Mentoring and Self-Efficacy in Female Undergraduate Business Students

THESIS

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By

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Abstract

Women in the workforce struggle to reach the upper echelons of leadership positions throughout corporate America (Catalyst, 2011a). One potential reason for this lack of female leadership may be due to a lack of female models within the business environment which in turn may be negatively affecting women’s sense of business career self-efficacy. Self-efficacy is a person’s belief in their capabilities to take the necessary actions to produce a specific outcome (Bandura, 1997). Research has found that for women two sources of self-efficacy, vicarious experience and verbal persuasion, are crucial (Zeldin & Pajares, 2000). These two sources of self-efficacy are often provided in mentoring relationships which can also play a role in women’s career success (Gilbert, 1985; Lockwood, 2006). There is some research that has attempted to explore the relationship between the constructs of mentoring and self-efficacy and have found positive correlations between mentoring and self-efficacy (Hayes, 1998; Day & Allen, 2004).

The importance of mentoring and its effects on self-efficacy may have implications for female undergraduate students in business. Not being exposed to female mentors in college may affect the growth of self-efficacy as it relates to their business careers. To test this, a survey was done of undergraduate women in a business program at a large Midwestern university. The participants completed an online survey that collected basic demographic information and then, if the student had a mentor, the
College Student Mentoring Scale, finishing with the Task-Specific Occupational Self-Efficacy Scale.

The outcomes of this study are similar to other literature that looks at the relationship between mentoring and self-efficacy. The study found that mentored students did report higher self-efficacy scores than those students without mentors. The study also explored the difference in self-efficacy scores depending on the gender of the mentor but no conclusive results were found. There is also slight evidence favoring a positive relationship between mentoring and students’ business career self-efficacy although no results were statistically significant.

The results of the study, although not highly conclusive, lend additional evidence that there is a positive relationship between the two constructs. These findings provide additional support for further research to evaluate how the measures are related as well as evidence that points to the importance of mentoring for women in business school. By building mentoring relationships when women are in college, women will have more opportunities to encounter successful women and receive verbal persuasion and vicarious experience that will in turn enhance their career self-efficacy.
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Chapter 1: Introduction and Problem Statement

Within the realm of labor in the United States two issues, the gender wage gap and the glass ceiling, have been highly publicized and researched (eg. Blau & Kahn, 2007; Tsui, 1998; Auster, 1989; Jackson, Gardner, & Sullivan, 1992). The gender wage gap refers to differences in pay between men and women attributed to discrimination (Petersen & Morgan, 1995). The glass ceiling refers to an “organizational boundary…[that] prevents the progress of women above middle management levels in organizations on the basis of their gender rather than for lack of ability to handle jobs at higher levels” (Frankforter, 1996). Women have historically earned less than men for similar work creating a gender pay gap and significantly lower percentages of women are found in high level positions due to the glass ceiling (Calalyst, 2011a; U.S. Bureau of Labor Statistics, 2010). A popular explanation for this discrepancy in the workplace was that a pipeline of women were on their way up to the top but had yet to reach it. Women were outpacing men in the earning of college degrees and as they moved into the workforce and gained experience they would begin to move into the upper echelons of management (Forbes, Piercy, & Hayes, 1988).

While convenient, this pipeline theory is contradicted by the number of women earning business degrees and holding leadership positions. A Masters in Business Administration (MBA) is a popular graduate degree for Fortune 500 Chief Executive
Officers to hold. According to U.S. News and World Reports 40 percent of Fortune 500 CEOs held MBAs (Wecker, 2012). Undergraduate degrees in business are also popular with company leaders. In a 2005 study of CEOs of Standard and Poor 500 (S&P 500) 33% of CEOs held an undergraduate degree in business administration, economics, or accounting (SpencerStuart, 2006). If we examine the pipeline theory by looking at numbers of men and women earning their MBAs the contradiction becomes clear.

In the 1961-1962 school year 97% of the Masters in Business Administration (MBA) degrees were earned by men (U.S. Department of Education, 2010). With these numbers it makes sense that thirty years later significantly more men than women held corporate leadership positions. The numbers reflect this; in 1994, 8.7% of corporate officers in Fortune 500 companies were women (Catalyst, 1996). Fewer women with relevant education leads to fewer women making it to the top.

Since 1961 however the number of women earning their MBA has steadily increased. The decade from 1971-1972 to 1981-1982 saw a 1,328 percentage increase in MBA degrees for women, accounting for 28% of the total MBAs awarded (U.S. Department of Education, 2010). If the pipeline theory is correct, shouldn’t there be a similar percentage of women in executive level leadership a number of years later? Thus, today if 40 percent of Fortune 500 CEOs have their MBA and 28% of the MBA degrees awarded in the early 1980s were awarded to women according to the pipeline theory there should be about 56 current women CEOs (28% of the 200 CEOs with MBAs). The actual numbers do not hold true. In 2010 a mere 2.4% of CEOs of Fortune 500 companies were women and 14.4% of corporate executive positions in Fortune 500
companies were held by women (Catalyst, 2011a). While better than no women CEOs or corporate executives, the numbers of women in leadership positions has not matched the number of women with MBAs even after allotting thirty years for work experience and career growth.

If the pipeline of women with their MBA degrees is failing to propel women into executive level positions and there must be other factors contributing to this glass ceiling. Some common suppositions include women self-selecting out of management roles, reluctance of organizations to give women experience, and gender discrimination (Burke & Nelson, 2002; Hammond, 2002). Another common theory is the existence of a patriarchal corporate culture that does not favor women and doubts their abilities to effectively lead (Heilman, 2001; Holton, 2002; Maier, 1999). Women in traditionally male leadership positions may also find they are confronted by a lack of fit between the position and their stereotyped attributes as women contributing to self doubt and expectations of failure (Heilman, 2001).

While the above theories may play a role in why fewer women hold leadership roles, another reason for a lack of women in the top leadership positions may be due to lowered business career self-efficacy beginning early in women’s college careers. Self-efficacy refers to the belief in one’s capabilities to take the necessary actions to produce a specific outcome (Bandura, 1997). Self-efficacy is influenced and shaped through a variety of mechanisms including school and exposure to peers and mentors (Bandura, 1997). According to self-efficacy theory mentors and role models are important to the development of self-efficacy (Bandura, 1997). Women in business schools are faced
with a lack of mentors and successful female role models in business due to a lower number of women in leadership roles (Catalyst, 2011a; Catalyst 2011b; AACSB, 2011). This current lack of female mentors and role models may be negatively affecting the development of a female students’ business career self-efficacy.

This study serves to explore the challenge female business students face due to a lack of female models within the business environment. Using the concept of mentoring which encompasses modeling and verbal persuasion, two sources of self-efficacy, this study seeks to explore the experiences of women business students with mentors and if the presence of a mentor and/or gender of the mentor mediates their business career self-efficacy. Using the framework of self-efficacy theory, I suggest that there are differences in female students’ experiences with mentors in the business school environment and those with a positive female mentor relationship have higher perceived self-efficacy in regard to business careers than those students with no mentors or male mentors.

**Conceptual Framework**

The two frameworks guiding this paper are Bandura’s self-efficacy theory and mentoring theory. Self-efficacy theory, a hallmark of social learning theory (Bandura, 1977), is often used as a framework for analyzing career choice and development (Hackett & Betz, 1981; Betz & Hackett, 1997; Quimby & DeSantis, 2006). According to Bandura (1997), “perceived self-efficacy refers to beliefs in one’s capabilities to organize and execute the courses of action required to produce given attainments” (p. 3). A person’s sense of self-efficacy influences actions they choose to take, the amount of effort expended on a task or goal, and their ability to persevere (Bandura, 1997). For
women confronted with the glass ceiling, those with strong perceived business career self-efficacy may be more successful than those lacking in perceived business career self-efficacy.

The business school environment provides students with sources of business career self-efficacy by promoting the value of internships for students to gain actual experience in the business world and develop the skills needed to succeed at work (Gault, Redington, & Schlager, 2000). Those successful in internships will, according to Bandura’s (1977, 1997) theory, experience a heightened sense of perceived self-efficacy as it relates to business knowledge and career success. Business schools also offer the possibility for vicarious experience and verbal persuasion through the presence of faculty members, peers, and alumni. Students may also experience physiological and affective states through various academic and social challenges such as class presentations, attending networking events, interviewing for internships, and completing internships.

Mentoring theory, advanced by the work of Kram (1985), outlines several functions of mentoring relationships that can promote the success of a protégé. These functions include psychosocial and career functions as well as role modeling (Kram, 1985; Jacobi, 1991). Mentoring is another important aspect of the business school experience as well as business careers (eg. Fagenson-Eland, Marks, & Amendola, 1997; Ragins & Cotton, 1999; Dreher & Cox, 1996). Mentoring provides several sources of self-efficacy including vicarious experience by providing a person with a model (Bandura, 1997) and verbal persuasion as a mentor is also one who “provides support, direction, and feedback regarding career plans and interpersonal development”
(Fagenson-Eland et al., 1997, p.35). Used together, these frameworks will aid in the examination of the career self-efficacy of female undergraduate business students and their experiences with mentors.

**Significance**

For women in the business world, their sense of self-efficacy as it relates to work and business develops over time and is influenced by their educational experiences and peers (Bandura, 1977; Bandura 1997). The experiences in school and influence of peers and mentors can greatly shape a person’s sense of self-efficacy and ability to succeed (Bandura, 1997). In light of the importance of school in the development of self-efficacy over time, one must look to the experience of students, especially as they begin studying and developing career related knowledge and skills to better understand the factors that influence their career self-efficacy. The literature shows that mentoring is also important for both people in business as well as undergraduate students (e.g. Lockwood, 2006; Gilbert, 1985; Dreher & Cox, 1996; Ragins & Cotton, 1999; Nora & Crisp, 2007; Crisp, 2009). Mentoring may influence the development of career self-efficacy in students by providing vicarious experiences and verbal persuasion, important sources of self-efficacy.

While there is substantial literature on both topics of self-efficacy and mentoring and how these theories influence undergraduate success and career success in business, literature is lacking in several areas. One area is the relationship between self-efficacy and mentoring. There are few pieces of literature that specifically look at the interaction between mentoring and self-efficacy, more specifically mentoring as a mediator of self-efficacy. This research suggests the existence of a positive relationship between the two
constructs (Hayes, 1998; Day & Allen, 2004) but the literature relies on small sample sizes. Thus the only extant literature available points to possible relationships but no conclusive information can be drawn.

Another area where relevant research is lacking is with undergraduate business students and their self-efficacy and mentoring experiences. Very little current literature seeks to examine this subsection of students. The literature that does exist focuses on a student’s self-efficacy regarding a specific skill, such as resolving conflict (Stone & Bailey, 2007). Other studies look at students’ self-efficacy in male dominated fields within business such as finance or management information systems (Sizoo, Jozkowskia, Malhotra, & Shapero, 2008; Shotick & Stevens, 2006). Mentoring literature focuses on graduate business students working on their MBA and how mentoring affects career earnings (Dreher & Cox, 1996).

There is a larger amount of research available that explores the importance of gender in mentoring relationships. Studies have looked at the importance of role models for women and men and found that for women role models are crucial and the gender of that role model is often an important characteristic for women when picking role models (Gilbert, 1985; Lockwood, 2006). Other studies that examined gender and mentoring did look at graduate students in MBA programs and found that those MBA students with white male mentors earned more money after graduation than others (Dreher & Cox, 1996). Despite the interest in gender and mentoring there is a lack of research that address this topic at the undergraduate level nor does research address the influences of
gender and mentoring on measures of self-efficacy or career success, other than possible financial rewards.

This study seeks to fill initial gaps in the literature by focusing on a specific subset of undergraduate students. Examining undergraduate business students will shed light on students’ experiences in a popular program of study and a program that guides students towards careers in the business world. Exploring the relationship between students’ business career self-efficacy and mentoring will add to the literature that looks at this relationship. By using a larger sample size than other research on this topic I intend to add more conclusive information to the literature on the importance of gender in mentoring relationships for undergraduate women in business as well as the possible relationship between mentoring and business career self-efficacy.

**Implications**

The business school environment offers many opportunities for students to enhance their sense of self-efficacy and develop strong mentoring relationships but a closer look suggests that female students may in fact face fewer opportunities to enhance their perceived business career self-efficacy than their male counterparts, specifically in the realm of vicarious experience and verbal persuasion through mentoring (Gilbert, 1985; Lockwood, 2006; Dreher & Cox, 1996).

According to Bandura (1997), vicarious experience is more influential when the model possesses similar characteristics, especially when the characteristic is gender. For female students in business the availability of same gender models is significantly less than the availability of same gendered models for men (AACSB, 2011). Due to the lack
of female executives in corporate America the majority of business leaders available to speak to business students and serve as models are men (Catalyst, 2011a). The same can be said for faculty. At institutions of higher education across the United States men hold the majority of tenured faculty positions and 77% of college presidential positions are held by men (Catalyst, 2011b). At business schools in particular, a mere 17.3% of full professors are women (AACSB, 2011). The data suggests that there are significantly fewer models for female undergraduate students both in industry and academia.

The lack of women in leadership positions in the business school landscape is worrisome for female students not only because they lack models but because, according to Bandura (1997), modeling is especially influential in the career development process. Despite female students earning the majority of undergraduate degrees in business for the 2009-2010 school year (AACSB, 2011) without the presence of female models who can act as mentors to female students, women will continue enter the work force and, confronted with the glass ceiling, remain the majority of middle level managers and the minority of executive level leaders.

While there is much literature on women in business and the need for more women in leadership positions (Catalyst, 2011a,b) the findings of this study can further support the need for those women who have made it through the glass ceiling to take the time to nurture and mentor not just women already in the business world, but students who will soon be entering the work force. By building programs and relationships early in women’s careers beginning with their education, women will have more opportunities to encounter models of the same gender, develop mentoring relationships, and receive the
positive verbal persuasion and support from mentors and models. By exploring the experiences female students have with mentors and assessing their business career self-efficacy, I intend to highlight a current weakness within the business school environment that, upon improvement by the faculty, staff, administration, and business professionals may have implications for an increase in women’s leadership not just in business, but all disciplines where women are currently the minority.

The following chapters of this paper describe the relevant literature that informs this study, the research questions developed, and the data collection and analysis that followed to attempt to answer those research questions. Chapter 2 provides a review of the self-efficacy and mentoring literature. It specifically looks at self-efficacy literature as it pertains to different fields of study and how self-efficacy influences career success. The mentoring literature reviewed includes gender differences in mentoring and the mentoring of undergraduate students. Chapter 3 outlines this study’s research questions, the operational constructs guiding the research, and the research design used. Chapter 4 discusses the survey instruments used, how the collected data was analyzed, and concludes with a discussion of the data collection process. Chapter 5 provides an analysis of the data results followed by a discussion of the results in Chapter 6.
Chapter 2: Literature Review

An extensive scope of literature exists within the realm of self-efficacy as it relates to students and careers as well as specific sources of self-efficacy and factors that mediate self-efficacy such as mentoring. Self-efficacy falls within the realm of social learning theory but this study specifically investigates self-efficacy thus studies using social learning theory are not included in this review. Similarly many studies of self-efficacy and careers focus on how people decide on careers, or career decision self-efficacy (e.g. Betz & Hackett, 1997; Quimby & DeSantis, 2006; Paulson & Betz, 2004). This study looks at a population of students in a specific discipline and I will assume that the population has already chosen their career path to be in the business realm and will not be considering in depth studies that look at career decision making self-efficacy. There are studies that suggest certain sources of self-efficacy are more influential than others (Zeldin & Pajares, 2000; Zeldin, Britner, & Pajares, 2008; Lent, Lopez, Bieschke, 1991; Lent, Brown, & Nijjer, 1996). Because of the importance of mentoring in business (Dreher & Cox, 1996; Ragins & Cotton, 1999) and its relationship to self-efficacy (Day & Allen, 2004; Byrne, Dik, Chiaburu, 2008) this study will focus solely on mentoring as a mediator of students’ business career self-efficacy but it is, of course, not the exclusive source of self-efficacy.
The review of the relevant literature looks at self-efficacy as it relates to career development and undergraduate students as well as the importance of self-efficacy to career success. A review of the recent literature on mentoring follows including an overview of mentoring theory, gender differences in mentoring experiences, and the importance of mentoring for undergraduate students. The review concludes with an overview of current studies that have explored mentoring and how it may mediate people’s sense of self-efficacy.

**Self-Efficacy Theory**

Bandura’s (1977; 1997) self-efficacy theory was shaped by the overarching social learning theory which says that expectations of failure can be learned traits (Bandura 1977). The foundation of social learning theory is that behavior and psychological functioning is not exclusively influenced by internal mechanisms or the external environment, rather the two continually interact shaping a person’s behavior (Bandura, 1977). One of the hallmarks of social learning theory, self-efficacy, is belief in one’s capabilities to take the necessary actions to produce a specific outcome (Bandura, 1997). Self-efficacy is not a trait concept and one does not look at self-efficacy on its own, rather it is measured against a behavior such as math self-efficacy or leadership self-efficacy (Betz & Hackett, 2006).

There are four sources that contribute to a person’s self-efficacy beliefs the first being enactive mastery experience (Bandura, 1997). The most influential source, through enactive mastery experiences a person is able to experience success increasing the belief one can continue to be successful. This is most helpful in facing failure; having
succeeded before increases the likelihood of one persevering through challenges. A second source of self-efficacy is vicarious experience, also referred to as modeling (Bandura, 1997). A person can measure their success by comparing actions or outcomes with others. If one is more successful than the comparison group self-efficacy beliefs are raised, being less successful than the comparison group lowers these beliefs. In addition to modeling as a source of comparison, when a person observes someone similar successfully do something one’s own sense of self-efficacy concerning that task or action is increased. This type of modeling is most influential when a person is lacking knowledge and experience in a certain area.

Verbal persuasion is a third source of self-efficacy (Bandura, 1997). A person who receives verbal persuasion can positively affect the amount of effort expended on a task. This source of self-efficacy is often received in the form of feedback and is more likely to impact perceived self-efficacy if it is provided by a person of credibility (Bandura, 1997). The final source of self-efficacy according to Bandura (1997) is psychological and affective states, crucial factors when physical activities, health, and stressful situations are involved. People are typically more successful when they are calm and not experiencing heightened physiological responses. Responding to a stressful situation with responses such as sweating and dizziness lowers one’s sense of self-efficacy making one less likely to succeed in that situation.

Self-Efficacy and Career Development in Undergraduate Students

Bandura’s (1977) theory of self-efficacy has been applied to a variety of areas including the management of phobias, athletic training, and academic success (Lent &
Hackett, 1987). It was Nancy Betz and Gail Hackett (1981) who pioneered the use of self-efficacy theory in career development (Lent & Hackett, 1987). Recognizing that women were struggling to enter male dominated fields, Hackett and Betz (1981), using self-efficacy theory, hypothesized that there were few role models for women and more verbal persuasion for men lowering women’s career self-efficacy and perpetuating barrier entries for women looking to move into non-traditional career paths. In their empirical study Betz and Hackett (1981) measured male and female career self-efficacy in college students for 20 common occupations. Occupations were either traditionally male, traditionally female, or gender neutral. The authors found female career self-efficacy significantly lower than their male counterparts for traditionally male occupations (Betz & Hackett, 1981). These findings opened the door to further research across disciplines about the development of career self-efficacy.

**Self-efficacy and STEM fields**

Throughout the 1980s both Betz and Hackett continued to study career self-efficacy with a focus on mathematics self-efficacy. In their 1983 study, Betz and Hackett studied math self-efficacy in undergraduate students. Their findings revealed that males had higher math self-efficacy than females and students with high math self-efficacy were more likely to major in a science based field, a potential explanation as to why fewer women were in math fields. In 1985 Hackett built on this research to develop a model using self-efficacy as a mediator variable to explain the choice of a math major. Her model demonstrates that math self-efficacy is influenced by gender socialization and math preparation. Math self-efficacy then affects students’ math anxiety and influences
their choice of a math major. In 1989 Hackett and Betz continued to test math self-efficacy and findings again supported math self-efficacy being a significant influence on the choice of math as a major.

More recent studies of gender and self-efficacy in the STEM fields explore specific sources of self-efficacy. In a qualitative study of fifteen women in STEM fields, Zeldin and Pajares (2000) determined that vicarious experience and verbal persuasion were crucial sources of self-efficacy to women in STEM fields. In a follow up study, Zeldin et al. (2008) found that for men in STEM fields, mastery experiences were the most important source of self-efficacy. In a quantitative study to explore the degree to which sources of self-efficacy explain the variation in mathematics self-efficacy, it was determined that mastery experience was only significant contributor (Lent et al., 1991). Another study also found that personal performance (mastery experience) was the most significant source of mathematics self-efficacy and there was no mention of verbal persuasion as a source (Lent et al., 1996).

These studies expand on the work of Betz and Hackett (1981, 1983; Hackett & Betz, 1981, 1989) by further exploring gender differences and sources of self-efficacy and provide guidance for the development of programs to enhance women’s self-efficacy in math. They do also leave questions the most significant being the generalization of findings to other disciplines such as business.

**Self-efficacy and business students**

Recent studies have examined the self-efficacy of undergraduate business students by looking at different aspects of business school education. The business
school education consists of a significant amount of cooperative learning where students work in small groups on projects (Kaenzig, Hyatt, & Anderson, 2007). The use of case studies in classes is also popular dating back to the 1920s when Harvard Business School began writing cases about real business issues (Middleton & Light, 2011). These case studies give students the opportunity to act as decision makers when confronted with business challenges (Harvard Business School, 2012). These experiences in the business school curriculum provide students with types of mastery experiences that may help build their business career self-efficacy.

The extant literature on self-efficacy of business students includes examines teamwork, computer skills, and finance self-efficacy. Similar to the studies of Zeldin and Pajares (2000) and Zeldin et al. (2008), Stone and Bailey (2007) looked at undergraduate project teams to study the sources of team conflict efficacy, or the ability to successfully resolve team conflicts. The authors found that vicarious team experience had the greatest positive influence on team conflict self-efficacy and was in fact the only significant source of efficacy, a surprising find as one would think having prior mastery experience with team conflict would also enhance efficacy. This surprising find was noted by the authors who suggested their findings may have been subjected to method errors.

Finance, a math based course of study in business schools, is a subject that can cause anxiety for business students but it is a crucial skill for overall business success (Sizoo, Jozkowskia, Malhotra, & Shapero, 2008). Sizoo et al. (2008) found that finance anxiety in undergraduate students was influenced more by low self-efficacy than anxiety about math suggesting that steps to enhance students’ self-efficacy should be taken to
increase success in finance. This study does however have a significant flaw in its methodology. To measure self-efficacy a general self-efficacy scale was used rather than a task specific finance measure. Using a task specific measure is key as self-efficacy is not a trait but a cognitive appraisal and, according to Betz and Hackett (2006), “must be measured against some type of behavior” (p. 6). Thus a similar study using a scale measuring finance efficacy rather than general self-efficacy may provide more accurate results.

A focus of recent literature, primarily due to the gender gap within the technology industry (Shotick & Stevens, 2006), has been computer skills efficacy and the self-efficacy of Management Information Systems (MIS) majors. In a survey of incoming freshmen to assess business computer self-efficacy Shotick and Stevens (2006) found that male students had higher self-efficacy than females on skills that were more mathematically and technically focused such as using spreadsheets and calculating statistics. Beyer (2008) looked at MIS majors specifically to examine gender differences that may contribute to the gender gap within the occupation. A key finding of this study was that female MIS majors were more likely than male MIS majors to have had a female computer teacher, suggesting the importance of a role model in the development of computer self-efficacy. Both studies lend support to the gender differences that exist in the academic majors and skill sets of undergraduate students and the role self-efficacy plays in the development of these differences.

While literature about business career self-efficacy in undergraduate business students is lacking, the existing literature does point to gender differences in computer
and technology skills as well as the importance of individual sources of self-efficacy such as vicarious experience or verbal persuasion. There is however a need for more research that extends past the STEM fields to learn more about students’ business career self-efficacy especially in regard to topics such as business internships and teamwork.

**Self-Efficacy and Career Success**

The influence of self-efficacy continues after a person’s undergraduate years and can greatly affect their career success (Bandura, 1997). There are many aspects of careers that the literature shows are greatly influenced by self-efficacy including leadership and pay expectations (Dickerson & Taylor, 2000; Yeagley, Subich, & Tokar, 2010; Hogue, DuBois, & Fox-Cardamone, 2010; Abele & Spurk, 2009). Both leadership and pay expectations can greatly influence women’s career progression as women are struggling to be accepted as leaders (Burke & Nelson, 2002) and have not yet achieved pay parity (Catalyst, 2011a). Because self-efficacy is a significant mediator for many of these important challenges, more needs to be done to enhance the efficacy of women in these realms beginning at the undergraduate level or earlier.

**Self-efficacy and leadership**

Leadership ability is a necessary skill for success in business and recent research suggests that women may actually have more successful leadership qualities than men (Eagly, 2007) yet are less optimistic than men about holding leadership positions (Lips, 2000). Merely because women possess successful leadership qualities also does not mean they will be given the chance to move into leadership roles, negatively affecting women’s leadership self-efficacy (Dickerson & Taylor, 2000). The more women
internalize the idea that women do not make good leaders the less likely they are to step into non-traditional tasks such as upper level management and instead choose more traditional and less challenging assignments (Dickerson & Taylor, 2000).

Dickerson and Taylor (2000) studied this idea of self-limiting behavior using the Task Specific Self-Efficacy (TSSE) scale tailored to contain items related to leadership. The authors surveyed women using the TSSE scale and designed a task to test whether women would choose to lead a group or be a group member. Dickerson and Taylor (2000) found that women with low TSSE in regard to leadership were more likely to choose to be a group member and those with high TSSE were more interested in being a group leader and more likely to be a group leader.

Another study by Yeagley et al. (2010) evaluated female students’ self-efficacy regarding elite leadership positions with titles such as Chief Financial Officer and President. Similar to Dickerson and Taylor (2000), Yeagley et al. (2010) found that self-efficacy is a significant predictor of women’s interest in elite leadership positions. These findings lend support to the idea that some women “opt out” of leadership roles because they are lacking leadership self-efficacy creating a dearth of female executive leadership (Burke & Nelson, 2002). Studies that explore specific sources of leadership self-efficacy (similar to Zeldin & Pajares (2000) and Zeldin et al. (2008)) would be a valuable next step. The findings of those types of studies may help researchers and practitioners to better understand how to enhance self-efficacy in women.
Self-efficacy and salaries

There is evidence that self-efficacy may significantly influence pay expectations of undergraduate students as well as their career earnings over time. A recent study of undergraduate students by Hogue et al. (2010) measured self-efficacy using the general self-efficacy scale and surveyed students for their post graduate plans, expected salary upon graduation, and peak salary expectations. The findings of the study suggest that women have lower expectations than men for their entry level pay as well as career peak salary and self-efficacy moderates the relationship between gender and pay expectations. The potential fault of this survey is the use of the general self-efficacy scale. It would be interesting to reproduce this study using a self-efficacy scale specifically developed to measure self-efficacy related to salary negotiation skills or career related skills.

Occupational self-efficacy, the belief in one’s ability to meet the challenges and complete the tasks of an occupation, also influences salary (Abele & Spurk, 2009). In a longitudinal study of professionals with master’s degrees, Abele and Spurk (2009) found that professionals with high occupational self-efficacy earned more money after three years and additional earnings after seven years compared to participants with low occupational self-efficacy. After controlling for occupation and number of hours worked, Abele and Spurk (2009) also found that women earned less than men significant at three and seven years after earning a master’s degree but occupational self-efficacy did not mediate these gender differences.

There is literature that investigates self-efficacy and how it affects salaries but the findings appear contradictory as one points to self-efficacy as mediating salary and career
success (Hogue et al., 2010) and another does not (Abele & Spurk, 2009). It appears from the current arguments that further research is needed to investigate if and how self-efficacy mediates career success, how this may interact with gender, and if it is possible this interaction contributes to the glass ceiling.

**Mentoring**

Mentoring has been a popular topic in the literature of business, education, and psychology for the past several decades (Crisp & Cruz, 2009). Theories of mentoring suggest there are two or three functions of mentoring (Kram, 1985; Jacobi, 1991; Crisp & Cruz, 2009). The literature on mentoring also explores the effectiveness of formal and informal mentoring (Ragins & Cotton, 1999; Fagenson-Eland et al., 1997) as well as gender and mentoring relationships (Gilbert, 1985; Dreher & Cox, 1996; Ragins & Cotton, 1991; Scandura & Ragins, 1993; Sosick & Godshalf, 2000; Lockwood, 2006). Although there are multiple flaws in the mentoring research (Haggard, Dougherty, Turban, & Wilbanks, 2011; Crisp & Cruz, 2009) upon exploration of the literature, it appears there is evidence that mentoring and self-efficacy are closely tied especially for undergraduate students.

**Theory and current research issues**

Mentoring is “a developmental relationship that is embedded within the career context” (Kram & Ragins, 2007, p. 5) and provides multiple functions to those who are mentored. In a seminal piece of mentoring theory literature, Kram (1985) outlined the characteristics of a mentoring relationship within the workplace. She cited two primary functions of mentoring: career and psychosocial. Career functions are those functions in
A mentoring relationship that promote career success and advancement such as sponsorship, coaching, protection, and challenging assignments. Psychosocial functions are functions, such as role modeling, counseling, and friendship that enhance employees’ competence and effectiveness at work (Kram, 1985).

Later mentoring literature suggests that role modeling is its own independent mentoring function. Maryann Jacobi (1991) in her review of mentoring literature explored various mentoring studies and highlighted fifteen mentoring functions. In addition to Kram’s (1985) two mentoring functions, Jacobi (1991) suggested role modeling as a third mentoring component. Haggard et al. (2011) also reviewed and critiqued mentoring literature and concurred with Jacobi (1991) that role-modeling is a crucial function of mentoring yet it is often not discussed in mentoring literature or definitions.

A variety of definitions of mentoring have been found in the relevant literature. The majority of definitions state a mentor is one who provides a person with career and psychosocial functions as well as serving as a role model but there is not one set definition used by researchers (Haggard et al., 2011). The lack of a standard definition of mentoring has been an issue much critiqued by the current mentoring literature (Haggard et al., 2011; Dougherty & Dreher, 2007; Crisp & Cruz, 2009). Reviews of mentoring literature from the 1980s to present address that there is no accepted definition of mentoring and all literature on the topic adapts its own definition ranging from brief and vague explanations to long and detailed descriptions (Haggard et al., 2011; Dougherty &
This lack of a set definition creates various validity issues within the mentoring literature (Dougherty & Dreher, 2007).

**Formal and informal mentoring**

Recent mentoring literature examines the value of informal versus formal mentoring within the workplace. Fagenson-Eland et al. (1997) looked at employees in two sister technology companies only one of which had a formal mentoring program. In their survey the authors provided a specific definition of mentoring based on Kram’s (1985) work and found that mentors and protégés in formal mentoring relationships communicated less frequently than those in informal mentoring relationships. Protégés in formal relationships also reported less psychosocial support compared to protégés in informal mentoring relationships but there were no differences in career guidance or role-modeling functions (Fagenson-Eland et al., 1997).

Ragins and Cotton (1999) also explored differences in informal and formal mentoring relationships for their study of workers in three different occupations. Unlike Fagenson-Eland et al. (1997), Ragins and Cotton (1999) found that informal mentoring relationships produce more career development and satisfaction than formal mentor relationships. Ragins and Cotton (1999) did however find that protégés in informal relationships received more psychosocial functions similar to Fagenson-Eland et al.’s (1997) findings. Ragins and Cotton (1999) also found that men were more likely to have formal mentoring relationships than women.

Ensher, Thomas, and Murphy (2001) took a different approach to studying effective methods of mentoring by looking at traditional mentoring, when someone is
mentored by a person of authority and experience, step ahead mentoring, when a person is mentored by a colleague one level above in the workplace, and peer mentoring when someone is mentored by a person on the same level. Ensher et al. (2001) surveyed professionals from a media organization and a school district and found those protégés in traditional mentoring relationships received greater vocational support. Protégés were also more satisfied with mentoring in traditional and step ahead mentoring relationships. It appears from these studies that informal relationships and mentors who are older and more experienced are the most effective in providing protégés with psychosocial and career development functions.

**Gender**

Mentoring literature has also explored gender differences beginning with Kram’s (1985) acknowledgement that there are multiple complexities associated with cross-gender work relationships including stereotypical roles, a lack of understanding on the part of male mentors regarding the challenges women face in the work place, and increased intimacy and sexual tension. Cross-gender mentoring has continued to be a pervasive topic in the mentoring literature, specifically the effects of same and cross-gender mentoring on women.

A 1985 study by Gilbert studied the importance of same gender role modeling for graduate students with professors as role models. A vague definition of role model was provided leaving room for interpretation of the concept, a significant weakness of the study. Gilbert’s (1985) findings suggest that female graduate students found role models
significantly more important than male students did in the realm of professional development and having a role-model may be more important to females than males.

It appears gender matching is also important, particularly for women (Lockwood, 2006). In a two part study, Lockwood (2006) found that for females, gender matching influences identification with a role model. There was no effect for males. Lockwood further found that females who read about successful women rated their competencies more positively than women who read about successful men. Lockwood (2006) also considered participants’ actual role models and found that 63.1% of females cited a female role model with many women/women mentor/protégé combinations citing gender as being a reason for choosing the role model.

The findings of Lockwood (2006) and Gilbert (1985) suggest that role models are crucial for women and many women may choose their role models because they are women. In an environment lacking female role models, such as a business school, women may choose a role model they are less comfortable with or not pick a role model at all. This lack of a role model could put women at a disadvantage compared to their male counterparts.

Despite the apparent importance of gender matching a female having a female role model does not always mean they are at an advantage. They may in fact be at a disadvantage especially in regard to compensation and promotions (Dreher & Cox, 1996; Ragins & Cotton, 1999). Dreher and Cox (1996) found that MBA graduates with white male mentors earned more than graduates without white male mentors. Women were less likely than their white male counterparts to have a white male mentor, putting them at a
disadvantage. This could also play a role in the gender pay gap. One weakness of this study by Dreher and Cox (1996) was their definition of a mentor as it was career function focused and excluded any psychosocial functions which may have influenced results.

Similar to Dreher and Cox (1996), Ragins and Cotton (1999) found significant differences between protégés with male mentors and protégés with female mentors. Protégés with male mentors reported higher compensation and promotions than those with female mentors with an average compensation differential of almost $20,000. Ragins and Cotton (1999) also found that male protégés with female mentors reported lower satisfaction and fewer mentor functions compared to other gender combinations. These findings suggest a difficult dilemma for female protégés who identify more with female mentors but benefit more in terms of compensation and career advancement with male mentors.

While females find more career advantages with male mentors this does not mean it is easy for females to obtain male mentorship. Ragins and Cotton (1991) identified five barriers to mentoring: access to mentors, fear of initiating a relationship, willingness of mentor, approval of others, and misinterpretation (approaching a mentor may be interpreted as a sexual advance). The authors found that women differed from men on four of the five barriers (fear of initiating a relationship excluded) and perceived greater barriers to mentoring. Scandura and Ragins (1993) also investigated gender and mentoring in the male dominated field of accounting and suggested that gender role orientation rather than sex could be a greater predictor of mentoring success noting that
females who exhibited more androgynous behavior had mentors and more career advancement than women exhibiting more feminine behaviors.

From the available literature concerning mentoring and gender, mentoring has significant influence on career advancement and women appear to be at a disadvantage when choosing female role models as they gain more career advantages from male mentors. Due to the lack of a common definition of mentoring however, many of these findings are vulnerable to various participant interpretations and because of this flaw one cannot generalize literature findings to other populations. Research should look next to applying similar studies to different occupations and disciplines as well as develop a consistent definition of mentoring and its functions.

**Mentoring and undergraduate students**

The focus of research regarding mentoring and undergraduate students looks at academic success, socialization, and persistence (Jacobi, 1991; Nora & Crisp, 2007; Crisp, 2009). Different from the mentoring functions highlighted by Kram (1985), Nora and Crisp (2007) identify four domains critical to the mentoring of undergraduate students including goal setting and career paths. Mentoring about goal setting and career paths is perceived by students to be a significant part of the mentoring function (Nora & Crisp, 2007) and mentoring is considered to be an important aspect of undergraduate education especially in the STEM and business fields (Kahveci, Southerland, & Gilmer, 2006; Fox, Stevenson, Connelly, Duff, & Dunlop, 2010; Fifolt & Searby, 2010; D'Abate & Eddy, 2008;).
Literature on mentoring in the STEM fields suggests the importance of mentoring on students’ cooperative educational experiences (Fifolt & Searby, 2010). For students to get the most out of these experiences both mentors and protégés must be well trained and understand the expectations of their role (Fifolt & Searby, 2010). In addition to enhancing STEM students’ education, mentoring may also be useful in recruiting and retaining female students in these male dominated fields (Kahveci et al., 2006). Female students participating in a STEM mentoring program were more likely to be retained in their STEM major than female non-participants (Kahveci et al., 2006) and there is a push for campus wide mentoring programs for women because of these potential benefits (Putsche, Storrs, Lewis, & Haylett, 2008).

Mentoring within the business world has positive effects such as career satisfaction and increased self-confidence as well as negative effects such as lack of time and mentor interest (Hansford, Tennent, & Ehrich, 2002). The view of mentoring within a business education takes a more positive view and it is recognized as a helpful mechanism for business students (Fox et al., 2010; D’Abate & Eddy, 2007). Peer mentor programs seem to assist first year students in increasing their academic performance (Fox et al., 2010) but, similar to mentoring in STEM fields, mentor training is crucial to success (Fifolt & Searby, 2010; D’Abate & Eddy, 2008). The research on mentoring and business school students is weak in the area of population and sample size with only business programs in a small liberal arts school and a specific accounting program studied as opposed to a larger business school environment.
The literature concerning the mentoring of undergraduate students has many commonalities with the overarching mentoring research. For young adults seeking full time employment mentoring appears to have a more positive influence for men than it does for women (McDonald, Erickson, Johnson, & Elder, 2007). Similar to male mentors having more influence in the corporate world (Dreher & Cox, 1996; Ragins & Cotton, 1999), male developmental guides who played the role of mentor to undergraduate students were found to have more influence than female guides (Downing, Crosby, & Blake-Beard, 2005). The sample in this study however contained students from an all women’s college and small liberal arts schools and it is questionable if the results can be generalized to other types of universities.

While research on mentoring for undergraduate students exists there appears to be a gap in the literature where undergraduate students, careers, and mentoring intersect. Research has acknowledged that mentoring is important for undergraduate students (Nora & Crisp, 2007; Crisp, 2009) and mentoring is important for people in business especially for career advancement (Dreher & Cox, 1996; Ragins & Cotton, 1999) and young adults beginning their careers (McDonald et al., 2007). The mentoring of undergraduate students and how it relates to their careers does still leave many questions unanswered including gender differences (McDonald et al., 2007) and the specific benefits mentoring can offer to students’ careers.

**Mentoring and Self-Efficacy**

A significant distinction Bandura (1977) made in his self-efficacy theory was the difference between self-efficacy and outcomes. According to Bandura (1977), “an
outcome expectancy is defined here as a person’s estimate that a given behavior will lead to certain outcomes. An efficacy expectation is the conviction that one can successfully execute the behavior required to produce outcomes” (p. 79). Thus the question becomes not will this behavior produce this outcome but am I capable of this behavior or action. As Dougherty and Dreher (2007) highlight, much of the research on mentoring looks directly to career outcomes and the expectancy that mentoring will produce certain outcomes for protégés. To successfully produce outcomes a person must have the belief they can successfully take the necessary actions or perform the appropriate behaviors to achieve the outcome. Thus Dougherty and Dreher (2007) are correct in stressing the importance of more subjective measures of mentoring.

Literature has begun to look at mediating factors of mentoring including self-efficacy. Hayes (1998) studied a clinical mentoring program for nurse practitioners using two self-efficacy scales and two mentoring scales and found a positive correlation between mentoring and self-efficacy accounting for 14% of the variation in nursing students’ self-efficacy scores. Day and Allen (2004) looked at career motivation and self-efficacy as mediators of mentoring and career success in employees in a private sector organization. Their findings suggest a positive relationship between career mentoring and self-efficacy but did not support the hypothesis that mentored individuals report higher levels of self-efficacy than non-mentored individuals. The authors recognized they worked with a small sample size and, like other studies of mentoring, the study is cross sectional thus no inferences of causality can be made. A similar
longitudinal study with a larger sample size would be a suggested path for future research.

As Dougherty and Dreher (2007) highlight, there is a need for more subjective measures of mentoring to learn what mediates mentoring and career outcomes. The framework of self-efficacy and its relation to outcome expectancies provides a theoretical base from which to explore possible mediators. Self-efficacy and mentoring are also very closely tied. Sources of self-efficacy, such as vicarious experience and verbal persuasion, are significant pieces of the mentoring function (Byrne et al., 2008). This study seeks to further the research on possible mediators of mentoring and career outcomes by measuring the self-efficacy and mentoring experiences of female business students. The literature already shows that mentoring can play an important role but what is that role for business students and how can it help women in their future careers?
Chapter 3: Design & Methodology

This chapter outlines the research questions guiding the survey and methodology of the study. Three research questions are proposed followed by a discussion of the operational constructs of mentoring and self-efficacy. An outline of the research design used concludes the chapter.

Research Questions

The purpose of this study is to explore the mentoring experiences of female undergraduate business students, observe if there are possible differences in these mentoring experiences based on the presence of a mentor and the gender of the mentor, and to explore the relationship between mentoring and self-efficacy. Three research questions guided the gathering and analysis of data:

*Research Question 1:* Is there a difference in business career self-efficacy scores between mentored and non-mentored students?

*Research Question 2:* Is there a different in business career self-efficacy scores between students mentored by men and mentored by women?

*Research Question 3:* Does mentoring help explain students’ self-efficacy scores?

These research questions, through quantitative analysis, may shed light on the effects of mentoring on students’ business career self-efficacy and if differences between students mentored by men and mentored by women exist. If differences exist, this may
have implications for the development of future mentoring programs for women in business schools. For the long term, an increase in mentoring for undergraduate women in business schools may assist them in the development of successful business careers and upper level leadership roles.

**Operational Constructs**

The theories of mentoring and self-efficacy present overarching constructs to inform research. Using the literature presented in this proposal, mentoring and self-efficacy definitions specific to the intended research were created and are presented here.

**Mentoring**

A trend highlighted in the recent mentoring literature is the lack of an accepted overarching definition of mentoring (Jacobi, 1991; Dougherty & Dreher, 2007; Haggard et al., 2011). Providing participants with a set definition of mentoring is crucial and avoids participant interpretation and significant variability (Haggard et al., 2011). Kram’s (1985) mentoring theory was the first step in developing an operational definition of mentoring. Kram’s (1985) theory identified two central functions of mentoring: career and psychosocial. More recent literature has proposed that role modeling is a distinct third function of mentoring (Jacobi, 1991; Scandura, 1992; Haggard et al., 2011) while Kram (1985) cited a role model function as one element of the larger psychosocial function.

Much of the mentoring research cited in this study explores mentoring within organizations. Recently attention has been paid to exploring mentoring functions specific to undergraduate students (Nora & Crisp, 2007; Crisp, 2009; Crisp, 2010; Crisp & Cruz,
Four variables central to the mentoring experiences of undergraduate students were identified (Nora & Crisp, 2007). Three of the four variables align with generally accepted core mentoring functions: psychological or emotional support, career paths and goal setting, and the existence of a role model. A fourth variable, academic subject knowledge support that advances a student’s knowledge in their chosen field of study, was also identified as being significant in undergraduate students’ mentoring experiences (Nora & Crisp, 2007).

From the relevant research the following operational definition of mentoring has been developed:

A mentor is a person who serves as a role model. A mentor is a person who provides you with emotional support, career guidance, and academic support to help advance your knowledge in your chosen field of study and/or chosen career path.

This definition incorporates the three core mentoring functions identified in mentoring literature as well as the academic aspect identified by Nora and Crisp (2007). The academic support is included in this definition because the proposed participants are undergraduate students and their academics are a central part of their current lives.

**Self-efficacy**

According to Bandura (1997) self-efficacy is the “belief in one’s capabilities to organize and execute the courses of action required to produce given attainments” (p. 3). What is important to remember about the theory of self-efficacy is that it is not a trait concept and one does not measure self-efficacy on its own. Instead, according to Betz and Hackett (2006) one must ensure that self-efficacy is measured against a behavior.
This study will look at undergraduate business students with the goal of measuring their business career self-efficacy. The operational definition of business career self-efficacy for the purpose of this paper refers to a student’s belief in their abilities to execute the necessary actions required for a successful business career.

**Research Design**

The proposed research design is a cross-sectional quantitative study of undergraduate business students. While other research methods such as pre and post test methods are stronger designs, a cross-sectional design will be used due to the time constraints of the project. The study population consists of female undergraduate students in the United States who are enrolled in a business program of study. The sample will be a convenience sample of female undergraduate business students from a single university. Although a convenience sample risks being unrepresentative of the total population (Ghauri & Grønhaug, 2005) this will be the sampling method due to time constraints of the project and access to participants. The research will be a mix of descriptive statistics to explore the number of students who have mentors, the gender of the mentor, the mentor functions students receive, and their business career self-efficacy scores. There will also be causal research elements to explore the relationship between students’ mentoring experiences and their self-efficacy scores and if mentoring helps to explain differences in students’ self-efficacy scores.

The study sample is composed of female undergraduate students enrolled in a business college at a large Midwestern university. Undergraduate population in the business college is approximately 4,700 undergraduate students. 40% of students are
women. 8.6% of undergraduate students in the college are international students and the average GPA of undergraduate students in the business college is 3.21. The planned sample size consists of female students in the business school in ranks three and four, based on course credit completed, for a total of 1,822 students. Those students who have earned between 91 and 135 quarter credit hours are considered Rank 3 (typically advanced sophomores and juniors) and those with more than 136 quarter credit hours are considered Rank 4 (advanced juniors and seniors).

To gain access to the sample a thesis proposal and IRB approval was submitted to the Associate Dean of Undergraduate Programs for approval to administer a survey to the sample. Approval was granted and an email was sent to the sample size with a cover letter explaining the project (see Appendix A) and a link to the online survey instrument (see Appendix B). A reminder email was sent to all students after one week (see Appendix C) including a description of the project and the survey link. An incentive to encourage participation was also offered. Participants were provided an additional link in the initial recruitment email and second reminder email where they could provide their email address to be entered in a drawing to win one of four $15 gift cards to Barnes & Noble bookstores.
Chapter 4: Data Collection

This chapter addresses the instruments used to measure students’ experience with mentoring and their business career self-efficacy. This is followed by a discussion of how the data was coded and analyzed, how the project met requirements for Human Subjects Review and concludes with a discussion of the data collection process.

Survey Instruments

A quantitative survey was administered to the sample using Qualtrics, online survey software. The survey consisted of three parts: demographic information, a mentoring scale, and a self-efficacy scale (see Appendix B for full survey).

Demographic information

The beginning of the survey asked questions to gather students’ demographic information including their year in school (first year, second year, third year, fourth year, fifth year and greater), gender, GPA range (4.00, 3.5-3.99, 3.0-3.49, 2.5-2.99, 2.0-2.49, less than 1.99), and business specialization (finance, accounting, operations, etc.). This information was gathered to evaluate gender differences in mentoring experiences and self-efficacy scores and to serve as other independent variables that may mediate business career self-efficacy. A question about internship experience was also included because these experiences may act as mastery experiences for students if they perform well in their internships, increasing their sense of business career self-efficacy (Bandura, 1997).
Internships have also been proven to have a positive influence on career success (Gault et al., 2000).

**Mentoring scale**

This scale began by providing the definition of mentoring outlined in Chapter 3 and asking participants if they have a single mentor who meets this definition. If the participant answered no they moved to the self-efficacy scale. If yes, the participants were asked a forced response question to categorize their mentor (such as faculty member, business professional, family friend). There was also an open ended option where students could input their mentor’s role if it did not fit the provided categories. Following these two questions the College Student Mentoring Scale (CSMS) (Nora & Crisp, 2007) was administered. This scale was chosen because it encompasses the three core functions of mentoring (career, psychosocial, and role-modeling) as well as taking into account the academic environment of the students. These mentoring functions are measured by four distinct factors: Psychological and Emotional Support (eight items), Degree and Career Support (six items), Academic Subject Knowledge (five items), and Existence of a Role Model (six items). A 5-point Likert scale is used to assess scores (Crisp, 2009).

There is evidence of the strong reliability for the CSMS based on Cronbach coefficient alphas for each of the four factors ranging from .845 (Role Model) to .912 (Psychological and Emotional Support) (Crisp, 2009). Crisp (2009) also provides evidence for strong validity of the scale.
Self-efficacy scale

To measure the business career self-efficacy of undergraduate students a portion of the Task-Specific Occupational Self-Efficacy Scale (TSOSS) short form developed by Osipow, Temple, and Rooney (1993) was used. The original version of the scale was created by Rooney and Osipow (1992). Using the Selected Characteristics of Occupations Defined in the Dictionary of Occupational Titles the authors summarized the activities of the 66 work groups identified in the Dictionary and generated scale items for each group (Rooney & Osipow, 1992). A shortened form of the scale was later developed for greater efficiency (Osipow & Temple, 1996).

The TSOSS short form consists of 60 items that measure four distinct occupational groupings: verbal interpersonal skills (Factor 1), quantitative, logical, and business skills (Factor 2), physical strength and agility (Factor 3), and aesthetic skills (Factor 4) (Osipow & Temple, 1996). For the purposes of this study, which looks at business students and their career self-efficacy as it relates to business, it was not necessary to administer scale items for all four factors. Instead Factors 1 and 2 will be administered for a total of 30 items.

Factors 1 and 2 were selected for inclusion because of recent research about the skills business professionals need to be successful (Gault, Redington, & Schlager, 2000; Abraham & Karns, 2009). Skills identified to be important to employers and hiring managers include communication skills, analytical skills, problem solving, leadership skills such as teamwork and relationship building, and interpersonal skills (Gault et al., 2000; Abraham & Karns, 2009). An initial examination of the TSOSS short form
revealed the applicability of Factor 2. The items to measure Factor 2 include problem solving and analytical skills (Temple, 1996) but did not cover many other important skills for business success. Factor 1 includes items such as “the ability to gain the trust and confidence of people” and “the ability to negotiate with people in different work situations” (Temple, 1996). The combination of Factors 1 and 2 covers important skills in business and were administered in the survey.

The TSOSS short form has been tested for reliability resulting in Cronbach alpha coefficients between .91-.93 for the four factors (Osipow & Temple, 1996). The scale has also proven to be a valid measure of self-efficacy (Osipow & Temple, 1996). There were revisions made to the initial TSOSS short form to further increase the efficiency of the measure and the revised version of the scale was used. The use of a ten point Likert scale instead of a five point scale increases the dispersion of responses. Additionally, the phrase “I am able to…” was added to the beginning of every task to make them more concrete (Osipow & Temple, 1996; Temple, 1996).

**Data Analysis**

Data was downloaded from the Qualtrics survey software and analyzed using Microsoft Excel. The total survey response including complete and incomplete data was 187 responses. The first step to data analysis was to ensure all data used was from female students. Two survey participants self-selected their gender as male and were not included in the data analysis. Another 22 participants answered the demographic questions but did not provide any responses for the mentoring and self-efficacy scales and were not included in the analysis. This left 163 participants who fully completed the
Qualtrics survey software provides users with data that is already coded and available for download to Excel. Coding was double checked for accuracy and missing data but no additional coding was needed for the initial data analysis.

The survey data was then filtered by whether participants said yes or no to the question that outlines the definition of a mentor for the sake of this study and then asked participants “after reading this definition of a mentor, have you had a mentor who meets this definition?” 70 participants selected “No” to this question after which the survey software jumped to the self-efficacy scale. 93 students selected “Yes” they did have a mentor who met that definition and they went on to answer the questions in the mentoring scale followed by the self-efficacy scale.

After sorting the data by those participants who had a mentor and those who did not, separate Excel files were created for each group labeled “Mentored” and “Non-mentored.” For the Mentored group the data was first organized by the descriptive data including year in school, GPA, business specialization, and whether the participant had a business related internship. The mentoring scale was then analyzed. First the raw data was organized by the four factors within the College Student Mentoring Scale (CSMS): Psychological and Emotional Support (8 factors), Degree and Career Support (6 factors), Academic Subject Knowledge and Support (5 factors), and Existence of a Role Model (6 factors). Once data was organized by factor it was examined for any missing data. When missing data was found it was updated with the average of the other items within its
factor. For each factor in the CSMS an average was calculated. Those four averages were then averaged for a single CSMS score.

A similar process was used for analyzing the Task-Specific Occupational Self-Efficacy Scale (TSOSS). Raw data was compiled into Factor 1- verbal interpersonal skills (15 items) and Factor 2- quantitative, logical, and business skills (15 items). For any missing data an average of the other scale items was calculated and filled in. An average was calculated for each factor and then those two factor averages were averaged for a total TSOSS score.

For those non-mentored participants an identical analysis was done with the demographic information detailing the participants’ year in school, GPA, business specialization, and if the participant had a business related internship. Because non-mentored students were not administered the CSMS this left only the TSOSS scale to analyze. Analysis for this scale for non-mentored students was identical to the data analysis for mentored students. Raw data was compiled into the two factors and an average was calculated for each factor as well as one average TSOSS score. Missing data was also treated the same with the non-mentored students as it was with mentored students.

**Human Subject Review Requirements**

This project was approved for exemption by The Ohio State University Office of Responsible Research Practices (ORRP). The research was exempt under Category 2 of Research Activities Exempt from Review by OSU Institutional Review Boards. Category 2 includes research that uses survey procedures as long as identifiers of human
subjects are not recorded and disclosure of responses would not place subjects at risk of liability or be damaging to their reputation, employability, and financial standing (The Ohio State University, 2012).

To ensure the project met all requirements for exemption under Category 2 participants’ privacy and confidentiality were closely guarded. In normal settings Qualtrics, the survey software used, collects IP addresses to prevent spamming, however there is a user option to turn off this collection entitled “Anonymize Response” which prevents the collection of computer IP addresses. This option was selected during the creation of the survey and no student IP addresses were collected. A second survey was created for the sole purpose of the incentive drawing to ensure that participant’s email addresses were not linked to their survey responses. The drawing for the incentive occurred the day after the survey closed and as soon as the four winners were notified the email addresses were permanently deleted. The raw data from the survey results were saved to a personal home computer with a back-up copy saved to a portable flash drive. The only people with access to the data were the thesis author and thesis committee members. The only hard copies of data consist of aggregated data. As suggested by IRB, the data records will be maintained on a personal computer hard drive and the back-up copy for a three year period following completion of the thesis.

Data Collection

When initially planning the project, data collection was to be done using Qualtrics but was only planned to be administered to a few select classes at the business school. To gain access to the initial proposed sample a request was made to the Assistant Dean of
Undergraduate Students at the business school. After hearing about the project and meeting with the Executive Director for Undergraduate programs, I was given access to the email addresses of 1800 undergraduate female students at the business school. This was a significantly larger sample than had been originally planned for. This was a beneficial change that was made to the original plan as the initial planned sample size was around 500 students. The actual sample size was 1800 and the response rate was approximately 11% or 163 responses. Had a smaller sample size been used the resulting responses may have been similarly low resulting in a small amount of usable data.

The original project proposal outlined data collection to take place in early February. The actual data collection took place the beginning of April, the beginning of the participants’ Spring academic term. This was later than originally anticipated for the study as it took longer than planned to get approval for the project from the business school. Typically the beginning of the academic term is a busy time for students and they receive many emails from professors, the university, and various clubs and organizations. Sending the survey at this busy time in the academic term may have negatively influenced the survey response rate.
Chapter 5: Results

The following chapter discusses the relevant findings from the survey results categorized by the three research questions provided in Chapter 3. A brief presentation of the descriptive sample data is first introduced followed by Research Question (RQ) 1 which explores possible differences in business career self-efficacy scores between mentored and non-mentored students. Results for RQ 2 are then presented which examines potential differences in business career self-efficacy scores between those mentored students with female mentors and those mentored students with male mentors. The chapter concludes with RQ 3 which seeks to learn if mentoring helps explain variations in students’ business career self-efficacy scores.

Descriptive Data

The total usable sample $n = 163$. Out of that 163, 93 agreed they had a mentor that met the definition of mentor for the sake of the survey while 70 disagreed and did not have a mentor that met the survey definition.

Mentored students

For the 93 students who agreed they had a mentor, the majority were in their second ($n = 27$), third ($n = 31$), or fourth ($n = 26$) year in school. 54 percent ($n = 50$) of students had a GPA range of $3.50 – 3.99$. 63 percent ($n = 59$) of mentored students had a business related internship and Accounting ($n = 30$), Finance ($n = 18$), and Marketing ($n = 17$) were the most common majors.
An in-depth look was taken at the gender and type of mentor students reported. The most common type of mentor was a business professional (31.18%, n = 29) with family member being the second highest (22.58%, n = 21). A high percentage of students, 68.82% (n = 64), reported having a female mentor. What is interesting is the comparison of the genders of the types of mentors reported with 79% (23 of the 29) of business professionals and 68% (11 of the 16 reported) of faculty members who were mentors were reported to be female. This may be an area for additional research and will be discussed further in Chapter 6.

**Non-mentored students**

For the 70 non-mentored students, similar to mentored students, the majority reported being in their second (n = 16), third (n = 22), or fourth (n = 23) years in school. 91% of students reported a GPA between 3.00-3.99 and 2 students reported a 4.00 GPA. A lower percentage of non-mentored students, when compared with mentored students, reported having a business related internship with 47% citing they had an internship. In regard to common majors, Marketing was the most popular (n = 21) with Accounting being the second most popular (n = 17). Finance was lower for this group of students with only 7 selecting finance as their major. Table 5.1 gives a comparison of the mentored and non-mentored groups.
Table 5.1

**Descriptive data**

<table>
<thead>
<tr>
<th>Rank in School</th>
<th>Mentored</th>
<th></th>
<th>Non-Mentored</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>%</td>
<td>N</td>
<td>%</td>
</tr>
<tr>
<td>First year</td>
<td>2</td>
<td>2.15%</td>
<td>5</td>
<td>7.14%</td>
</tr>
<tr>
<td>Second year</td>
<td>27</td>
<td>29.03%</td>
<td>16</td>
<td>22.86%</td>
</tr>
<tr>
<td>Third year</td>
<td>31</td>
<td>33.33%</td>
<td>22</td>
<td>32.86%</td>
</tr>
<tr>
<td>Fourth year</td>
<td>26</td>
<td>27.96%</td>
<td>23</td>
<td>32.86%</td>
</tr>
<tr>
<td>Fifth year</td>
<td>7</td>
<td>7.53%</td>
<td>4</td>
<td>5.71%</td>
</tr>
<tr>
<td>Part time</td>
<td>0</td>
<td>0.00%</td>
<td>0</td>
<td>0.00%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>93</td>
<td></td>
<td>70</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>GPA Range</th>
<th>Mentored</th>
<th></th>
<th>Non-Mentored</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.00</td>
<td>0</td>
<td>0.00%</td>
<td>2</td>
<td>2.86%</td>
</tr>
<tr>
<td>3.50-3.99</td>
<td>50</td>
<td>53.76%</td>
<td>36</td>
<td>51.43%</td>
</tr>
<tr>
<td>3.00-3.49</td>
<td>35</td>
<td>37.63%</td>
<td>28</td>
<td>40.00%</td>
</tr>
<tr>
<td>2.50-2.99</td>
<td>8</td>
<td>8.60%</td>
<td>4</td>
<td>5.71%</td>
</tr>
<tr>
<td>2.00-2.49</td>
<td>0</td>
<td>0.00%</td>
<td>0</td>
<td>0.00%</td>
</tr>
<tr>
<td>1.00 or less</td>
<td>0</td>
<td>0.00%</td>
<td>0</td>
<td>0.00%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>93</td>
<td></td>
<td>70</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Business Related Internship</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>59</td>
<td>63.44%</td>
</tr>
<tr>
<td>No</td>
<td>34</td>
<td>36.55%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>93</td>
<td></td>
</tr>
</tbody>
</table>

**Research Question 1**

RQ 1 asks if there is a difference in business career self-efficacy scores between mentored and non-mentored students. To evaluate a possible difference in the means of the business career self-efficacy scores of mentored and non-mentored students a one tailed hypothesis test was used. A one tailed test was used because this study is trying to
prove that mentoring makes a positive difference with female students’ business career self-efficacy scores thus the study is only looking for results in one direction (Albright, Winston, & Zappe, 2009). To set up the statistical test the null hypothesis was set at \( \mu_1 \) (non-mentored students) - \( \mu_2 \) (mentored students) \( \geq 0 \). The alternative hypothesis was \( \mu_1 - \mu_2 < 0 \) to assess whether the business career self-efficacy scores of mentored students were higher than those of non-mentored students.

The sample mean difference from the hypothesis test was -0.276 with mentored students’ self-efficacy scores being higher than non-mentored students’ scores by 0.276 points. The p-value for the one tailed test was 0.0544. While from this data the null hypothesis cannot be rejected at 1% or 5% significance, when using 10% significance the null hypothesis can be rejected. This p-value suggests moderate evidence in favor of the alternative hypothesis that mentored students’ business career self-efficacy scores are higher than non-mentored students’ scores.

| Table 5.2 | 
| --- | --- | --- | --- |
| **Research Question 1** | Non-Mentored | Mentored |
| Sample size | 70 | 93 |
| Sample mean | 8.133 | 8.409 |
| Sample standard deviation | 1.155 | 1.021 |
| Sample mean difference | -0.276 | 
| P-value | 0.0544 |
Research Question 2

RQ 2 explored the data of mentored students and looked to find if there was a difference in business career self-efficacy scores between students mentored by men and mentored by women. Similar to RQ1 a one tailed hypothesis test was used to provide possible evidence that students mentored by women have higher business career self-efficacy scores. The null hypothesis was set at $\mu_1$ (mentored by men) - $\mu_2$ (mentored by women) $\geq 0$. The alternative hypothesis was $\mu_1 - \mu_2 < 0$.

This research question yielded less conclusive results than RQ 1. The sample mean difference was 0.047, a positive difference meaning students mentored by men reported higher business career self-efficacy scores than those students mentored by women. The p-value was 0.5828, a high number and inconclusive. According to the data the null hypothesis cannot be rejected at the 1%, 5%, or 10% significance levels.

Table 5.3

<table>
<thead>
<tr>
<th>Research Question 2</th>
<th>Male Mentors</th>
<th>Female Mentors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sample size</td>
<td>29</td>
<td>64</td>
</tr>
<tr>
<td>Sample mean</td>
<td>8.441</td>
<td>8.394</td>
</tr>
<tr>
<td>Sample standard deviation</td>
<td>1.101</td>
<td>0.9816</td>
</tr>
<tr>
<td>Sample mean difference</td>
<td>0.047</td>
<td></td>
</tr>
<tr>
<td>P-value</td>
<td>0.5828</td>
<td></td>
</tr>
</tbody>
</table>
Research Question 3

The purpose of RQ3 is to explore if mentoring helps to explain variance in students’ business career self-efficacy scores. To do this a multiple regression was run to evaluate the relationship between business career self-efficacy and mentoring as well as other demographic factors including GPA, year in school, and internship experience. Business career self-efficacy served as the dependent variable while mentoring and the demographic factors were the independent variables. To run the multiple regression dummy variables were created for the categorical variables of GPA and year in school (Albright, Winston, & Zappe, 2009).

Two regressions were run. The first regression looked at all survey participants. A regression was run with all participants’ business career self-efficacy scores, whether or not they were mentored (if students were mentored they were coded as 1, if they were not mentored they were coded as 0). GPA, a business related internship, and year in school were also included. The correlation coefficient of the regression resulted in 0.1876. While low, when examined in conjunction with a scatter plot, the correlation coefficient does indicate a slightly positive relationship. The \( r^2 \) for this regression was 0.0352. Thus the independent variables in this regression only explain a very small percentage of variance in students’ business career self-efficacy scores. The regression equation did give encouraging output indicating positive relationships between mentored students and business career self-efficacy as well as higher GPAs predicting a higher business career self-efficacy score. With one exception (fourth year) the more advanced in school the higher the business career self-efficacy score. Having a business related
internship also increased business career self-efficacy score. According to the p-values and confidence intervals of all variables however, none are statistically significant.

Table 5.4

*Research Question 3- Regression One (with all participants)*

<table>
<thead>
<tr>
<th>Variable</th>
<th>Regression Coefficient</th>
<th>p-Value</th>
<th>Confidence Interval 95%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>8.154</td>
<td>&lt;0.0001</td>
<td>[6.55 – 9.75]</td>
</tr>
<tr>
<td>Mentoring Yes/No</td>
<td>0.255</td>
<td>0.159</td>
<td>[-0.10 – 0.61]</td>
</tr>
<tr>
<td>GPA- 3.50-3.99</td>
<td>-0.162</td>
<td>0.844</td>
<td>[-1.78 – 1.45]</td>
</tr>
<tr>
<td>GPA- 3.00-3.49</td>
<td>-0.189</td>
<td>0.818</td>
<td>[-1.81 – 1.43]</td>
</tr>
<tr>
<td>GPA- 2.50-2.99</td>
<td>-0.332</td>
<td>0.711</td>
<td>[-2.09 – 1.43]</td>
</tr>
<tr>
<td>Year in School- 2nd</td>
<td>0.129</td>
<td>0.783</td>
<td>[-0.79 – 1.05]</td>
</tr>
<tr>
<td>Year in School – 3rd</td>
<td>0.184</td>
<td>0.701</td>
<td>[-0.76 – 1.12]</td>
</tr>
<tr>
<td>Year in School – 4th</td>
<td>-0.097</td>
<td>0.842</td>
<td>[-1.05 – 0.86]</td>
</tr>
<tr>
<td>Year in School – 5th</td>
<td>0.216</td>
<td>0.711</td>
<td>[-0.93 – 1.36]</td>
</tr>
<tr>
<td>Internship Yes/No</td>
<td>0.154</td>
<td>0.454</td>
<td>[-0.25 – 0.56]</td>
</tr>
</tbody>
</table>

Correlation Coefficient = 0.1876

R² = 0.0352

The second regression that was run considered just those students who reported mentors to see if there was a different output when looking at the numerical College Student Mentoring Scores (CSMS). With business career self-efficacy as the dependent variables, independent variables were CSMS scores, GPA, year in school, and a business related internship. The correlation coefficient was 0.2468, low but after looking at the associated scatter plot there is evidence of a positive relationship. The r² for this multiple regression was 0.0609. The regression equation suggested some positive relationships between certain variables and students’ business career self-efficacy scores including...
mentoring scores and business related internships. The regression equation coefficients for GPA and year in school however were less conclusive with a mix of positive and negative coefficients.

Table 5.5

*Research Question 3- Regression Two (only mentored participants)*

<table>
<thead>
<tr>
<th>Variable</th>
<th>Regression Coefficient</th>
<th>p-Value</th>
<th>Confidence Interval 95%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>7.455</td>
<td>&lt;0.0001</td>
<td>[5.12– 9.78]</td>
</tr>
<tr>
<td>Mentoring Score</td>
<td>0.247</td>
<td>0.215</td>
<td>[-0.14 – 0.64]</td>
</tr>
<tr>
<td>GPA- 3.00-3.49</td>
<td>-0.01</td>
<td>0.933</td>
<td>[-0.48 – 0.44]</td>
</tr>
<tr>
<td>GPA- 2.50-2.99</td>
<td>0.378</td>
<td>0.408</td>
<td>[-0.52 – 1.28]</td>
</tr>
<tr>
<td>Year in School- 2nd</td>
<td>-0.295</td>
<td>0.704</td>
<td>[-1.83 – 1.24]</td>
</tr>
<tr>
<td>Year in School – 3rd</td>
<td>0.024</td>
<td>0.975</td>
<td>[-1.57 – 1.62]</td>
</tr>
<tr>
<td>Year in School – 4th</td>
<td>-0.262</td>
<td>0.752</td>
<td>[-1.91 – 1.38]</td>
</tr>
<tr>
<td>Year in School – 5th</td>
<td>-0.560</td>
<td>0.539</td>
<td>[-2.36 – 1.24]</td>
</tr>
<tr>
<td>Internship Yes/No</td>
<td>0.186</td>
<td>0.505</td>
<td>[-0.36 – 0.74]</td>
</tr>
</tbody>
</table>

Correlation Coefficient = 0.2468
R² = 0.0609

*Note: mentored students GPAs were spread through 3 categories thus 2 dummy variables were used compared to three used in the first regression when students’ GPAs spread throughout 4 categories.*
Chapter 6: Discussion

This chapter begins by examining this study’s results and findings relative to recent literature followed by a critique of the results and survey limitations. The chapter concludes with implications of the results for practice and suggestions for future research.

Results and Findings

In a review of the current literature on the topics of self-efficacy and mentoring several important themes and topics emerged, a few of which aligned with the research findings of the study while others did not. Each research question will be discussed in relation to the recent mentoring and self-efficacy research.

Research question 1

RQ1 evaluated the difference between mentored and non-mentored women’s self-efficacy scores. Moderate evidence was present that mentored students’ business career self-efficacy scores were higher than their non-mentored counterparts. In light of current research this could be due to mentoring encompassing two key sources of self-efficacy: vicarious experience and verbal persuasion (Bandura, 1997; Fagenson-Eland et al., 1997). Several studies cited these factors as important to women’s sense of self-efficacy. Zeldin and Pajares (2000) found that for women in STEM fields, vicarious experience and verbal persuasion were crucial sources of self-efficacy. Vicarious experience was also found to be influential to business students’ team-conflict self-efficacy (Stone & Bailey, 2007). A study of MIS majors also found that female MIS majors were more likely than
male MIS majors to have had a female computer teacher (Beyer, 2008). The results of the study aligns with the idea of vicarious experience or modeling and verbal persuasion as a source of self-efficacy (Bandura, 1997) as those students who were mentored and receiving those sources of self-efficacy did report significantly higher scores than those students without mentors. It is possible those students who did not have mentors are not receiving those sources of self-efficacy.

An interesting result when looking at RQ1 and the descriptive data from this study relates to female mentors. There is significant mentoring literature that looks at the importance of gender and mentoring (Gilbert, 1985; Dreher & Cox, 1996; Ragins & Cotton, 1999). In a 2006 study Lockwood explored the importance of gender matching or women being mentored by women and men being mentored by men. Lockwood (2006) found that a majority of female participants cited gender as a reason for choosing their female role model. In this study, 68.82% of mentored students reported having a female mentor and the majority of students with business professionals and faculty members at mentors also reported those mentors to be women. While there is no conclusive evidence about the importance of students’ mentors being women from this study evidenced by the results from RQ2 the high number of female mentors may be because of the importance of gender matching with mentors for women (Lockwood, 2006).

Research question 2

This second research question looked to evaluate differences in business career self-efficacy scores between students mentored by women and students mentored by
men. Data of students who reported having mentors (n = 93) was evaluated and findings revealed no conclusive data that would suggest students mentored by women have higher business career self-efficacy scores. Recent literature suggests that having a female mentor is important for women (Lockwood, 2006) but there was no literature that confirmed the importance of same-gender mentors on any measure of self-efficacy. Studies linking mentoring and self-efficacy have only looked more generally at the relationship between the two and found positive correlations between the two (Hayes, 1998; Day & Allen, 2004).

The findings from this question could suggest several different possibilities. It is possible that the gender of the mentor does not influence business career self-efficacy. This can be questioned however because one of the sources of self-efficacy is vicarious experience or modeling. According to Bandura (1997) vicarious experience is more influential for people when the model possesses characteristics similar to them, including gender. While the results of this question do not support this statement by Bandura, that doesn’t mean the gender of the mentor doesn’t affect students’ business career self-efficacy. These opposing findings may instead be attributed to small sample size or other possible limitations of the survey to be addressed later.

**Research question 3**

The third research question explored a possible relationship between mentoring and business career self-efficacy. A multiple regression was run to evaluate this relationship. For the purpose of this study, mentoring was used as a predictor of business career self-efficacy scores because it is an important aspect of the business
school experience as well as business careers (e.g. Fagenson-Eland et al., 1997; Ragins & Cotton, 1999; Dreher & Cox, 1996).

The findings of this study did not provide significant evidence of the importance of mentoring on students’ self-efficacy scores. While students’ mentoring scores were high, especially the factors of Psychological and Emotional Support (average score of 4.071) and Role Modeling (average score of 4.237), mentoring along with the other independent variables in the regressions run to answer RQ3 explained very little variance in students’ business career self-efficacy scores.

One reason for these findings may be due to the exclusion of other sources of self-efficacy. Mentoring provides people with vicarious experience (Bandura, 1997) and verbal persuasion (Fagenson-Eland et al., 1997) two sources of self-efficacy. Mentoring does not however encompass other sources including mastery experience the most influential source of self-efficacy (Bandura, 1997). Mastery experience was found to be the only significant contributor to mathematics self-efficacy (Lent et al., 1991). Beyer (2008) in her study of MIS majors found that women had less experience with computers and significantly lower self-efficacy than men as they spent less time on computers for enjoyment than men which according to Beyer may signal less intrinsic interest. These findings also suggest the importance of mastery experience for women’s computer self-efficacy.

What is interesting about the findings however are that an additional independent variable in the regression was whether the student had a business related internship. This could be considered a mastery experience or an experience where a person has been
successful in a similar situation before (Bandura, 1997). An internship where a student was successful would enhance a student’s sense of self-efficacy in a similar role in the future—such as a full-time job (Bandura, 1997). Although having a business related internship increased the self-efficacy scores slightly, the regression that was run involved multiple sources of business career self-efficacy yet none of the variables appeared to have any significant effect on the self-efficacy scores of students.

Day and Allen (2004) in their study of the relationship between mentoring and career success evaluated self-efficacy as a possible mediator of the constructs. The authors made multiple hypotheses, two of which were similar to that of this study. One hypothesis looked to find the existence of a positive relationship between career mentoring and career self-efficacy. Similar to the findings of this study, Day and Allen (2004) found there was a positive relationship between the two. The authors also sought to find if those who were mentored had higher career self-efficacy than those who were non-mentored, similar to RQ 1 in this study. Day and Allen’s (2004) findings differed as they did not have any conclusive results for their hypothesis. This study did show moderate evidence of those mentored students having higher business career self-efficacy.

There are many reasons for the similarities and differences between this study and that of Day and Allen (2004). Day and Allen (2004) looked at men and women professionals within one organization while this project studied undergraduate women business students. The different populations may contribute a great deal to those differences. Both studies are however similar in the fact they both use small sample sizes
with Day and Allen (2004) reporting a sample size of 125, and because both studies were cross sectional. Regardless of some inconclusive and contrasting findings Day and Allen’s (2004) research along with this study signal the need for further research in these areas as well as improved study design.

**Evaluation and Critique of Findings**

The majority of results from this study, while they provided some encouraging indications and areas for expanded research, were inconclusive. The results were encouraging in large part to RQ1 and some positive outcomes from the multiple regression results. RQ1 did provide moderate evidence that mentored students reported higher business career self-efficacy scores. When looking at the regression results however, this is not strongly supported as variances in the business career self-efficacy scores were not well explained by the presence of a mentor based on the results from the first regression run for RQ3. Despite this, the results from RQ3, while inconclusive, did suggest positive relationships between the self-efficacy scores and years in school, internship, the presence of a mentor (regression one), and mentoring score (regression two).

There are multiple reasons to explain the lack of conclusive results. One reason could be attributed to the Task-Specific Occupational Self-Efficacy Scale (TSOSS) used to measure students’ business career self-efficacy. The TSOSS was developed by Rooney and Osipow (1992) to measure occupational self-efficacy through scale items that were task-specific and spanned a broad range of careers. Two of the four factors subscales in Osipow, Temple, and Rooney’s (1993) TSOSS were used in this study,
Factor 1: verbal, interpersonal skills and Factor 2: quantitative, logical, business, scientific skills. Used because of the tasks’ importance to business success (Gault, Redington, & Schlager, 2000; Abraham & Karms, 2009) this scale may not be a strong enough measure of the career self-efficacy of business students. Even if tasks measured in this scale are important to the students’ future success, these may not be the strongest tasks associated with students’ self-efficacy related to their business careers. Future research may benefit from the development of a business discipline self-efficacy scale or even scales that measure certain business functions such as accounting, marketing, or human resources.

In addition to the TSOSS not assessing the strongest business related tasks, scale items may not have captured tasks that students would learn from mentors. The current self-efficacy scale used assessed students ability to budget, operate a personal computer, and calculate dimensions (Rooney & Osipow, 1992). Research on mentoring shows the importance of mentors providing coaching, counseling, and friendship to mentees (Kram, 1985) as well as help with goal setting and formulating a career path (Nora & Crisp, 2007). A more applicable self-efficacy scale for this study would be a scale that assesses self-efficacy regarding tasks that a student would gain confidence in from a mentor, similar to Rooney and Osipow’s (1992) items such as negotiating with people and making on the spot decisions in emergency situations. Items such as these are more likely to be learned from a mentor through conversations that include advice from the mentor and stories from the mentor’s personal career experience. These conversations between students and their mentors would be considered vicarious experience and verbal
persuasion, the two sources of self-efficacy mentoring provides. A scale that better assesses these sources may produce stronger findings in support of a relationship between mentoring and self-efficacy.

The mentoring scale may also be a cause of inconclusive results. There are many critiques of mentoring studies due to a lack of clear definition of a mentor (Haggard et al., 2011; Dougherty & Dreher, 2007). The definition used in this study aligned with the core mentoring functions identified in mentoring literature (Kram, 1985; Jacobi, 1991; Haggard et al., 2011) as well the CSMS used in the survey (Nora & Crisp, 2007). While it is important to provide a specific definition of mentoring to provide guidance to survey participants it is possible that this definition, in addition to forcing participants to choose one mentor, is not taking into account other people who may not fit the full definition of mentoring but do provide certain mentoring functions that contribute to students business career self-efficacy. If this is the case with certain participants the survey instrument was not designed to gather that information, a limitation of this study.

An additional reason for possible lack of results is due to the focus of this study being solely on women. Throughout the relevant literature those studies with the most conclusive data compares men and women. The research of Nancy Betz and Gail Hackett (1981; 1983; Hackett, 1985; Hackett & Betz, 1989) compared self-efficacy in males and females revealing conclusive differences between men and women within career self-efficacy and math self-efficacy. Gilbert (1985) looked at gender differences in mentoring and found significant differences between men and women as did Lockwood (2006) in her study of mentoring. While it is important to study women and
their experiences this study may be interesting to replicate with the inclusion of men. Potential differences between men and women may provide a deeper understanding of gender differences within the realm of mentoring and how that may affect students’ business career self-efficacy.

Another reason for a lack of results may be due to the small sample size and cross-sectional nature of the study. While the overall sample size was 163, many research questions caused further division of this sample size to as small as n = 30 when evaluating students mentored by men compared to students mentored by women. The sample size used was small increasing the possibility of the data gathered not being representative of the actual population (Albright et al., 2009). The design of the survey was also cross-sectional, a limitation of the study as cross-sectional surveys collect possible cause and effect data at the same time.

**Implications for Practice and Future Research**

The business school is an important location for students to begin developing their sense of self-efficacy and for women this is more difficult due to fewer opportunities (Gilbert, 1985; Lockwood, 2006; Dreher & Cox, 1996) especially in the realm of mentoring. Literature shows that same gender mentoring is important (Lockwood, 2006) but for women in business schools there are fewer women role models (AACSB, 2011). A surprising result of this study however demonstrates that while there may be fewer women models in the business school environment female students are taking advantage of the ones that do exist. The majority of faculty members and business professionals who were cited as mentors in this study were female. This may imply two things. The
first being these results may indicate further support for the importance of gender for women when they are picking a mentor. The second is the results indicate that perhaps more students, business professionals, faculty, and others in mentor roles are seeing the value and importance of mentoring students in college. The number of students mentored from this sample and the high mentoring scores indicate these are positive and beneficial relationships which could have long term influence on the career success of students.

In addition to high mentoring scores, those students who were mentored did report higher business career self-efficacy scores. Although further exploration of the data did not provide any conclusive evidence that mentoring had a significant effect on these scores, additional research may shed further light on the relationship between mentoring and self-efficacy and perhaps even possible specific points or mentoring attributes that contribute to increased self-efficacy scores.

This study adds to the recent literature regarding mentoring and business career self-efficacy by reaffirming the importance of mentoring, as those mentored students did have higher self-efficacy scores than others. Results also suggested there may be a positive relationship between mentoring and self-efficacy although there was no significant evidence. In addition to reaffirming the importance of mentoring for business students, it also furthers the idea that gender matching may be an important factor for female students when choosing a mentor. While adding to the current literature on these topics, this study also leaves open many opportunities for further research including expanding the study to other business schools, other disciplines, as well as drawing comparisons between men and women.
Much of the current mentoring and self-efficacy literature uses samples from STEM fields (e.g. Betz & Hackett, 1983; Zeldin & Pajares, 2000; Zeldin et al., 2008; Fifolt & Searby, 2010; Kahveci et al., 2006) yet there is little indication that findings from these studies can be generalized to other disciplines such as business. It would be interesting to see a re-creation of this study in a STEM discipline such as engineering to see if there is a clearer link between mentoring and career self-efficacy. To continue building the literature within the business discipline an increase and expansion of the sample would be another important step for future research. Extending the study to other comparable business schools would increase sample size and take into account a larger population of students improving on one of the limitations of this current study.

To build off of these results a next step to evaluate possible differences between male and female students would be to extend the survey to include both male and female students and compare their mentoring and self-efficacy scores. This would provide additional comparable data and could provide greater context for certain pieces of data collected, such as number of students mentored and overall number of male and female mentors. One of the interesting results of this study was the high number of female mentors in faculty and business professional roles. These results may closely align with Lockwood’s (2006) study about mentoring and the importance of gender. While this quantitative data gives no indication if gender played a role in participant’s choice of mentor a qualitative approach to this question would provide additional information and may also be good to follow up to see if there is additional evidence of the importance of female mentors for female business students.
Conclusion

This study of undergraduate female business students and their business career self-efficacy and experience with a mentor does provide some positive indications of the ongoing importance of student mentoring and its positive effect on business career self-efficacy. This is encouraging as there is still a significant difference between the promotion of men and women into leadership positions. The hope is that as women continue to earn leadership positions they will continue to mentor younger women developing in their own careers as well as fostering self-efficacy and confidence in these younger women, even those just beginning their studies. There is significant room for additional research to continue exploring these important topics. Additional research can continue to provide evidence for business and institutions of higher education and encourage organizations to foster the development of female students and provide opportunities for mentorship and female role models to enhance their self-efficacy as they move into careers.
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effectiveness of an undergraduate business mentoring program. *Mentoring &

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and methodological issues in an emerging literature. In B. R. Ragins & K. E.


Appendix A

Survey Cover Letter

Dear Fisher student,

I am a Master’s student in the Higher Education Student Affairs program. I am completing a Master’s thesis for graduation and need your assistance with this project.

I am researching undergraduate business students and their experiences with mentoring and how mentoring may affect a student’s confidence in their ability to have a successful business career. Below you will find a link to an online survey containing questions about your mentoring experience and ability to complete certain tasks. Participation in this survey is completely optional and will not affect any course grades. It should take approximately ten minutes to complete the survey and you can opt out at any time. All information in the survey will be kept completely confidential. The survey window will be open beginning today through April 23.

You will also find a second survey link below. You have the option to click on this link and provide your email address to be entered into a drawing for one of four $15 Barnes and Noble gift cards.

If you have any questions or concerns please contact me via email at flood.77@osu.edu. For questions about your rights as a participant in this study or to discuss other study-related concerns or complaints with someone who is not part of the research team, you may contact Ms. Sandra Meadows in the Office of Responsible Research Practices at 1-800-678-6251.

Thank you for taking the time to help me complete my Master’s degree.

Sincerely,

Meg Flood
Master of Labor and Human Resources 2011
Master of Arts, Higher Education and Student Affairs 2012
Appendix B

Survey Instrument

Demographic Information

1. Please select your year in school (NOT your rank by credit hours). If you are a part-time student please select the part-time option.

   First year          Fourth year
   Second year         Fifth year or greater
   Third year          Part-time

2. Please provide your gender:

   Female
   Male

3. Please select the most appropriate range for your cumulative GPA:

   4.00       2.50-2.99
   3.50-3.99   2.00-2.49
   3.00-3.49   1.99 or less

4. Please select your business specialization:

   Accounting          Logistics
   Aviation Management  Marketing
   Economics           Operations
   Finance             Real Estate
   Human Resources     Risk Management
   Information systems Other ______________
   International Business

5. Have you had a business related internship?

   Yes
   No
Mentoring Scale: College Student Mentoring Scale

Please read the following:

A mentor is a person who serves as a role model. A mentor is a person who provides you with emotional support, career guidance, and academic support to help advance your knowledge in a chosen field of study and/or chosen career path.

After reading this definition of a mentor, have you had a mentor who meets this definition?

Yes
No

If yes, please choose the category that best describes this mentor:

Faculty member  Family friend
Family member  Business professional
Peer  Other _____________

What is the gender of this mentor?

Female
Male

Continuing to think about this mentor, please indicate the degree to which you agree or disagree with the following statements about your mentor. (5 point scale, 5 = strongly agree, 1 = strongly disagree).

<table>
<thead>
<tr>
<th>My mentor is someone who….</th>
<th>5 = strongly agree</th>
<th>1 = strongly disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>I look up to regarding college-related issues</td>
<td>5</td>
<td>4</td>
</tr>
<tr>
<td>Helps me work toward achieving my academic aspirations</td>
<td>5</td>
<td>4</td>
</tr>
<tr>
<td>Helps me realistically examine my degree or certificate options</td>
<td>5</td>
<td>4</td>
</tr>
<tr>
<td>I can talk with openly about social issues related to being in college</td>
<td>5</td>
<td>4</td>
</tr>
<tr>
<td>I admire</td>
<td>5</td>
<td>4</td>
</tr>
<tr>
<td>Helps me perform to the best of my abilities in my classes</td>
<td>5</td>
<td>4</td>
</tr>
<tr>
<td>Encourages me to consider educational opportunities beyond my current plans</td>
<td>5</td>
<td>4</td>
</tr>
<tr>
<td>I want to copy their behaviors as they relate to college-going</td>
<td>5</td>
<td>4</td>
</tr>
<tr>
<td>Provides ongoing support about the work I do in my classes</td>
<td>5</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>5</td>
<td>4</td>
</tr>
<tr>
<td>--------------------------</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>Gives me emotional support</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Encourages me to talk about problems I am having in my social life</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sets a good example about how to relate to other people</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Helps me to consider the sacrifices associated with my chosen degree</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Expresses confidence in my ability to succeed academically</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Serves as a model for how to be successful in college</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Discusses the implications of my degree choice</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Makes me feel that I belong in college</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Encourages me to use him or her as a sounding board to explore what I want</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shares personal examples of difficulties they have had to overcome to accomplish academic goals</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Helps me carefully examine my degree or certificate options</td>
<td></td>
<td></td>
</tr>
<tr>
<td>I can talk with openly about personal issues related to being in college</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Encourages me to discuss problems I am having with my coursework</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Questions my assumptions by guiding me through a realistic appraisal of my skills</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Recognizes my academic accomplishments</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Provides practical suggestions for improving my academic performance</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
**Self-efficacy scale**

Below is a list of activities. Indicate your confidence in your ability to perform each activity by choosing the appropriate degree of confidence (10 = absolute certainty you can perform this task, 1 = no confidence you can perform this task).

<table>
<thead>
<tr>
<th>I am able to….</th>
<th>10 = absolute certainty</th>
<th>1 = no confidence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gain the trust and confidence of people</td>
<td>10 9 8 7 6 5 4 3 2 1</td>
<td></td>
</tr>
<tr>
<td>Apply mathematical and engineering properties to problem solving</td>
<td>10 9 8 7 6 5 4 3 2 1</td>
<td></td>
</tr>
<tr>
<td>Work under pressure or extreme circumstances</td>
<td>10 9 8 7 6 5 4 3 2 1</td>
<td></td>
</tr>
<tr>
<td>Use math to measure and estimate quantities</td>
<td>10 9 8 7 6 5 4 3 2 1</td>
<td></td>
</tr>
<tr>
<td>Negotiate with people in different work situations</td>
<td>10 9 8 7 6 5 4 3 2 1</td>
<td></td>
</tr>
<tr>
<td>Understand financial and production records and reports</td>
<td>10 9 8 7 6 5 4 3 2 1</td>
<td></td>
</tr>
<tr>
<td>Speak convincingly</td>
<td>10 9 8 7 6 5 4 3 2 1</td>
<td></td>
</tr>
<tr>
<td>Organize research logically</td>
<td>10 9 8 7 6 5 4 3 2 1</td>
<td></td>
</tr>
<tr>
<td>Separate out work which does not meet standards</td>
<td>10 9 8 7 6 5 4 3 2 1</td>
<td></td>
</tr>
<tr>
<td>Apply math skills to interpret reports</td>
<td>10 9 8 7 6 5 4 3 2 1</td>
<td></td>
</tr>
<tr>
<td>Make decisions based on personal experiences</td>
<td>10 9 8 7 6 5 4 3 2 1</td>
<td></td>
</tr>
<tr>
<td>Work to precise measurements</td>
<td>10 9 8 7 6 5 4 3 2 1</td>
<td></td>
</tr>
<tr>
<td>Be firm and courteous</td>
<td>10 9 8 7 6 5 4 3 2 1</td>
<td></td>
</tr>
<tr>
<td>Think logically to analyze information quickly</td>
<td>10 9 8 7 6 5 4 3 2 1</td>
<td></td>
</tr>
<tr>
<td>Make on the spot decisions in emergency situations</td>
<td>10 9 8 7 6 5 4 3 2 1</td>
<td></td>
</tr>
<tr>
<td>Use a personal computer</td>
<td>10 9 8 7 6 5 4 3 2 1</td>
<td></td>
</tr>
<tr>
<td>Direct the work of others</td>
<td>10 9 8 7 6 5 4 3 2 1</td>
<td></td>
</tr>
<tr>
<td>Operate data processing equipment</td>
<td>10 9 8 7 6 5 4 3 2 1</td>
<td></td>
</tr>
<tr>
<td>Review work for accuracy</td>
<td>10 9 8 7 6 5 4 3 2 1</td>
<td></td>
</tr>
<tr>
<td>Able to budget</td>
<td>10 9 8 7 6 5 4 3 2 1</td>
<td></td>
</tr>
<tr>
<td>Write convincingly</td>
<td>10 9 8 7 6 5 4 3 2 1</td>
<td></td>
</tr>
<tr>
<td>Interpret statistical information</td>
<td>10 9 8 7 6 5 4 3 2 1</td>
<td></td>
</tr>
<tr>
<td>Write accurately</td>
<td>10 9 8 7 6 5 4 3 2 1</td>
<td></td>
</tr>
<tr>
<td>Calculate dimensions</td>
<td>10 9 8 7 6 5 4 3 2 1</td>
<td></td>
</tr>
<tr>
<td>Able to supervise others</td>
<td>10 9 8 7 6 5 4 3 2 1</td>
<td></td>
</tr>
<tr>
<td>Operate calculating instruments</td>
<td>10 9 8 7 6 5 4 3 2 1</td>
<td></td>
</tr>
<tr>
<td>Organize assorted materials</td>
<td>10 9 8 7 6 5 4 3 2 1</td>
<td></td>
</tr>
<tr>
<td>Apply logic to assorted materials</td>
<td>10 9 8 7 6 5 4 3 2 1</td>
<td></td>
</tr>
<tr>
<td>Apply logic to identify problems</td>
<td>10 9 8 7 6 5 4 3 2 1</td>
<td></td>
</tr>
<tr>
<td>Make judgments on gathered information</td>
<td>10 9 8 7 6 5 4 3 2 1</td>
<td></td>
</tr>
<tr>
<td>Keep records and reports</td>
<td>10 9 8 7 6 5 4 3 2 1</td>
<td></td>
</tr>
</tbody>
</table>
Appendix C

Survey Reminder Email

Dear Fisher student,

This is a friendly reminder regarding my Master’s thesis project. I am currently collecting data about business students’ experience with mentoring and how this may influence students’ confidence in their abilities to have a successful business career.

The survey should take approximately ten minutes to complete and you can opt out at anytime. Participation in this survey is completely optional and will not affect your course grade. All information provided in the survey will be kept completely confidential.

You will also find a second survey link below. You have the option to click on this link and provide your email address to be entered into a drawing for one of four $15 Barnes and Noble gift cards.

The survey will be open for one more week, closing on April 23.

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