ASSESSING THE LINK BETWEEN EMOTIONAL INTELLIGENCE
AND ONLINE STUDENT ACHIEVEMENT

A Dissertation

by

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This dissertation meets the standards for scope and quality of
Texas A&M University-Corpus Christi and is hereby approved.

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ABSTRACT

Research on the success of online students has focused primarily on the characteristics of students that predict success or failure in the online learning environment. Emotional intelligence (EI) can be instrumental in addressing the challenges related to the lack of personal interaction in online environments. Research points at EI as a means of supporting the development of transformational leadership behaviors and leadership success, possibly contributing to business student success. The study was guided by the following research question: To what extent does a business student's level of emotional intelligence, as measured by interpersonal, leadership, self-management, and intrapersonal competencies, explain academic success in online business courses?

The study employed a correlational design. Data were collected electronically, using an online survey instrument. The non-probability sample consisted of 198 undergraduate students enrolled in an online business program at a university in Texas. Due to the non-experimental nature of the study, no causal inferences were drawn. Univariate and multivariate statistical techniques were used to analyze the data.

The results indicated that the emotional competency of self-management was endorsed the most, followed by leadership, interpersonal, and intrapersonal competencies. The best predictors of academic achievement were interpersonal and leadership competencies. Accommodator was the most popular learning style, followed by Converger, Diverger, and Assimilator. The EI and Grade Point Average (GPA) differences among the learning styles were statistically significant.

Emotional intelligence skills can be used to predict student success in online business education, particularly the skills related to leadership and interpersonal competencies (social awareness, empathy, decision making, effective communication, emotional self-control, and understanding differences in others). Because research has shown that EI can be taught and integrated into the curriculum, EI skill development may serve to support the education and development of more effective business leaders. Future research, examining the potentially interconnected roles of the EI, transformational leadership development, and student achievement in business education, may suggest a mediating role of one of the variables. Specifically, the author recommends examining the EI as a potential mediating variable on the impact of transformational leadership skills supporting student achievement in business.

DEDICATION

I would like to dedicate this dissertation to the Lord, my God, who gave me the strength and guidance to be able to finish it as well as my wife, children, grandchildren, and my beloved mother. You have all made this possible and I will be forever grateful.

To my beloved wife, Kay, who is gone but never forgotten: thank you Hon!! To my children, Emma and Nathan, and their spouses, Jason and Kierra: thank you for your support and love. To my grandkids, Dylan, Caden, Braden, Hannah, and Kaysen: I thank you for giving PAPA the time to complete his long journey. I love you all and can never repay you for supporting me while I ran up and down the road to Corpus Christi in pursuing this, my dream. I have been blessed by the Lord to have all of you with me during this time and in the future. Thank you for putting up with me during the "crazy times."

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A special thank you to my daughter, Emma. You inspired me and your encouragement was the core of my hard work. I Love you!

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PAPA

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TABLE OF CONTENTS

LIST OF TABLES

CHAPTER I

INTRODUCTION

Background and Setting

Prior to the emergence of the Internet, distance learning had been perceived as inadequate due to limitations of the accessibility of resources, such as direct communication with the professor and students, as well as the accessibility of learning materials located on campus (NCES, 2001). With new technologies supporting greater access to education, while also improving related communication, online learning has become exceedingly popular among non-traditional students (adult learners). Online learning continues to grow with 4.6 million online students in the U.S. and a 17% growth rate in online enrollments (Allen & Seaman, 2011). As a result, online program growth is now considered a priority at over 80% of major US institutions of higher education (Allen & Seaman, 2011). Despite the increasing popularity and prevalence of online learning, retention remains problematic, with a significantly higher rate of attrition among online learners compared to traditional learners (Boston, Ice, & Gibson, 2011). Prior research has suggested that the sense of community developed through a traditional educational environment supports long-term positive associations, which in turn supports student commitment to the school community (Cooper, 1990; Dille & Mezack, 1991).

In the traditional classroom setting, personal interactions support learning in which academic achievement is founded on the ability of the instructor to perceive student needs and non-verbal cues, appropriately modifying instruction, providing real time, prompt feedback, and responses to questions. Comparatively, online instruction, which lacks the face-to-face, personal interactions, relies on communication based primarily on written language, necessitating technological knowledge. Thus, students lack personal contact with the instructor and peers,

1

which may decrease motivation and bring about feelings of isolation that can negatively impact student academic success in the online environment (Hill & Rivera, 2001).

Although the flexibility in time and place of online learning programs is a considerable advantage for nontraditional students, online learning programs continue to face increasing concerns with regard to student retention (Boston et al., 2011). Despite incorporation of new technologies to support easy access to information, immediate feedback from teachers, and peer participation, lack of success among nontraditional students in online courses remains problematic (Anderson, 2009; Boston et al., 2011). With limited data available to predict the appropriateness of the online learning format to support the academic success of students with specific characteristics, continued research on the topic is necessary. Such research may assist administration, faculty, and students to broadly profile the students most likely to succeed in the online environment (Berenson, Boyles, & Weaver, 2008).

Research has primarily investigated the success of online students in terms of technological ability, course satisfaction, and personal characteristics of motivation, persistence, and self-regulation (Berenson et al., 2008; Gallagher, 2002). Research has supported a relationship between learning style and success in the online educational format, with strong independent learning styles demonstrating greater success (Diaz, 2002; Singh, Singh, & Singh, 2009). In addition, specific characteristics related to emotional intelligence, such as effort, internal locus of control, and academic self-efficacy have also been shown to be related to online student success (Albritton, 2003; Berenson et al., 2008; Holcomb, King, & Brown, 2004; Irizarry, 2002; Kemp, 2002; Parker, 2003).

Emotional intelligence (EI) is operationally defined as having a self-awareness of personal feelings and needs, being able to articulate these feelings and needs accurately, and then

combining them with long-term goals and the needs and feelings of others in the social circle (Berenson et al., 2008; Jerabek, 1998). Emotional intelligence has been shown to be positively correlated with academic achievement in both traditional educational settings and online environments (Berenson et al., 2008; Singh et al., 2009). In business, EI is found to be significant in the development of successful leadership (Goleman, 2006; Harms & Crede, 2010; Lam & O'Higgins, 2012), supporting self-awareness, self-management, and interpersonal and intrapersonal skills toward more effective communication and problem solving (Goleman, 1995).

Despite this evidence of the impact of EI on both academic success and business leadership, research remains lacking in the examination of EI as a predictor of online business student success. In addition to supporting the relationship between EI and academic success in online programs, research has also suggested EI as a means of supporting development of transformational leadership behaviors (Harms & Crede, 2010; Lam & O'Higgins, 2012), which may specifically support greater success among business students. Transformational leadership is an effective leadership style in which the leader empowers the employees by creating a sense of belonging and responsibility (Hoffman, Bynum, Piccolo, & Sutton, 2011). Transformational leaders are innovative, flexible, and crucial to the success of organizations that are often strained to do more with fewer resources (Hoffman et al., 2011). Elements of EI, such as empathy, self-confidence, self-awareness, and inter- and intra-personal skills, are felt to be the key factors in development of transformation leadership and leadership success (Goleman, 1995; Goleman, Boyatzis, & McKee, 2002).

The educational development of business leaders, specific to the association between the EI and leadership development (Harms & Crede, 2010; Lam & O'Higgins, 2012), suggests that

EI may be a key factor in the success of students becoming effective future business leaders. Therefore, this study focused on students enrolled in an online, undergraduate, business program.

According to Tucker, Sojka, Barone, and McCarthy (2000) and Pool and Qualter (2012), emotional intelligence can be taught and integrated into the curriculum. Specifically, the EI has been integrated into online educational programs through the design of educational materials for use in an online format toward promoting emotional skills that maintain motivation, self-confidence, and team work (Goldsworthy, 2000; Pool & Qualter, 2012). Such integration may serve to support the education and development of more effective leaders through online undergraduate business and MBA programs.

Statement of the Problem

Despite the continued rise in the popularity of online programs, retention continues to be a concern for many of these online programs (Boston et al., 2011). Strategies that have been shown to be effective at retaining students in traditional post-secondary programs have been shown to be not applicable to the online environment (Nistor, English, Wheeler, & Jalobeanu, 2003). Thus, research on the retention and success of online students has focused on the characteristics of students that predict success or failure in the online learning environment. The challenge to students in an online environment is to successfully cope with the academic challenges, given a lack of face-to-face interaction with the faculty and other students, as well as the lack of real-time and immediate feedback (Berenson et al., 2008). Emotional intelligence, which can address these challenges, has been shown to be correlated with grade-point-average (GPA) to predict academic success among online students (Berenson et al., 2008; Singh et al., 2009). The problem is a lack of understanding of the EI in relation to academic success in online learning.

A gap in the research was identified in examining the relationships between the EI and academic success among online business school students, and how these variables may work together to support student success. Although Johnson (2008) failed to identify correlations between the variables in a general population of college students, given the suggested relationship between emotional intelligence and leadership style (Harms & Crede, 2010; Lam & O'Higgins, 2012), an examination of an online student population, who are hoped to become business leaders, may show that the EI is correlated to or has a positive relationship with the GPA.

Theoretical Framework

The emotional competence framework, offered by Goleman (1995), provided a theoretical basis for the study. The emotional competence framework, described by Goleman (1995), conceptualizes the five aspects of emotional intelligence (i.e., self-awareness, managing emotions, self-motivation, empathy, and handling relationships) into two competencies: personal competence and social competence. Personal competence encompasses (a) self-awareness, including elements such as emotional awareness in recognizing emotions of self and others and self-confidence in having confidence in one's abilities and worth; (b) self-regulation, including elements such as self-control, trustworthiness, conscientiousness, adaptability, and innovativeness; and (c) self-motivation, pertaining to factors such as achievement drive, commitment, initiative, and optimism) (Goleman, 1995). Social competence encompasses (a) social awareness (e.g., empathy, service orientation), and (b) social skills (e.g., influence and communication) (Goleman, 1995). This study investigated the potential relationships between students' levels of the EI and the likelihood of student success in online business courses, as

measured by the GPA, as illustrated by the following: interpersonal, leadership, self-management, and intrapersonal competencies →Academic Achievement (GPA)

Stemming from Goleman's work, Nelson and Low (2011) developed a model of emotional intelligence, providing an education-based approach to evaluating emotional intelligence. The framework is based on the assumption that emotional intelligence skills can be learned and developed to support greater personal, academic, and career success. According to the model, as described by Nelson and Low, four competencies can be used to describe and evaluate emotional intelligence. These include interpersonal, leadership, self-management, and intrapersonal competencies. Supporting these competencies are 10 emotional intelligence scales. These 10 scales, which are used to define each emotional intelligence competency, include assertion, social awareness, empathy, decision-making, leadership, drive strength, time management, commitment ethic, self-esteem, and stress management. Accordingly, emotional intelligence skills, which are critical to both personal and career success, can be learned and developed (Nelson & Low, 2011). This model, the education and skills-based model of emotional intelligence, was used in the present study through a survey instrument to measure emotional intelligence levels of participants.

Purpose of the Study

The purpose of the study was to examine the relationships between the variables of the EI and academic success, using the GPA, in an online business program. Given the research evidence of significant positive relationships between the EI and the GPA (Singh et al., 2009), as well as evidence of the EI as a significant predictor of the GPA (Berenson et al., 2008), the EI may correlate with the GPA in a selected business school population, which has not been shown in the literature (Johnson, 2008; Suliman, 2010). The study was guided by the following

research question: To what extent does a business student's level of emotional intelligence, as measured by interpersonal, leadership, self-management, and intrapersonal competencies, explain academic success in online business courses?

Operational Definitions

Emotional Intelligence: The ability to perceive, control and evaluate emotions, that is, one's ability to express and control his/her own emotions, as well as the ability to understand, interpret, and respond to the emotions of others (Goleman, 1995). For the purpose of the study, the Emotional Skills Questionnaire (ESQ; Nelson & Low, 2011) was used to measure emotional intelligence.

Learning Style: According to Kolb (1984, 1985), experiential learning takes place in two levels, which include the four-stage cycle of learning and the four distinct learning styles. Learning style is reflective of the individual's internal cognition (Kolb, 1984, 1985). Kolb asserted, "Learning is the process whereby knowledge is created through the transformation of experience" (Kolb, 1984, p. 38). For the purpose of the study, learning style was assessed, using four general styles, namely, Assimilator, Converger, Accommodater, and Diverger.

Student Online Academic Achievement: the academic achievement of the study participants was measured, using the overall GPA. The number of semesters this covered was variable depending on how long the student had been enrolled.

Online learning: Learning that results from online course instruction, which generally involves the use of educational material offered through communication technology such as internet web sites, email, list serves, and multimedia learning management systems (for computer and mobile devices) for credit at an institution of higher education (Diaz, 2000).

Delimitations, Limitations and Assumptions

The study design contained several limitations and delimitations due to access, costs, and availability. The study was delimited to a single university-level business program, four predictor variables of interpersonal, leadership, self-management, and intrapersonal competencies, and one outcome measure of the GPA. Given the utilization of a self-report instrument, it was assumed that the participants provided honest answers. Due to non-experimental nature of the study, no causal inferences were drawn.

Significance of the Study

Despite the evidence of the impact of the EI on academic success (Berenson et al., 2008; Singh et al., 2009) and business leadership (Harms & Crede, 2010; Lam & O'Higgins, 2012), little research has examined EI as a predictor of online student success (Johnson, 2008; Suliman, 2010). In addition, given the suggested relationships between the EI and online student success (Harms & Crede, 2010; Lam & O'Higgins, 2012), the EI may be shown to be a key predictor of academic success among this population of online business students.

Student characteristics have been used to predict student success within the online environment. However, remaining retention issues among online students suggest the need for continued investigation into characteristics or aspects of the individual that may support predicting student success in online learning. Both the educational institutions offering online programs and the students enrolling in these programs would benefit from reliable predictions based upon students' individual attributes. Information on emotional intelligence characteristics that support online learning success can be used to promote greater retention and student achievement. In addition, because the EI can be taught and integrated into the online curriculum (Goldsworthy, 2000; Pool & Qualter, 2012; Tucker et al., 2000), information supporting its

relevance to success in the online setting can support strategies to improve student retention among students who may not already hold those characteristics. The EI can be used to support student achievement, retention, and, specific to business programs, to promote emotional skills that maintain motivation, self-confidence, and teamwork (Goldsworthy, 2000; Pool & Qualter, 2012). Such integration may serve to support the education and development of more effective students and future leaders through online business programs.

CHAPTER II

REVIEW OF THE LITERATURE

Retention within postsecondary education is a significant issue for administrators, educators, and stakeholders (Anderson, 2009; Boston et al., 2011; Boston, Díaz, Gibson, Ice, Richardson, & Swan, 2014; Heyman, 2010). Given the role of emotional intelligence in the development of transformational leadership in developing leaders, emotional intelligence may possibly have a relationship with the learning success of online students studying business leadership. This chapter provides an overview of online learning in post-secondary institutions, retention and attrition in online education, and how the variable of emotional intelligence is related to student achievement (GPA) in an online learning environment. Gaps in the literature provided the direction for this study.

Online Education in Postsecondary Institutions

With the emergence of new computer technologies, distance learning has transitioned from what was once considered an inadequate form of educational development to a remote learning opportunity, supporting greater access and communication to education through the use of modern internet capabilities (NCES, 2001). Online education, as a type of distance education, provides learning opportunities and a substantial diversity of coursework to students whose local area or life circumstances may otherwise limit such opportunities (Halfond, 2008). Therefore, online learning basically tends to appeal to non-traditional students, such as adult learners who are confined by work obligations, location, disability or family commitments (Dalziel, 2007). Advances in communication technology continue to be the driving force behind managing instruction in online curriculum (Chaney, Chaney, Stellefson, & Eddy, 2008).

Online distance learning students tend to be older and to have other life responsibilities that reduce their available time, such as family and work duties (Gubernick & Ebling, 1997; Hoskins, 2008). In reality, the majority of students in online courses are non-traditional, over the age of 30, with roughly 20% over the age of 50 (Hoskins, 2008). The majority of these students typically live within 75 miles of the campus offering the course (Hoskins, 2008). The flexibility of online learning can be a significant advantage for students who are divided in their time and obligations and cannot take advantage of a traditional two-year or four-year postsecondary or graduate degree programs (Gubernick & Ebling, 1997). The flexibility and convenience of online courses enables students to support their career development through completing degree programs, earning a certificate, or completing a course toward a personal goal (Dykman & Davis, 2008). Typically, online courses are developed and conducted within an asynchronous environment, where online students are able to log into the course at their convenience to attend classes and complete their course work, unless a synchronous meeting is scheduled (Dalziel, 2007; Groen, Tworek, & Soos-Gonzol, 2008). This flexibility is appealing to the busy professional or nontraditional student.

As a result, the popularity of online post-secondary learning, particularly among non-traditional students (adult learners), has grown to include 4.6 million online students in the U.S., with a growth rate of online enrollments of 17% (Allen & Seaman, 2011). Because of this growth, approximately 80% of institutions of higher education in the United States have declared growth in online programs a priority (Allen & Seaman, 2011). However, despite the growing interest in online learning, retention issues remain problematic (Anderson, 2009; Boston et al., 2011).

Retention within distance learning programs and courses has historically posed a distinctive set of challenges, when compared to traditional learning environment (Sheets, 1992). Consistent with this distance learning history, online learners demonstrate a significantly higher rate of attrition compared to traditional learners (Boston et al., 2011). Researchers have suggested that the lack of both personal interactions and a strong sense of community, which support learning and academic achievement in the traditional academic settings, remain limited in online asynchronous environments and affect students' commitment to the school community (Cooper, 1990; Dille & Mezack, 1991). Student commitment is a key trait and has been identified as an important factor in student retention (Tinto, 1994).

In contrast to the traditional classroom, in which personal interactions with peers and instructors promote learning and motivation with immediate feedback, responses to questions, and responsiveness to student needs and non-verbal cues, online instruction lacks the personal, face-to-face interaction (Hill & Rivera, 2001). Communication in an online learning environment is based on written language and technological skills. Online students, therefore, suffer a lack of personal contact and interaction with peers and instructors, which has been suggested as a cause for feelings of isolation and lack of motivation, having a negative effect on the academic success of online students (Hill & Rivera, 2001). Despite advances in technology designed to promote easy access to information, immediate feedback from teachers, and peer participation, the retention rates among students in online courses have failed to demonstrate significant improvement (Anderson, 2009; Boston et al., 2011).

Online learning technologies continue to advance to provide strategies to promote more interaction, such as easy access to information, immediate feedback from teachers, and participation in online communities with fellow students, improving access and communications

within the course programs (Anderson, 2009). However, the projected benefits of these advances to retention in online courses and learning achievement have not been realized in the classroom (Heyman, 2010). Retention of online students, especially working adults, remains problematic (Anderson, 2009; Boston et al., 2011; Heyman, 2010).

According to Tinto's (1994) student integration model, student persistence is viewed in terms of the student's commitment to complete college and the commitment to the institution (Carbrara, Castaneda, Nora, & Hengstler, 1992; Tinto, 1994). Tinto (1994) hypothesized that persistence is related to the correlation between the individual's academic motivation and the institution's responses to that motivation. Based on this, the structure of online learning programs has been designed to appeal to students through the provision of quality education and convenience and using feedback from both students and educators (Ally, 2004; Dietz-Uhler, Fisher, & Han, 2008). However, despite this informed structure and the unique advantages offered through online instruction to benefit a motivated adult learning population, attrition from online classes remains a problem. Current research has continued to attempt to ascertain the specific factors that contribute to retention and attrition in post-secondary online learning environments.

With the continued high rates of attrition among students in online learning courses and programs (Anderson, 2009; Boston et al., 2011; Heyman, 2010), researchers have explored different factors that may affect the retention or attrition of online learners. Despite the growing population of online learners and potential success of online programs in post-secondary institutions, it remains critical to identify ways of supporting the academic success of these students. Factors such as student-peer and student-faculty interactions, prior student GPA, sense of community, gender, self-discipline, previous academic performance, course structure, and

instructor engagement have been examined as important factors, either supporting or hindering online student performance and persistence.

Heyman (2010) used a qualitative, Delphi study to explore the phenomenon of high attrition in online programs. In the study, 20 expert participants suggested several factors that may affect student retention, including self-discipline, engagement with instructor, response time when communicating within the course, and the need for support services for online students. The concerns and practices recommended by the participants focused on social and academic integration (Heyman, 2010). After three rounds of the Delphi methodology, the results identified three primary emergent themes of (a) student support and connection to the institution, (b) quality interactions between students and faculty, and (c) student self-discipline.

Looking more closely at the individual characteristics of students, Cochran, Campbell, Baker, and Leeds (2014) examined individual student characteristics possibly associated with likelihood of attrition (withdrawal from courses) in online environments. Data gathered from a sample of 2,314 undergraduate students attending a large state university indicated several significant characteristics related to retention rates among online students (Cochran et al., 2014), namely, prior performance in other college coursework (i.e., GPA) and class standing (senior versus non-senior). Within specific subsets of students (such as major of study), prior withdrawal from an online course, gender, and academic loan status were significantly related to retention rates (Cochran et al., 2014).

Boston et al. (2014) sought to develop a model for understanding student retention in the online learning environment. The model was developed, using the indicators of the community of inquiry framework and student persistence (Garrison, Anderson, & Archer, 2001); Boston et al. analyzed more than 28,000 student records and survey data.

The community of inquiry model was used to explain the online learning experience in terms of interactions of three elements: teaching presence, social presence, and cognitive presence (Boston et al., 2014). The social presence was described as the foundation for collaborative learning within a constructivist paradigm (Boston et al., 2014). Related specifically to online learning, social presence described the ability of the online learner to participate in social and emotional interactions with peers and instructors as real individuals (Swan & Shih, 2005). Cognitive presence represented the extent that learners were able to construct meaning from both reflection and active discourse (Boston et al., 2014). Teaching presence consisted of instructional design, discourse and facilitation of discourse, and direct instruction (Boston et al., 2014).

The results indicated significant variance in retention accounted for by the indicators associated with social presence (Boston et al., 2014). More specifically, the results demonstrated a large part of the variance associated with retention was accounted by the perceived importance of web-based communication as a medium for social interaction (18% of the variance in retention) (Boston et al., 2014). This was a very strong finding, given the large sample size, and pointed to the possible changing population dynamics in terms of the relative importance placed by individuals on connectivity and online course presence on a personal level (Boston et al., 2014).

Learning Style

Learning styles highlight individual differences in cognitive learning (Desmedt & Valcke, 2004; Hernandez, 2011). The theory of multiple learning styles was popularized by Kolb (1985), who formulated an inventory to assess preferred learning styles (Richmond & Cummings, 2005). Kolb's model of learning is divided into four major components, which

include concrete experience, reflective observation, abstract conceptualization, and active

experimentation (Nagle, McHale, Alexander, & French, 2009). Kolb stressed that learning is

cyclical with a focus on the process, rather than on the outcomes.

The Kolb learning style model, the most cited model in learning style literature (Desmedt

& Vlacke, 2004), is a two dimensional measure, which is based on differences in learners'

information processing and perceptions that support learning and knowledge acquisition (Lu, Jia,

Gong, & Clark, 2007). For example, while some learners prefer hands-on experiential learning,

other learners prefer more abstract sources of knowledge, such as books and lectures. Learners

develop a preferred pattern of knowledge acquisition over time. Kolb's model is based on this

preferred pattern of learning and illustrates the same (Kolb, 1985).

Kolb (1985) discussed experiential learning in a four-stage process, consisting of four

adaptive learning styles, developed to describe how learning is accomplished most effectively.

These include (a) *Concrete Experience (CE)*, for which learning is achieved through experiences

involving the feelings and people within the specific experience; (b) *Reflective Observation

(RO)*, for which learning is achieved through use of observational skills prior to judgment

making, the ability visualize and utilize differing perspectives, and seeking meaning in learning;

(c) *Abstract Conceptualization (AC)*, where learning is achieved through systematic and logical

processes of thoughts and ideas, in which the individual's actions stem from an intellectual

comprehension; and (d) *Active Experimentation (AE),* in which learning is an active process,

such that the individual is focused on task completion, is a risk-taker, and influences others

through their action (Kolb, 1985).

The first of these concepts is concrete experience, which focuses on responsibility.

Individuals associated with this CE type of learning style tend to lean toward peer orientation,

benefitting from peer discussion (Kolb, 1985). In contrast, reflective observation (RO) style

tends toward observation in learning (Kolb, 1985). Abstract conceptualization (AC) reflects

"thinking" with a personal orientation and preference toward symbols and learning optimally

through more impersonal learning environments. Last, active experimentation (AE) is

characterized by learning through sensing and feeling, with a tendency toward active

participation; therefore, AE individuals learn best through experimentation and engaging in

projects (Lu et al., 2007).

Using these adaptive learning styles (or learning preferences), Kolb (1985) designated

four learning styles. The learning style groups included (a) *Divergers*, who prefer CE and RO;

(b) *Assimilators*, who prefer AC and RO; (c) *Convergers*, who prefer AC and AE; and (d)

Accommodators who prefer CE and AE (Kolb, 1985). Learners who prefer CE and RO learning,

or Divergers, tend to perceive information concretely and process that information reflectively

(Kolb, 1985). Accordingly, the strengths of Divergers are their imaginative abilities, as these

individuals tend to be the people who are emotionally oriented and enjoy problem-solving

activities involving group interactions and/or the use of their imagination (Kolb, 1985).

Although Assimilators are also processing reflectively, they perceive abstractly rather

than concretely, which separates them from the Divergers (Kolb, 1985). Kolb (1985) asserted

that the strengths of Assimilators are in inductive reasoning and construction of theoretical

models. Assimilators tend to be not as people-oriented and exhibit thinking and learning

processes that are more abstract and logic-based. They tend to enjoy case studies, lectures,

papers, and other more abstract and reflective learning activities (Kolb, 1985).

Convergers, who also tend to be abstract perceptually, tend to process the information

actively (Kolb, 1985). Convergers are often strong problem-solvers and decision-makers, able to

actively apply their ideas to the circumstances or problems at hand (Kolb, 1985). The strength associated with Convergers is that they are more technical, that is, preferring the more technical tasks and problem-solving as opposed to emotional or interpersonal/social experiences, in opposition to the strengths of Divergers (Kolb, 1985). Learning preferences are usually for experimentation and observation activities (Kolb. 1985).

Lastly, Accommodators represent individuals who tend to perceive concretely and prefer to process information actively, allowing for the ability to process in action, supporting success in variable or changing circumstances (Kolb, 1985). Because Accommodators have a tendency for intuitive problem-solving in which they obtain information from others, this learning style opposes that of assimilators (Kolb, 1985). Accommodators prefer to learn through activities that demonstrate real life circumstances, such as simulations, case studies, and group discussions (Kolb, 1985).

In summary , Kolb's model represents two basic learning dimensions, namely, (a) the perception-oriented dimension, which ranges between a preference for concrete learning experiences (learning by feeling) and abstract conceptualization (learning by thinking); and (b) the experience-oriented dimension, which ranges between active experimentation (learning by doing) and reflective observation (learning by watching). These major learning tendencies (dimensions) establish the four learning styles of Diverger, Assimilator, Converger, and Accommodator. Diverger and Assimilator share an emphasis on reflective observation, but differ in the emphasis on concrete experience (Diverger) and abstract conceptualization (Assimilator). Thus, the Diverger is imaginative, emotional, and sensitive to people, preferring to learn by feeling and watching. In contrast, the Assimilator tends to be logical, precise, and scientific, with a preference for working alone and learning through thinking and watching.

Convergers tend to prefer active experimentation, but pairs that with abstract conceptualization (common to Assimilators), allowing for the learner to be a problem-solver with a practical, hands-on approach (learning by doing and thinking). In contrast, the Accommodator reflects an emphasis on active experimentation with the converger and on concrete experience with the Diverger; thus, tending to use intuition and trial and error, while also relying on others for information and learning from hands-on experience and feelings. These traits and tendencies could be related to emotional intelligence traits, but the research in that relationship remains lacking.

Learning Style and Online Student Success

Online learning can be developed to offer instruction that meets the needs of students with different learning styles (Kim & Frick, 2011). However, prior research has been inconclusive in terms of the specific effects of learning style preferences on student motivation in an online educational environment (Kim & Frick, 2011). Although some research has demonstrated a relationship between learning style and student motivation (Cuneo & Harnish, 2002; Katz, 2002; Mitchell, 2000; Sankaran & Bui, 2001), other research has failed to reveal or reflect any significant effect of learning style on student satisfaction, motivation, or achievement (Klingner, 2003; Stokes, 2003; Terrel & Dringus, 1999).

Singh et al. (2009) used an adapted version of the Visual, Aural, Read/Write, and Kinesthetic (VARK) instrument to assess different learning styles and the relationship with student achievement. The researchers found a significant, positive relationship between learning style and GPA (as well as EI and GPA, reported in the next section).

Gurpinar, Alimoglu, Mamkli, and Aktedin (2010) examined learning style as a predictor of student satisfaction with instructional methods and student academic achievement in a hybrid

medical education program. Using a sample of 170 medical students, who completed the Kolb learning styles inventory, the authors found learning style to predict student satisfaction in the traditional educational setting. However, learning style failed to demonstrate a significant effect on satisfaction in the online training portion. Gurpinar et al. concluded that certain learning styles may match certain instructional methods and relate to satisfaction and achievement, but additional research is still needed.

Zacharis (2011) compared learning styles among two groups of freshmen computer science students, one online group and one on-campus/traditional group. The purpose of the research was to determine if learning style is related to the selection of the mode of course delivery (traditional or online) and levels of academic achievement. Zacharis failed to identify any group differences on the basis of the learning style and performance.

Huang, Lin, and Huang (2012) contended that although learning style is often assumed to be a predictor of academic performance, research has not identified the precise relationship between the two variables. Huang et al. (2012), therefore, tested a model of the mediating processes in the relationship between online student performance and learning style, with prior knowledge serving as a moderating variable. Huang et al. reported that in a sample of 219 undergraduate students, student performance was indirectly predicted by the sensory versus intuitive learning styles, based on online participation. Results indicated that sensory students had a higher level of online participation compared to the intuitive students, who had a low level of online course participation (Huang et al., 2012). The other learning styles failed to demonstrate significant predictive capacity for either online participation or performance (Huang et al., 2012). The study also found that prior knowledge served as a moderator between online participation and learning performance (Huang et al., 2012).

Prior research remains inconclusive with regard to the specific relationship between learning style and online student achievement. However, given the specific differences in sensory versus intuitive learning style in the study by Huang et al. (2012), another variable of interest is explored in this review in relation to online student achievement, the variable of emotional intelligence. Emotional intelligence characteristics may support specific sensory versus intuitive natures in the individual learners and, therefore, may have a direct or indirect effect on student learning style preferences and student achievement.

Emotional Intelligence

The concept of Emotional Intelligence (EI) was first introduced by Salovey and Mayer (1990). The focus of the EI is on the abilities of the individual related to processing emotional information and managing one's emotional response. According to Mayer and Salovey (1997), emotional intelligence consists of four interrelated abilities, which include the ability to (a) perceive emotions; (b) use emotions to facilitate thought; (c) understand emotions; and (d) manage emotions in a way that enhances personal growth. The EI is related to, but distinguished from, personality traits (Law, Wong, & Song, 2004).

Emotional intelligence can be defined as "the set of abilities (verbal and non-verbal) that enable a person to generate, recognize, express, understand, and evaluate their own and others' emotions in order to guide thinking and action that successfully cope with environmental demands and pressures" (Van Rooy & Viswesvaran, 2004, p. 72). Research has portrayed the EI as two primary distinctions: as a trait (Bar-On, 1997; Goleman, 1995; Petrides & Furnham, 2000, 2001) or as ability (Salovey & Mayer, 1990). For those who describe the EI as a trait, it is an innate human characteristic, which promotes well-being. When described as ability, the EI

21

supports comprehension and regulation of emotions, as well as the integration of emotion into

cognition (Harms & Crede, 2010).

Kunnanatt (2008) translated the EI factors into two measureable dimensions, namely,

personal and social competence. Personal competence is determined by self-awareness and

self-regulation. Self-awareness is the ability to identify and understand internal emotions

and feelings as they occur, allowing for the ability to understand one's feelings in terms of

how s/he thinks and acts. With self-regulation, the individual is able to use one's self-

awareness to regulate and balance the rational and emotional operations of the mind to

support logically correct and socially acceptable decision-making and judgments. Social

competence reflects one's ability to gain insight into the emotions of others and to use this

empathic capability and associated interpersonal skills to support positive outcomes for

oneself and others. Social competence consists of social awareness (having awareness or

feel for the emotions of others) and social influence (having influence to affect positive

change or outcome in others through interpersonal skills). Given these dimensions, research

has questioned the role of the EI in both leadership development and academic performance.

Models of Emotional Intelligence

The EI as a construct encompasses emotional skills related to an individual's ability to

understand and use emotions to enhance reasoning (Ashworth, 2013). Salovey and Mayer

(1990) presented a framework focused on the interactions of thoughts and emotions. The authors

defined the EI as the ability to understand and discriminate the feelings of self and others and be

able to use this understanding to assist in thinking and determining appropriate action(s). The EI

framework offered by Salovey and Mayer consists of four areas of competency, which include

(a) perception of emotions, (b) use of emotion, (c) analyzing emotion, and (d) managing emotion.

A similar model offered by Goleman, Boyatzis, and Mckee (2002) also divided the EI into four central competencies. These competencies included self-awareness, self-management, social awareness, and relationship management (Goleman et al., 2002). Defining the EI as "the capacity for recognizing our own feelings and those of others, for motivating ourselves, and for managing emotions well in ourselves and in our relationships" (p. 317), the Goleman et al. (2002) model distinguishes itself from the Mayer, Salovey, and Caruso, 2000 model in that specific leadership skills are identified and associated with each competency area (Ashworth, 2013). These specific leadership skills include individual emotional self-awareness, self-assessment, self-confidence, and self-control, as well as adaptability, transparency, initiative, optimism, empathy, organizational awareness, service, inspiration, influence, and achievement. In addition, leadership skills related to developing others, being a change catalyst, conflict management, and teamwork and collaboration were also included.

Both the Mayer et al. (2000) and Goleman et al. (2002) EI models suggest a building of competency areas from one to another, with a progression starting with emotional perception (at the more basic level) to management of emotions (more complex and therefore, the highest level of the EI) (Ashworth, 2013; Mayer et al., 2000). It is important to note, according to Goleman et al. (2002), the four competencies represent learned abilities, rather than innate talent. Additional research in the EI has followed from these two initial models, which have set the foundation for continued research in the area of emotional intelligence into other fields, such as education.

One such EI framework was offered by Nelson and Low (2011), who described an EI model with an education and skill-based approach to building emotional intelligence (Ashworth,

2013). The framework described by Nelson and Low builds upon the theory of constructive

thinking (Epstein, 1998), perceiving constructive thinking as a critical component of the EI under

the assumption that all human beings demonstrate two mindsets: the rational mind and the

experiential mind (Epstein, 1998). According to Epstein (1998), the experiential mind consists

of preconscious thought, allows one to learn from experience, and is associated with emotion. In

contrast, the rational mind is conscious, deliberate, logical, and relatively emotion-free (Epstein,

1998). The rational mind is responsible for solving abstract problems and is generally tested in

terms of the IQ test (Epstein, 1998); however, the experiential mind supports intelligence in

terms of practical, social, and emotional intelligence (Epstein, 1998). Nelson and Low (2011)

purported that increased awareness of preconscious thoughts can lead to learned constructive

thinking, serving to enhance emotional competencies.

Competencies of Emotional Intelligence

Nelson and Low (2011) identified four competency areas of emotional intelligence:

interpersonal, leadership, self-management, and intrapersonal. Within these four emotional

competencies, the authors described 10 emotional intelligence scales that define each

competency, namely, assertion, social awareness and comfort, empathy, decision making,

leadership, drive strength, time management, commitment ethic, self-esteem, and stress

management.

Interpersonal is the first competency discussed by Nelson and Low (2011). This

competency was described as wisdom related to human relationships (Nelson & Low, 2011).

The interpersonal competency is defined by the emotional intelligence scale of assertion, which

involves effective communication, emotional self-control, and understanding and appreciating

differences in others (Nelson & Low, 2011). The construct of emotional self-control is related to

self-awareness of emotions, which requires an understanding of and response to one's own

emotions (Gragg, 2008). Related to leadership, self-control is critical for a leader to maintain

emotional stability to support managing the emotions of others in a crisis (Goleman et al., 2002).

Therefore, leaders who master emotional self-control support a more trusting, comfortable, and

fair environment (Goleman et al., 2002). Nelson and Low defined assertive communication as

"the ability to clearly and honestly communicate your thoughts and feelings to others in a

straightforward and direct manner" (p. 42). As such, assertive communication allows for

effective and accurate expression of emotions that supports positive communication in which

emotions and feelings are expressed constructively toward meeting the needs of others and

accomplishing goals and objectives (George, 2000; Nelson & Low, 2011).

Self-management is the second competency. The self-management competency relates to

setting and meeting goals, managing time and resources, and learning to be flexible given

unexpected demands (Nelson & Low, 2011). This competency relates to the previous

interpersonal competency in that self-management is critical to leaders' ability to effectively

manage emotions of others by supporting successful self-control and management of their own

emotions (Goleman et al., 2002). With the ability to master one's own emotions comes the

ability to better cope with and help others adjust to changes.

According to Nelson and Low (2011), three emotional intelligence scales relate to self-

management: drive strength, commitment ethic, and time management. Drive strength, an

internal power that encourages perseverance toward goal attainment, supports the ability to

achieve meaningful goals resulting in positive feelings (Nelson & Low, 2011). Motivation and

focus are required to support drive strength, enabling a manager to self-manage and achieve

meaningful goals (Nelson & Low, 2011). Commitment ethic is defined as the ability to

successfully and dependably achieve tasks and responsibilities. Characteristics of leaders with a high commitment ethic include self-motivation and persistence toward task achievement regardless of obstacles or challenges (Nelson & Low, 2011). Lastly, time management is defined as the ability to actively and effectively manage time through self-management and self-direction (Nelson & Low, 2011), which supports goal achievement.

Intrapersonal, the third competency, is defined as an awareness of self-perception, self-value, and betterment of self toward addressing life demands, challenges, and stressors (Nelson & Low, 2011). Two distinct EI scales are used to define intrapersonal competency: self-esteem and stress management. Self-esteem is the ability to view one's self as positive, competent, and successful, and includes having optimism, self-confidence, and self-worth (Nelson & Low, 2011). The ability to not only identify but also capitalize on individual strengths supports the development of positive self-esteem, optimism, and sense of self-worth (Nelson & Low, 2011). Optimism supports the ability of a leader (a) to communicate a positive attitude toward the ability of others to accomplish tasks (Marzano, Waters, & McNulty, 2005); (b) to see opportunity rather than threat (Goleman et al., 2002); and (c) to maintain a positive outlook and expectation for positive change (Goleman et al., 2002).

The second component of intrapersonal competency, stress management, is the ability to choose and exercise self-control in response to stress, which requires the ability to regulate one's emotional levels using coping strategies, if necessary, during stressful situations (Nelson & Low, 2011). Characteristics that are common to those who demonstrate stress management skills include a strong sense of self-worth, competence, communication, decision-making, and time management skills, as well as assertiveness, and positive influence (Nelson & Low, 2011). The

authors asserted that career effectiveness is positively correlated to learning and practicing stress management skills.

Leadership, the final competency, is defined as being people oriented and understanding and respecting the needs, values, and goals of others (Nelson & Low, 2011). Four EI scales define the leadership competency: social awareness, empathy, decision making, and leadership. According to Nelson and Low (2011), "Social awareness and empathy are interdependent and necessitate an assertive communication style; reasoning and emotions are interactive and both are essential for effective decision making and people centered leadership" (p. 73-74).

Individuals with social awareness have the ability to develop trust and good rapport in relationships that allows them to have a positive influence on others (Nelson & Low, 2011). Accordingly, social awareness has been associated with the ability to (a) feel and understand the emotional needs of others, (b) make others feel comfortable, and (c) to understand and build positive relationships (Nelson & Low, 2011). Social awareness skills encompass the ability to notice subtleties in nonverbal communication, such as body language and emotional messages and tones within the words (Nelson & Low, 2011). Social awareness may involve different levels as well; for example, having social awareness of the organization in terms of understanding the social and political climate of the organization (Gragg, 2008), as well as key social networks and power relationships (Goleman et al., 2002).

The second EI scale associated with leadership competency is empathy. According to Nelson and Low (2011), empathy is "the ability to accurately understand and constructively respond to the expressed feelings, thoughts, and needs of others" (p. 80). Relating empathy to social awareness, Goleman et al. (2002) defined social awareness as the ability to empathize with others; thus, asserting that empathy is the fundamental competence of social awareness.

Individuals with empathy are able to put themselves in the situation of another and view the issue through the other person's experience, allowing the individual to be approachable, considerate, and able to recognize the needs of others (Goleman et al., 2002). As such, empathy involves active listening and the ability to acknowledge different opinions (Gragg, 2008).

The decision-making EI scale represents an individual's ability to solve problems and resolve conflict. An effective leader is able to use emotional input and manage emotions that may interfere with making decisions (George, 2000). Goleman (1995) suggested that this is important because the ability to make better decisions is dependent on being in tune with one's intuition. Effective decision-making supports planning, formulating, initiating, and implementing ideas and solutions for individual issues as well as organizational issues (Goleman, 1995).

According to Nelson and Low (2011), leadership is the ability to positively influence others. Goleman (1998) suggested that those who greatly influence others do so because they are able to sense the emotions and/or predict the reactions of others, allowing them to persuade others toward the desired goal. Positive influence, which creates an environment that supports achievement and satisfaction, reflects the positive self-esteem, moral values, and confidence of the leader. Overall, Nelson and Low (2007) posited that the EI skills are the key factors in personal, academic, and career excellence. Therefore, review of the literature turned to the specific characteristics of the EI that support student achievement and leadership skills.

Characteristics of the EI Supporting Student Achievement

Research in the field of education has generally supported a relationship between the EI and student academic success (Swart, 1996; Van Rooy & Viswevaran, 2004); however, it is also noted that some research remains unclear on the relationship (Aalsma, 2004). An intensive

meta-analysis by Van Rooy and Viswevaran (2004) found significant evidence of generally positive associations of the EI with school and work performances.

Different researchers studying the EI have used a variety of assessment instruments, providing an array of results. Swart (1996) conducted a study of nearly 500 traditional university students using the emotional quotient inventory (EQ-i) by Bar-on (1997). The results supported a positive relationship between the variables in that academically successful students demonstrated significantly higher emotional intelligence compared to unsuccessful students. Similarly, Singh et al. (2009) used the Self-Report Emotional Intelligence Test (SREIT) along with an adapted Visual, Aural, Read/Write, and Kinesthetic (VARK) instrument to examine data obtained from a random sample of 389 university students, demonstrating a significant positive relationship between the EI and academic outcomes (GPA), as well as a positive relationship between learning styles and the GPA (as noted previously).

Other researchers have failed to demonstrate such a positive relationship between the EI and academic outcomes. In contrast to the previous studies conducted by Singh et al. (2009) and Swart (1996), Aalsma (2004), in a study of 39 gifted students, utilized the Multifactor Emotional Intelligence Scale (Adolescent version) and found no significant predictive contribution of the EI to student success, as measured by the GPA. Similarly, using the Mayer Salovey-Caruso emotional intelligence test, Johnson (2008) surveyed a non-probability sample of 111 university students, both traditional and nontraditional, reporting no significant correlation between the EI and learning style and no significant difference between the EI and learning style in terms of academic outcome (GPA).

Suliman (2012) conducted a study, collecting data from 98 students in traditional and accelerated programs, using the Kolb learning style inventory and the Bar-On emotional quotient

inventory (EQ-i). Results indicated no between group differences and a lack of significant

correlations between the three variables of learning style, emotional intelligence, and academic

success. On the basis of the findings, Suliman suggested that the EI may be confounded by

professional or cultural values.

<p style="text-align:center">Characteristics of the EI Supporting Leadership Development</p>

When considering students in online environments studying leadership, such as students

in an online business program, it is relevant to consider the relationship between the EI and

leadership skills and development. Prior researchers have suggested that specific EI traits

contribute to development of transformational leadership (Brown & Moshavi, 2005; Nye, 2008).

Transformational leadership traits support a mentor interaction between leaders and followers in

which followers are encouraged to learn, achieve, and develop (Harms & Crede, 2010).

Transformational leaders serve as role models, fostering a climate of trust and support while

providing challenges (Harms & Crede, 2010).

Despite the abundant amount of research on transformational leadership, research

remains lacking concerning this type of leadership and EI (Rubin, Munz, & Bommer, 2005).

Prior research has demonstrated a relationship between transformational leadership and personal

traits of being extraverted, agreeable, emotionally stable, and open. This was in addition to

having strong moral reasoning, secure attachment, and a need for power (Antonakis & House,

2002; Bono & Judge, 2004; Popper, Mayseless, & Castelnovo, 2000; Sashkin, 2004; Turner,

Barling, Epitropaki, Butcher, & Milner, 2002). In addition, earlier research by Atwater and

Yammarino (1993) showed higher intelligence to be associated with the development of

transformational leadership skills. Despite the reported associations, the predictive capacity of

these personal trait variables toward predicting transformational leadership has not been clear. In

<p style="text-align:center">30</p>

a meta-analysis of research examining the relationship between personal traits and transformational leadership, Bono and Judge (2004) determined corrected correlations to be relatively low. Thus, researchers have suggested that factors such as the EI may serve to support and predict transformational leadership behaviors among leaders (Brown & Moshavi, 2005; Nye, 2008).

Goleman et al. (2002) suggested that specific EI traits (i.e., self-confidence, self-awareness, transparency, empathy) are the key to the ability to communicate one's vision as a leader. These EI traits were suggested as facilitators of the development of transformational leadership skills (Sosik & Megarian, 1999). For example, empathy can support the ability to demonstrate consideration for individual followers. Emotional management supports the tendency to put others first (a common transformational trait) and can affect increased confidence in followers seeking to present new ideas; and self-awareness can support the development of a stronger sense of purpose (Sosik & Megarian, 1999). In addition, transformational leaders may use emotional skills to support inspirational motivation (George, 2000). Finally, Brown, Bryant, and Reilly (2006) asserted that principles of both the EI and transformational leadership relate to professional and moral standards. However, other empirical evidence failed to support the relationship between the EI and leadership type or behaviors (Antonakis, Ashkanasy, & Dasborough, 2009; Landy, 2005; Lindebaum, 2009; Locke, 2005) and even between the EI and transformational leadership specifically (Brown et al., 2006; Moss, Ritossa, & Ngu, 2006).

To better understand the related research findings, Harms and Crede (2010) conducted a meta-analysis concerning the relationship between the EI and transformational and transactional leadership styles. The results of the study indicated a moderate relationship between the EI and

transformational leadership behaviors. However, a link was evident in studies in which there might have been methodological biases and limitations supporting the relationship (Harms & Crede, 2010). Less biased research found the relationship was smaller, though still statistically significant (Harms & Crede, 2010).

Gaps in the Literature

The dimensions associated with the various learning styles (perception-oriented dimension of concrete learning [learning by feeling] versus abstract conceptualization [learning by thinking] and experience-oriented dimension of active experimentation [learning by doing] versus reflective observation [learn by watching] seem to reflect certain emotional intelligence characteristics. Therefore, a relationship between the two variables could be expected. However, research remains lacking in identifying a mediating relationship between the influence of emotional intelligence on learning style and/or student outcomes.

Overall, the literature reviewed related to the EI and student outcomes remains lacking (Suliman, 2010). Considering the suggested relationship between the EI and leadership development (Brown & Moshavi, 2005; Harms & Crede, 2010; Nye, 2008), established evidence for and understanding of a relationship between online business student academic success and the variable of the EI can provide insight into the impact of the variable on student performance and to support student success (Suliman, 2010) in an online business program.

Summary

Interest in online learning has continued to grow, likely stemming from the flexibility and convenience of online courses, which enables students to support their career development through completing degree programs, (Dykman & Davis, 2008). However, student achievement in online learning remains problematic (Anderson, 2009; Boston et al., 2011; Heyman, 2010).

Learning styles, which highlight differences in cognitive learning (Desmedt & Valcke, 2004; Hernandez, 2011) have been associated with student achievement. The Kolb learning style model, the most cited model in learning style literature (Desmedt & Vlacke, 2004), is a two dimensional measure, based on differences in learners' information processing and perceptions that support learning and knowledge acquisition (Lu et al., 2007).

Using these adaptive learning styles (or learning preferences) described by Kolb (1985), four learning style groups were noted to include Divergers, Assimilators, Convergers, and Accommodators (Kolb, 1985). Online learning can be developed to offer instruction that meets the needs of students with different learning styles (Kim & Frick, 2011). However, prior research remains somewhat inconclusive in terms of the specific effects of learning style preferences on student motivation (achievement) in an online educational environment (Kim & Frick, 2011).

The literature review supports an EI framework with an education and skill-based approach to building emotional intelligence described by Nelson and Low (2011), utilizing the theory of constructive thinking (Epstein, 1998), as a critical component of the EI (Epstein, 1998). Accordingly, Nelson and Low (2011) identified four competency areas of the EI (interpersonal, leadership, self-management, and intrapersonal), within which 10 emotional intelligence scales were used to define each competency.

The literature review reflects a generally supported relationship between the EI and student academic success (Swart, 1996; Van Rooy & Viswevaran, 2004). Specific to online learning in leadership development, such as students in an online business program, it is relevant to consider the relationship between the EI and leadership skills and development. Prior researchers have suggested that specific EI traits contribute to development of transformational

leadership (Brown & Moshavi, 2005; Nye, 2008). Goleman et al. (2002) suggested that specific EI traits (i.e., self-confidence, self-awareness, transparency, empathy) are the keys to the ability to communicate one's vision as a leader. These EI traits were suggested as facilitators to the development of transformational leadership skills (Sosik & Megarian, 1999). The literature review indicated the research is lacking in connecting the EI and leadership development in an online learning environment, such as an online business program. Student achievement (GPA) is possibly a relevant measure of the leadership development, but has not been supported to date through research.

The literature review and research discussed the role EI could possibly play in its relationship with student achievement. The lack of relevant research in this area framed the rationale for conducting the study.

CHAPTER III

METHOD

The purpose of the study was to determine if a relationship exists between emotional intelligence and academic achievement among undergraduate students in an online business program. The correlational study was guided by the following research question: To what extent does a business student's level of emotional intelligence, as measured by interpersonal, leadership, self-management, and intrapersonal competencies, explain academic success in online business courses?

Research Design

A correlational research design was selected to examine the relationship between the study's four independent variables and the outcome measure (Cozby, 2009). When the variables are continuous, a correlational design can be used to determine the linear relationship between the variables (Creswell, 2009). The following null hypothesis was tested: emotional intelligence, as measured by interpersonal, leadership, self-management, and intrapersonal competencies, does not explain academic success in online business courses. Due to non-experimental nature of the study, no causal inferences were drawn.

Subject Selection

The study participants were selected from a population of students enrolled in an online business program in a single university in Texas. This program usually enrolls approximately 1000 students with a varied demographic profile who are trained to be future business leaders.

A convenience sampling was used to recruit the participants for the study. The convenience sampling plan is a form of non-probability sampling based on the availability of participants and their willingness to participate in the study (Urdan, 2005). The convenience

sampling is shown to be useful in obtaining a large number of participants in a short period of time (Cozby, 2009). Due to non-probability nature of sampling, the study's external validity was limited to the participants.

Permission to conduct the study was obtained from the Institutional Review Board at Texas A&M University-Corpus Christi and the university in which the study took place (Appendices A & B). Consent to participate in the study was obtained electronically via the study's online survey questionnaire (Appendix C).

Instrumentation

A two-part self-report questionnaire (Appendix C) was used to collect the data and measure the variables of interest.

To measure emotional intelligence, the first part included 63 items from the Emotional Skills Questionnaire (ESQ), developed by Nelson and Low (2011). The ESQ is designed to measure 10 emotional skills, which reflect levels of emotional intelligence. The 10 emotional skills include assertion (items 1-9), social awareness and comfort (items 10-15), empathy (items 16-21), decision-making (items 22-27), leadership/positive influence (items 28-33), drive strength (items 34-39), time management (items 40-45), commitment ethic (items 46-51), self-esteem (items 52-57), and stress management (items 58-63) (Nelson & Low, 2011). Responses to the items are given on a 3-point scale (0 = least like or descriptive of the respondent, 1 = sometimes like or descriptive of the respondent and sometimes not, and 2 = most like or descriptive of the respondent).

These 10 skills are further categorized into four competencies, namely, interpersonal (measured by assertion), leadership (measured by social awareness and comfort, empathy, decision-making, and leadership/positive influence), self-management (measured by drive

36

strength, time management, and commitment ethic), and intrapersonal (self-esteem and stress management).

Prior research has demonstrated strong validity and reliability of the ESQ instrument (Nelson & Low, 2006; Nelson, Low, & Ellis, 2007; Cox & Nelson, 2008) and the instrument has been used widely in prior research in a variety of disciplines (Nelson et al., 2007).

The second part was designed to gather data on the outcome measure, the GPA, and selected demographic characteristics (i.e., age, gender, ethnicity, academic classification, and the number of online courses completed) of the respondents to describe the sample. Additionally, the respondents were asked to report their preferred learning styles, choosing among: (1) Assimilator - preferring sound logical theories to consider; focusing less on people and more interested in ideas and abstract concepts; (2) Converger - preferring practical applications of concepts and theories; preferring to experiment with new ideas, simulations, laboratory assignments, and practical applications; (3) Accommodator - preferring hands-on experiences; preferring to work with others to get assignments done, to do field work, and to test out different ways to complete a project; and (4) Diverger - preferring to observe and collect a wide range of information; preferring to work in groups, to listen with an open mind, and to receive personalized feedback (Kolb & Kolb, 2005).

Data Collection

After obtaining the IRB approval for the research and institutional approval to conduct the research at the designated study site, the researcher sent an informational email to students enrolled in the online business program through the university email. The email provided the title and purpose of the study, requirements for participation, and the benefits and risks of participating in the study. Online faculty members were asked to announce the research project

to their students and inform them of the incoming email. Interested students were asked to follow a link to the online survey instrument. In order to participate in the survey, the student must have met the following requirements: (1) be over the age of 18, (2) be currently enrolled in the online business program at the university, (3) having completed a minimum of two online courses, and (4) be willing to sign the consent form that informed them of their rights as a participant in a study using human subjects.

The collection of the data took place in December 2015. The data collected from the survey were stored on the secure server until the time of the analysis, at which point the researcher downloaded the data file to a personal, password protected computer for conducting the analysis.

Data Analysis

The data collected online were exported into the Statistical Package for the Social Sciences (SPSS) which was used for the purpose of data manipulation and analysis.

Descriptive statistics were used to summarize and organize the data. Specifically, frequency and percentage distribution tables, measures of central tendency, and measures of variability were reported. Skew coefficient was used to examine the normality of the distributions. For the skewed distributions, median was reported as the most appropriate measure of central tendency.

Cronbach's Coefficient Alpha was used to estimate the reliability (internal consistency) of the leadership frames (Crocker & Algina, 1986). Specifically, $\alpha = [k/k\text{-}1][1\text{-}(\Sigma\sigma_i^2/\sigma_x^2)]$, where k is the number of items on the test, σ_i^2 is the variance of item i, and σ_x^2 is the total test variance (sum of the variances plus twice the sum of the co-variances of all possible pairs of its components, that is, $\sigma_x^2 = \Sigma\sigma_i^2 + 2\Sigma\sigma_{ij}$).

A univariate repeated measures analysis of variance was employed to test the differences among the four leadership frames. The sphericity assumption was tested using the Huynh-Feldt Epsilon and Greenhouse-Geisser Epsilon. This assumption requires that the variances of differences for all pairs of repeated measures to be equal; if the average of the two Epsilon values is greater than .70, the sphericity assumption is met (Stevens, 2009). Modified Tukey procedure was performed for the purpose of post hoc analysis. The calculation employed the following formula: $HSD = q_{\alpha;k,(n-1)(k-1)} \sqrt{MSRES/n}$, where (n-1)(k-1) is the error degrees of freedom and MSRES is the error term (Stevens, 2009).

The independent variables and the outcome measure were continuous in nature. Hierarchical Multiple Regression Analysis (HMRA) was used to explain the variation in the GPA. The Variance Inflation Factor (VIF) was examined to determine if multicollinearity existed. Outliers on predictor variables was examined, using the Hat Elements test; $h = 3p/n$, where $p = k + 1$, and k is the number of predictors. Any case with greater than the critical h must be examined to determine if it could bias the results. Cook's Distance was used to locate influential cases, which is identified by the value greater than one. Standardized Residuals were examined to identify outliers on the outcome measure; any case greater than three in absolute value is considered an outlier (Pedhazur & Schmelkin, 1991). The bivariate associations, using Pearson's Product-Moment Correlation Coefficient (Field, 2013) between each of the independent variables and dependent variable were obtained and ranked from the highest to the lowest. The predictor variables were entered into the regression equation, one at a time, on the basis of the strength of the simple association with the outcome measure to examine the unique and combined contributions in explaining the variation (Pedhazur & Schmelkin, 1991).

A multivariate analysis of variance (MANOVA) was performed to test whether there were statistically significant mean differences among the learning styles on the basis of the EI competencies. According to Field (2013), MANOVA is a type of multivariate analysis used to analyze data that involve more than one dependent variable at a time. Box's M was used to test the equality of covariance matrices assumption.

A one-way analysis of variance (ANOVA) was used to test the GPA differences among the learning styles (Field, 2013). Levene's F was used to test the homogeneity of variances assumption. Tukey procedure was used for the purpose of post hoc analysis.

CHAPTER IV

RESULTS

The purpose of the study was to examine the relationship between emotional intelligence and academic achievement. To accomplish this goal, a correlational study was conducted. The study was guided by the following research question: To what extent does a business student's level of emotional intelligence, as measured by interpersonal, leadership, self-management, and intrapersonal competencies, explain academic success in online business courses? Specifically, the following null hypothesis was tested: emotional intelligence, as measured by interpersonal, leadership, self-management, and intrapersonal competencies, does not explain academic success in online business courses.

The study took place in a single university in Texas. The university was established in 1875. At the time of conducting the study, its student population was approximately 10,000, and offered 47 Bachelor's, nine (9) Associate, and seven (7) Master's degree programs. The university has regional campuses, including one in San Antonio, TX, which was the study's setting.

Description of the Sample

The non-probability sample consisted of 198 undergraduate students, enrolled in an online business program in a university in Texas. The male (48.50%) and female (51.00%) students were similarly represented. Whites (38.40%) were the largest ethnic group, followed by Hispanics (34.30%) and African Americans (20.20%). The academic classification of the students was as follows, freshman (1.50%), sophomore (32.30%), junior (34.80%), and senior (27.80%). In terms of learning style, 42.90% of the respondents described themselves as Accommodator, followed by Converger (23.20%), Diverger (21.70%), and Assimilator

(10.60%). A typical participant was 30 years old, had completed eight (8) online courses, and

had a grade-point-average (GPA) of 3.50. The GPA was the study's outcome measure. Results

are summarized in Tables 1 and 2.

Table 1

A Profile of Subjects, Categorical Variables, n = 198

Variable		F	%
Gender	Male	96	48.50
	Female	101	51.00
	Missing	1	00.50
Ethnicity	White, non-Hispanic	76	38.40
	Hispanic	68	34.30
	African American	40	20.20
	Asian	6	3.00
	Other	6	3.00
	Missing	2	1.00
Academic classification	Freshman	3	1.50
	Sophomore	64	32.30
	Junior	69	34.80
	Senior	55	27.80
	Missing	7	3.50
Learning style	Accommodator	85	42.90
	Converger	46	23.20
	Diverger	43	21.70
	Assimilator	21	10.60
	Missing	3	1.50

Table 2

A Profile of Subjects, Continuous variables, n = 198

Variable	Mean	Median	Mode	SD
Age in years	30.43	28.00	26.00	7.90
Number of online courses completed	8.81	8.00	4.00	5.57
GPA	3.51	3.50	3.50	0.34

Predictor Variables

The participants completed the 63-item ESQ, using a 3-point scaling ((0 = least like or descriptive of the respondent, 1 = sometimes like or descriptive of the respondent and sometimes not, and 2 = most like or descriptive of the respondent). The respondents' responses to the 63 items are presented in Table 3.

Table 3

Frequency and Percentage Distributions of Responses to the ESQ, n = 198

Item	Response	F	%
Situation: When I am really angry at someone:			
I usually feel some tension, but comfortable in expressing exactly what is on my mind exactly what is on my mind.	Most like you	70	35.40
	Sometimes like you	100	50.50
	Least like you	28	14.10
I usually think "Okay, I'm angry and	Most like you	69	34.80
	Sometimes like you	94	47.50
	Least like you	34	17.20
I usually behave by expressing what is bothering me, and working to achieve a constructive	Most like you	68	34.30
	Sometimes like you	91	46.00
	Least like you	37	18.70
Situation: When someone is really angry at me:			
I usually feel tension and the right to understand the person's anger by responding directly.	Most like you	29	14.60
	Sometimes like you	130	65.70
	Least like you	37	18.70
I usually think that I have the right and need to understand the person's anger at me and to respond directly to resolve the conflict.	Most like you	47	23.70
	Sometimes like you	106	53.50
	Least like you	45	22.70
I usually behave by asking for a further explanation of the anger and dealing with the feelings in a straightforward manner.	Most like you	49	24.70
	Sometimes like you	111	56.10
	Most like you	35	17.70
Situation: When I communicate to an "Authority" person:			
I usually feel comfortable and straightforward in my approach to the person	Most like you	80	40.40
	Sometimes like you	104	52.50
	Least like you	0	00.00

Table 3 Continued			
Item	Response	F	%
I usually think that my needs are legitimate, and okay to express in a straightforward manner.	Most like you	88	44.40
	Sometimes like you	95	48.00
	Least like you	0	00.00
I usually behave comfortably and at ease with the person	Most like you	78	39.40
	Sometimes like you	107	54.00
	Least like you	0	00.00
Personal Leadership			
I am confident in my ability to be comfortable and effective in communicating with other people.	Most like you	124	62.60
	Sometimes like you	68	34.30
	Least like you	4	02.00
I am comfortable with all kinds of people	Most like you	99	50.00
	Sometimes like you	81	40.90
	Least like you	16	08.10
My relationships with others are smooth and comfortable	Most like you	76	38.40
	Sometimes like you	103	52.00
	Least like you	19	09.60
I can tell how friendly I can be with a stranger	Most like you	31	15.70
	Sometimes like you	105	53.00
	Least like you	60	30.30
My voice is variable and clear, and I am easily heard by others	Most like you	112	56.60
	Sometimes like you	77	38.90
	Least like you	9	04.50
I know when it is okay for me to put my hand on another person's shoulders	Most like you	27	13.60
	Sometimes like you	101	51.00
	Least like you	69	34.80
I listen to and really understand another person's feelings	Most like you	84	42.40
	Sometimes like you	106	53.50
	Least like you	8	04.00
I am the kind of person that people are really able to talk to about personal problems.	Most like you	80	40.40
	Sometimes like you	104	52.50
	Least like you	14	07.10
My friends tell me that I am an understanding person.	Most like you	90	45.50
	Sometimes like you	95	48.00
	Least like you	13	06.60

Table 3 Continued

Item	Response	F	%
I understand and am patient with someone who is experiencing a lot of emotions.	Most like you	83	41.90
	Sometimes like you	100	50.50
	Least like you	14	07.10
I am a caring person, and people seem to sense this in me.	Most like you	119	60.10
	Sometimes like you	76	38.40
	Least like you	3	01.50
I accurately feel what another person feels	Most like you	50	25.30
	Sometimes like you	91	46.00
	Least like you	55	27.80
I am a good decision maker.	Most like you	121	61.10
	Sometimes like you	75	37.90
	Least like you	1	00.50
My decisions are usually accepted as "good" by the persons affected.	Most like you	75	37.90
	Sometimes like you	105	53.00
	Least like you	17	08.60
When faced with an important decision, I am not overly anxious about making a wrong choice.	Most like you	95	48.00
	Sometimes like you	92	46.50
	Least like you	10	05.10
My friends and co-workers ask me for help in making important decisions.	Most like you	58	29.30
	Sometimes like you	101	51.00
	Least like you	37	18.70
I make a decision and act rather than worrying about the alternatives and becoming tense.	Most like you	69	34.80
	Sometimes like you	114	57.60
	Least like you	13	06.60
I follow an established process that guides me in making important decisions.	Most like you	36	18.20
	Sometimes like you	105	53.00
	Least like you	57	28.80
I have a good ability to help others solve problems.	Most like you	82	41.40
	Sometimes like you	99	50.00
	Least like you	15	07.60
When a group that I am in needs a spokesperson, I am usually elected.	Most like you	19	09.60
	Sometimes like you	115	58.10
	Least like you	63	31.80

Table 3 Continued

Item	Response	F	%
I am a good leader	Most like you	119	60.10
	Sometimes like you	72	36.40
	Least like you	4	02.00
I "take charge" of a situation when I need to.	Most like you	89	44.90
	Sometimes like you	96	48.50
	Least like you	11	05.60
When I really feel strongly about something, I am influential in gaining agreement in a group.	Most like you	98	49.50
	Sometimes like you	89	44.90
	Least like you	10	05.10
I feel comfortable about approaching another person with the idea of selling him/her something.	Most like you	117	59.10
	Sometimes like you	74	37.40
	Least like you	6	03.00

Self-management in Life and Career

Item	Response	F	%
I set priorities and meet objectives effectively	Most like you	68	34.30
	Sometimes like you	111	56.10
	Least like you	19	09.60
When I begin a difficult task, I am motivated more by the thought of success than by the thought of failure.	Most like you	90	45.50
	Sometimes like you	98	49.50
	Least like you	8	04.00
I feel that my present work is satisfying.	Most like you	118	59.60
	Sometimes like you	72	36.40
	Least like you	7	03.50
I have more than enough energy to get me through the day.	Most like you	130	65.70
	Sometimes like you	56	28.30
	Least like you	11	05.60
I have a strong desire to be a success in the things I set out to do.	Most like you	37	69.20
	Sometimes like you	57	28.80
	Least like you	4	02.00
I set daily goals for myself.	Most like you	45	22.70
	Sometimes like you	114	57.60
	Least like you	38	19.20
I am an efficient and well organized person.	Most like you	57	28.80
	Sometimes like you	117	59.10
	Least like you	22	11.10

Table 3 Continued

Item	Response	F	%
I plan and complete my work on schedule.	Most like you	65	32.80
	Sometimes like you	94	47.50
	Least like you	38	19.20
I set objectives for myself and then successfully complete them within a specific time frame.	Most like you	56	28.30
	Sometimes like you	92	46.50
	Least like you	46	23.20
I control my responsibilities rather than being controlled by them.	Most like you	65	32.80
	Sometimes like you	118	59.60
	Least like you	13	06.60
I effectively work on several projects at the same time with good results.	Most like you	96	48.50
	Sometimes like you	92	46.50
	Least like you	10	05.10
I waste very little time.	Most like you	117	59.10
	Sometimes like you	75	37.90
	Least like you	4	02.00
People admire my ability to accomplish what I set out to do.	Most like you	48	24.20
	Sometimes like you	122	61.60
	Least like you	28	14.10
Even when I encounter personal difficulties, I complete assignments and obligations.	Most like you	93	47.00
	Sometimes like you	98	49.50
	Least like you	4	02.00
In almost any area that I go into, I really do well.	Most like you	117	59.10
	Sometimes like you	75	37.90
	Least like you	5	02.50
I rarely fail at anything that I consider important.	Most like you	97	49.00
	Sometimes like you	93	47.00
	Least like you	6	03.00
I have a solid feeling of confidence in my ability to create a good life for myself.	Most like you	143	72.20
	Sometimes like you	49	24.70
	Least like you	5	02.50
I am considered a dependable person.	Most like you	155	78.30
	Sometimes like you	37	18.70
	Least like you	1	00.50

Table 3 Continued

Item	Response	F	%
Intrapersonal development			
I trust my ability to size up a situation.	Most like you	115	58.10
	Sometimes like you	80	40.40
	Least like you	3	01.50
I am excited about myself and the potential that I have to develop as a person.	Most like you	119	60.10
	Sometimes like you	74	37.40
	Least like you	3	01.50
I feel in control of my life.	Most like you	78	39.40
	Sometimes like you	111	56.10
	Least like you	9	04.50
I am an open, honest, and spontaneous person.	Most like you	138	69.70
	Sometimes like you	54	27.30
	Least like you	3	01.50
I like myself, and I feel very comfortable with the way I am as a person.	Most like you	140	70.70
	Sometimes like you	52	26.30
	Least like you	5	02.50
For me, anything is possible if I believe in myself.	Most like you	144	72.70
	Sometimes like you	44	22.20
	Least like you	10	05.10
Even when I try to enjoy myself and relax, I feel a lot of pressure.	Most like you	7	03.50
	Sometimes like you	51	25.80
	Least like you	140	70.70
My friends often say that I look worried, tense or uptight.	Most like you	4	02.00
	Sometimes like you	31	15.70
	Least like you	162	81.80
I have become extremely nervous and tense at times, and doctors have advised me to slow down and relax.	Most like you	4	02.00
	Sometimes like you	18	09.10
	Least like you	172	86.90
I am impatient with myself and others, and I am usually pushing to hurry things up.	Most like you	3	01.50
	Sometimes like you	36	18.20
	Least like you	156	78.80

Table 3 Continued

Item	Response	F	%
I often feel that I have little control over what I think, feel and do.	Most like you	5	02.50
	Sometimes like you	29	14.60
	Least like you	162	81.80
I feel tense and pressured by the way I have to live.	Most like you	5	02.50
	Sometimes like you	26	13.10
	Least like you	166	83.80

The means of the respondents' responses to the 63 EQS were used to rank the items from the highest to the lowest. Table 4 shows the results.

Table 4

Ranking of the Emotional Skills Items, n = 198

Item	Mean*
I am considered a dependable person.	1.80
I have a solid feeling of confidence in my ability to create a good life for myself.	1.70
I am an open, honest, and spontaneous person.	1.69
I like myself, and I feel very comfortable with the way I am as a person.	1.69
For me, anything is possible if I believe in myself.	1.68
I have a strong desire to be a success in the things I set out to do.	1.67
I am confident in my ability to be comfortable and effective in communicating with other people.	1.61
I am a good decision maker.	1.61
I have more than enough energy to get me through the day.	1.60
I am excited about myself and the potential that I have to develop as a person.	1.59
I am a good leader	1.59

Table 4 Continued

Item	Mean*
I am a caring person, and people seem to sense this in me.	1.59
I waste very little time.	1.58
In almost any area that I go into, I really do well.	1.57
I trust my ability to size up a situation.	1.57
I feel that my present work is satisfying.	1.56
I feel comfortable about approaching another person with the idea of selling him/her something.	1.56
My voice is variable and clear, and I am easily heard by others	1.52
I usually think that my needs are legitimate, and okay to express in a straightforward manner.	1.48
I rarely fail at anything that I consider important.	1.46
Even when I encounter personal difficulties, I complete assignments and obligations.	1.46
When I really feel strongly about something, I am influential in gaining agreement in a group.	1.45
I usually feel comfortable and straightforward in my approach to the person	1.43
I effectively work on several projects at the same time with good results.	1.43
When faced with an important decision, I am not overly anxious about making a wrong choice.	1.43
I am comfortable with all kinds of people	1.42
I usually behave comfortably and at ease with the person	1.42
When I begin a difficult task, I am motivated more by the thought of success than by the thought of failure.	1.42
I "take charge" of a situation when I need to.	1.40
My friends tell me that I am an understanding person.	1.39

Table 4 Continued

Item	Mean*
I listen to and really understand another person's feelings	1.38
I understand and am patient with someone who is experiencing a lot of emotions.	1.35
I feel in control of my life.	1.35
I have a good ability to help others solve problems.	1.34
I am the kind of person that people are really able to talk to about personal problems.	1.33
My decisions are usually accepted as "good" by the persons affected.	1.29
My relationships with others are smooth and comfortable	1.29
I make a decision and act rather than worrying about the alternatives and becoming tense.	1.29
I control my responsibilities rather than being controlled by them.	1.27
I set priorities and meet objectives effectively	1.25
I usually feel some tension, but comfortable in expressing exactly what is on my mind exactly what is on my mind.	1.21
I am an efficient and well organized person.	1.18
I usually think "Okay, I'm angry and need to deal with it constructively."	1.18
I usually behave by expressing what is bothering me, and working to achieve a constructive resolution working to achieve a constructive resolution.	1.16
I plan and complete my work on schedule.	1.14
My friends and co-workers ask me for help in making important decisions.	1.11
People admire my ability to accomplish what I set out to do.	1.10
I usually behave by asking for a further explanation of the anger and dealing with the feelings in a straightforward manner.	1.07

Table 4 Continued

Item	Mean*
I set objectives for myself and then successfully complete them within a specific time frame.	1.05
I set daily goals for myself.	1.04
I usually think that I have the right and need to understand the person's anger at me and to respond directly to resolve the conflict.	1.01
I accurately feel what another person feels	0.97
I usually feel tension and the right to understand the person's anger by responding directly.	0.96
I follow an established process that guides me in making important decisions.	0.89
I can tell how friendly I can be with a stranger	0.85
I know when it is okay for me to put my hand on another person's shoulders	0.79
When a group that I am in needs a spokesperson, I am usually elected.	0.78
Even when I try to enjoy myself and relax, I feel a lot of pressure.	0.33
I am impatient with myself and others, and I am usually pushing to hurry things up.	0.22
I often feel that I have little control over what I think, feel and do.	0.20
My friends often say that I look worried, tense or uptight.	0.20
I feel tense and pressured by the way I have to live.	0.18
I have become extremely nervous and tense at times, and doctors have advised me to slow down and relax.	0.13

*0 = least like you, 1 = sometimes like you, 2 = most like you

The 63 items measure 10 emotional skills. The raw data were used to compute the 10 skills. The mean scores were used to rank the skills from the lowest to the highest, as shown in Table 5. As can be seen in Table 3, the reliability coefficient for all 10 skills was high.

Table 5

Ranking of Emotional Intelligence Skills, n = 198

Dimension	# Items	Reliability Coefficient	Mean*	SD
Stress	9	0.91	0.21	0.38
Assertion	9	0.88	1.20	0.46
Social awareness	6	0.90	1.25	0.50
Decision-making	6	0.82	1.27	0.45
Time management	6	0.86	1.28	0.48
Empathy	6	0.90	1.34	0.50
Leadership	6	0.84	1.35	0.44
Drive strength	6	0.84	1.42	0.44
Commitment ethic	6	0.83	1.51	0.39
Self-esteem	6	0.87	1.59	0.42

*0 = least like you, 1 = sometimes like you, 2 = most like you

In addition to measuring the 10 emotional intelligence skills, the ESQ is used to measure four emotional intelligence competencies, namely, interpersonal, leadership, self-management, and intrapersonal. Interpersonal competency is defined by the ESQ scale of assertion. The leadership competency is defined by scales of social awareness and comfort, empathy, decision making, and leadership. Self-management is represented by the scales of drive strength, time management, and commitment. Lastly, intrapersonal competency is defined and measured by self-esteem and stress management. The four competencies were measured, ranked from the highest to lowest, and are presented in Table 6. The results indicated that self-management was

endorsed the most, followed by leadership, interpersonal, and intrapersonal. The reliability

coefficient ranged from 0.80 to 0.94.

Table 6

Ranking of the Four Emotional Intelligence Competencies, n = 198

Competency	# Items	Reliability Coefficient	Mean*	SD
Self-management	18	0.92	1.40	0.39
Leadership	24	0.94	1.30	0.40
Interpersonal	9	0.88	1.20	0.46
Intrapersonal	12	0.80	0.90	0.27

*0 = least like you, 1 = sometimes like you, 2 = most like you

A univariate repeated measures analysis of variance was performed to identify

differences among the four emotional intelligence competencies. The average of Greenhouse-

Geisser Epsilon (0.89) and Huynch-Feldt Epsilon (0.90) was greater than 0.70; thus the

sphericity assumption was met (Stevens, 2009). The mean differences were statistically

significant, $F(3, 591) = 129.98$, $p < .001$. Results are summarized in Table 7.

Table 7

Repeated Measures ANOVA Results for Emotional Intelligence Competencies, n = 198

Source	SS	df	MS	F	p
Emotional Intelligence Competency	27.78	3	9.26	129.98	< .01
Block	76.39	197	0.39		
Residual	42.10	591	0.07		

The Modified Tukey procedure was employed for the purpose of post hoc analysis.

Results showed that all pairwise comparisons were statistically significant.

Correlational Analysis

The Pearson Product Moment Correlation Coefficient was used to determine the direction and magnitude of the bivariate associations between each of the four emotional intelligence competencies, the predictor variables, and the GPA, the outcome measure. As can be seen in Table 8, all associations were statistically significant at the 0.01 level. Interpersonal competency had the highest correlation with GPA, followed by leadership, self-management, and intrapersonal competencies.

Table 8

Bivariate Correlations between Emotional Intelligence Competencies and GPA, n = 198

Competency	Pearson Correlation	p
Interpersonal	0.37	< .01
Leadership	0.36	< .01
Self-management	0.34	< .01
Intrapersonal	0.21	< .01

Regression Analysis

A Hierarchical Multiple Regression Analysis (HMRA) was performed. The average variance inflation factor (VIF) $[1.70 + 2.57 + 1.33 + 2.32]/4 = 1.98$ was greater than 1; thus, multicollinearity could not be ruled out. The critical Hat Element, h, was computed to be: $h = 3(5)/198 = 0.07$, and used to look for outliers on independent variables. There were four outliers. Since their removal did not affect the results, they were not excluded from the HMRA. Cook's Distances measures ranged from 0.00 to 0.07, indicating that there were no influential data points. Standard Residuals ranged from -2.75 to +1.92, indicating that there were no outliers on the dependent variable. In short, the data were suitable for regression analysis.

The predictor variables were entered into the regression equation on the basis of the magnitude of the bivariate associations one at a time. Interpersonal was entered first and accounted for 1.40% of the variation, which was statistically significant, $F(1,196) = 31.86$, $p < 0.01$. Leadership was entered next and its unique contribution of 0.30% was statistically significant, $F(1,195) = 7.67$, $p < 0.01$. The contributions of self-management and intrapersonal competencies in explaining the variation in GPA were negligible and not statistically significant. The prediction model with two predictors was statistically significant, $F(2, 195) = 20.31$, $p < .01$. The prediction equation was GPA $= 3.06 + 0.18$(interpersonal) $+ 0.18$(leadership).

Analysis of Learning Styles in Relation to the EI and GPA

The respondents specified their preferred learning styles, choosing among Accommodator, Converger, Diverger, and Assimilator (Table 1). The four groups were compared on the basis of the four correlated EI competencies, using a MANOVA. The assumption of the equality of covariance matrices was met, *Box's M* $= 36.30$, $p = 0.26$. The group differences were statistically significant, *Wilks' Lambda* $= 0.86$, $p < .001$.   The post hoc analyses showed that the Assimilators had the highest scores on the interpersonal ($M = 1.37$, $SD = 0.44$) and intrapersonal ($M = 1.05$, $SD = 0.30$) competencies. Convergers had the highest scores on the leadership ($M = 1.46$, $SD = 0.32$) and self-management ($M = 1.57$, $SD = 0.30$) competencies. Divergers scored the lowest on the self-management ($M = 1.26$, $SD = 0.42$), intrapersonal ($M = 0.85$, $SD = 0.29$), and leadership ($M = 1.20$, $SD = 0.45$) competencies. Accommodators had the lowest interpersonal competency score ($M = 1.10$, $SD = 0.43$)

A one-way ANOVA showed that group differences on the basis of the GPA were also statistically significant among the learning styles, $F(3, 191) = 15.14$, $p < .001$. The homogeneity of variances assumption was met, *Levene's F* $= 1.22$, $p = 0.30$. Post hoc analyses showed that

Accommodators, the learning style which was endorsed the most, had the lowest GPA ($M =$ 3.36, $SD = 0.32$), compared to Assimilators ($M = 3.73$, $SD = 0.27$), Convergers ($M = 3.68$, $SD = 0.27$), and Divergers ($M = 3.52$, $SD = 0.31$); all differences were statistically significant.

Summary

The results indicated that the emotional competency of self-management was endorsed the most, followed by leadership, interpersonal, and intrapersonal. The best predictors of academic achievement, as measured by the GPA, were interpersonal and leadership EI competencies. Accommodator was the most popular learning style, followed by Converger, Diverger, and Assimilator. The EI and GPA differences among the learning styles were statistically significant.

CHAPTER V

SUMMARY, CONCLUSIONS, AND DISCUSSION

Students participating in online courses must successfully cope with the academic

challenges, given a lack of face-to-face interaction with faculty and other students, as well as the

lack of real-time and immediate feedback (Berenson et al., 2008). Research on the success of

online students has focused on the characteristics of students that predict success or failure in the

online learning environment. Of note, research has supported a relationship between learning

style and success in the online educational format, with strong independent learning styles

demonstrating greater success (Diaz, 2002; Singh, Singh, & Singh, 2009). In addition, specific

characteristics related to emotional intelligence, such as effort, internal locus of control, and

academic self-efficacy have also been shown to be related to online student success (Albritton,

2003; Berenson et al., 2008; Holcomb et al., 2004; Irizarry, 2002; Kemp, 2002; Parker, 2003).

Specific to business students, the EI is significant to the development of successful

leadership (Goleman, 2006; Harms & Crede, 2010; Lam & O'Higgins, 2012), supporting self-

awareness, self-management, and interpersonal, and intrapersonal skills toward more effective

communication and problem solving (Goleman, 1995). In addition to supporting the relationship

between the EI and academic success in online programs (Berenson et al., 2008), research has

also suggested the EI as a means of supporting development of transformational leadership

behaviors (Harms & Crede, 2010; Lam & O'Higgins, 2012), which may specifically support

greater success among business students. Elements of the EI, such as empathy, self-confidence,

self-awareness, and inter- and intra-personal skills, are felt to be key factors in the development

of transformational leadership and leadership success (Goleman, 1995; Goleman et al., 2002).

Thus, the EI may be a key factor in the success of students learning to become future business

58

leaders. Therefore, this study was focused on students enrolled in an online, undergraduate, business program.

The purpose of the study was to examine the relationship between emotional intelligence and academic achievement. To accomplish this goal, a correlational study was conducted. The research question that guided the study was: To what extent does a business student's level of emotional intelligence, as measured by interpersonal, leadership, self-management, and intrapersonal competencies, explain academic success in online business courses? The study took place in a university, offering an online undergraduate business degree program.   The non-probability sample consisted of 198 undergraduates, who completed an online survey consisting of the 63-item ESQ and a brief demographic questionnaire.

Summary of the Results

The 63 items of the ESQ were used to measure 10 emotional skill scales and four emotional competencies. A univariate repeated measures analysis of variance was performed, which showed statistically significant differences among the four emotional intelligence competencies. Among the four competencies, self-management was endorsed the most, followed by leadership, interpersonal, and intrapersonal. Within the self-management competency, the EI scale of commitment ethic was endorsed the most (ranked 2nd among the 10 emotional skill scales), followed by drive strength (ranked 3rd), and time management (ranked 6th). The second most endorsed competency was leadership, which was defined by the EI scales of social awareness, empathy, decision making, and leadership. Within the leadership competency, leadership was endorsed the most (ranked 4th), followed by empathy (ranked 5th), decision making (ranked 7th), and social awareness (ranked 8th). Interpersonal competency, comprised of the EI skill scale of assertion (ranked 9th) was ranked third. Lastly, the

intrapersonal competency, defined by EI skill scales of self-esteem (ranked first overall) and stress management (ranked last, or 10th), was ranked fourth.

Looking at correlations between the EI competencies and student achievement (GPA), all correlation coefficients were statistically significant. Interpersonal competency had the highest correlation with the GPA. This was followed by leadership, self-management, and intrapersonal competencies. Using regression analysis, the interpersonal competency and leadership competency were found to be the statistically significant predictors of achievement, accounting for 1.40% and 0.03% of the variance in the GPA, respectively. The contributions of self-management and intrapersonal competencies in explaining the variation in the GPA were negligible, supporting a prediction model using only the two predictors of interpersonal competency and leadership competency.

Learning styles were compared on the basis of the EI competencies and the GPA. Specifically, the four groups of learning styles (Accommodator, Converger, Diverger, Assimilator) were compared on the basis of the four EI competencies, using a MANOVA. Results showed statistically significant group differences, with Assimilators showing the highest scores on the interpersonal and intrapersonal competencies; Convergers showing the highest scores on the leadership and self-management competencies; Divergers showing the lowest on the self-management, intrapersonal, and leadership competencies; and Accommodators showing the lowest interpersonal competency score. A one-way ANOVA showed that group differences on the basis of the GPA were statistically significant among the four learning styles, with the Accommodators, the learning style which was endorsed the most, had the lowest GPA.

Conclusions

All EI competencies were correlated with the GPA as a measure of achievement, with a focus on the leadership and interpersonal competencies as predictors of student achievement in the study's online business program. Closer examination of the individual EI competencies, as well as student-reported preferred learning style(s), assisted in understanding the contribution of the EI to student success.

Discussion

In addressing the research question of the study, the results indicated significant associations between the EI and student achievement (as measured by GPA), with all four competencies being correlated to student achievement. These results align with prior research that supports a relationship between EI and student academic success (Swart, 1996; Van Rooy & Viswevaran, 2004). Indeed, Nelson et al. (2007) posited that emotional intelligence skills are key factors in personal, academic, and career excellence. More specifically, in this study, the interpersonal and leadership competencies of the EI were found to be significant predictors of student achievement in a sample of business students. These particular competencies are related to skills of leadership, empathy, decision-making, and social awareness (leadership competency), as well as assertion (interpersonal competency).

The first significant predictor of academic success, interpersonal competency, was described as wisdom related to human relationships (Nelson & Low, 2011). This competence is defined by the emotional intelligence scale of assertion, which involves effective communication, emotional self-control (involving self-awareness of emotions), and understanding and appreciating differences in others (Nelson & Low, 2011).

The second significant predictor of academic success, leadership competency, is closely

tied to the interpersonal competency. According to Nelson and Low (2011), leadership

competency can be defined as being people-oriented, understanding and respecting the needs,

values, and goals of others. Leadership competency is comprised of four EI scales, namely,

social awareness, empathy, decision making, and leadership. According to Nelson and Low

(2011), leadership is the ability to positively influence others, which may stem from the ability to

sense the emotions and/or reactions of others (Goleman, 1998). Positive influence, which creates

an environment that supports achievement and satisfaction, reflects positive self-esteem, moral

values, and confidence, characteristics that can be seen to contribute to academic success.

Individuals with empathy are able to put themselves in the situation of another and view

the issue through the other person's experience, allowing the individual to be approachable,

considerate, and able to recognize the needs of others (Goleman et al., 2002). As such, empathy

involves active listening and the ability to acknowledge different opinions (Gragg, 2008). The

decision-making EI scale represents an individual's ability to solve problems and resolve

conflicts.

The social awareness and empathy scales are interdependent and necessitate an assertive

communication (tying it to interpersonal competency) and interaction between reasoning and

emotions to support decision-making (Nelson & Low, 2011). Individuals with social awareness

have the ability to develop trust and good rapport in relationships that may allow them to have a

positive influence on others (Nelson & Low, 2011). On the other hand, because social awareness

skills encompass the ability to notice subtleties in nonverbal communication, such as body

language and emotional messages and tones within the words (Nelson & Low, 2011), it is

difficult to determine how this set of EI skills would be particularly beneficial in an online learning environment.

However, given the specificity of the students in this sample to an online business program, factors supporting business leadership skills (particularly transformational leadership skills) may also support academic achievement for this group. Therefore, relating these results to business leadership, the interpersonal competence assertion factor of self-control is critical for a leader to maintain emotional stability to support managing the emotions of others in a crisis (Goleman et al., 2002). Similarly, assertive communication is the ability to communicate one's thoughts clearly, honestly, and directly to others (Nelson & Low, 2011), allowing for effective and accurate expression of emotion and positive communication (George, 2000; Nelson & Low, 2011). Thus, leaders who master emotional self-control and assertive communication support a more trusting, comfortable, and fair environment (Goleman et al., 2002), characteristics common to transformational leadership. As such, the EI traits that support the development of transformational leadership skills, such as self-confidence, self-awareness, transparency, and empathy (Brown & Moshavi, 2005; Goleman et al., 2002; Nye, 2008), may support student academic achievement specific to business education.

In an attempt to understand these results in a manner in which they can be used to support student achievement, perhaps through teaching the pertinent EI skills, this discussion turns to the relationship with learning styles. From the literature, Kolb (1984) described Divergers as emotionally oriented, enjoying problem-solving and group interactions. The Diverger is imaginative, emotional, and sensitive to people, preferring to learn by feeling and watching. In contrast, the Assimilator tends to be logical, precise, and scientific, with a preference for working alone and learning through thinking and watching (Kolb, 1984). However, the results showed

that Divergers demonstrated the lowest scores in self-management, intrapersonal, and leadership competencies. Also interesting was that the Assimilators, who were described by Kolb as individuals who are not people-oriented and more logic-based, with strengths in inductive reasoning and construction of theoretical models, were found to score the highest in interpersonal and intrapersonal competencies. Convergers demonstrated the highest scores on leadership and self-management, aligning with leadership characteristics of being strong problem-solvers and decision-makers.

Although Accommodators were the lowest in interpersonal skills and had the lowest GPAs, they represented the mode (42.90%) of the sample. This may be why self-management competency (reflective of commitment, drive strength, and time management) was endorsed the most, over both leadership and interpersonal competencies, despite the more significant correlation and significant predictive relationships of both leadership and interpersonal competencies to student achievement (GPA). Because the self-management competency relates to setting and meeting goals, managing time and resources, and learning to be flexible, given unexpected demands (Nelson & Low, 2011), it indeed fits with the Accommodators learning style.

Given the correlation of the EI and student achievement, the findings support expected success among Assimilators and Convergers, who demonstrated generally higher EI scores in this study. This finding is somewhat contradictory to what one would expect, particularly as related to expectations for high EI among Diverger and Assimilator learning styles, given the stated traits and learning preferences described by Kolb (1985). The Assimilators were described as individuals who are not people-oriented and more logic-based, and the Convergers were strong problem solvers and decision makers, whereas the Diverger was described as

imaginative, emotional, and sensitive to people. Additional research in this area would support

greater understanding of the relationships between these variables.

Implications

Given the correlation between the EI and online business student achievement in the form

of GPA, the findings of this study support that students with higher levels of EI would be

expected to be more successful in the online business curriculum. However, this notion does not

necessarily align with learning styles that may be considered to possess greater EI. Therefore,

although leadership should support the enrollment of students demonstrating high levels of the

EI to support student achievement and potentially support retention among this student

population, this cannot necessarily be determined through assessment of learning styles.

Students demonstrating skills related to interpersonal and leadership EI competencies would be

expected to succeed, given the significant predictive relationship between these competencies

and GPA. These skills would include assertion (effective communication, emotional self-

control, and understanding differences in others), social awareness, empathy, decision making,

and leadership.

Prior research has suggested that the EI skills can be taught, supporting teaching EI to

improve the EI skills and emotional self-efficacy among university students; specifically,

improvement was noted in the EI skills related to understanding and managing emotions (Pool &

Qualter, 2012). According to Pool and Qualter (2012), EI courses should include activities that

specifically address three of the four levels of EI, namely, knowledge of emotions and strategies

to deal with emotional situations, actual abilities in relation to emotional functioning, and self-

efficicay. The fourth level of EI offered in the model was described as personality traits in

dealing with emotions, which was felt by the author to be unlikely to change. A literature search

revealed few examples of interventions aimed at increasing EI through education based on a sound theoretical framework. One example offered by Nelis, Quoidbach, Mikolajczak, and Hansenne (2009) was an undergraduate teaching intervention that consisted of four classes (2.5 hours each), taught each week and developed into activities based on the Mayer and Salovey (1997) model. The activities included short lectures, role plays, group discussions, and readings. The intervention was found to support significant improvement in perceiving and managing emotions (Nelis et al., 2009).

As such, implementation of the EI skills development program early in the online education program process could support greater success among the online business school learner. In addition, integration of the EI coursework in online business education aligns with the educational goals of leadership development for this group of learners, given the supported relationship between the EI and development of transformational leadership traits. The EI skill training can be beneficial to leadership development. In particular, training in skills related to the EI competencies of interpersonal and leadership may be beneficial to supporting student achievement. Additional research is needed to identify the optimal nature of EI instruction, particularly in an online environment.

Recommendations for Further Research

Given the proposed benefits of introducing the EI skills training to the online business curriculum as a means of supporting student achievement among online business students, further research is recommended to assess the effectiveness of such a program. The results of this study would support a curricular focus on teaching skills associated with interpersonal and leadership competencies of the EI, as these competencies demonstrated significant predictive relationships with student achievement. In addition, future research examining the potentially

interconnected roles of the EI, transformational leadership development, and student achievement in business education may suggest a mediating role of one of the variables, for example, examining the EI as a potential mediating variable on the impact of transformational leadership skills supporting student achievement in business. It would be beneficial to have a better understanding of the relationships between all three variables.

In addition, a similar study to the present research, using a more balanced distribution of learning styles would be important to understand how learning styles relate to the EI skills and student achievement. If identified, a correlation between the EI and learning styles among the online business student population could support a better understanding of what type of learner is most likely to succeed in online business educational environments.

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APPENDIX A

IRB PERMISSION

TAMUCC

3. Continuing Review: The protocol must be renewed each year in order to continue with the research project. A Continuing Review Application, along with required documents must be submitted 45 days before the end of the approval period, to the Research Compliance Office. Failure to do so may result in processing delays and/or non-renewal.

4. Completion Report: Upon completion of the research project (including data analysis and final written papers), a Completion Report must be submitted to the Research Compliance Office.

5. Records Retention: All research related records must be retained for three years beyond the completion date of the study in a secure location. At a minimum these documents include: the research protocol, all questionnaires, survey instruments, interview questions and/or data collection instruments associated with this research protocol, recruiting or advertising materials, any consent forms or information sheets given to participants, all correspondence to or from the IRB or Office of Research Compliance, and any other pertinent documents.

6. Adverse Events: Adverse events must be reported to the Research Compliance Office immediately.

7. Post-approval monitoring: Requested materials for post-approval monitoring must be provided by dates requested.

APPENDIX B

IRB PERMISSION

PARK UNIVERSITY

Dear Mr. Goodwin and Dr. DeJong:

On December 1, 2015, the Park University Institutional Review Board (IRB) reviewed the research proposal entitled "Assessing the Link Between Emotional Intelligence and Online Student Achievement", with the tracking number 30November2015_570998_1. I am pleased to tell you that the IRB approves your proposal, and that work on the project may begin. This approval is for a period of one year from the date of this letter and will require continuation approval if the research project extends beyond November 30, 2016.

If you make any changes to the protocol during the period of this approval, you must submit a revised protocol to the Park University IRB for approval before implementing the changes.

We appreciate your interest in conducting research at Park. If you have any questions regarding the IRB's decision, please contact IRB Chair Brian Shawver at (816) 584-6474.

Sincerely,

Nicholas S. Miceli, Ph.D.

EMOTIONAL SKILLS QUESTIONNAIRE (ESQ)

Online Consent Form

You are being asked to participate in an online survey. Please read the following. If there are any questions, you may contact the principal investigator:

Bill Goodwin
Cell phone: 361.442.4570
E-mail: William.goodwin@park.edu

Description: I understand that the purpose of the study is to examine the relationship between emotional intelligence and academic success in online courses?

Confidentiality: I understand that the identity of the respondents and individual responses will remain confidential. If the results are published or presented at a scientific meeting, the identity of the participants will not be disclosed.

Compensation: I understand that participation in the study will not cost me anything and that I will not receive any money for my participation.

Risks and Benefits: I understand that completing the survey bears no risk and does not benefit me directly; however, my participation may benefit research in the field of emotional intelligence.

Right to Withdraw: I understand that I am free to withdraw my consent and stop participating in the study at any time without penalty or loss of benefits for which I may be entitled.

Voluntary Consent: I certify that I have been informed about the study's purpose, procedures, possible risks and benefits. Additionally, I know that if I have any questions about my rights as a research participant, I can contact the compliance officer at Texas A&M University – Corpus Christi at irb@tamucc.edu.

By checking this box, I voluntarily agree to participate in the study and am authorizing the use of my responses for research purposes. Checking the box serves as an electronic signature.

PART ONE: EMOTIONAL SKILLS ASSESSMENT PROCESS

You will be completing an honest assessment of current emotional abilities and skills in 4 separate and related sections. Helpful hints: Your first response is your best response. Let your feelings decide the best response for you. Think of each statement as it relates to you in the setting you feel needs most improvement, for example, your job, family, relationships, etc. Be totally honest. Respond to each statement and mark your response.

2 = most like or descriptive of you

1 = sometimes like or descriptive of you and sometimes not

0 = least like or descriptive of you

SECTION I: INTERPERSONAL COMMUNICATION UNDER STRESS

Situation: When I am really angry at someone…

1. **I usually feel** some tension, but comfortable in expressing exactly what is on my mind.
2. **I usually think** "Okay, I'm angry and need to deal with it constructively."
3. **I usually behave by** expressing what is bothering me, and working to achieve a constructive resolution.

Situation: When someone is really angry at me…

4. I usually feel tension and the right to understand the person's anger by responding directly.
5. I usually think that I have the right and need to understand the person's anger at me and to respond directly to resolve the conflict.
6. I usually behave by asking for a further explanation of the anger and dealing with the feelings in a straightforward manner.

Situation: When I communicate to an "Authority" person…

7. I usually feel comfortable and straightforward in my approach to the person.
8. I usually think that my needs are legitimate, and okay to express in a straightforward manner.
9. I usually behave comfortably and at ease with the person.

SECTION II: PERSONAL LEADERSHIP

10. I am confident in my ability to be comfortable and effective in communicating with other people.
11. I am comfortable with all kinds of people.
12. My relationships with others are smooth and comfortable.
13. I can tell how friendly I can be with a stranger.
14. My voice is variable and clear, and I am easily heard by others.
15. I know when it is okay for me to put my hand on another person's shoulders.
16. I listen to and really understand another person's feelings.
17. I am the kind of person that people are really able to talk to about personal problems.
18. My friends tell me that I am an understanding person.
19. I understand and am patient with someone who is experiencing a lot of emotions.
20. I am a caring person, and people seem to sense this in me.
21. I accurately feel what another person feels.
22. I am a good decision maker.
23. My decisions are usually accepted as "good" by the persons affected.
24. When faced with an important decision, I am not overly anxious about making a wrong choice.
25. My friends and co-workers ask me for help in making important decisions.
26. I make a decision and act rather than worrying about the alternatives and becoming tense.
27. I follow an established process that guides me in making important decisions.
28. I have a good ability to help others solve problems.
29. When a group that I am in needs a spokesperson, I am usually elected.
30. I am a good leader.
31. I "take charge" of a situation when I need to.
32. When I really feel strongly about something, I am influential in gaining agreement in a group.
33. I feel comfortable about approaching another person with the idea of selling him/her something.

SECTION III: SELF MANAGEMENT IN LIFE AND CAREER

34. I set priorities and meet objectives effectively.
35. When I begin a difficult task, I am motivated more by the thought of success than by the thought of failure.
36. I feel that my present work is satisfying.
37. I have more than enough energy to get me through the day.
38. I have a strong desire to be a success in the things I set out to do.
39. I set daily goals for myself.
40. I am an efficient and well organized person.
41. I plan and complete my work on schedule.
42. I set objectives for myself and then successfully complete them within a specific time frame.
43. I control my responsibilities rather than being controlled by them.
44. I effectively work on several projects at the same time with good results.
45. I waste very little time.
46. People admire my ability to accomplish what I set out to do.
47. Even when I encounter personal difficulties, I complete assignments and obligations.
48. In almost any area that I go into, I really do well.
49. I rarely fail at anything that I consider important.
50. I have a solid feeling of confidence in my ability to create a good life for myself.
51. I am considered a dependable person.

SECTION IV: INTRAPERSONAL DEVELOPMENT

52. I trust my ability to size up a situation.
53. I am excited about myself and the potential that I have to develop as a person.
54. I feel in control of my life.
55. I am an open, honest, and spontaneous person.
56. I like myself, and I feel very comfortable with the way I am as a person.
57. For me, anything is possible if I believe in myself.
58. Even when I try to enjoy myself and relax, I feel a lot of pressure.
59. My friends often say that I look worried, tense or uptight.
60. I have become extremely nervous and tense at times, and doctors have advised me to slow down and relax.
61. I am impatient with myself and others, and I am usually pushing to hurry things up.
62. I often feel that I have little control over what I think, feel and do.
63. I feel tense and pressured by the way I have to live.

PART TWO: DEMOGRAPHIC INFORMATION

1. What is your age in years? ____

2. What is your gender?

   ____ Male

   ____ Female

3. What is your ethnicity?

   ____ Asian

   ____ African American

   ____ White, Non-Hispanic or Latino

   ____ Hispanic or Latino

   ____ Other

4. What is your academic classification?

   _____ Freshman

   _____ Sophomore

   _____ Junior

   _____ Senior

5. As of now, how many online course have you completed? _____

6. What is your grade point average? _____

7. Which of the following describes your learning style the best (select one)?

_____ Assimilator: Preferring sound logical theories to consider; focusing less on people and more interested in ideas and abstract concepts.

_____ Converger: Preferring practical applications of concepts and theories; preferring to experiment with new ideas, simulations, laboratory assignments, and practical applications.

_____ Accommodator: Preferring hands-on experiences; preferring to work with others to get assignments done, to do field work, and to test out different ways to complete a project.

_____ Diverger: Preferring to observe and collect a wide range of information; preferring to work in groups, to listen with an open mind, and to receive personalized feedback.

APPENDIX D: IRB APPLICATION
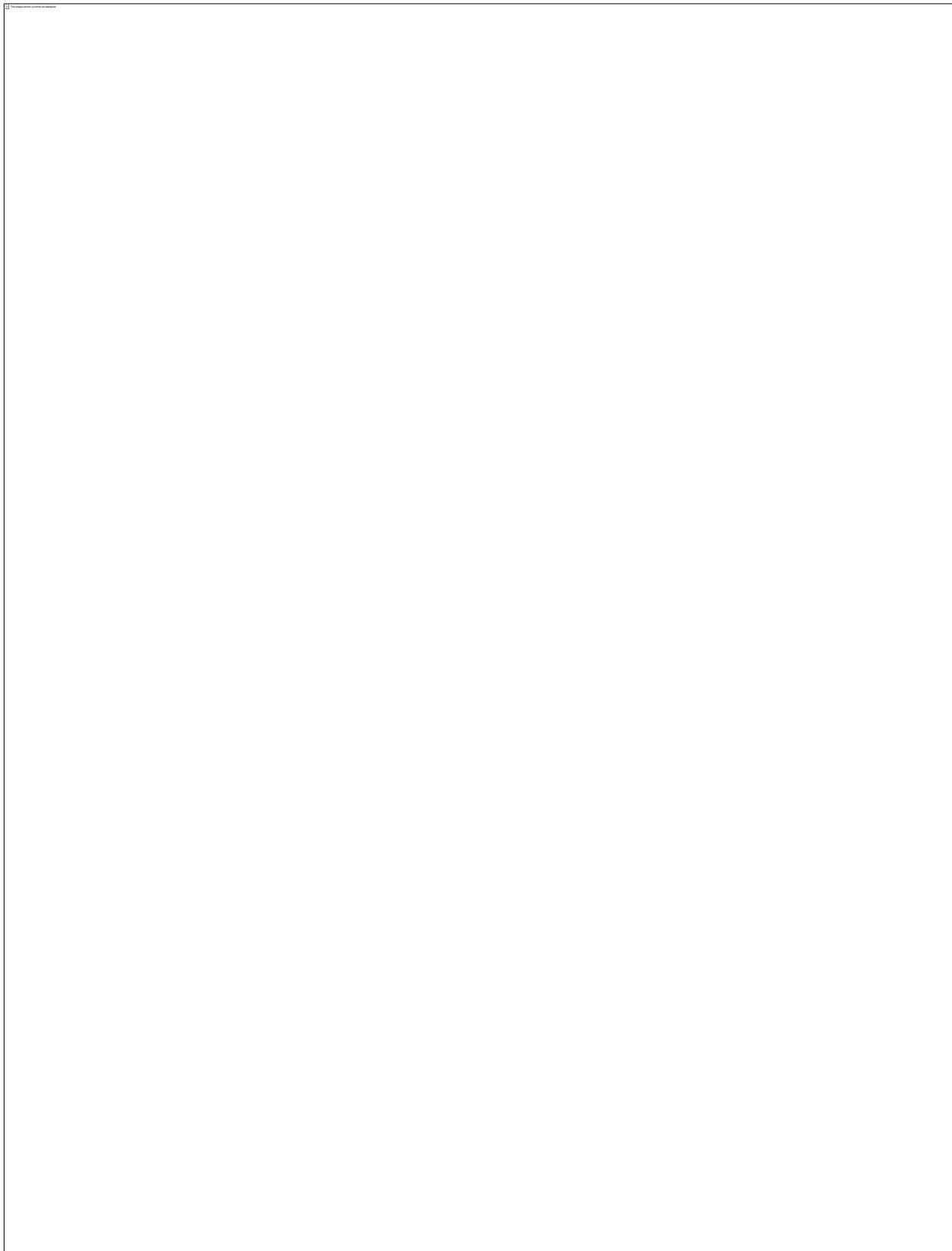
E. Starting Date: Upon IRB Approval   **F:** Estimated Completion Date: December 2016

PROJECT PURPOSE & OBJECTIVES

A. Describe Project Purpose. *Be specific and thorough.*

The purpose of the study is to examine the relationships between Emotional Intelligence (EI) and academic success (using GPA) in an online business program. Given the research evidence of significant positive relationships between EI and GPA (Singh et al., 2009), as well as evidence of EI as a significant predictor of GPA (Berenson et al., 2008), EI may correlate with GPA in a selected business school population, which has not been shown in the literature (Johnson, 2008; Suliman, 2010).

B. Describe Project Objectives and/or Research Questions. *Be specific and thorough.*

The study is guided by the following research question: To what extent does emotional intelligence, as measured by interpersonal, leadership, self-management, and intrapersonal competencies, explain academic success in online courses?

RESEARCH SUBJECTS & RECRUITMENT (Description, Source and Recruitment of Research Subjects)

A. Indicate whether the following populations will be specifically targeted for inclusion in the project. Inclusion and exclusion criteria needs to be described in detail in Section B. **Select Y or N for each participant category.**

Adults over the age of 18 (ABLE to legally consent)	Y ☒ N ☐	Prisoners (adults or juveniles)	Y ☐ N ☒
Adults over the age of 18 (UNABLE to legally consent)	Y ☐ N ☒	Participants whose first language is NOT English	Y ☐ N ☒
Individuals under the age of 18 (minors)	Y ☐ N ☒	Students enrolled in a researcher's course(s)	Y ☐ N ☒
Pregnant Women, fetuses, and/or neonates Note: Projects including this vulnerable population are *generally* health care/medical studies specifically targeting research of pregnant women, fetuses, and/or neonates. Pregnant women can be included in projects if all inclusion criteria is met and a specific exclusion is not part of the project design. Select "No" unless the project specifically involves the inclusion of pregnant women, fetuses, and/or neonates.	Y ☐ N ☒	Employees under the direct supervision of a researcher	Y ☐ N ☒

B. Describe the inclusion and exclusion criteria that will be used to define who is included or excluded in the final participant population (ex. minimum age, grade range, physical characteristics, learning characteristics, professional criteria, etc.)

A sample will be recruited from a population of students enrolled in an online business program from a single university, Park University. As of fall 2015, this program has approximately 500 students. In order to participate in the study, the student must meet the following criteria:
• Be at least 18 years old.
• Be currently enrolled in the online business program at the University.
• Have completed a minimum of two online courses.
• Be willing to sign a consent form.

Permission to conduct the study has been obtained from the Dean of College of Business at Park University (see attached). IRB approval from TAMUCC is required before submitting the IRB application to Park University.

C. Target number of participants (Include minimum target if a specific target is not appropriate for project design.)

The study consists of 4 predictor variables and 1 outcome measure. 80 - 100 subjects are needed if the squared multiple correlation coefficient is assumed to be .50 (Park & Dudycha, 1974). A convenience sampling will be used to recruit the participants for the study.

D. THIS SECTION MUST BE COMPLETED WHEN CONDUCTING RESEARCH AT OR RECRUITING PARTICIPANTS FROM NON-TAMUCC FACILITIES
NOTES:
1. Specifically name locations for research and/or recruitment of participants.
2. Written permission (email, letter, etc.) required for all non-TAMUCC locations. See IRB Forms website for specific permission requirements.
3. Written permission must be submitted with IRB protocol application.

Page 2 of 10

☐ N/A - Not conducting research or recruiting participants from non-TAMUCC facilities

Specify location(s) of project and/or recruitment of participants.
See notes for off-campus locations above.

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E. RECRUITMENT
NOTE:
Submit copies of all recruitment materials (emails, online postings, fliers, ets.) with IRB protocol application. Written scripts are needed for any verbal recruitment materials.

E(1). Describe the methods that will be used to identify pool of potential participants.

> The sample will be recruited from the population of students enrolled in an on-line business program at Park University in fall 2015. As of this writing, the program has approximately 500 students.

E(2). Describe when, where and how potential participants will be recruited.

> After obtaining the IRB approval, the PI will send an informational email to students enrolled in the on-line business program through the University's email. The email will provide the title and purpose of the study, requirements for participation, and the benefits and risks of participating in the study (see the attached). On-line faculty members will be asked to announce the research project to their students and inform them of the incoming email (see the attached). Interested students will be asked to follow a link to the on-line survey instrument. Prior to being forwarded to the survey, students will be asked to read and agree with the informed consent form.

E(3). Describe materials that will be used to recruit participants.
*See note above regarding submission of recruitment materials.

> An informational email to students enrolled in the on-line business program through the university email (see attached). On-line faculty members will be asked to announce the research project to their students, inform them of the incoming email, and inform them that their participation is voluntary in nature (see the attached).

E(4). Describe how materials to recruit participants will be distributed/how participants will be contacted (ex. online, via email, through faculty members, through a professional association, etc.). Include description of any assistance that will be needed to distribute recruitment materials (ex. listserv owners, faculty permission for classroom recruitment, etc.)

> Email notification will be sent to all enrolled business program students and faculty members will announce the study to students via the on-line class board or email (see the attached).

E(5). Describe the amount, source and timing(s) of any payment(s)/incentive(s) to participants, if applicable.

> There will be no incentives for participating in the study.

RESEARCH DESIGN, METHODS, & DATA COLLECTION/PROTECTION PROCEDURES

METHODS NOTE:
Submit copies of project materials with IRB protocol application (ex. survey, interview questions, data collection form, demographic questionnaire, etc.)

A. Select the appropriate description for data collection and project records below.
DEFINITIONS:
Anonymous: the collection of data in a manner where no one, including the researcher(s), will be able to identify the participant providing responses/data
Confidential: the collection of data in a manner where data may be linked to individual participants through the use of codes, audio/video recordings, or other identifiers

> Confidential ▾

B. Describe the study design including methods and procedures step-by-step in common terminology. Describe each procedure in detail, including frequency, duration and location of each procedure. The methods must be described completely and in detail (ex. type of data collected, how data will be collected, who will conduct interaction/data collection, etc.).

*For projects with multiple participant classifications (ex. students and teachers, athletes and coaches, etc.): Describe the study design including methods and procedures step-by-step for each classification of participants.

> A correlational research method is selected for the purpose of the proposed study. The purpose of the correlational design is to

E. Describe retention methods, including at a minimum how long project materials (including consent documents, project data, etc.) will be retained, format of storage (digital, paper, etc.), etc.

*Note: All project materials must be retained for a minimum of three years beyond the completion of the project. Completion of the project is defined as no longer collecting, using, studying or analyzing data.
*Note: Completion report must be submitted at the completion of the project. Please submit to IRB@tamucc.edu.

Project materials and data will be retained for a period of three years in compliance with IRB specifications. Materials will be stored in a locked filing cabinet of the researcher. Only the researcher will have access to the materials. all electronic materials will be stored on a USB flash drive and any paper copies of materials related to the study will be included in the locked file.

RISKS & PROTECTION MEANS

A. Select all levels of risk that apply to the project. **Select Y or N for each risk category.**

No risk	Y	☐	N	☒
Minimal risk Definition: the probability and magnitude of harm or discomfort anticipated in the research are not greater in and of themselves than those ordinarily encountered in daily life or during the performance of routine physical or psychological examinations or tests.	Y	☒	N	☐
Greater than minimal risk	Y	☐	N	☒

B. Describe each potential risk and the steps taken to protect human subject participants from the risk (ex. breach of confidentiality, possibly injury, psychological distress, pressure to conform, pressure to participate/coercion, etc.). Consider physical, psychological, social, legal and economic risk.

	Risk	Protection Mechanism
1.	Breach of Confidentiality	Only the PI & the dissertation committee chair will have access to the returned survey data which include the participant's demographic data and GPA in addition to the emotional intelligence data. Data will be collected online and personal identifiable data will not be collected. The data will be stored on the password-protected hard drive and locked in a cabinet.
2.	Possibility of pressure to participate/coercion	Although faculty will be asked to announce the study to their students, to avoid the perception of coercion or pressure to participate, the faculty member notification will specifically highlight the voluntary nature of the study, that participation will not impact the course grade in any way, and that the questionnaire responses will remain confidential.
3.	Potential for psychological or physical distress resulting from participation (taking the online survey)	Should the participant experience any psychological distress in responding to the questionnaire, the informed consent provides an explanation to every participant to discontinue participation at any time and to contact the researcher for outside/third party assistance/services if needed.
4.		
5.		
6.		
7.		
8.		
9.		

	Risk	Protection Mechanism
10.		

C. Describe the protection means specifically and how participants will be provided information regarding and gain access to any necessary outside assistance (ex. medical care, counseling, etc.) if available.

Means of protection will be explained at length in the informed consent form. Participants will be asked to discontinue participation in the study at any time, without consequence, if they feel discomfort, stress, or distress of any kind. Protection will include that the survey data will be collected online & with no personal identifiable information collected on the survey. Should participants require or request outside assistance, they will be asked to contact the researcher directly for assistance in obtaining those services.

BENEFITS

A. Describe the potential benefits individual participants may experience from taking part in the research, or note no potential benefits to individual participants. *Benefits DO NOT include payments/incentives for participation. See research subjects section for payments/incentives.*

There will be no direct benefits to participants in this study; however, participants will be contributing to a greater understanding of the factors that contribute to online student success in business school programs, which in some way may benefit them in the long term as business school students.

B. Describe the potential benefits to society, others and/or generalizable knowledge.

Benefits of this study to society will include gaining a better understanding of the factor of emotional intelligence as it relates to academic success in online business education. This may allow administrators and educators to better predict success in these programs and the appropriate placement of students in online, traditional, or blended learning classrooms to support greater retention and graduation rates.

INFORMED CONSENT PROCESS

CONSENT METHODS NOTE
Submit copies of all consent forms with IRB protocol application (ex. information sheet, online consent, signed consent, assent, parental consent, translated consents, etc.view questions, data collection form, demographic questionnaire, etc.)

A(1). Is a waiver of <u>signed</u> informed consent requested *(ex. information sheet, online consent, etc.)?* **Select Y or N for waiver of signed consent.**	Y ☐ N ☒	**A(2).** If yes, select the appropriate criteria from description at end of IRB protocol form.	C ▾

B. Describe methods for obtaining informed consent from human subject participants.

Be specific and thorough. At minimum, describe how researcher(s) will gain access to participants, how participants will be provided the consent documentation, in what format the consent will be provided, any discussion that will take place with participants, and methods of communication utilized to keep participants aware of their rights throughout the study, if applicable.

*Note:
(1) Participants must be given time to review the consent/informational documents and ask questions.
(2) Projects involving minors must include parental consent and a separate assent written at a level appropriate to the age group of participants. Parental consent must be available in English and Spanish when the possibility exists that English may not be the first language of parents/guardians.
(3) Information sheets should be utilized for exempt studies in which the only record of participants would be signed consent forms.
(4) The online consent template should be utilized as a guide for online survey consent.

Prior to being able to complete the survey, interested students will be asked to read agree with the consent form. If they do not consent, they will not be able to complete the survey. On the informed consent form, the researcher has provided his contact information, should the student have any questions about the study.

INVESTIGATOR(S) QUALIFICATIONS

A. Describe qualifications or attach CVs/resumes of ALL researchers and faculty advisers to conduct human subjects research.

The PI is a doctoral student in Educational Leadership at TAMUCC & has completed the on-line CITI course on protection of human research participants. The Co-PI, is a professor of quantitative methods in the College of Education at TAMUCC, chairs the dissertation committee, and has completed the CITI on-line course on the protection of human research participants.

SIGNATURES: INVESTIGATOR(S) RESPONSIBILITIES & CONFLICT OF INTEREST CERTIFICATION

RESPONSIBILITIES:

By complying with the policies established by the Institutional Review Board of Texas A&M University-Corpus Christi, the principal investigator(s) subscribe(s) to the principles stated in "The Belmont Report" and standards of professional ethics in all research, development, and related activities involving human subjects under the auspices of Texas A&M University-Corpus Christi. The principal investigator(s) further agree(s) that:

A. An amendment will be filed for review and approval will be received from the Institutional Review Board before making ANY changes are made in this research project.
B. Any adverse event will be immediately reported to the Institutional Review Board.
C. A continuation will be approved for expedited and full review studies BEFORE the protocol approval expiration date. The study will CEASE once approval expires unless a continuation is approved.
D. Signed informed consent documents and all project records will be kept for the duration of the project and for at least three years after the completion of the project at a location approved by the Institutional Review Board and as described in the protocol.

CONFLICT OF INTEREST:

All Principal Investigators and Co-Investigators must certify the Conflict of Interest Statement below and comply with the conditions or restrictions imposed by the University to manage, reduce, or eliminate actual or potential conflicts of interest or forfeit IRB approval and possible funding. This disclosure must also be updated annually (for expedited and full board reviews)when the protocol is renewed.

Carefully read the following conflict of interest statements and check the appropriate box after considering whether you or any member of your immediate family* have any conflicts of interest.

*Immediate family is considered to be a close relative by birth or marriage including spouse, siblings, parents, children, in-laws and any other financial dependents.

Financial conflicts of interest include:
a)   A financial interest in the research with value that cannot be readily determined;
b)   A financial interest in the research with value that exceeds $5,000.00;
c)   Have received or will receive compensation with value that may be affected by the outcome of the study;
d)   A proprietary interest in the research, such as a patent, trademark, copyright, or licensing agreement;
e)   Have received or will receive payments from the sponsor that exceed $5,000.00 in a specific period of time;
f)   Being an executive director of the agency or company sponsoring the research;
g)   A financial interests that requires disclosure to the sponsor or funding source; or
h)   Have any other financial interests that I believe may interfere with my ability to protect participants.

**PROVIDE DETAILS AS ATTACHMENT FOR ANY NON-FINANCIAL CONFLICT OR
FINANCIAL CONFLICT OF INTEREST RELATED TO THIS PROJECT.**

ALL INVESTIGATOR(S) AND ADVISOR(S) MUST SIGN THE PROTOCOL AND IDENTIFY WHETHER A FINANCIAL CONFLICT OF INTEREST EXISTS. The Principal Investigator should save a copy of the IRB Protocol Form after emailing the form to the Office of Research Compliance for review. Type the name of each individual in the appropriate signature line. Add additional signature pages if needed for all Co-Principal Investigators, collaborating and student investigators, and faculty advisor(s).

	Typed Name	Conflict of Interest (SELECT ONE)	Date
PI	William Goodwin	No conflict of interest with this proje ▾	9.17.2015
	PI Signature:		
Co-PI (1)	Kamiar Kouzekanani	No conflict of interest with this proje ▾	9.17.2015
	Co-PI (1) Signature: Kamiar Kouzekanani	Digitally signed by Kamiar Kouzekanani DN: cn=Kamiar Kouzekanani, o=TAMUCC, ou=Educatin, email=kamiar.kouzekanani@tamucc.edu, c=US Date: 2015.09.14 10:21:52 -05'00'	
Co-PI (2)		▾	
	Co-PI (2) Signature:		
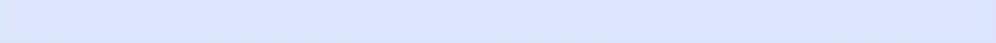
	Typed Name	Conflict of Interest (SELECT ONE)	Date
Co-PI (3)		▼	
Co-PI (3) Signature:			
Co-PI (4)		▼	
Co-PI (4) Signature:			
Co-PI (5)		▼	
Co-PI (5) Signature:			

Human Subject Research Categories

Please Note
The following types of studies do not qualify for exempt reviews and are subject to expedited or full reviews:
1) Studies involving a faculty member's current students
2) Studies involving the following and similar sensitive subject matters which can potentially cause discomfort and stress to the participant: Abortion, AIDS/HIV, Alcohol, Body Composition, Criminal Activity, Psychological Well-being, Financial Matters, Sexual Activity, Suicide, Learning Disability, Drugs, Depression

Studies involving audio taping and/or videotaping _DO NOT_ qualify for exempt review.

Exempt Review Categories

1) Research conducted in established or commonly accepted educational settings, involving normal education practices, such as (i.) research on regular and special education instructional strategies, or (ii.) research on the effectiveness of or the comparison among instructional techniques, curricula, or classroom management methods.

2) Research involving the use of educational tests (cognitive, diagnostic, aptitude, achievement), survey procedures, interview procedures or observation of public behavior, unless (i.) information obtained is recorded in such a manner that human subjects can be identified, directly or through identifiers linked to the subjects; and (ii.) any disclosure of human subjects' responses outside the research could reasonably place the subjects at risk of criminal or civil liability or be damaging to the subjects' financial standing, employability, or reputation.

3) Research involving the use of educational tests (cognitive, diagnostic, aptitude, achievement), survey procedures, interview procedures, or observation of public behavior that is not exempt under the previous paragraph, if (i.) the human subjects are elected or appointed public officials or candidates for public office; or (ii.) federal statute(s) require(s) without exception that the confidentiality of the personally identifiable information will be maintained throughout the research and thereafter.

4) Research involving the collection or study of existing data, documents, records, pathological specimens, or diagnostic specimens, if these sources are publicly available or if the information is recorded by the investigator in such a manner that subjects cannot be identified, directly or through identifiers linked to the subjects.

5) Research and demonstration projects that are conducted by or subject to the approval of federal department or agency heads, and that are designed to study, evaluate, or otherwise examine (i.) public benefit or service programs (ii.) procedures for obtaining benefits or services under these programs (iii.) possible changes in or alternatives to those programs or procedures; or (iv.) possible changes in methods or levels of payment for benefits or services under those programs

6) Taste and food quality evaluation and consumer acceptance studies (i.) if wholesome foods without additives are consumed or (ii.) if a food is consumed that contains a food ingredient at or below the level and for a use found to be safe, or agricultural chemical or environmental contaminant at or below the level found to be safe, by the Food and Drug Administration or approved by the Environmental Protection Agency or the Food Safety and Inspection Service of the U.S. Department of Agriculture

Expedited Review Categories

(1) Clinical studies of drugs and medical devices only when condition (a) or (b) is met.
a. Research on drugs for which an investigational new drug application (21 CFR Part 312) is not required. (Note: Research on marketed drugs that significantly increases the risks or decreases the acceptability of the risks associated with the use of the product is not eligible for expedited review.)
b. Research on medical devices for which (i) an investigational device exemption application (21 CFR Part 812) is not required; or (ii) the medical device is cleared/approved for marketing and the medical device is being used in accordance with its cleared/approved labeling.

(2) Collection of blood samples by finger stick, heel stick, ear stick, or venipuncture as follows:
a. from healthy, nonpregnant adults who weigh at least 110 pounds. For these subjects, the amounts drawn may not exceed 550 ml in an 8 week period and collection may not occur more frequently than 2 times per week; or
b. from other adults and children, considering the age, weight, and health of the subjects, the collection procedure, the amount of blood to be collected, and the frequency with which it will be collected. For these subjects, the amount drawn may not exceed the lesser of 50 ml or 3 ml per kg in an 8 week period and collection may not occur more frequently than 2 times per week.

(3) Prospective collection of biological specimens for research purposes by noninvasive means.
Examples: (a) hair and nail clippings in a nondisfiguring manner; (b) deciduous teeth at time of exfoliation or if routine patient care indicates a need for extraction; (c) permanent teeth if routine patient care indicates a need for extraction; (d) excreta and external secretions (including sweat); (e) uncannulated saliva collected either in an unstimulated fashion or stimulated by chewing gumbase or wax or by applying a dilute citric solution to the tongue; (f) placenta removed at delivery; (g) amniotic fluid obtained at the time of rupture of the membrane prior to or during labor; (h) supra- and subgingival dental plaque and calculus, provided the collection procedure is not more invasive than routine prophylactic scaling of the teeth and the process is accomplished in accordance with accepted prophylactic techniques; (i) mucosal and skin cells collected by buccal scraping or swab, skin swab, or mouth washings; (j) sputum collected after saline mist nebulization.

(4) Collection of data through noninvasive procedures (not involving general anesthesia or sedation) routinely employed in clinical practice, excluding procedures involving x-rays or microwaves. Where medical devices are employed, they must be cleared/approved for marketing. (Studies intended to evaluate the safety and effectiveness of the medical device are not generally eligible for expedited review, including studies of cleared medical devices for new indications.)

Examples: (a) physical sensors that are applied either to the surface of the body or at a distance and do not involve input of significant amounts of energy into the subject or an invasion of the subject's privacy; (b) weighing or testing sensory acuity; (c) magnetic resonance imaging; (d) electrocardiography, electroencephalography, thermography, detection of naturally occurring radioactivity, electroretinography, ultrasound, diagnostic infrared imaging, doppler blood flow, and echocardiography; (e) moderate exercise, muscular strength testing, body composition assessment, and flexibility testing where appropriate given the age, weight, and health of the individual.

(5) Research involving materials (data, documents, records, or specimens) that have been collected, or will be collected solely for nonresearch purposes (such as medical treatment or diagnosis). (NOTE: Some research in this category may be exempt from the HHS regulations for the protection of human subjects. 45 CFR 46.101(b)(4). This listing refers only to research that is not exempt.)

(6) Collection of data from voice, video, digital, or image recordings made for research purposes.

(7) Research on individual or group characteristics or behavior (including, but not limited to, research on perception, cognition, motivation, identity, language, communication, cultural beliefs or practices, and social behavior) or research employing survey, interview, oral history, focus group, program evaluation, human factors evaluation, or quality assurance methodologies. (NOTE: Some research in this category may be exempt from the HHS regulations for the protection of human subjects. 45 CFR 46.101(b)(2) and (b)(3). This listing refers only to research that is not exempt.)

(8) Continuing review of research previously approved by the convened IRB as follows:
a. where (i) the research is permanently closed to the enrollment of new subjects; (ii) all subjects have completed all research-related interventions; and (iii) the research remains active only for long-term follow-up of subjects; or
b. where no subjects have been enrolled and no additional risks have been identified; or
c. where the remaining research activities are limited to data analysis.

(9) Continuing review of research, not conducted under an investigational new drug application or investigational device exemption where categories two (2) through eight (8) do not apply but the IRB has determined and documented at a convened meeting that the research involves no greater than minimal risk and no additional risks have been identified.

Criteria for Waiver of SIGNED Consent

(c) An IRB may approve a consent procedure which does not include, or which alters, some or all of the elements of informed consent set forth above, or waive the requirement to obtain informed consent provided the IRB finds and documents that:

(1) The research or demonstration project is to be conducted by or subject to the approval of state or local government officials and is designed to study, evaluate, or otherwise examine: (i) public benefit or service programs; (ii) procedures for obtaining benefits or services under those programs; (iii) possible changes in or alternatives to those programs or procedures; or (iv) possible changes in methods or levels of payment for benefits or services under those programs; **and**

(2) The research could not practicably be carried out without the waiver or alteration.

(d) An IRB may approve a consent procedure which does not include, or which alters, some or all of the elements of informed consent set forth in this section, or waive the requirements to obtain informed consent provided the IRB finds and documents that:

(1) The research involves no more than minimal risk to the subjects;

(2) The waiver or alteration will not adversely affect the rights and welfare of the subjects;

(3) The research could not practicably be carried out without the waiver or alteration; and

(4) Whenever appropriate, the subjects will be provided with additional pertinent information after participation.