African American	Commodities	1 to 2	3-5 yrs	\$100,000 - \$200,000
20	41-50	Female	HS/GED	Hispanic American	A&E	3 to 5	1-2 yrs	Under \$100,000
21	Over 50	Male	MS	Hispanic American	Contractual Services	11 to 20	>10 yrs	Over \$1 million
22	41-50	Female	Other	African American	Construction	11 to 20	>10 yrs	\$500,000 - \$1 million
23	Over 50	Male	BA	Hispanic American	Contractual Services	11 to 20	>10 yrs	Over \$1 million
24	Over 50	Male	HS/GED	Hispanic American	Commodities	None	6-10 yrs	Under \$100,000

Table 48
FAMBEO Participant Characteristics

Minority Business Consultant# (MBC)	Age	Gender	Race
MBC 1	Over 50	Male	African American
MBC 2	Over 50	Female	African American
MBC 3	Over 50	Male	African American
MBC 4	Over 50	Female	Caucasian
MBC 5	41-50	Male	African American
MBC 6	41-50	Male	Hispanic American
MBC 7	31-40	Male	Hispanic American
MBC 8	41-50	Female	Hispanic American
MBC 9	31-40	Female	African American
MBC 10	31-40	Female	African American
MBC 11	31-40	Male	Caucasian
MBC 12	31-40	Female	Hispanic American

From a different perspective, MBC#1 a long time business owner in construction felt that older owners are trying to catch up to the technology that the younger owners are using. He agreed that older persons are investing more. However, he thinks that older owners are playing catch-up which indicates that they are currently behind the technology curve. They are only doing this to catch up to the younger generation of business owners. MBC #1:

I think the age of the owners make a difference. There may be a more significant use of technology by older business owners because they really need to remain competitive with the younger owners. Most young owners are coming into businesses already being used to using technology, whereas the older owner is one that is seeking additional training and skills to stay ahead of the game and remain competitive. Older owners find themselves gearing up to learn more. They have to play catch up.

A difference of opinion was revealed in other interviews and the focus group in which the older business owner was believed to use technology such as electronic commerce more. MBC #11 a consultant that works with minority business enterprises (MBEs) daily expressed that more of his

older clients were investing more in technology in their business compared to younger business owners. MBC #11:

More older persons own businesses now and are investing more time and effort into getting the knowledge and skills that they need to compete against younger owners, whereas, the younger business owner may not have as many resources available to them because of their age. Older owners have things like equity in their homes and pension plans to draw from to seek the needed resources.

CMBE# 9 who has been in business over 10 years in the commodities industry felt that older owners were using more simply because they owned more businesses. CMBE #9:

I think that older persons are using electronic commerce more because there are more people over 40 that actually own businesses. These are people who have more than likely worked for someone else early on in their careers and developed the skills and gained the experience necessary to venture out on their own and start a business.

A prime example of an older CMBE using more technology as a result of trying to catch up is CMBE#13, an African American female in the commodities industry for the past 2 years speaks of her endeavor to learn about and use technology. CMBE #13: "I'm in my late 50's and I started using computers and the internet about five years ago. I now use it every day in my business. I specifically purchased the computer for my business." The interviews and group discussions suggested that younger business owners were more likely to use electronic commerce. Responses identified a couple of reasons for the difference among the age groups. One reason is because the younger generation tends to use the internet more. The younger generation's familiarity and knowledge in computer technology tends to be greater because of frequent exposure and use. On the other hand, some interviewees suggested that the older a person gets, the more difficult it is to learn and adapt to new technological products. Older owners may be less computer technology literate compared to younger owners. Although it was suggested that younger business owners use electronic commerce more than the older owners, another point of view regarding the age of the business owner was offered. This view suggests that older owners are using the internet more for business purposes than for social purposes like their younger counterparts. The thought is yes the younger generations of owners are using more technology. However, older owners are more likely to have more resources to gain the knowledge and skills compared to someone younger that someone just starting their own business.

Education and Training Background. Themes regarding the educational level and training background of the business owners were also highlighted. The themes that emerged suggested that educational background and training influenced the adoption of electronic commerce. Owners that start using technology at an early age were more likely to use it in their business. CMBE#13 has been in business over 10 years in the commodities industry has a good understanding and appreciation for technology because of her education and training background. CMBE #13:

I started using technology in middle school 6th-7th grade and then from there in high school and college. In high school it was a required course. I was taught all applications in high school. And in college the majority of my professors used in teaching. I am now pursuing a graduate degree in information technology. I think that technology is absolutely necessary to anyone that is in business. I mean you can't do e-commerce or any type of internet transactions if you are not computer savvy. You really are going to get left behind. Technology saves time and reduces the use of paper. It's instantaneous, you don't have to wait on a phone call, you don't have to wait on a mailer, you can get it on your local devices (i.e computer, blackberry). I just think that it's an awesome way to communicate with individuals and being able to get things done. I've been in business for a year.

MBC#4 also felt that the use of technology would come more naturally for those who have been exposed to it during their studies. MBC #4:

The more educated tend to use electronic commerce because they have had more exposure with the technology. Persons with degrees have more than likely used technology to do research and complete assignments and projects which creates a culture within itself where the use of technology comes natural to those who have been constantly and consistently using technology, especially electronic commerce.

CMBE#11 shares a similar opinion about the importance of education and the use of technology. CMBE #11:

My education and training have convinced me that when given a choice whether or not to use technology, in particular electronic commerce, using it makes business sense especially for a small shop. I don't think that I would have embraced the use of electronic technology if wasn't exposed to the many advantages of using it as a college student and

as a business owner. I see the value of the use of technology in my business and bottom-line.

Education opens individuals' minds shaping the attitude towards the use of technology. CMBE#5, a young African American male fairly established in business, CMBE#5 expressed this during his interview. CMBE #5:

I myself was introduced to computers, the internet, and technology as I began college in the 90's. My major was business administration. During my college studies I had to use the computer to create reports and spreadsheets. I was introduced to a variety of business management software. My eyes were opened. The wheels began to turn in my head. This stuff could be used to make our family business run more efficiently. We could actually maintain and monitor the inventory we had in the store so that we didn't run out of something or order too much of one item.

Along the same opinion line as this CMBE was a young minority business consultant, MBC#11. MBE#11 felt that more educated persons would be more inclined to seek further information about technology. MBC #11:

People with at least a bachelor's degree are used to some sort of formal learning. This group might be more willing to take classes to learn about electronic commerce and research the pros and cons for their type of business than those less educated.

Even those who have advanced degrees, but with little knowledge and training in technology like CMBE #10 realize the need to have someone more knowledgeable managing their technological needs when they don't have the knowledge or skills in the subject. CMBE#10:

I have taken maybe one or two seminars on the topic. However, for the most part, I have an IT person that I pay on an as needed basis. Even though I'm more comfortable with using the website for business transactions, I still lack a lot of the technical knowledge and skills needed to maintain an updated web-site. And I don't have the time to learn them at this time.

It appears that a person's education level and amount of technology training are related to the owner's technology knowledge, use and exposure. Those business owners who started using technology early in their education appeared to have a greater appreciation for the use of electronic commerce. Younger business owners appear to have been first exposed to technology during the primary and secondary education years. Those owners who attended college had

typically had some basic computer experience which encouraged the use of technology in their business. Interview discussions suggest that education and use of technology are related.

Business Characteristics of CMBEs

Industry of the Business. The industry of the business influences the adoption of electronic commerce. If the practices or business operations of the industry do not utilize electronic commerce, businesses in these industries are less likely to implement such a system. CMBEs in the contractual services and commodities industries seem to have greater influence from suppliers and competitors. Discussions also recognized the difference in the amount of use between the construction and architectural & engineering and commodities and contractual services industries.

Businesses are not using electronic commerce will more than likely be introduced to the concept by their suppliers. More and more suppliers are putting their services and products on a web-site. CMBE#18 who has been in the commodities industry for over 10 years feels that his suppliers and customers are using technology more and more to transact business. CMBE #18:

The industry and my suppliers and customers were moving in that direction. One day while working in the store, a customer pointed out that she could the product cheaper online from my competitor. This really opened my eyes. Not only would a web-site allow me to display my products, it would also make me visible to potential customers who were surfing the internet in hopes of finding a bargain. I am a fan of web-sites now because I am able to check on my competitors and see what they were offering and for how much. This helps me to strategically price my products and services. Also, there were incentives from the suppliers to order things online rather than sending in paper requests.

Suppliers are pushing the use of electronic commerce in some industries with monetary incentives for use. CMBE#7, an older gentleman who has been in business for over 10 years has seen and felt the change of direction in his industry. CMBE #7:

I was quite reluctant to use any type of technology in my business at first because I really did not have the experience or have a good knowledge of the computer. I tried to stay away from it because it was a little bit intimidating at first. After all, I was used to doing everything manually and making calls. I only started using the computer to do business when it started to affect my bottom-line. Many of my suppliers were offering the things

that I needed at a discounted price if purchased online. Overtime the discount became a great incentive for me to start ordering my supplies online. As a result of doing this over a period of time, I became a little more comfortable with using the computer to take care of business operations.

Likewise, the push to change and use electronic commerce continued when some suppliers went totally automated. These suppliers saw the gap and wanted to retain their clients, so they started training the businesses how to use the new systems. CMBE #15, a fairly established business in the contractual services industry felt the impact of using these new electronic systems on the bottom-line. CMBE #15:

The other savings and motivating incident came when our suppliers switched to an automated system for ordering products. One of our largest suppliers began to use an ordering software program. This company came to our place of business and installed the software and trained us how to use it when ordering. Use of this software was not mandatory. However, we did receive a 10% discount for using the automated system for ordering because this cut down on the supplier's administrative costs.

While others were trying the new electronic systems and receiving the benefits for doing so, others still felt the need to resist the technology push because the benefits were not easily seen. CMBE #20 a relatively new business in A&E was among those who felt this way. CMBE #20:

My company does not have a website. I really don't think that it's needed for the type of services that I provide. My product is my service which cannot be accurately described on a website. Why incur the cost of developing a website, if the client is still going to have to call or visit you to get a true description or cost? There are just some things that cannot be done over the internet. I am a small company that does not have the extra money lying around to invest in a website and/or electronic commerce system that might not increase revenue for the company.

Electronic commerce for some businesses just doesn't provide the best avenue to sell goods and services. Some industries are just not electronic commerce friendly. This point was recognized by minority business consultants during their discussion. MBC#9 felt that electronic commerce should be more focused on industries like commodities which tend to require less face to face contact. MBC #9:

Use of electronic commerce in the construction and architectural and engineering industries is always going to be lower than in the commodities and contractual services industries which require more face to face and hands on type of interaction between the buyer and seller. Commodities for the most part are simple, for example, if you want to purchase pens, you don't need to meet with the manufacturer to see if they meet a certain code. These items can for the most part be stocked on a shelf or put on a web-site with a standard description and cost. Construction and engineering services vary according to the project. These projects require extensive input and feedback between the buyer and the seller. Business practices in these industries just don't encourage building or designing things without sufficient consultation among all parties involved. It's not as easy as a click of the button. Contractual services and commodities can be broken down more easily into categories with various charges for services than these two industries.

According to CMBE#2 who has moderate experience in the construction industry feels that business practices determine how much technology will be used. CMBE #2:

I think the industry that the business is in has a major influence over whether or not the MBE will use electronic commerce. If a business does not regularly use technology in its daily operations, I believe that electronic commerce would be far their minds.

According to the interviews, the use of electronic commerce should not be required to do business. The services or products that a company provides would dictate the use. Another long-time professional in the construction industry CMBE#12 also felt the same way. CMBE#12 who has been in the construction industry for a while expressed felt that mandates for electronic commerce across industries was not a good idea instead it should be dependent on the service or product provided. CMBE #12: "The use of electronic commerce should not be mandated because whether or not a company uses such a system is dependent on the industry and service/product they provide."

As more competitors and suppliers adopt electronic commerce in their industry, CMBEs will be more inclined to adopt Electronic Commerce in order to maintain their own competitive position. Owners will have to take another look at how this technology is affecting their bottom-line. Industries will have to initially offer incentives for businesses to participate in the electronic process. In addition to the culture of the industry, businesses will also take into consideration the culture of the community they serve.

Culture of the Community. The culture of the community where the business is located is an influencing factor. CMBEs would be more inclined to implement an electronic commerce system if the community it was servicing showed a need. The level of technology use in a business for the purpose of promoting business online is dependent on the client base. CMBE#3, a fairly new business owner, expressed this feeling. CMBE #3: “If the customers don’t have and don’t use computers in their daily lives to make purchases, why should the business owner devote time and resources to implementing an electronic commerce system?” A long time business man, CMBE#16 feels that companies don’t just arbitrarily start using technology that it is passed to the business through the community. CMBE #16:

I think that as a community and/or market sees the value in using electronic commerce. It will trickle down to the MBEs, who would now be able to see that their customers are requesting this type of system be put in place, if they want to keep their business.

CMBE #14 in the contractual services industry felt that: “If it’s going to be community based minority business only with no vision of reaching outside of that community, then I think that would have an influence on whether or not they would choose to use electronic commerce.” As suggested by MBC#6, a business consultant, businesses aren’t just going to implement an electronic commerce system. He instead feels that a need from the client base must exist. MBC #6:

I believe the main factor that influences a minority business to adopt the use of electronic commerce is necessity. I think they will adopt the use of e-commerce if the agency, they are attempting to do business with, mandates it. I feel when e-commerce is the only way, or the preferred way, to do business with an agency, will the firms then begin to adopt its use.

Agreeing with his colleague, MBC#12 pinpoints cult as a major influence in the adoption of electronic commerce. MBC #12:

I think culture is plays a role in whether or not minority businesses may adopt electronic commerce depending on the community that they are in and whether or not that community has experience using technology.

The community’s experience in using technology plays a major role in deciding whether or not implementing an electronic commerce system is a good investment. If the community uses technology on a daily basis then small businesses surrounding them will do the same. Likewise,

the culture of the industry will also dictate a businesses use of technology. Comments from the interviews stress the important role that culture plays in both the industry and the community. A relationship exists that is influences the use of technology.

Attitudes Toward Innovation. Perceptions are reality. The disposition an owner has about the use of electronic commerce will no doubt influence his/her decision to use electronic commerce. Attitudes about the relative advantage or the degree to which the innovation is perceived as better than the idea it superseded is an influencing factor. The compatibility of the innovation with existing values and practices along with the ability to experiment with the innovation in order to observe its complexity are driving forces behind the adoption of electronic commerce. It is these characteristics that ultimately influence the adoption of electronic commerce.

Return on Investment. There is also a concern among CMBEs regarding the benefits of an electronic commerce system and the availability of capital to invest in such a system. Return on investment and cost are important to the adoption of electronic commerce. Interviews revealed that CMBEs are hesitant to adopt such a system because there is no real guarantee that money used to invest in an electronic systems will result in an increase to profits. Even though profits are not easily seen, the immediate cost to implement system is seen first. This produces unfavorable attitudes towards electronic commerce. MBC#10 feels: “Minority business owners may not see the immediate return on investment of an e-commerce system. However, they will see the upfront costs, which can seem too much especially when they don’t have money readily available.” A colleague of this consultant, MBC#9 who has been working with business agrees. However, she feels the lack of guarantee returns at any period will deter implementation. MBC #9:

I think MBEs don’t see the return on investing in an electronic commerce system, if it’s not going to guarantee an increase in profits but rather an increase in expenses. Most MBEs are small businesses that are surviving day by day, particularly in today’s economy. They cannot afford to spend resources on things such as an electronic commerce system that may or may not produce revenue in the future. Unfortunately, their concern is with the here and now.

A CMBE in the contractual services industry vows not change. CMBE#23 states:

I've been doing pretty good business for over 20 years without a website. The only way that I would even consider doing business online is if I would be guaranteed an immediate increase to my bottom-line by a considerable margin. If this is the case, then maybe I would be able to hire someone to manage this side of the business. Times are too hard right now to put my money into a system that may cost me more to have than the return profits. Maybe if there were some kind of grants available to the small business to implement such a system, I just might be willing to try it without risk to my bottom-line.

A longtime construction professional CMBE #22 backs him up and feels instead that electronic commerce is not necessary to compete for business. CMBE #22: "I have a lot of colleagues who are consultants who don't use technology because the value of using technology. If they can win a contract without using technology they are satisfied and not interested in using technology."

Minority business enterprise consultants have found that CMBEs are not fully realizing the potential of conducting business electronically. MBC #7:

A business does not perceive that benefit of spending money to implement a system or outsourcing a function that will not bring in guaranteed revenue for the company. Also, most of these businesses are barely making ends meet especially during this current economic situation. Most would be reluctant to spend money on a system that may produce any profit for the company in the near future when immediate profit is needed.

An established company in the commodities industry, CMBE#24 didn't start using electronic commerce because it was the latest business craze. He instead felt the benefit. CMBE #24: "I don't think we would have ever began to even consider using computers and the internet in our business, if it didn't have some actual cost savings being given from our major suppliers." Most minority business consultants believe that electronic commerce can do more than make the CMBE more competitive. MBC#1, an MBE advisor for many years feels that: "Using electronic commerce could possibly lessen the need for more manpower to conduct sales and advertise which reduces overhead costs as well as opens the company up for more exposure on the internet." However, CMBE#9 an older owner who has been in business for over 10 would disagree. CMBE #9 feels that:

I would have to invest my money capital into hiring someone to develop and maintain the site and system, since I have no experience or knowledge in this area. This would also mean that I am not in complete control of my business because I have to rely on someone

else to develop and maintain the site. How would I know if the person is doing it correctly or just taking advantage of my ignorance of the subject? This is too risky. It seems that I would have to hire a consultant to tell me what to look for when I hire someone to develop and maintain the site. This is costly. My company is small. I don't have the staff or the resources to invest in a website. Larger companies have departments/divisions that work on technology e-commerce for the company. They can afford the cost.

Minority business officials recognize that it is sometimes rather costly to transact business online. MBC#3 finds that:

Many times doing business online is costly. Not only are the companies paying for the service or product, they may also have to pay a transaction fee for the convenience of using the system. This increases the cost of doing business which may make minority businesses less competitive with larger businesses.

The voice of experience, CMBE#11 speaks and shares electronic commerce story. CMBE #11:

I used to have a website, but I had to give it up. When I first started my business, a website was part of the plan of generating more business. With it being a part of my business plan, I built the cost of developing a website by an outside source into my initial start-up costs. The site was suppose to provide information on the products and services my company sale, as well as allows customers to order online. This would help me out because I only had a staff of 3 at the time. The site was meant to free up my employees time so they could work in the storefront and market the company to others. What was meant to be a great tool for the company, ended up becoming a disaster and a big money sinkhole.

CMBE#13 from a well established business in the commodities industry recognizes the advantage and instead feels that it is worth the cost. CMBE #13:

Cost wise having a website is not too expensive, but that depends on what we want the site to do. We are spending more for our customers to be able to go online download forms and email them back. This is costing a little more than \$1000, but it will be well worth it. My competitors in the industry are using technology quite a bit. However, I find that these companies tend to be on the larger side and not small 1 to2 person operations.

Return on investment is plays a major role in influencing the adoption of electronic commerce. MBEs especially those with small sales number have to be cautious when investing their income because the capital is really limited. They have to take into consideration all of the pros and cons of implementing and maintaining a system. Characteristics of the innovation, electronic commerce: advantage, trialability, observability, compatibility and complexity must be perceived favorably before a business adopts electronic commerce. Interviewees and discussions revealed that the majority of CMBEs were reluctant to use technology because of unfavorable perceptions of electronic commerce.

Previous Exposure to Electronic Commerce and Actual Use

A business owner's previous exposure to electronic commerce appears to influence their actual use of electronic commerce in their business. After interviewing the CMBEs, it was evident that many had concerns and reservations about learning the new technology, even if the education was offered because of their lack of exposure to online commerce. The time and effort it would take to become technologically efficient and feel comfortable using the system seemed too big of a cost for MBEs to absorb. Some CMBEs may feel as though they are losing control if they have to outsource this function, because they may have very little knowledge about electronic commerce. They would have to depend on someone else for this knowledge.

Familiarity with the use of and exposure to technology influenced their attitudes towards electronic commerce. Minority business consultants recognize this issue. MBE#4 who has been a longtime advocate for MBEs feels that businesses need more than exposure they need education to understand what they are being exposed to. MBC #4:

Minority businesses need to be educated about the different options they have when it comes to using technology in their company. An assessment needs to be done, maybe by your office to pinpoint those individuals that are not using technology even in the simplest of forms. They need to then be given an opportunity to be educated on this. They can be taught how to build just a front page website (1 page website). They need to be educated on this. Make sure the people educating these people have the patience to deal with people that are on the other side of the digital divide line. Because they are hard to deal with because they don't understand and if the teacher doesn't understand, they will only further frustrate the business owner and reinforce their thinking that this is something they can't do. So, if you don't make them comfortable with letting them know

that I understand your frustrations with learning something new or that they have limited skills, you won't be able to teach them or win them over.

CMBE#18 an older owner feels that: ~~Most~~ minority businesses become discouraged very quickly especially if they have little or no knowledge in computer technology. There is comfort in knowing there is one place they can count on to get quick and simple help.” CMBE#24 with a high school level education provided an example of the type of thoughts owners with little or no experience and/or exposure experience. CMBE #24:

I recently tried to order some supplies on the internet. It was a little intimidating for a person who basically never uses the computer. I found searching through the website a little overwhelming and thought that this really would be easier if I could just go to a paper catalog, find what I was looking for and mail the order to the supplier. It was really time consuming for me. Then again, it may not be for others who have a little more experience with computers than me.

MBE consultants such as MBC#8 try to expose her clients to the latest business technologies.

MBC #8:

I work with MBEs everyday in the business development section of our minority business program. One of the things that we keep trying to stress is the importance of using technology in your daily operations. We are often times met with a lot of resistance, because a majority of the owners are weary about using technology, something they don't know a lot about and releasing control to someone else to operate and maintain the system which may ultimately affect the bottom-line of the business. If the owners aren't comfortable with using technology they will tend to stay away from using electronic commerce and just dismiss it as a fad.

CMBE#4, an older business owner feels that some businesses just don't have the time to invest.

CMBE #4:

Some businesses don't engage in e-commerce because of a lack of knowledge and exposure. They don't have the time to learn. Most of the time it's the older individuals who on the other side of the digital divide, meaning that they don't have the basic skills, knowledge or abilities to do basic computer functions. So when you ask them about a website, they think of something being greatly involved and detailed and something that requires them to have a personal knowledge that's greater than the basic knowledge

because they haven't been exposed. More or less I think that it's the fear of something they can't do or can't maintain or something that they can't pay for and all of those things are not true.

Other business owners such as CMBE#17 who has only a high level education is seeking more assistance because of his lack of exposure and knowledge. CMBE #17:

I don't have a website now because I simply can't afford it, don't have the expertise, knowledge or skills to develop and maintain an electronic commerce system. I'm down to a staff of 2 including myself. I'm in the process of researching what I should really be looking for in a website, so that I can better understand the technical side when I'm looking for a web site developer.

The lack of knowledge which in part comes from a lack of exposure influences the use of electronic commerce. The use of technology plays a major role in the adoption of electronic commerce by CMBEs. Conversations with the CMBEs relayed the message that the more a CMBE uses the technology and becomes familiar with how an electronic commerce system works; the more likely they are to use it in their business operations. A middle age CMBE in the contractual services industry feels that this is true. CMBE #14:

I can't think of a time when I have not used technology, especially in my business. It was important to me to have a well developed web-site for my business that customers could easily shop and order my goods and services. I actually had the web-site before I moved into a storefront. I've been in business for almost 5 years now. I guess not have a site was never really an option in this day and time when people are looking for quick and easy dealings. I use the computer for practically everything. With the use of technology, I'm virtually a one man shop. I use it for all administrative purposes, to monitor my inventory, order supplies, sales and marketing. Technology allows me to conduct business almost anytime and anywhere in the world.

Other business owners feel as though electronic commerce may take care of some of the business operation. It neglects the business and customer relationship which according to them will last past this technology. An older owner who has been in the contractual services industry for over 10 years stresses the importance of this relationship and feels that electronic commerce would take away from it. CMBE #23:

I very seldom use the internet to conduct any business. I'm not that familiar with using the computer. I'm from the old school. I'm referring to when people would handle their business in person and not talk to a machine or press a button to transact business. The way some businesses are using technology now makes doing business less personable. My business has survived not because we were "technology savvy," but because we were able to develop relationships throughout the years with our customers. This in my opinion is a value that many businesses that really heavily on technology, i.e. a web-site are lacking.

The lack of knowledge is stalling the actual use of technology the CMBEs. MBC #2, a senior advisor feels that:

The majority of the small businesses just are not educated about electronic commerce. Their knowledge of technology is simply lacking. This may be the case because they don't have the time or resources to learn how to use the technology. Government has put many of these systems into existence to become more efficient without providing any type of hands on training or education to the small minority business community. The larger companies that have staff who can be dedicated to learning and performing the necessary tasks associated with implementing and maintaining an electronic commerce system will of course take advantage of the system before the small minority business. Setting up some sort of tutorial for these businesses to use anytime may be helpful.

The lack of knowledge about electronic commerce is also indicated in several responses from CMBES. These comments illustrate that education is key to reducing the technology gap among minority and majority businesses. The CMBEs recognize their technology shortcomings and suggest that training and education will address them. CMBE#10, a highly educated new business owner feels that:

Maybe trying to educate the community would assist in the adoption electronic commerce by minority businesses. This would take money which something that everyone is struggling with at this time. Because teaching others how to use the technology without them being able to have a computer to work on or even having access to the Internet with a computer accessible will do little to address this problem. I think that once the "Digital Divide" is sufficiently addressed, more people will be comfortable using technology and this will trickle down to the businesses.

However, after interviewing the CMBEs, it was evident that many had concerns and reservations about learning the new technology, even if the education was offered. The time and effort it would take to become technologically efficient may seem too big of a cost for MBEs to absorb. Some CMBEs may feel as though they are losing control if they have to outsource this function, because they may have very little knowledge about electronic commerce. They would have to depend on someone else for this knowledge. The less familiar an owner is with technology, the less likely or more reluctant to use it. CMBE#8, an older owner with an A.A. degree felt that this was true. CMBE #8:

I don't know anything about computers or using the internet. I would have to hire someone with this knowledge and skills to even introduce this concept to my business. I just don't have the money to invest in hiring a new employee to do this. This is not true for the larger companies that have the resources and staff to develop and maintain a website. The small business owner is too busy trying to make ends meet and does not have time to sit in a class and learn about electronic commerce.

Government Involvement

The government should be involved through policies and assistance was a reoccurring theme. The involvement of the government in providing incentives for CMBEs was suggested during several interviews and the group discussion. The businesses in this research are interested in doing business with the government which is one reason why they seek certification as a minority business. This presents an opportunity for government on any level to implement policies and programs that promote the use of electronic commerce by these businesses. There were mixed feelings about how the government is seeking this opportunity by minority business consultants. MBC #5, an African American advisor feels that:

As a procurement official, I don't really see some governmental agencies pushing the electronic movement. On one hand, agencies have electronic commerce systems in place that are not being fully utilized. While on the other hand some of the electronic commerce systems that these agencies have in place are not very user friendly with system errors that cause businesses to become easily frustrated. Some of the personnel of these agencies are also technologically challenged which makes getting assistance a little more cumbersome. Maybe if online bidding were required, the businesses would realize the benefit of the system because they would not be able to do business with the

government any other way. Mandate the use of electronic commerce across the board in all government agencies. This would provide a definite incentive.

In his opinion, this would help to ensure that minority companies were keeping up with majority companies, by at least staying on the technology curve. Another FAMBEO member gave an example of how the mandate to use electronic commerce as part of the certification process worked. MBC #6, a Hispanic American consultant recalled how use among the CMBEs increased because of a mandate to use the electronic system put in place by the local government. MBC#6 recalls that:

First, the use of the service was suggested and not required. When policy was changed to require subscription to DemandStar (an Electronic Commerce System) as part of the certification process, participation in the use of DemandStar increased from less than 20% to 80%.

Other minority business consultants cautioned against mandating the use of electronic commerce as part of the certification process. A younger female adviser, MBC#10 felt that: "There's a certain suspiciousness when you use the word government and mandate. I think that when minority businesses are mandated to use electronics as part of a written policy that it might deter some of the minority businesses."

The CMBEs disagreed with mandating the use of electronic commerce. However, they did suggest that some sort of financial assistance and training should be offered by the government if it was mandated in their responses. An owner in the commodities industry with sales on the low end of the scale felt that incentives should be given instead of mandates. CMBE #19: "I don't agree with mandates because everyone does not have the financial resources. I would strongly encourage the use, but not mandate. Minority businesses should be given incentives and grant programs to use e-commerce not mandates." CMBE#11 who is a fairly established business man felt that instead of the government giving a mandate it should give some financial assistance. CMBE #11:

The government requiring the adoption of electronic commerce would not help. The factors of the availability of capital to put a system in place, hire personnel, or outsource would still be a problem for minority businesses. Maybe if the government were giving some sort of financial assistance to these small and minority businesses. They may be more apt to adopt electronic commerce.

There was still not apparent benefit of mandating the use seen by the businesses. Instead CMBE#6, an older well established businessman felt that a mandate would only increase stress and not electronic commerce use. CMBE #6:

Mandating is not a benefit; giving businesses a stipulation that now you have to do something you know nothing about will just increase frustrations. It will also be an unfair disadvantage for those who will have to take time away from their business to learn something new.

Effective Measure for Promoting EC Use among CMBEs

Some of the preferred strategies currently being used to facilitate learning about electronic commerce and other dimensions of electronic technology usage by minority owners in their business were identified during the interviews and focus group discussion. Change governmental requirements to mandate the use of electronic procurement could be used to facilitate the need to learn about it. Make the adoption of an electronic commerce system a mandatory policy for any company to do business with government. The importance of using electronic procurement would be strongly encouraged at the very start. This would provide a definite incentive for businesses to learn not only more about electronic commerce, but other available business technologies. This mandate would also, facilitate the need to learn more about the pros and cons of using electronic commerce. It would also require governmental agencies to provide technical assistance to the businesses trying to use their procurement system.

Community education is another preferred strategy for facilitating learning about e-commerce. Trying to educate the minority communities in which these businesses are located would assist in the adoption and utilization of electronic commerce. Teaching the members of the community about technology and reducing the “Digital Divide” in these communities will encourage minority business owners to learn more the various technologies that are available for them to use in their businesses. Facilitation of e-commerce learning could be done by local and state governments by:

1. Teaching businesses how an electronic commerce system works through interactive hands on type of training. Creating tutorials that could be used anytime would make learning about the subject more convenient.
2. Providing some type of financial assistance whether it is through a grant or no interest loan to allow the MBEs to be able to attend pay for training in business technology,

purchase necessary materials for an e-commerce system and secure necessary resources, etc.

3. Finding mentors or larger companies that would be willing to pair up with the MBEs to teach them about electronic commerce.

Lastly, suppliers of goods and services to these MBEs may also offer some type of technology education to facilitate learning on the topic. Offering any type of training by the supplier would reinforce the importance of e-commerce use and push the MBEs into the direction of e-commerce adoption.

Conclusion

Overall, the CMBEs interviews and group discussions with FAMBEO allowed for further exploration of the facilitating factors that influence the adoption or non-adoption of electronic commerce. The underlying themes developed fell within the variables of the heuristic scheme which used personal characteristics and business characteristics, exposure to and use of electronic commerce, and owners' attitudes or perceptions of electronic commerce. Found among these themes are some underlying areas that can be used for further exploration. The themes include:

1. The need for government involvement;
2. The lack of knowledge and use of technology;
3. The culture of the community;
4. The age of the owner;
5. The return on investment;
6. The industry of the business; and the
7. Education and training background of the owner.

These themes are related to the factors identified in the survey findings which indicate relationships among the personal characteristics of the owner, business characteristic, exposure, use and perceptions and/or attitudes towards electronic commerce.

CHAPTER SIX

ANALYSIS AND CONCLUSIONS

Introduction

The purpose of this research was to identify the factors most closely associated with adoption of e-commerce by certified African-American and Hispanic-American minority business owners in Florida, the obstacles and challenges that seem to impede it at the present time, and the strategies that hold greatest promise for facilitating needed learning on their part. This exploratory research was used to lay the foundation for the development and delivery of education/training on electronic commerce in minority business community. It attempted to understand more clearly, the factors that weigh upon the participation of minority business enterprises in this technological movement and the difference that adult learning can make. The following research questions were formulated as guideposts for the study to operationalize and accomplish this purpose:

1. What business and personal characteristics are most associated with the adoption and non-adoption of e-commerce by minority business enterprises?
2. What “agents” or facilitating factors are most effective in promoting adoption of e-commerce and overcoming the obstacles and barriers to its use within the same population group?
3. What are the principal barriers to the adoption and utilization of electronic commerce among Florida certified minority business owners? What challenges do minority businesses encounter when engaging in e-commerce?
4. What are some of the preferred strategies currently being used by certified minority businesses to learn about electronic commerce and other dimensions of electronic technology usage in their businesses?

How and how well do existing theory regarding adult learning and adoption of innovation help to understand the dynamics of this process and to highlight promising directions for future study?

Quantitative and qualitative data were gathered to explore possible answers to these research questions. This chapter will compare and contrast the findings of the quantitative and qualitative data in the study. Insights and conclusions drawn from each set of data will be

discussed as well as any similarities and differences among them. Through a review of the findings some of the principal influences and barriers to the adoption and utilization of electronic commerce among Florida certified African and Hispanic American business enterprises were identified. The quantitative data taken from the survey and the qualitative data gathered from the interviews were used to highlight factors that appear to be facilitating the use of electronic commerce. There were several measures of association reviewed. Measures of association examined the relationship of the business owners' age, gender, race, and education level among each other and the exposure, disposition, and use indices. Business characteristics relationships were also examined using the industry, sales and the number of employees, years in business and locations among each other and with 3 indices.

The heuristic scheme of presumed relationships was used as a guide for the analysis. The correspondence between the heuristic scheme and the different kinds of quantitative variables included three types of variables. First, the background personal and business factors were represented by the demographic and business characteristic groups of the variables. Second, the independent variables were represented by the different dimensions of "exposure" and its compound index. Third, the dependent variables were represented by dimensions of "use" and its compound index. Occasionally, individual components were highlighted when it seemed to be significant.

Survey Data - Insights & Conclusions

Several conclusions were drawn from the survey data. First, industry plays a major role in determining whether or not a business uses electronic commerce. Industries with suppliers that are heavily into using technology for business will influence their clients to do so as well. Second, the income of the company is an influencing factor. Businesses with higher sales tended to use electronic commerce than those with lesser sales. The higher sales companies have more capital to invest in an electronic commerce system or training for their employees. Third, the number of employees is an influencing factor. Businesses with fewer employees tend to use electronic commerce less often than those with a greater number of employees. The size of the staff limits the human resources that could be receiving training instead of running the business. Fourth, the educational background of a business owner influences their level of electronic commerce use. Owners with some college education tend to have been exposed to technology in some form or fashion. They are more likely to use this technology because they have tried it and

are familiar with it and its advantages. The more education, the more exposure and the more exposure the more use of electronic commerce by the business owner. Fifth, the use of electronic commerce is influenced by the how an owner perceives electronic commerce and his attitude towards the innovation. Sixth, age of the owner influenced the use of electronic commerce. Older business owners were exposed more and tended to use electronic commerce more. They tended to have been in business longer as well.

Interview Data - Insights & Conclusions

Insights and conclusions were also drawn from the interview data. First, return on Investment is very important to the adoption of electronic commerce. MBEs are hesitant to adopt such a system because there is no real guarantee that money used to invest in an electronic systems will result in an increase to profits. Even though profits are not easily seen, the immediate cost to implement system is seen first. There is a concern among MBEs regarding the availability of capital to invest in such a system. Second, the industry of the business influences the adoption of electronic commerce. If the culture/ practices of the industry do not utilize electronic commerce, businesses in these industries are less likely to implement such a system. Several of the companies started using electronic commerce because there was no other way to do business with one of their primary suppliers. Third, the lack of the use and knowledge of technology plays a major role in the adoption of an electronic commerce system by CMBEs. The time and effort it would take to become technologically efficient may seem too big of a cost for CMBEs to absorb. Some CMBEs may feel as though they are losing control if they have to outsource this function, because they may have very little knowledge about electronic commerce. They would have to depend on someone else for this knowledge. Fourth the culture of the community where the business is located influences use. MBEs would be more inclined to implement an electronic commerce system if the community showed a need. The community's experience in using technology plays a major role in deciding whether or not implementing an electronic commerce system is a good investment. If the community uses technology on a daily basis then small businesses surrounding them will do the same. Fifth, the community where the business is located influenced the rate of adoption. Most CMBEs just service a local region. If CMBEs were located in a sector of the community with little or no access to computers and the internet, owners did not see the immediate need to expedite the implementation of electronic commerce or even put up a website. Sixth, government involvement is needed to make sure that

everyone has an equal chance of participating in business opportunities and that minority groups are not left behind the –digital curve.” This involvement can come through mandates on use, training, and/or financial assistance. Make the adoption of an electronic commerce system a mandatory policy for any company to do business with government. MBEs will be strongly urged to start using technology for their daily operations, if they want to do business with government.

Similarities among the Data

Among the survey and interview data are some reoccurring similarities that all seem to tie back to three factors influencing the use of electronic commerce in the minority business community. Major factors influencing use are the business environment, capital to implement, and the lack of technological knowledge. According to the survey respondents and interviewees, the business environment influences the decision to use electronic commerce. This environment is two-fold. First is the relationship among the business and its suppliers. An owner’s perception of this technology and how compatible it is with everyday business operations is important to the business engaging in electronic commerce. This influence can really be seen in the owners’ disposition towards electronic commerce. Compatibility can easily be observed, if the suppliers are requiring the use and do business no other way. According to the interviews, some suppliers offer discounts for using electronic commerce which provides more of an incentive for the business to use. Second is the relationship among the business and its customers. If the owner really knows his community and client base level of familiarity with technology, he will or will not implement various components of electronic commerce like a website. The amount of technology access available in the community or region served will dictate the amount of use of electronic commerce. Capital to implement an electronic commerce system is another factor found to influence the use of electronic commerce. This all goes back to determining the return on investment. Businesses with lower sales don’t have as much income to invest in something that they don’t really know a lot about. These companies the majority of the times are struggling to just to stay in business. Allocating capital for the installation, maintenance and training are not feasible. The lack of technological knowledge is another factor influencing electronic commerce adoption. Most of the business owners had some college education which may have been some time ago. Constant and rapid changes in technology have left them behind the technology curve and trying to catch up is almost impossible. Currently, most of these business owners are busy

trying to run the business and don't have the time to take a class or attend a seminar on electronic commerce to update their knowledge. It also becomes cumbersome and sometimes useless in the owners' mind to attend any type of technology training when what they learned today is obsolete in a short time period.

Differences among the Data

There were differences found among three demographic characteristics of the owners in the study. The significance of these characteristics was not addressed as much or contradicted each other in the data presented. Difference among the data was found among the age of the business owner. Age and exposure comparisons revealed a difference in the group means with those over 40 years old having a group mean significantly higher than those 40 and under. The survey indicated that older owners generally appear to make more use of electronic commerce more than the younger ones. Based upon the analysis results, businesses with owners over 40 are using electronic commerce more than those under 40. It also suggests that owners within this age group seem more likely to have suppliers with websites that promote the use of electronic commerce. However, the interview data indicated the opposite. When interviewed, the 41 and over age group does not esteem themselves to be more familiar with online things, like electronic commerce. When asked about what factor(s) influence a minority business to adopt the use of electronic commerce, interviewees indicated that age of the owner was a facilitating factor. A majority of the responses suggested that that greater use was among younger business owners and not the older. An African American business owner over the age of 40 stated that: "Age maybe a factor. I think that one of the things that might hinder the use of electronic commerce would be change of the status quo. Most people, maybe 50 or older that had not been trained early on in the use of computer or technology maybe a little more resistant to using electronic commerce in their business." Another difference among the two sets of data was found with the gender and minority classification variables. Gender and minority classification were important co-variables in the quantitative results. Significant associations were found among the exposure, disposition and use indices. According to the results males had more exposure to electronic commerce with a greater favorable disposition and use. Likewise, results indicated a significant difference among African and Hispanic American owners. Group mean comparisons showed Hispanic Americans as having less exposure along with a less favorable disposition and use of electronic commerce. However no one seemed to address them much in the qualitative data.

Research Questions Findings

The next section will discuss answers to the research questions based upon the findings of the survey and interview data.

Research Question #1

What business and personal characteristics are most associated with the adoption and non-adoption of electronic commerce by minority business enterprises?

- Age - Age was a major facilitating factor in both the quantitative and qualitative data. Even though there may have been a difference in which age group was exposed to it or used it more. It was found to be a significant factor.
- Education – The owners' level of education was identified as a pre-cursor to technology exposure and use. Business owners with some level of college education tended to have been exposed more to technology during their studies which made them more familiar with technology. This familiarity could then be traced to them using it in their businesses. These business owners would seem to be more inclined to take formal training sessions to increase their knowledge and skills in electronic technology.
- Exposure to electronic commerce – The more exposed a business owner is to electronic commerce; the more likely he is to use it. Along with exposure comes familiarity with the technology itself. This creates a level of comfort for the owner as he pursues implementing it in his business practices.
- Use of electronic commerce – The owners' personal use of electronic commerce increases his likelihood of using it in his business. Owners who were accustomed to shopping online and/or transacting business online had previous experiences to determine whether or not they wanted to use e-commerce.
- Attitude towards electronic commerce – Business owners who have been exposed to and used electronic commerce more have a more favorable disposition towards it. The owners' observance of the advantages and complexities of dealing with e-commerce influences the decision of using it.

Research Question # 2

What “agents” or facilitating factors are most effective in promoting adoption of e-commerce and overcoming the obstacles and barriers to its use within the same population group?

- Technology use – The use of technology is a prerequisite to promoting the adoption of e-commerce. Increasing an owner’s basic technology skills level will make them feel more comfortable when engaging in business online. The key point is to build a level of comfort through technology exposure and use that will encourage business owners to learn more and eventually make technology a part of everyday business operations.
- Industry use – Suppliers are creating a need for the use of e-commerce in a variety of industries. Business owners must follow the trends of their industry if they want to remain competitive. Industry suppliers are also providing incentives such as price discounts for using their electronic commerce system.
- Advantage/benefit of electronic commerce – Perceptions of electronic commerce use being more advantageous to use than other methods of commerce is an important promoter of adoption. The benefits of using it must be observable. Owners have to be able to measure its effectiveness.
- Trialability of electronic commerce – The degree to which electronic commerce can be experimented with prior to full implantation will determine whether or not an owner is willing to risk the resources on such a system. The easier it is to test how the e-commerce system works with current business practices; the more likely business owners are to try it.
- Compatibility of electronic commerce – Being able to determine that an e-commerce system works well with the current business culture, practices, and client base will facilitate adoption.
- Complexity of use of electronic commerce – The degree to which electronic commerce is perceived as relatively easy to understand and use by the owner will promote adoption.

Research Question #3

What are the principal barriers to the adoption and utilization of electronic commerce among Florida certified minority business owners? What challenges do minority businesses encounter when engaging in e-commerce?

- Lack of technology education and training – The lack of technology knowledge is a major barrier for CMBEs. New business technologies are being introduced every day. Most CMBEs don't have the time to keep up with the changes. Research findings show that a relatively low number of owners have had any electronic commerce training. Owners may have college degrees, but had not received any formal technology training.
- Lack of capital to invest in electronic commerce system – Due to the small size and moderate sales of the CMBEs, most are not able to invest capital into an electronic commerce system.
- Lack of technology use by industry and/or community served – Industry practices drive the use of electronic commerce. If the industry is barely using the technology, business in that industry will follow its lead. Likewise, if the community that is being serviced by the CMBEs don't have access or barely use technology, a CMBE is less likely to adopt electronic commerce.
- Lack of technical support to provide assistance to CMBEs that want to implement an electronic commerce system – CMBEs with limited knowledge will need technical support to implement and maintain an electronic commerce system. This support can be a costly and expense for a small business with limited financial resources that will deter adoption.

Research Question #4

What are some of the preferred strategies currently being used by certified minority businesses to learn about electronic commerce and other dimensions of electronic technology usage in their business?

- Company suppliers – Many corporate suppliers are providing training to their clients on how to use the corporation's electronic commerce system to transact business them. This exposure and use provides CMBEs with a cost effective way to learn how to use e-commerce.
- Self-directed learning & research – Some CMBEs are taking the initial step to adopt e-commerce by identifying resources themselves. They are being pro-active and taking advantage of free to low cost classes and conferences on the subject.

- Employees – Some CMBEs just to have the time or desire to learn about e-commerce. They hire employees with the needed technology skills to train them and other staff members.
- Family members – Some CMBEs seek the assistance of family members to learn about electronic commerce. This training is often free and provides a comfortable learning environment with a familiar face.
- Minority Business organizations & programs – CMBEs are taking advantage of the numerous business workshops and seminars being offered by organizations that were created to assist them. The majority of these organizations received some type of government funding. They have highly trained and skilled professionals that provide business development assistance year-round at little to no cost.
- Community education of individuals and business about electronic commerce – Getting the community more involved will help the technology to spread.
- Mentoring with larger companies to gain knowledge and understanding – Larger companies have more capital and human resources available to deal with business technologies. CMBEs are seeking advice from companies that have an electronic system in place and can teach them how to use it.

Research Question #5

How and how well do existing theory regarding adult learning and adoption of innovation help to understand the dynamics of this process and to highlight promising directions for future study? Existing theory regarding adult learning and the adoption of innovation provided a good foundation for understanding the dynamics of electronic commerce adoption and promising directions for future study.

Diffusion of Innovation Theory

The diffusion of innovations explains most of the adoption patterns with all five of the attributes of innovations influencing adoption. Rogers (2003) diffusion of innovation theory presents five innovation characteristics that influence the adoption of electronic commerce. Perceptions of these characteristics: advantage, trialability, observability, compatibility and complexity were proven to be reliable predictors of e-commerce adoption. CMBEs needed to see the advantages of using online commerce compared to other methods of commerce. This could

only be done if trying e-commerce was not too complicated and it went along with existing values and practices.

Rogers (2003) innovation-decision process model which consists of five stages; knowledge, persuasion, decision, implementation and confirmation use these characteristics to guide the decision process. The process by which CMBEs engage in the adoption process of the electronic commerce follows a similar process. If a CMBE obtains awareness of an innovation and perceives that he/she may need the innovation, Rogers (2003) believes that the individual then seeks additional information about the innovation to make an adoption decision. CMBEs would engage in e-commerce by first being exposed to it in order to gain some understanding of how it functions. Once they have this understanding, a favorable or unfavorable attitude about e-commerce is developed. Then they engage in activities that lead to the choice to adopt e-commerce. CMBEs from this point use it on a trial basis during which he/she can decide to reject the adoption if exposed to conflicting messages regarding its use. In the case of the innovation-decision process model, a CMBEs attitude predisposes his/her action to adopt or not adopt electronic commerce. Rogers (2003) theorizes that a person's perceptions toward attributes or characteristics of the innovation shape his or her attitude. This research found that to be true.

Adult Learning Theories

Three assumptions of the andragogical model (Merriam, Caffarella & Baumgartner 2007) could be used as predictors for electronic commerce adoption by CMBEs. First, adults need to know why they need to learn. Business owners want to know why they should learn about electronic commerce before investing money in a system and time in training. Second, the adult learner's varied life experiences serve as rich resources in the learning environment. The CMBEs education level and use of electronic commerce increases the likelihood of adoption. Third, adult learners' readiness to learn is linked to coping with real-life situations. CMBEs will adopt e-commerce as needed, depending on the demands of their suppliers and customers. Smith (2001) found that an adult learner's degree of motivation to participate in a learning activity was directly related to the extent to which he/she is able to connect learning to life and work. CMBE motivation to learn about electronic commerce is determined by the degree to which the learning will payoff through increased sales and/or clients.

Patricia Cranton offered two relevant orientations to adult learning; subject and emancipatory. The goal of subject-oriented learning is the acquisition of content, whether facts,

concepts, problem-solving strategies, or technical or practical skills (Cranton, 1994). CMBEs are seeking information about the pros and cons of adopting an electronic commerce system. Subject oriented learning seeks to obtain knowledge and skills related to a learner's discipline, profession, or trade. More specifically, CMBEs in industries that are using electronic commerce would tend to seek knowledge and skills at a greater pace than those businesses in industries that have little or no use of e-commerce. Emancipatory learning is defined as a process that enables people to remove constraints on their own lives. It is a process of freeing yourself from forces that limit options and control. CMBEs who no longer want to be held back or be less competitive because of their lack of technology knowledge are seeking assistance to help them learn about e-commerce so they won't have to be bound to doing business one way.

The adult education experience of CMBEs seeking to adopt electronic commerce and adult learning theory are tied to the process and theory of innovation diffusion. It is more often a question of learning in workplace, informal and community settings. Adults frequently create learning spaces outside of formal educational boundaries. Likewise, learning opportunities for CMBEs are most times non-formal. However, structured in terms of learning objectives, learning time or learning support non-formal education is intentional from the learner's perspective. Business owners also engage in informal learning which results from daily life activities related to work, family or leisure.

Potential Policy Implications

The results of this study have yielded possible policy implications for the State of Florida's minority business program currently administered by the Office of Supplier Diversity which is in the Department of Management Services. The Office of Supplier Diversity is responsible for monitoring the state government spending with minority businesses, certifying minority businesses, acting as an advocate for minority business issues, and providing outreach activities to minority businesses. Currently, the office focuses more on the certification and compliance duties of the office. The results of this research suggest that business development, especially in business technologies should be given more consideration when planning outreach activities. The focus of the State's minority business program should shift to one of a business development advisor. In this role, the office is not only assisting in identifying business

opportunities for minority businesses but making sure the businesses have the technological knowledge and skills to keep the business growing competitive. Preferred learning strategies provided give direction to where policies need to be revised and created. First, policies developing technology based programs that would address how training is offered to minority businesses and their communities to increase knowledge and skill levels. Second, creating a state technology mentoring program with large corporations that are doing business with the state and minority businesses would require the creation on new policies. Third, the creation of a program that provides financial assistance to the minority business through grants or low interest loans will require new policies to be developed to administer the program. Overall, the development of these programs would require new policies to be developed and implemented by the State of Florida.

Recommendations for Future Research

There are two recommendations for future research on this topic. First, this study only used certified African and Hispanic American business enterprise owners. According to the State's Vendor Database, MyFloridaMarketPlace, this group makes up only a small percentage of what is identified as minority businesses in the State of Florida. I would recommend expanding the target population to all vendors who registered themselves as minority to gain an overall perspective on facilitating factors and barriers by those businesses that don't have to meet certain defined criteria to be considered a minority. Second, I would recommend breaking the minority businesses into groups by ethnicity and industry service codes used in the vendor database. This could provide further detailed insight into the role the business industry plays in the adoption and usage of electronic commerce and help to develop strategies to provide information and assistance to the businesses.

APPENDIX A

HUMAN SUBJECTS COMMITTEE APPROVAL

Office of the Vice President For Research
Human Subjects Committee
Tallahassee, Florida 32306-2742
(850) 644-8673 • FAX (850) 644-4392

RE-APPROVAL MEMORANDUM

Date: 1/7/2010

To: Bridget Lee [REDACTED]

Address: [REDACTED]
Dept.: EDUCATIONAL FOUNDATIONS AND POLICY STUDIES

From: Thomas L. Jacobson, Chair

Re: Re-approval of Use of Human subjects in Research

Your request to continue the research project listed above involving human subjects has been approved by the Human Subjects Committee. If your project has not been completed by 1/5/2011, you must request renewed approval by the Committee.

If you submitted a proposed consent form with your renewal request, the approved stamped consent form is attached to this re-approval notice. Only the stamped version of the consent form may be used in recruiting of research subjects. You are reminded that any change in protocol for this project must be reviewed and approved by the Committee prior to implementation of the proposed change in the protocol. A protocol change/amendment form is required to be submitted for approval by the Committee. In addition, federal regulations require that the Principal Investigator promptly report in writing, any unanticipated problems or adverse events involving risks to research subjects or others.

By copy of this memorandum, the Chair of your department and/or your major professor are reminded of their responsibility for being informed concerning research projects involving human subjects in their department. They are advised to review the protocols as often as necessary to insure that the project is being conducted in compliance with our institution and with DHHS regulations.

Cc: []
HSC No. 2009.3589

APPENDIX B

INFORMED CONSENT FORM

You are invited to be in a research study of certified minority business enterprise utilization of electronic commerce. According to your response in the in the Electronic Commerce Survey, you were selected as a possible participant. I ask that you read this form and ask any questions you may have before agreeing to be in the study.

Background Information:

The purpose of this research study is to investigate the adoption and utilization of electronic commerce by certified minority business enterprise in the state of Florida. This study is being conducted by Bridget S. Lee, a graduate student completing doctoral study under the direction of Dr. Peter B. Easton, Associate Professor of Adult Education in the Department of Educational Leadership and Policy Studies of the Florida State University College of Education.

Procedures:

Interviews will be conducted in person and/or via telephone. The interview will take about 30 minutes to complete. With your permission, I would like to tape-record the interview for accuracy in note-taking. Please note that having the interview recorded is not required to conduct the interview. Audio recordings of the interviews will be transcribed, and both recordings and transcriptions will be destroyed after the completion of the research.

Voluntary Nature of the Study:

Your participation in this study is entirely voluntary. If you choose not to participate or to withdraw from the study at any time, there will be no penalty whatsoever, nor will that information be available to anyone other than the researcher.

Confidentiality:

Should you be willing to take part in the interviews, please complete the consent form. Be confident in any case that your identity will not be further disclosed. The results of the study may be published, but the names and any identifying information concerning participants will remain entirely confidential and all data and transcripts will be destroyed once analysis is completed.

Contacts and Questions:

If you have any questions concerning the research study or would like to pursue the topic in greater detail, please call or write me at [REDACTED] If you have any questions or concerns regarding this study and would like to talk to someone other than the researcher, you are encouraged to contact the major professor Dr. Peter B. Easton at [REDACTED] or the Florida State University – Institutional Review Board at 850.644.8633.

You will be given a copy of this information to keep for your records.

Statement of Consent:

I have read the above information. I have asked questions and have received answers. I consent to participate in the study.

Signature

Date

Signature of Investigator

Date

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BIOGRAPHICAL SKETCH

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