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Evidence of Emotional Intelligence in College Presidents' Public Writing: Does Their Emotional Intelligence Change Over Time?

A dissertation submitted in partial fulfillment
of the requirements for the degree of
Doctor of Education in Adult and Lifelong Learning

by

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ABSTRACT

Higher education (HIED) presidents face a wide variety of competing demands and pressures. High emotional intelligence (EI) has been found to be effective in good leadership, but few studies exist which examine HIED presidents' EI. This quantitative growth model study attempted to expand the understanding of EI and its source of change among HIED presidents.

Several conceptualizations link together in this study to better understand HIED presidents' EI. First, higher EI has been linked to strong leadership and strong communication. Studies show EI can change over time and EI is associated with certain demographic factors. Further, language, particularly written language, has been found to reveal characteristics of a persons' personality. Using Linguistic Inquiry and Word Count (LIWC), a person's personality through their writing can be effectively identified. LIWC has also identified writers' Big Five personality traits more frequently than their EI. Finally, because most EI assessments are widely criticized, this study used a categorical-dynamic index derived from the Big Five as an EI proxy.

This study examined the public writings of HIED presidents created every six months over 2.5-years to better understand EI, its change, and its moderators in HIED presidents. The study found that while EI was significantly different among HIED presidents, it did not significantly change over the 2.5 years. Further, while six moderators were examined, only institutional size was significant. Potential reasons for the lack of significance among these findings are that without targeted EI training, 2.5 years is not enough time to find a significant change in EI. In addition, the sample sizes within each moderator were too small to find significance. The hope is that this study will inspire other researchers to look further into HIED presidents' EI, presidents who feel like they can improve will seek EI training, and institutions of HIED will consider candidates' EI levels when selecting their next executive leader.

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CHAPTER 1: INTRODUCTION

College and university presidents invariably shape the direction and culture of their institutions, directly affecting the students, graduates, and future leaders under their guidance. These presidents experience numerous demands which make their jobs exceedingly difficult, often resulting in presidents leaving their institutions—sometimes not by choice. One way executives may mitigate these challenges is to better understand and develop their emotional intelligence (EI). Studies show the higher EI a leader possesses, the more effective their leadership, the better education students receive, and the less turnover organizations experience.

This study focuses on EI in higher education (HIED) presidents. Specifically, it examines whether presidents' EI changes over time, and, if so, which demographic factors are related to that change. This chapter provides an overview of EI and HIED leadership, and outlines why EI is critical for HIED leadership. It then identifies salient factors to EI's development and explains how the Big Five personality factors are related to EI and essential to this study's design. The chapter concludes by defining its terms and presenting the questions guiding the study.

Background of Study

EI is "the ability to perceive and express emotion, assimilate emotion in thought, understand and reason with emotion, and regulate emotion in the self and others" (Mayer & Salovey, 1997, p. 5). The idea of EI was introduced in 1909 by John Dewey and called *social intelligence*. Over the next 80 years, the concept and measurement of social intelligence fell in and out of favor among researchers. Not until 1990 did John Mayer and Peter Salovey coin the term *emotional intelligence*. Today, EI is both a popular concept and theory among researchers in psychology, education, organizational behavior, management, and other social science and

business disciplines. In 2022, more than half a million articles, books, dissertations, and other works reference EI in some regard.

EI has been identified as an important factor in effective leadership (Harms & Credé, 2010; Mattingly & Kraiger, 2018; O'Boyle et al., 2011). Studies find the higher one climbs within an organization, the more important EI is relative to both general intelligence and technical skill (Cherniss, 2010; Goleman, 1996; Stein et al., 2009). EI has also been significantly linked to charismatic and transformational leadership, two types of leadership commonly considered inspirational and motivational to employees (Freed, 2016; Worth, 2017).

Because EI can be developed over time (Goleman, 2006; Mattingly & Kraiger, 2018; Walter et al., 2011), organizations and leaders often encourage EI training. For some, EI is important to industry job skills, such as empathy to nurses (Mattingly & Kraiger, 2018). Because EI has also been shown to be useful in improving employee performance, morale, and leadership (Mattingly & Kraiger, 2018) reducing stress and improving health and performance (Lopes et al., 2006; Slaski & Cartwright, 2003); and increasing job satisfaction (Muyia & Kacirek, 2009; Sy et al., 2006; Turner & Lloyd-Walker, 2008), many leaders hope to use EI to improve workplace performance.

To a limited extent, EI has been found to be an important factor in HIED leadership. Research suggests effective HIED leadership is linked to high levels of EI (Borenstein, 2015; Bryman, 2009; Dulewicz & Higgs, 2003; George, 2000; Herbst, 2007; Rantz, 2002; Rowley & Sherman, 2003; Scott et al., 2008). Studies also show effective HIED leadership is especially linked to empathy, sub-component of the mixed EI model, (Bryman, 2007, 2009; George, 2000; Scott et al., 2008). Unfortunately, the research in this area is sparse. Of the 626,531 works that emerge from a search of the terms "leadership" and "emotional intelligence," only 15 evaluate EI

in American college presidents. Among these studies, few identify what is considered sufficient EI in college presidents or whether existing levels in HIED leaders have been found to be sufficient. As a result, numerous calls in the literature propose HIED leaders spend more time developing their EI (Coco, 2011; Gough, 2011; Ying & Ting, 2010).

The extant studies on HIED leaders' EI cover a variety of topics. Most evaluate the relationship between a president's EI and their demographic and institutional factors, employee retention, stress management, leadership style, and effective leadership practices. Most are cross-sectional, evaluating EI on only one occasion, as opposed to longitudinal, showing how EI changes over time (Burchinal et al., 2006; Liu et al., 2012). Further, most studies measuring EI in HIED use self-report assessments or ability assessments conducted by outside observers (Lopez-Zafra & Gartzia, 2014; Mayer, Roberts, & Barsade, 2008). With few studies available and little consensus among their findings, further research is needed.

Need and Purpose of the Study

HIED presidents face an array of leadership challenges. Former University of Texas chancellor William McRaven called the HIED presidency "the toughest job in the nation," a startling comment given he is a Navy SEAL, a retired four-star admiral, a former leader of America's Special Operations Command, and a planner and supervisor of the raid that killed Osama bin Laden (Kroger, 2018). The difficulty of the HIED presidential position often reveals how many HIED presidents are simply not prepared (Cooper, 2016). Emotional intelligence may be a key factor in understanding how some leaders succeed. To bolster our understanding of EI among HIED presidents, this study seeks to achieve four goals: 1) examine how EI changes among HIED presidents over time; 2) identify which demographic and institutional variables moderate HIED presidents' EI; 3) advance EI research through an analytic technique using

textual analysis; and 4) derive a Big Five/EI CDI proxy score for EI using a categorical-dynamic index (CDI) derived from the Big Five personalities.

Some demands pose particular challenges for HIED presidents. Presidents must respond to the conflicting needs of governing boards and local communities while managing increasing retirements (McNair et al., 2011; Stuart, 2016). Leaders at small and 2-year colleges especially struggle with budgetary constraints, state mandates, reduced support, outdated technology, and crumbling infrastructure (Basham & Mathur, 2010; Halbgewachs, 2018; McNair et al., 2011; Skinner, 2010). Leaders must address students' academic, fiscal, and emotional needs, and institutions' needs for greater shared governance on campus (Coco, 2011; Halbgewachs, 2018; McNair et al., 2011).

High turnover is also a pressing problem for HIED presidents. The average tenure of a 4-year HIED president in 2017 was 6.5 years compared to 8.5 in 2006 (Thomason, 2018), whereas in 2016 community college presidents averaged only 3.5 years (Cooper, 2016). *Inside Higher Ed*'s "2022 Survey of College and University Presidents" found 87% of 2- and 4-year presidents have led their institution for less than ten years, 75% have been president of any institution for less than five years (Jaschik & Lederman, 2022). Monks (2012) reports public university presidents are 52% more likely to resign within 5 years than private university presidents. In comparison, CEOs in the financial, retail, technology, healthcare, services, energy, consumer, and industrial industries have an average tenure of 7.2 years (Crist-Kolder Associates, 2019).

Increasing a president's EI may help alleviate some of these problems. Studies have found higher EI to be positively related to organization commitment and negatively related to stress (Gough, 2011; Petrides & Furnham, 2006). EI has also been shown to covary with job performance (Davar & Singh, 2014; Latif et al., 2017; O'Boyle et al., 2011), job satisfaction

(Wong & Law, 2002) and employee morale (Mencl et al., 2016; Miao et al., 2016; Singh, 2013). Research also suggests that higher EI in leaders may reduce workplace turnover (Brunetto et al., 2012; Feyerabend et al., 2018; Hong & Lee, 2016; Latif et al., 2017) and improve overall leadership (Barbuto & Burbach, 2006; Kent, 2006; Siegling et al., 2014). Because EI can be improved over time (Goleman, 2006; Mattingly & Kraiger, 2018; Walter et al., 2011), focusing interventions on EI development could result in increased campus stability, employee organizational commitment, student success, and presidential job satisfaction.

To improve EI, it is necessary to understand how it develops during a presidents' tenure and what factors are related to its development. Findings from this study may help maximize presidents' EI and positively influence its change. For example, if research shows EI is particularly low at the beginning of a president's tenure, EI training may be offered to beginning presidents. If EI is higher in older presidents than younger, efforts may be made to provide more EI training to younger presidents. If women are found to have higher EI than men, additional EI support may be offered to male presidents. Gender, age, educational level, and experiencing a life-altering event have been shown to be significant predictors of EI. Size, type, and rurality of the institution of which a president oversees has also been linked to EI levels. Identifying the relationship between these variables and a president's EI over time will provide a more detailed understanding of EI in college presidents and provide researchers the opportunity to examine these relationships in more depth.

By illuminating these relationships, this study helps address the deficiency in the EI literature among HIED presidents, specifically how their EI develops over time. Administrator EI has been widely examined in the business context (Goleman, 2006), but few studies have examined HIED presidents' EI (Golden, 2014). Many studies have also shown that EI can

increase over time (Goleman, 2006; Mattingly & Kraiger, 2018; Walter et al., 2011), but none have examined how this occurs in HIED presidents. Positively influencing presidents' EI may help address some of the HIED leadership problems; improve campus turnover, stability, and commitment; and better illustrate the importance of EI in HIED leadership, particularly in HIED presidents. In order to fully examine EI change over time in 2- and 4-year public HIED presidents, this study will employ longitudinal analysis via the use of a growth model.

The analytic technique used in this study will also help bolster the research base by providing researchers a new way to examine leaders' EI using textual analysis of public written communication. Many studies have used textual analysis to explore how writing can reflect one's level of emotions (Pennebaker, 2011) and even identify personality (Golbeck et al., 2011; Krieger, 2016; Mairesse et al., 2007; McDonnell, 2015; Pennebaker & King, 1999), but only three have examined written communication for EI (Graves et al., 2005; Pluth, 2011; Yoon, 2008) and none focused on HIED presidents. This matters because, as a previously existing resource, a president's past writings can psychometrically and objectively reflect characteristics of his or her personality.

This research also addresses criticism in the EI literature over the validity of self-report and ability measures. In self-report evaluations, individuals frequently misreport and misestimate their abilities (Brackett et al., 2006; Boyatzis & Saatcioglu, 2008; Boyd, 2017; Boyd & Pennebaker, 2017; Cherry et al., 2012; Gohm, 2004; Lopez-Zafra & Gartzia, 2014; Matthews et al., 2004; Tschannen-Moran & Carter, 2016; Walter et al., 2011), and some EI instruments are known to present biased measurements (Boyatzis & Saatcioglu, 2008; Boyd & Pennebaker, 2017; Cherry et al., 2012; Gignac et al., 2012; Lopez-Zafra & Gartzia, 2014; Mayer et al., 2001; Owen et al., 2006). Further, self-report and ability measures often fail to measure above and

beyond established measures of personality and cognitive intelligence (Amram, 2009), especially the Big Five (MacCann et al., 2003). Alternative EI measures are needed to address these criticisms and help researchers better understand EI development among presidents.

Findings from this study will be analyzed utilizing natural language psychometric textual analysis by employing the Linguistic Inquiry and Word Count (LIWC) software. Using LIWC, this study will longitudinally evaluate the EI of a sample of 2- and 4-year public college and university presidents in Southeast United States via their existing public writing. Writing samples will been collected every 6 months over a consecutive 3-year period from January 2015 through December 2019. Using this method will provide an alternative method to self-report and observation-based EI analysis. It will also be useful for researchers interested in further exploring the link between EI and HIED leadership and to current and prospective HIED leaders looking to improve their own EI.

This study will also develop an Big Five/EI CDI proxy score derived from the Big Five personality traits utilizing a categorical-dynamic index (CDI). Because EI has only been identified using LIWC software four times compared to the Big Five's 30 times, the LIWC variables for each of the Big Five personalities will be calculated and serve as an Big Five/EI CDI proxy score. This score will be created by identifying the LIWC variables for each of the Big Five personality types and using the literature to add and subtract those values in a formula, called a categorical-dynamic index (CDI), which will reflect presidents' EI. The proxy will be validated by a comparison to participants' scores on the TEIQue-SF, a highly reliable, standardized, self-report trait EI test (Petrides, 2009). The Big Five personality factors were chosen because the literature illustrates that the Big Five and EI often overlap (Zeidner et al., 2004) and the Big Five are a "commonly accepted personality model" comparison to EI (Freed,

2016). Links between the Big Five and EI are prevalent in the literature (Abbas & Khan, 2017; Bukhari & Khanam, 2014; Kappagoda, 2013; Petrides et al., 2010; Siegling, Furnham, & Petrides, 2015; van der Linden et al., 2012). Creating an EI proxy score through the Big Five may prove useful for researchers by helping them better understand EI and the Big Five's relationship and providing empirical support for the linguistic identification of EI.

Study Variables

This study is composed of one independent variable and one dependent variable. Seven moderating variables are also included to better understand the relationship between the independent and dependent variable. The independent variable in this study's context is *time*, defined as "the years of continuous service as a president" (Englert, 2008). The dependent variable *emotional intelligence* is defined as "the ability to perceive and express emotion, assimilate emotion in thought, understand and reason with emotion, and regulate emotion in the self and others" (Gowing, 2001, p. 85).

This study includes seven moderating variables. *Gender* is the sex of the president. *Age* is the president's age in years. *Educational level* is the level of formal education the president has achieved. *Life-altering event* may include personal life-changing events such as marriage, divorce, depression, even a major illness, or may reflect a dramatic event at the institution such as experiencing financial difficulties, having to fire a subordinate, or encountering difficult legal matters. Other moderating variables are based upon the institution. *Institutional size* refers to how many students an institution of HIED enrolls. *Institutional type* identifies the different types of institutions based upon their level of degrees granted and type of funding, whether private or public. Finally *institutional rurality* identifies how rural or urban an institution is.

Definition of Terms

The following terms will occur frequently in this study.

ability EI: A model of EI which presents EI as an intelligence instead of a personality trait. The ability concept of EI was developed by Mayer and Salovey (1997). It is usually measured by ability/performance EI tests.

Big Five/EI CDI proxy score: In this study, the score representing EI derived from the categorial dynamic index (CDI) formula composed of all five Big Five traits scores taken from LIWC categories and applied as identified in the literature.

college: The term used to refer to both colleges and universities, whether 2- or 4-year.

community college: The term used to refer to "any not-for-profit institution [of HIED] regionally accredited to award the associate in arts or the associate in science as its highest degree" (Cohen et al., 2013, p. 5). *See also* two-year college

corpus, plural, *corpora*: "A collection of written or spoken material in machine-readable form, assembled for the purpose of studying linguistic structures, frequencies, etc." (Oxford University Press, 2019).

emotional intelligence (EI) or (EQ): "The ability to perceive and express emotion, assimilate emotion in thought, understand and reason with emotion, and regulate emotion in the self and others" (Gowing, 2001, p. 85).

four-year college: "Bachelor's or higher degree granting institutions [of HIED]" (Indiana University Center for Postsecondary Research, 2015).

mixed method EI: A model of EI which presents EI as a "combination of intellect and various measures of personality and affect" (Joseph & Newman, 2010). Mixed EI is asserted by Bar-On and Goleman and assessed via self-report tests.

natural language: Language naturally occurring in humans as compared to artificial language ("Natural Language," 2018) such as that used by computers.

president: The term used to refer to the leader of an institution of HIED who reports to either a system president or a board. This individual may be termed the CEO or chancellor in practice and/or in the literature.

self-report: In this study, EI tests designed to measure one's level of EI by requiring the participant to report one's "perceptions about one's emotional competences, and not necessarily about actual competences" (Lopez-Zafra & Gartzia, 2014, p. 481).

time: The independent variable in this study. It refers to the length of time a president remains in office at one institution, sometime called *tenure* in the literature.

trait EI: A model of EI which presents EI as a "set of non-cognitive abilities, skills, and personal characteristics that affect the way in which individuals cope with environmental demands and pressures" (Day & Carroll, 2008). Trait EI was asserted by Bar-On and Goleman until the mixed definition was created and by Petrides and Furnham (2001). It is assessed by self-report.

two-year college: "Associate's degree granting institutions" (Indiana University Center for Postsecondary Research, 2015), also known as community colleges.

Statement of the Research Problem

The following research questions will guide this study:

1. Does average emotional intelligence in southeastern United States 2- and 4-year public college presidents differ between presidents?

2. Does emotional intelligence in southeastern United States 2- and 4-year public college presidents' public electronic written communication change with time? If so, what is the shape of the trajectory?
3. Does the trajectory of the emotional intelligence in southeastern United States 2- and 4-year public college presidents' public electronic written communication vary across presidents?
4. After controlling for presidents' background variables, do initial levels of emotional intelligence in southeastern United States 2- and 4-year public college presidents' vary as a function of
    a. gender,
    b. age,
    c. education level,
    d. experiencing a life-altering event,
    e. institutional type,
    f. institutional size,
    g. or institutional rurality?
5. After controlling for presidents' background variables, does emotional intelligence in southeastern United States 2- and 4-year public college presidents' public electronic written communication vary over time as a function of
    a. gender,
    b. age,
    c. education level,
    d. experiencing a life-altering event,

e. institutional type,

f. institutional size,

g. or institutional rurality?

Scope of the Study

This study sample will be composed of public 2- and 4-year college presidents in Southeast United States who have confirmed via a questionnaire that they have personally written the communication which appears on their college website, college newsletter, and/or presidential blog under their name. Some works may be written transcripts of speeches. These presidents will have published at least two written works of any identified type every 6 months consecutively for 3 years. The time period during which the presidents may have written these works is within a consecutive range of January 2015 and December 2019.

Limitations of the Study

This study is subject to the potential of quantitative coding to overlook deeper meanings within administrator's public correspondence which manual or qualitative coding may reveal (Aerts & Yan, 2017). By focusing only on written text, significant EI indicators are lost which occur in face-to-face communication, verbal inflection, and facial expression. Further, this study does not differentiate between an administrator's personal and the institution's life-altering events or cultural language norms. In some case, LIWC words are located in more than one category (Proyer & Brauer, 2018).

Because very few studies have linked LIWC variables with EI, LIWC variables for each of the Big Five personalities will be calculated and serve as a proxy for direct EI scores, although proxy scores are not exact replicas of EI.

In addition, some participants who are natural writers may have an advantage over presidents who are not. Further, some presidents' written correspondence may have been written or heavily edited by others despite questionnaire responses to the contrary. Finally, because writing has been shown to relieve stress, improve health, and help one identify one's thoughts and feelings (Abe, 2009; Andersson & Conley, 2013; Kirk et al., 2011; Lestideau & Lavallee, 2007; Lopes et al., 2006; Pennebaker, 2011; Troop et al., 2013), the intended population about which this sample is to generalize may not apply to every 2- or 4-year public college president across the United States. It is intended to represent those college presidents who write their own public correspondence who may naturally have more EI than presidents who are not so inclined.

Summary

Because presidents of institutions of HIED are important to future leaders, it is important they possess the capability to effectively lead their institutions. An essential component of leadership is working with others productively despite one's sway of emotions. Individuals with strong EI are able to control their emotions, among other abilities, providing for more effective self-regulation and self-management. An understanding of one's EI strengths and deficiencies is important to leadership.

To date, most measures of EI have been self-report or performance-based analysis which are highly criticized for their potential to be manipulated by respondents and these measures' expectation that all respondents answer questions in the same way. In addition, the cross-sectional evaluation of the majority of the studies does not offer an understanding of one's EI development over time. Therefore, the purpose of this study is to examine to what extent EI can be evaluated in the public written communication of 2- and 4-year HIED presidents in Southeast

United States, whether a leaders' EI changes over time, and which, if any, demographic variables contribute to presidents' EI changes.

Results from this study will be helpful in identifying strategies in which HIED presidents can improve their leadership and address issues at their institution. Further, support mechanism may be put in place by college governing boards, professional educational associations, and within educational institutions to helps better prepare presidents and other leaders increase their EI. This study may also provide an additional method of identifying EI through one's writing.

The remainder of this study is composed of 4 chapters. Chapter 2, the literature review, examines the EI literature. It includes EI theory, history, and criticism; conceptualizations of EI in leadership including higher ed leadership as well as conceptualizations of EI and written communication, EI change, EI psychometrics, and psychometrics from natural language. Finally, it includes conceptualizations of the connections between EI and the Big Five. Chapter 3, the study methodology, examines the study setting, effectiveness, reliability, and validity of the instruments including Linguistic Inquiry and Word Count (LIWC), the organization of the study, and the study measures. It also presents the study's sample size, power, setting, research questions, and hypotheses; the measurements for each variable; the data collection techniques; and the validity for each measure. Chapter 4 is the results of the study, and Chapter 5 provides discussion, implications, and recommendations.

CHAPTER 2: LITERATURE REVIEW

Introduction

Although much research exists on the importance of emotional intelligence (EI) in leadership, little examines higher education (HIED) presidents' EI. This chapter will review the current literature addressing the following concepts: 1) conceptualizations and empirical studies of EI and EI theory including a history of EI; 2) empirical studies for demographic and institutional factors; 3) conceptualizations and empirical studies of EI and leadership including EI in HIED presidents; 4) conceptualizations and empirical studies of EI in written communication; 5) conceptualizations and empirical studies of EI change; 6) conceptualizations and empirical studies of EI psychometrics; 7) conceptualizations and empirical studies of psychometrics from natural language; and 8) conceptualizations and empirical studies connecting EI and Big Five. The chapter will end with study hypotheses and summary.

EI and EI Theory

EI is a psychological theory which is important to most social science disciplines. It is defined by Mayer and Salovey as "the ability to perceive and express emotion, assimilate emotion in thought, understand and reason with emotion, and regulate emotion in the self and others" (1997, p. 5). This ability helps individuals self-motivate and mange their emotions and relationships (Phipps et al., 2014). Individuals with strong EI are better able to regulate their emotions, intervene and realign their moods, monitor others' feelings and emotions, and use information in their thinking and actions (Mayer & Salovey, 1995).

History of EI

EI as a subject was originally introduced by John Dewey in 1909 (Landy, 2006). In his book *Moral Principles in Education*, Dewey coined and defined the term *social intelligence*

which formed the basis of EI (Dewey, 1909). However, prominent educational psychologist Edward Thorndike is usually credited with its origination. In 1920, Thorndike conceptualized *social intelligence* in his article "Intelligence and Its Uses," the hallmark work which began the concept of EI. He was the first to view social intelligence as an intelligence and he divided intelligence into the ability to understand and manage three elements: 1) ideas, called *abstract intelligence*, 2) concrete objects, called *mechanical intelligence*, and 3) people, called *social intelligence*. He considered social intelligence the ability to "manage" others and "act wisely in human relations" (Kihlstrom & Cantor, 2011).

Despite two decades of research, though, social intelligence was dismissed by famed British psychologist Charles E. Spearman who in 1937 theorized the general factor of intelligence, *g*. Further, in 1960, American educational psychologist Lee Cronbach, who identified the method for determining reliability of tests, *Cronbach's alpha*, also dismissed it. The term *social intelligence* is rarely seen between 1940 and 1964, but its construct is found in terms such as *interpersonal perception*, *social insight*, and *social proficiency* (Landy, 2006).

In 1965, Joy Paul Guilford and his colleagues believed social intelligence was not, as Thorndike suggested, a single unified dimension but instead that many ways existed for one to be socially intelligent. They identified three separate factors of psychological ability corresponding with what O'Sullivan, one of Guilford's colleagues, described as personal perception or empathy and personal relationships. Based upon Guilford, O'Sullivan, and their colleagues' work, Cronbach reversed his previous dismissal of social intelligence in 1970. This analysis was the first movement toward accepting social intelligence in 50 years (Landy, 2006).

Today's concept of EI was developed in 1983. Howard Gardner's theory of multiple intelligences in his *Frames of Mind: The Theory of Multiple Intelligences* is significant in that it

increased interest in the idea of EI (Cherniss & Goleman, 2001). In 2010, Joseph and Newman proposed the concept of three EI models based upon Mayer, Roberts, and Barsade's (2008) three approaches: ability EI, trait EI, and mixed EI.

Even today, the construct of EI is considered to be in its youth (Antonakis et al., 2009). Neal Ashkanasy and Marie Dasborough stated EI research is continually appearing in the most rigorous and highly rated peer review journals in the psychology and management disciplines including *Academy of Management of Review*, *Journal of Applied Psychology*, *Leadership Quarterly* and, *Journal of Organizational Behavior* (Antonakis et al., 2009). In 2021, more than half a million articles, books, dissertations, and other works reference EI.

Theoretical Framework of EI Theory

Despite being a popular theory, finding one agreed-upon definition for EI is difficult (Van Rooy & Viswesvaran, 2004). Therefore, this research will center around EI trait's most common definition from Petrides (2013, p. 657): a "constellation of self-perceptions located at the lower levels of personality hierarchies." The following section describes the three models.

Ability EI

Ability EI is considered a mental ability; one's intelligence is based upon one's emotional aptitude and is separate from personality (Antonakis et al., 2009). Mayer defines ability EI as "the ability to carry out accurate reasoning about emotions and the ability to use emotions and emotional knowledge to enhance thought" (Mayer, Roberts, & Barsade, 2008, p. 511). Peter Salovey and John Mayer coined the term *emotional intelligence* (Cherniss & Goleman, 2001) in their 1990 article "Emotional Intelligence" which became a hallmark of EI theory. The ability EI model is considered the most widely accepted model (McCleskey, 2014) and Jordan et al. (2010) considered Mayer's ability EI definition and model the "gold standard" definition for all EI.

Trait EI

Where ability EI excludes personality, trait EI blends intelligence and personality. In 2001, Konstantinos V. Petrides and Adrian Furnham published the hallmark article "Trait Emotional Intelligence: Psychometric Investigation with Reference to Established Trait Taxonomies" in which they said EI is a collection of traits and self-perceived abilities. Trait EI "concerns people's perceptions of their own emotional abilities" (Petrides, 2013, p. 660). One reason trait EI theory is important is because it links EI to accepted psychological models such as the Big Five and the Giant Three (Petrides et al., 2010). Further, this linkage is very important when addressing new research in psychology for which no prior empirical literature exists (Sánchez-Ruiz et al., 2011).

Mixed EI

Mixed EI incorporates traditional components of EI as well as elements which some researchers do not consider facets of emotional reasoning such as motives, social styles, relationship abilities, qualities affecting the self, empathy, and control qualities (Gutiérrez-Cobo et al., 2017; Mayer, Roberts, & Barsade, 2008). Mixed EI is defined as "the *abilities to recognize and regulate emotions in ourselves and in others* [italics original]" (Cherniss & Goleman, 2001, p. 14). Only in 1996 was EI made popular to the general public through the publication of Daniel Goleman's book *Emotional Intelligence*: *Why It Can Matter More Than IQ*. That same year, Reuven Bar-On published the Emotional Quotient Inventory (EQ-i) EI test. Bar-On, like Goleman, viewed EI as a personality trait, not an intelligence.

Criticism of EI Theory

Despite its popularity and wide-spread acceptance, there is still much criticism about EI. Spector and Johnson (in Murphy, 2006, as cited in McCleskey, 2014) said of EI "there is perhaps

no construct in the social sciences that has produced more controversy in recent years" (p. 325). Most EI criticism addresses three areas: EI's definition, relevance to work outcomes, and measurement.

Criticism is widespread regarding EI's lack of a consistent definition (Matthews et al., 2004; Spector, 2005). McCleskey (2014) identified six different definitions of EI for the ability model alone, four of them from Mayer and Salovey. For mixed EI, definitions were cited in Bar-On (2006), Boyatzis (2009), Kaplan et al. (2010), and Zeider et al. (2009). Joseph and Newman (2010) further cited that the definition of mixed EI is often criticized for seeming to be based upon the exclusion of positive characteristics not typically considered a cognitive ability. Today, Joseph and Newman (2010) expressed their doubts about the certainty of the actual EI definition. Many researchers have called for the consolidation of EI into just one construct and definition (Cherniss et al., 2010; Jordan et al., 2010; McCleskey, 2014; Roberts, MacCann, et al., 2010; Roberts, Matthews, Zeidner et al., 2010). As far back as 1960, Cronbach dismissed social intelligence, the precursor of EI, due to its lack of an effective definition (Landy, 2006).

EI is also criticized for its lack of relevance to specific work outcomes (Antonakis et al., 2009; Côté & Miners, 2006; Jordan et al., 2014; Locke, 2005; Lopes et al., 2006; McCleskey, 2014; Newman et al., 2010; O'Boyle et al., 2011; Rosete & Ciarrochi, 2005; Spector, 2005). Jordan et al. (2014) examined three claims of EI related to workplace outcomes and found limited support. Matthews et al. (2004) expressed doubt that EI provided new ways for those working in the field to handle working problems. Antonakis (2004) and Antonakis (2009) reported that EI does not predict or negatively predicts leader-member relations while Antonakis et al. (2009) questioned whether EI is necessary for workplace leadership at all.

Finally, EI measurement has been plagued with criticism through its history. Fred A. Moss and Thelma Hunt were among the George Washington University psychology department members who in 1927 created the Social Intelligence Test, often referred to as the George Washington Test, the first measure of social intelligence and EI. Between 1949 and 1960, a variety of criticism is leveled at the test and Cronbach dismissed social intelligence in 1960 due to its lack of effective measurement (Landy, 2006).

Modern EI measurement is still criticized (Joseph & Newman, 2010; Matthews et al., 2004; Spector, 2005). Gutiérrez-Cobo et al. (2017) found weak correlations between the three models of EI. Conte and Dean (2006) found only weak to moderate validity in most EI tests and results were varied. Several sources call for more effective EI measurement tools: Antonakis and Dietz (2011), Antonakis et al. (2009), Cherniss (2010), Conte (2005), Conte and Dean (2006), Côté et al. (2010), Gignac (2010), Grubb and McDaniel (2007), Whitman et al. (2008). Joseph and Newman (2010) cited doubts about EI's incremental validity in organizational contexts beyond personality and cognition. Despite the criticism, EI still remains an important theory.

Empirical Studies for Demographic and Institutional Factors

Although concerns about the definition and measurement of EI continue, EI research has found associations between EI and several demographic factors. The literature indicates gender, age, years of experience, educational level, and time may predict EI (Mayer et al., 2004; Stami et al., 2018; Van Rooy & Viswesvaran, 2004). In addition, because institutional factors may influence one's emotional state (Colomeischi & Colomeischi, 2014) which in turn directly impacts one's EI, higher ed presidents' institutional type, size, and rurality may also be predictors.

Gender

Table 1 illustrates that most of the studies examining gender and EI find women have higher EI scores than men although some did not find any associations.

Table 1. Gender in EI

Study Results	Study
Women have higher EI scores than men	Austin et al., 2005; Austin et al., 2007; Brackett et al., 2004; Carrothers et al., 2000; Craig et al., 2009; Freed, 2016; Goldenberg et al., 2006; Hall & Mast, 2008; Harlak et al., 2008; Joseph & Newman, 2010; Jorfi et al., 2012; Luebbers et al., 2007; Mandell & Pherwani, 2020; Mayer & Geher, 1996; Mayer et al., 1999; Mayer et al., 2002; Ogińska-Bulik, 2005; Petrides & Furnham, 2001; Preece, 1999; Schutte et al., 1998; Tonioni, 2015; Tsaousis & Kazi, 2013; Van Rooy et al., 2005; Washington et al., 2013; Whitman et al., 2009; Winefield & Chur-Hansen, 2000
Gender not associated with EI	Abbas & Khan, 2017; Gilar-Corbi, Pozo-Rico et al., 2019; Goleman, 1996; Petrides & Furnham, 2001; Whitman et al., 2009
Empirical studies on gender	Craig et al., 2009; Depape et al., 2006; Fernández-Olano et al., 2008; Freed, 2016; Hall & Mast, 2008; Harlak et al., 2008; Harper, 2016; Hendon, 2016; Holm & Aspegren,1999; Kong, 2017; Lillis & Tian, 2009; Mandell & Pherwani, 2020; Mathur et al., 2005; Maundu, 2013; Mayer et al., 1999; Petrides & Furnham, 2001; Schutte & Loi, 2014; Shapiro et al., 2005; Stami et al., 2018; Tonioni, 2015; Tsaousis & Kazi, 2013; Washington et al., 2013; Winefield & Chur-Hansen, 2000

Communication differences are commonly found in men and women's writing. Women tend to communicate in a more personal fashion; their writing promotes social and emotional connections more than men's (Iosub et al., 2014; Laserna et al., 2014). Their writing also tends to be more empathetic than men's (Siriaraya et al., 2011) while men tend to communicate more about settings and logistics (Lin et al., 2016).

Gender is also important in HEID. The *American College President Study 2017* reported women are increasingly becoming HIED presidents, 30% as of 2016 (Gagliardi et al., 2017), 31% in 2019 (Jaschik & Lederman, 2019), and 37% as of 2020 (Jaschik & Lederman, 20 22). Of the women presidents surveyed, 58% led public institutions and 5% were women of color (Gagliardi et al., 2017). Many studies showed women have higher EI than men (see Table 1). EI has been linked to effective leadership (Maundu, 2013) and communication (Prati et al., 2003),

just as women have been linked to effective leadership (Harper, 2016) and communication (Iosub et al., 2014). Therefore, this study seeks to see if HIED presidents' gender is associated with EI and if that association changes over time.

Age

The majority of studies on EI and age indicate that as age increased, so did EI (see Table 2). However, some studies found that once an individual reached a certain age, EI did not increase (Gilar-Corbi et al., 2019). In others, EI began to decrease around age 65 (Derksen et al., 2002; Freed, 2016). Other studies did not find any connection.

Table 2. Age and EI

Study Results	**Study**
As age increases, EI increases	Bharamanaikar & Kadadi, 2016; Chapman & Hayslip, 2006; Derksen et al., 2002; Freed, 2016; Gardner & Qualter, 2011; Luebbers et al., 2007; Mayer et al., 1999; Palmer et al., 2003; Sliter et al., 2013; Tsaousis & Kazi, 2013; Weng, 2008; Weng et al., 2008
Age not associated	Ansari & Malik, 2017; Jensen et al., 2008; Pearson & Weinberg, 2017
Empirical studies on age	Freed, 2016; Kong, 2017; Maundu, 2013; Mayer et al., 1999; Schutte & Loi, 2014; Stami et al., 2018; Tsaousis & Kazi, 2013

Most research on EI and communication finds associations between EI and age. While Hendon (2016) found no effect of age, Zanini et al. (2005) found that as adults reached more advanced ages, the worse one's communication ability became, and cited many studies in the communication literature which reported the effects of age on linguistic performance. Duong and Ska (2001), Ostrosky-Solís et al. (1999), and Rosselli and Ardila (2003) also found age effected one's linguistic performance. Qiu et al. (2012) noted "language style may vary with age, gender and ethnicity" (p. 715).

The age of college presidents in the United States continues to rise. In 1986, the average age was 52; today it is 61 (Jaschik & Lederman, 2019), 62 according to the *American College President Study 2017* (Gagliardi et al., 2017). An important note regarding Derksen et al.'s (2002) and Freed's (2016) studies is 47% of HIED presidents are age 61-70 and another 11% are

71 and older (Gagliardi et al., 2017) up 5% from 5 years ago (Seltzer, 2017). The vast array of studies which indicate some type of association between EI, age, and communication merit the inclusion of this variable.

Educational Level

Educational level and EI are associated in the EI literature. Some studies indicated an individuals' educational level influenced one's EI (Maundu, 2013; Mayer et al., 2004; Mikolajczak & Van Bellegem, 2017; Stami et al., 2018; Turner & Lloyd-Walker, 2008; Van Rooy & Viswesvaran, 2004), EI may influence one's academic performance (Perera & DiGiacomo, 2015), and educational level and EI influence one's company rank (Lopes et al., 2006). Conversely, other studies show educational level had no influence on EI (Adams, 2013; Ansari & Malik, 2017).

In the communication literature, several studies found that one's communication was associated with one's education. Many studies cited the lower one's education, the worst one's linguistic performance (Cicekci et al., 2017; Duong & Ska, 2001; Ostrosky-Solís et al., 1999; Rosselli & Ardila, 2003; Zanini et al., 2005).

EI may also influence one's academic performance (Perera & DiGiacomo, 2015). The *American College President Study, 2017,* reported 80% of college presidents had a doctorate and 9% had a professional doctorate. Another 9% had a master's degree. The remaining 1% had other degrees beyond a bachelor's (Gagliardi et al., 2017). These numbers suggest college presidents have a fairly high EI level, but no study has examined this aspect of college presidents' EI. Therefore, because associations have been found between EI and education level, and between education level and communication, but not between EI and communication, and because this study examine a president's EI through their written communication, this study will

examine if an association exists between HIED presidents' education level and their EI changes over time.

Life-Altering Events

The literature indicates that experiencing a life-altering event can impact one's EI. Depression and suicidal events were strongly negatively linked to one's EI (Brackett & Mayer, 2003; Mehl et al., 2012; Pająk & Trzebiński, 2014; Pennebaker & Lay, 2002; Salguero et al., 2015; Stirman & Pennebaker, 2001). Experiencing traumatic events also influenced one's EI (Mehl et al., 2012; Pająk & Trzebiński, 2014; Pennebaker & Lay, 2002; Tausczik & Pennebaker, 2010) as did psychological responses to upheavals (Cohn et al., 2004; Mehl et al., 2012; Pennebaker & Lay, 2002). In most cases, personal trauma such as death of a loved one or a cancer diagnosis was linked with an EI decrease in EI. Other traumatic events, such as 9/11 or events suffered by a community, were often linked with an increase in EI as communities bonded (Pająk & Trzebiński, 2014).

A large body of research shows life-altering events can also effect one's communication. Not only is writing a therapeutic way to examine a life-altering event (Tausczik & Pennebaker, 2010; Wissman, 2009), but one's language, language style, words, and ability to speak may change, be reduced or expanded, even abandoned (Busch & McNamara, 2020; Lee et al., 2009) as a result of a life-altering event. Language itself can be used as a weapon as in hate speech, racists remarks, even silence, provoking trauma (Busch & McNamara, 2020). In some cases, a traumatic experience may cause one to unintentionally change his or her accent, even if the individual had never spoken in such a way before (Keulen et al., 2016). One's word choice can even be effected by relationships, success in therapy, proneness to heart disease, and longevity. A significant example of EI and life-altering events is the change in Rudy Giuliani's writing

style indicating a behavior change from impatient and angry to compassionate and "generally kinder" during his administration as New York City mayor (Pennebaker & Lay, 2002).

Like all people, HIED presidents and their performance at work may be personally impacted by life-changing events. Whether the event is something occurring in their personal life or in the workplace (Korschinowski, 2018), presidents experience life-altering events which may impact their workplace performance and leadership. Therefore, the life-altering event variable will be included in this study.

President's Institutional Factors

The institution at which one works has its own culture and norms. As the research surrounding the variable *life-altering events* shows, leaders' EI can be influenced by outside factors including those present at the institution at which they work and the community in which they live (Colomeischi & Colomeischi, 2014). Because such elements are so intertwined in a president's life and job, they need to be examined to see what type of association they have on a president's EI.

Institutional Type

Despite being institutions of HE, the differences between 2-year and 4-year colleges' and universities' students, mission, employees, even perception are vast and dramatically impact the executive leadership needed to successfully run the institution. For example, Flowers (2006) reported differences is student motivations and educational outcomes between students who attended 2-year and 4-year colleges. Kogan et al. (2015) reported bias among veterinary admissions officers against potential students who attended 2-year colleges versus 4-year. In Young's (2018) qualitative study of 2- and 4-year presidents, anecdotes illustrated the differences between the two types of colleges such as one 2-year president's comment that

connections were stronger in the 2-year college than at the 4-year. Hendrickson et al. (2013) and Rouse (2016) spend many chapters describing the vast array of influences an institution's culture, history, shared governance structures, leadership, mission, and other factors had on a single institution. Because the type of institution at which a HIED president works can make a tremendous difference on the work environment and president's needs, this variable will be included.

Institutional Size

Because institutions of HIED have a tremendous number of stakeholders, competing needs, and internal and external influences, the size of an institution can make a difference in a president's job. For example, institutional size is associated with HIED presidential turnover (Bernardin-Demougeot, 2008). Empirical research links institutional size with emotions (Maundu, 2013) and EI in superintendents (Adams, 2013; Maundu, 2013). A study by Schubert and Yang (2016) found smaller universities were better able to adapt to educational reforms and effective teaching activities and were also more fiscally efficient during rapid change. Because college presidents are so integrated into their institution, institutional size must be considered when evaluating presidents' EI.

Institutional Rurality

Workplace rurality, the degree to how rural an institution is compared to other institutions like it, makes a difference in employee happiness. Recall that emotions influence EI, as illustrated in the discussion on life-altering events. Much of the organizational research finds those who worked in rural areas were happier than those who worked in urban (Helliwell et al., 2019). The limited HIED literature found those who worked in rural colleges tended to be happier than those who worked in urban (Colomeischi & Colomeischi, 2014; McCann, 2018).

Raich (2013) reported several presidents who found their experience in the rural college more personal and community-centric than the urban. Only one study found no association between rurality and EI (Bernardin-Demougeot, 2008).

Communication is also different depending on whether it occurs in a rural or urban setting. In a study of rural and urban school nurses' communication with physicians, rural nurses expressed greater satisfaction with the level of communication at rural locations than urban (Volkman & Hillemeier, 2008). Hillemeier et al. (2007) found the same connection in Pennsylvania. Desjarlais-deKlerk & Wallace (2013) found the nature of rural and urban physician and patient communication more personal in rural settings than urban. In education literature, rural students were found to have more social capital—support relationships both inside and outside the nuclear family—than urban students (Li, 2019). A proposed explanation is that rural community members may have a more personal connection with each other than urban (Volkman & Hillemeier, 2008).

Because of the differences in need between rural and urban institutions, this study will investigate the importance of institutional rurality on a president's EI change.

Conceptualizations of EI and Leadership

Because emotions are often an integral part of employee, supervisor, and peer relations in leadership, the connection between EI and leadership is important. According to the EI and leadership literature, a leader's level of EI is especially helpful in addressing one's emotions or job performance and is significant to one's ability to be transformational and/or charismatic.

Historically, emotional factors and leadership have been connected. In 1934, Eichler reported a correlation between emotional self-control and leadership, and in 1944, Drake identified a significant connection between leadership and emotional constancy (Barrett et al.,

2019). In 1983, Hochschild examined the role of emotions in the workplace, specifically the effects of emotional labor in service industries (as cited in Van Rooy & Viswesvaran, 2004, p. 87). Today, because organizations have moved from an industrial model where individuals do individual tasks to a group model where groups work to achieve a common goal, emotional regulation is more important in leadership (Prati et al., 2003). In short, EI strengthens organizational behavior (Froman, 2010) .

The literature finds EI is important to effective leadership. George (2000) identified five essential elements of effective leadership which leaders with high EI may achieve: 1) develop collective goals and objectives; 2) instill appreciation and importance of work in others; 3) generate and maintain enthusiasm, confidence, optimism, cooperation, and trust; 4) encourage flexibility in decision-making and change; and 5) establish and maintain meaningful identity for the organization. Each of these links supported EI theory as perceived by Mayer and Salovey (1997): one's ability to recognize and appropriately respond to others' emotion while also recognizing and appropriately expression one's own emotion. In addition, several studies argue EI should be increased (Cherniss, 2000; Snuggs, 2006; van der Zee and Wabeke, 2004). Colfax et al. (2010) and Kerr et al. (2006) found effective global leaders had high levels of EI. Walter et al. (2011) stated one's EI research lent to a better understanding of leadership. Table 3 identifies which studies show EI is and is not a significant predictor of effective leadership.

Table 3. EI as a Significant Influencer of Leadership

Results	**Study**
Linked to Effective Leadership	Amram, 2009; Barbuto & Burbach, 2006; Batool, 2013; Campbell et al., 2010; Carrington, 2015; Chatterjee & Kulakli, 2015; Côté et al., 2010; Dasborough, 2006; Goleman, 1999; Herman, 2014; Hui-Wen et al., 2010; Jayakody & Gamage, 2015; Kearney et al., 2014; Kerr et al., 2006; Lam & O'Higgins, 2013; Mencl et al., 2016; Phipps et al., 2014; Rajah et al., 2011; Rosete & Ciarrochi, 2005; Sanz & Rivas Otero, 2018; Thompson & Miller, 2018; Van Rooy & Viswesvaran, 2004; Walter et al., 2011; Wang & Huang, 2009; Zaccaro et al., 2018

Table 3 (Cont.)

Results	Study
No connection	Cavazotte et al., 2012; Chatterjee & Kulakli, 2015; Føllesdal & Hagtvet, 2013; Jayakody & Gamage, 2015; Leban & Zulauf, 2004; Lindebaum & Cartwright, 2010; Macik-Frey, 2007

Barbuto and Burbach (2006) found several correlations between leadership effectiveness and EI in their study of 80 community leaders and 388 direct reports. Rockstuhl et al. (2011) found EI predicted general leadership effectiveness by 25.7%. Goleman (2000) found that competence models for the highest leaders in an organization was usually 80-100% EI ability. Of high performing leaders, Kent (2006) found 85% had high levels of EI, but only 15% had high IQ. Dasborough (2004) found individuals higher in EI were better able to manage their emotions and avoid being distracted by them during high emotional situations, thus being better able to lead (as cited in Antonakis et al., 2009, p. 253). Stein et al. (2009) found CEOs who possessed higher empathy, self-regard, reality testing, and problem-solving tended to lead companies that had higher profits. Côté et al. (2010) found ability EI was linked to leadership beyond gender and the Big Five personality traits. Siegling et al., (2014) found leaders had higher EI than non-leaders and trait EI was a significant predictor of leadership when controlling for age, gender, tenure, and cognitive ability. Sy et al. (2006) found the higher leaders' EI, the more satisfied employees with low EI were with their jobs than employees with high EI. O'Boyle et al. (2011) found EI was an important predictor of job performance. McCleskey (2014) stated the O'Boyle study was "the strongest evidence so far of the validity of EI as a construct related to leadership" (p. 81).

Strong EI enables leaders to more effectively manage their emotions. Since the early 2000s, trait theories of leadership have purported that leadership exists in an emotion-laden environment through the emotions of both leaders and subordinates (Antonakis et al., 2009). In fact, Ashforth and Humphrey (1995) argue that emotion is unable to be separated from

organizational work. According to Prati et al. (2003), individuals with higher EI were better able to communicate, emphasize, develop supportive and effective relationships, and think creatively and innovatively. Van der Zee and Wabeke (2004) found top managers had higher EI than other employees. Dasborough (2004) reported leaders' EI enabled them to handle emotions during a situation and focused on getting the job done (as cited in Antonakis et al., 2009, p. 252). Leaders with high EI tended to be more humane toward workers than those with lower, supporting employees instead of constantly critiquing or alienating them. Prati et al. (2003) proposed team leaders high in EI were able to stimulate motivation in their team. However, Antonakis argued that EI was little more than general intelligence, *g*, and in an exchange with psychology professors Neal Ashkanasy and Marie Dasborough dismissed EI in leadership (Antonakis et al., 2009).

A leader's EI may also improve employees' job performance. In his landmark book *Emotional Intelligence*, Daniel Goleman (2006) related EI to leadership, explaining leaders with high EI were more empathetic toward employees, resulting in a better work environment and experience for all. Gardner and Stough (2002) found senior managers with higher EI were better able to manage their positive and negative emotions, positively impacting employees' work motivation and achievement. Batool (2013) found leaders' EI positively impacted employee stress management, motivation, and productivity. A study by Zhang et al. (2018) illustrated that EI moderated the effects of stress on management decisions during a simulation game where management students acted as top management executives. Dasborough (2004) found individuals higher in EI were better able to manage their emotions during high emotional situations and avoided being distracted by them, thus being better able to lead (as cited in Antonakis et al., 2009, p. 253). Weng (2008) and Weng et al. (2008) found higher physician EI

increased the patient-physician relationship, patient trust, even physician-nurse relationships. Finally, O'Boyle et al. (2011) found job performance was significantly linked to EI.

The amount of EI leaders truly need may depend on their job. Goleman (2001) said the higher position one achieved in an organization, the more important EI became. Stami et al. (2018) explained individuals higher within an organization had higher EI scores in all dimensions than those employed at lower levels. Lopes et al. (2006) found similar results and found higher EI was linked to merit increases. Stein et al. (2009) found CEOs who possessed higher empathy, self-regard, reality testing, and problem solving tended to lead companies with higher profits. However, some leadership situations require less EI. Ashkanasy and Dasborough found leadership positions which required fewer emotional demands or lacked social situations as ones which may not require leaders with high EI (Antonakis et al., 2009; Van Rooy & Viswesvaran, 2004).

Finally, many sources argue that a leader's EI is sometimes more important than his or her IQ. According to Goleman (2001), IQ helped individuals identify into which field they should enter and technical skill enabled them to be hired, but as one executive at a global search firm said, "CEOs are hired for their intellect and business expertise—and fired for a lack of emotional intelligence" (qtd. in Goleman, 2006, p. xv). Goleman (2001) claimed EI mattered twice as much as both IQ and technical skills when it came to leadership. Further, Judge et al. (2004) used cognitive research theory to show a leader's IQ level was only important in low stress situations.

While not a part of this study, leader-member exchange theory (LMX) is important to EI and leadership development because it positively links employee job satisfaction and high morale, leaders with employees through personal interaction, and EI in the workplace. LMX

views leadership based upon the quality and type of interactions between leaders and subordinates, peers, or superiors and is concerned with leadership dynamics within an organization (Barbuto & Bugenhagen, 2009). Barbuto and Bugenhagen (2009) examined EI and LMX in 80 elected community leaders and 388 individuals who worked with them, finding a significant positive relationship between EI and follower LMX. In a longitudinal study of 285 supervisor/subordinate groups, Chen et al. (2012) found supervisors' ratings of employees' EI predicted LMX quality. LMX and EI fully mediated the relationship between transformational leadership and job performance in study of 226 managers at a large South African financial institution (Waglay et al., 2020). Fisk and Friesen (2012) found in a study of 126 employees that the quality of a supervisor's emotional regulation influenced the quality of supervisor/employee LMX.

Finally, many sources highlight the connections between one's EI and ability to be a transformational and/or charismatic leader (Barbuto & Burbach, 2006; Cavazotte et al., 2012; Guevara, 2008; Hur et al., 2011; Kalafut, 2016; Khalil, 2017; Lam & O'Higgins, 2013; Mandell & Pherwani, 2020; Mathew & Gupta, 2015; Newton, 2016; Vidic, 2007; Wang & Huang, 2009). A transformational leader is one who leads through inspiration, support, and personal growth instead of reward and punishment. Charismatic leaders, often confused with and overlapping with transformational leaders, have that special undefinable something which inspires others to follow them. They also often develop unconventional thoughts, actions, and/or strategies (Worth, 2017).

Because transformational and charismatic leadership often inspire and motivate employees, they are both associated with EI. Sosik and Megerian (1999) purport that the four behaviors of transformational leadership overlap with those of leaders with high EI: 1)

observing standards of professional behavior, often identified as charisma; 2) being motivated; 3) providing intellectual stimulation; 4) and focusing individually on each team member. Prati et al. (2003) stated that leaders motivated the team, were transformational influencers of the team, and charisma, influence, and motivation were all qualities of transformational leadership. George (2000) suggested transformational leadership was based upon emotions and Conger and Kanungo (1994) said charismatic leaders were especially sensitive to the needs of their subordinates. Prati et al. (2003) proposed team leaders high in EI were able to improve team performance through their "charismatic authority" and "transformational influence," understand their role within the team, moderate other personalities on the team, and influence the cohesiveness of their team through their level of EI. However, one criticism of transformational leadership was intention; Conger (1990) suggested because emotions were so integrated within transformational leadership, leaders may take advantage of those they influence.

Many empirical studies find that a leader's EI is significant to his or her ability to be inspirational leaders, characteristics found in transformational and charismatic leadership theory (Molenberghs et al., 2017). Freed (2016) found that EI significantly correlated with transformational leadership. Barling et al. (2000) found EI was linked to transformational leadership through three qualities: idealized influence, individualized focus, and inspirational motivation. Barbuto & Burbach (2006) found transformational leadership improved employee effort, satisfaction, and job performance. The study found stronger correlations between EI and transformational leadership in self-report EI surveys than in rater-based EI surveys. This is especially important because, according to Barbuto and Burbach (2006), "researchers know much more about [transformational leadership's] outcomes than about its antecedents." It is important to note that transformational leadership is still a fairly new concept and researchers

have called for more empirical studies (Bolman & Deal, 2013). Therefore, it is important to note that some studies did not find a correlation between EI and transformational leadership (Cavazotte et al, 2011; Harms, 2010; Kalafut, 2016).

EI in HIED Leadership

Research suggests effective leadership in HIED is linked to EI (Borenstein, 2015; Bryman, 2009; Dulewicz & Higgs, 2003; George, 2000; Herbst, 2007; Rantz, 2002; Rowley & Sherman, 2003; Scott et al., 2008), especially empathy (Bryman, 2009; George, 2000; Scott et al., 2008). Managing emotions and the emotions of others (Herbst, 2007; Ying & Ting, 2010), accurately self-assessing the strengths and weaknesses of oneself (Rantz 2002; Rowley & Sherman, 2003) are other EI competencies identified as important to effective HIED leaders.

Unfortunately, few empirical studies on HIED presidents' EI exist; 14 considered EI in American college presidents, but all but four are dissertations. Halbgewachs (2018) identified an additional dissertation, but I could not locate the document. In addition, the studies span a wide variety of topics and some do not break out presidents' results from those of other participants. Gagliardi et al. (2017) expressed frustration at the lack of studies examining HIED leaders and EI, especially considering the importance of HIED in the education of the professionals and leaders who will shape America's future.

EI has a variety of applications in HIED. Bornstein (2015) stated that unlike other workplace cultures, the culture of academics requires strong emotion skills including collaboration, communication, listening, emotional control, diplomacy, inclusivity, compromise, and trust, requiring leaders, especially executive leaders, to possess high EI. In her dissertation, Korschinowski (2018) explained possessing self-awareness, communicating to create trust, having support systems, and maintaining optimism were the best sources for leaders to cope with

job-related stress. In his dissertation study of 47 North Carolina community college presidents, Gough (2011) found EI is significantly and positively related to stress management. In another study, presidents identified EI as highly important to conflict management strategies and used it to establish common ground in conflict and working with diversity (Bolton, 2016).

Studies find EI to be effective in college presidential and executive leadership. Bolton (2016) found that exemplar community college presidents incorporated EI in their leadership strategies. In her dissertation, Golden (2014) found EI is related to effective leader behavior and practices. In her mixed methods dissertation, Hohlbein (2015) found all eight participating presidential cabinet members believed that participating in directed EI play improved their EI. Golden (2014) found that not only were community college leaders interested in increasing their EI and in the connection between EI and leadership, but the more EI community college leaders possessed, the more effective their leadership. All HIED presidents in a study by Niculescu-Mihai (2008) understood EI and believed in its importance to leadership. Her data, however, showed the higher a president's EI and adaptability scores, the more likely employees were to leave. In her study of 39 North Carolina community college presidents, Snuggs (2006) found no relationship between presidents' EI and faculty and staff job retention.

Some HIED studies identify certain leadership styles as important to HIED and EI. As explained earlier, transformational leadership has been singled out as important to HIED leadership (Barling et al., 2000; Carter, 2006; Greenockle, 2010; Rantz, 2002; Rowley & Sherman, 2003; Scott et al., 2008; Ying & Ting, 2010) and is important when academic leaders must gain consensus and participate in strategic planning (Parrish, 2015). In her dissertation, Tonioni (2015) found that the democratic leadership style was the only style of leadership to

positively and statistically correlate to and predicte EI while the laissez-faire leadership style was negatively correlated with EI.

While EI has been shown to be important to leadership in HE, study findings are mixed when comparing presidents' EI with other college's faculty and staff's EI. In her dissertation, Halbgewachs (2018) evaluated 300 HIED presidents' trait EI using the TEIQue-SF and found that presidents' overall EI, self-control, emotionality, and sociability were statistically higher than the general population's. Niculescu-Mihai (2008) and Slaff (2011) found presidents had average EI. Freed (2016) found presidents had the lowest EI of college staff surveyed although their scores for the strategic areas such as the ability EI sub-dimensions of understanding emotions and managing emotions was higher than others' (Mayer et al., 2004). Other studies also show higher ed leaders are weak in EI (Dulewicz & Higgs, 2003; Herbst, 2007).

While demographic factors have been linked to EI and leadership, these links were not found in the limited HIED EI literature. Only two HIED researchers examined demographics with HIED presidents and EI, Niculescu-Mihai (2008) and Slaff (2011). Neither found correlation between EI and demographic factors.

Even though it has been found to be effective in leadership and important to HIED leaders, EI is not usually a factor in presidential hires. Bornstein said strong EI is a "key component" of a HIED leader but expressed dismay that most presidential search committees do not make it part of their criteria. Greenstein's warning of American presidents applies to American college presidents: "Beware the presidential contender who lacks emotional intelligence. In its absence all else may turn to ashes" (qtd in. Bornstein, 2015). Gough (2011) also suggested the need for EI to be included in the selection of college presidents.

A call for more EI studies in HIED leadership is present in the literature. Some researchers argued for HIED leaders to focus on EI development (Coco, 2011; Gough, 2011; Ying & Ting, 2010). Others argued for evaluating EI in HIED executives (Bornstein, 2015; Ullman, 2010). Golden (2014) argued the need for EI in community college leadership, and Zeidner et al. (2009) asked if EI is important in other leadership sectors, why should higher ed be any different?

Conceptualizations of EI in Written Communication

Much of the communication literature supports the idea that higher EI generally provides for more effective communication. Hendon (2016) found a strongly positive, statistically significant correlation between EI scores and communication scores; EI explained 43% of the communication score's variability and neither age, gender, nor experience beyond two years effected the relationship. Studies found individuals with higher EI also tended to have better communication skills (Codier et al., 2011; Ezzatabadi et al., 2012; George, 2000; Şimşek & Aktaş, 2013). Alghorbany and Hamzah (2020) found EI was significantly associated with communication competence, defined as communication that is effective and appropriate to the situation (Spitzberg & Cupach, 1984, as cited in Troth et al., 2012). A study of 364 globally diverse university students found all EI dimensions predicted communication competency (Washington et al., 2013). Pitts et al. (2012) found individuals with high EI facilitate more effective communication than those with lower EI. In particular, empathy was important. A study by Bajerski (2016) found EI was negatively but significantly correlated to irony; as EI increased, students wrote fewer ironic, self-ironic, and ironic praise sentences. Björkqvist et al. (2000) found EI negatively correlated with verbal aggression. Finally, communication skills

training significantly increased EI in 40 studies (Ghorbanshiroudi et al., 2011). Each of these studies show the higher one's EI, the more effective one's communication.

EI has also been linked to effective communication in the medical field. A study of 200 medical students found total EI significantly positively correlated with clinical communication scores and significantly predicted 7% of the variance in scores (Cherry et al., 2013). Guo and Pandis (2015) found working nurses were able to increase their clinical communication ability by participating in systematic and specific EI group training. Zhu et al. (2016) asserts EI can directly and positively forecast clinical communication capability. Medical school students' entrance interviews (Carrothers et al., 2000) and ability to communicate with patients' families (Austin et al., 2005) were also all positively impacted by EI. In Zhu et al.'s (2016) study of the clinical communication competency of 810 nurses, EI and general self-efficacy were positively correlated and EI significantly correlated with clinical communication ability. Four other studies directly link medical students' communication skills to EI: Austin et al. (2005), Austin et al. (2007), Carrothers et al. (2000), Grewal and Davidson (2008). Even in the medical field, employees with higher EI were better communicators.

Many of the dimensions and subdimensions of EI are linked to effective interpersonal communication. Schutte et al. (2001) said two trait EI sub-dimensions, reading emotions and positively influencing others' moods, may help individuals better communicate. Troth et al. (2012) found a correlation between the trait EI subscale management of others' emotions and communication but no correlation between any of the others. One randomized controlled study found criticism via text message was only "detrimental on the short-term emotional wellbeing" for recipients low in trait mindfulness (DeClerck & Holtzman, 2018, p. 117), an EI subdimension. Jadhav and Gupta (2014) found communication skills present in all five

dimensions of the mixed EI model. Fall et al. (2013), found three elements of the trait EI subscale—emotionality, sociability, and self-control—predict intercultural communication apprehension, thereby managing, even reducing, such apprehension. Holm and Aspegren (1999) and Stratton et al. (2005) found significant correlations between communication and empathy.

In particular, empathy the sub-dimension trait and mixed EI models, has been shown to be very important to communication. Thoits (1989) and Abraham (1999) believed individuals high in EI may communicate more effectively and empathize with others, a sub-dimension of EI, allowing for cohesive and supportive relationships, than individuals with low EI. In a study of virtual communication, participants exhibited patterns of virtual empathy on discussion boards. Participants presented "self-disclosing messages" or "support messages" (Carrier et al., 2015, p. 39) to which participants responded empathetically. Erigüç and Durukan Köse's 2013 study of 284 university students in Turkey found a positive correlation between students' EI and communication skills, particularly the sub-dimensions of empathy, positivity, and self-control.

Many studies illustrate how increased EI improves communication among employees, supervisors, and teams. Gilar-Corbi, Pozo-Rico et al. (2019) noted several studies which showed individuals with high ability EI communicated in an assertive and interesting manner which put coworkers at ease. Jorfi, Jorfi, Yaccob et al. (2011) found a strong positive relationship between EI and effectiveness of communication when moderated by motivation among employees. Moon and Hur (2011) found employees with high EI were more effective communicators although attention to their and others' emotions tended to emotionally exhaust them. Rafaeli and Sutton (1987) said feedback was very important to good leaders. A study of 330 human service professionals found a strong relationship between EI, managing workplace stress, and improving health. Participants with higher EI experienced lower stress, more positively related to their

workplace, had better mental health, and were less likely to develop depression (Ogińska-Bulik, 2005). Kotsou et al. (2018) found EI training enhanced conflict management, employability, job satisfaction, and work performance.

EI has been shown to be effective in team communication. Jordan and Troth (2004) found links between team EI and communication efficiency. A study by Lillis and Tian (2009) found teams with mixed genders had higher EI than teams with only one gender, no matter the gender. In addition, mixed-gender teams exhibited better conflict management, self-management, self-awareness, and relationship management. Canary and Cupach (1988) and Canary and Spitzber (1987) argued that the existence of emotional awareness and emotional management, sub-dimensions of all EI models, ensured adherence to social rules providing for effective team communication,. Kotsou et al. (2018) found that EI training enhanced teamwork.

Organizational culture also influences EI and workplace communication. More formal cultures have more limited communication than informal, and low power cultures have more positive EI correlations than high power cultures. In a study of 256 Serbian middle managers, EI abilities predicted some of the communication satisfaction dimensions. Across the seven sub-dimensions of EI for communication based upon the mixed model, low power culture explained from 20% - 31% of the variance for self-awareness, 23% - 33% of the variance for managing emotions, 21% - 27% of the variance for self-motivation, 16% - 23% of the variance for empathy, and 19% - 27% of the variance for social skills. Further, EI accounted for 11% of the variance in communication on organizational perspectives, 14% of the variance in communication with supervisors, 14% of the variance in communication climate, 15% of the variance in personal feedback, 15% of the variance in horizontal and informal communication, 19% of the variance in organizational integration, and 11% of the variance in media quality

(Nikolic et al., 2014). Boyatzis and Saatcioglu (2008) found during a 20-year study that while EI can be learned, a tumultuous work culture can erode it. In an EI training, authors suggested cultural changes occurring at the school during the study impeded the success of the program (Barrett et al., 2019). However, Turner and Lloyd-Walker (2008) found increasing one's EI can improve one's perception of workplace culture.

EI has been associated with effective language use including first and foreign language learning, reading comprehension, and oral fluency. Aki (2006) proposed that young learners' EI is more important in language learning than intelligence. Dewaele et al. (2008) found a negative relationship between trait EI and foreign language anxiety. Mall-Amiri and Fekrazad's 2015 study of 120 English majors utilizing Goleman's mixed model found a significant positive correlation between students' EI and language learning strategies as did Zafari and Biria (2014). Abdolrezapour (2017b) found higher EI scores significantly affected oral fluency in a group of 63 Iranian English-as-a-second-language (ESL) students. A study of 209 first and second year Malaysian undergraduate ESL students found EI was significantly associated with oral communication skills (Alghorbany & Hamzah, 2020). Zafari and Biria's 2014 study of 100 ESL students found EI was significantly correlated with language learning strategies.

EI has been associated with effective reading comprehension. Abdolrezapour and Tavakoli's 2012 study found a highly positive correlation between one's achievement in reading comprehension and EI. Abdolrezapour (2017a) found that an intervention focused on Goleman's EI model significantly increased participants' reading comprehension in a study of 50 Iranians aged 12-15 who were learning English.

It is important to note some studies did not find significance between EI and communication. For example, Macik-Frey (2007) found only a positive, non-significant

relationship between EI and interpersonal communication competence. Pinarcik et al. (2016) was surprised to find a negative, low relationship between preschool teacher candidates' EI and scores on the Communication Skills Assessment Scale.

Conceptualizations of EI Change

Many studies show EI can change (Goleman, 1998; Goleman, 2001; Goleman, 2006; Mattingly & Kraiger, 2018; Rode et al., 2017; Walter et al., 2011). It has been shown to increase through training programs and workshops (Bharamanaikar & Kadadi, 2016; Carter, 2015; Chapin, 2015; Cherniss et al., 1998; Cherry et al., 2012; Hodzic et al., 2018; Sy et al., 2006). Empirical studies have been performed on only EI, on certain EI sub-domains, on college student demographic variables, and on employees in the workplace. For each of those groups, positive results of EI training have been found to continue over time, even over many years. While most of these studies have had favorable results, some studies found only positive results in one of the three EI models and others were only partially successful or unsuccessful.

In general, training has been shown to increase overall EI. A metanalysis by Mattingly & Kraiger (2018) reports a moderate positive effect of training on participants' EI scores. In addition, the EI model, whether ability or mixed, had no effect on training. In a study of Australian pharmaceutical sales representatives, the experimental group's EI increased in self-report and rater-reported evaluations above the control group who did not receive training. In addition, the experimental group outperformed the control group in sales by 9%. The study also found EI accounted for 10.2% of the variance in sales performance (Gignac et al., 2012). A number of studies found training increases EI (Beigi & Shirmohammadi, 2011; Cherniss et al., 2010; Clarke, 2010; Côté & Miners, 2006; Dacre Pool & Qualter, 2012; Dugan et al., 2014; Dulewicz & Higgs, 2003; Gilar-Corbi et al., 2019; Gilar-Corbi, Pozo-Rico, & Castejón-Costa,

2019; Slaski & Cartwright, 2003; Turner & Lloyd-Walker, 2008). Numerous studies utilizing students have found that training increases EI (Boyatzis & Saatcioglu, 2008; Fernández-Olano et al., 2008; Fletcher et al., 2009; Gilar-Corbi, Pozo-Rico, & Castejón-Costa, 2019).

Not only can overall EI be increased with training, certain EI sub-domains can be increased. In Nelis et al. (2011), group-based EI training increased EI in students' emotion identification and management skills. In another study, EI training significantly increased emotion regulation, comprehension, and general emotional skills, and positively impacted psychological wellbeing, subjective perceptions of health, quality of social relations, and employability (Nelis et al., 2009).

In some studies, the EI model made a difference in training effectiveness. Hodzic et al. (2018) found EI ability models moderately increased EI and results were sustained over time. A study of 54 senior managers of a private company found using ability and mixed EI measures improved EI training (Mahfouz, 2018). According to Kotsou et al. (2018), studies which utilized mixed model EI training tended to have more consistently positive results than those using other models. Conversely, Mattingly & Kraiger (2018) found the EI model had no effect on training.

A variety of reasons exist for organizations and leaders to encourage EI training and development. Some organizations considered EI domains and sub-domains as important to certain industry job skills such as empathy to nurses or emotional regulation to managers (Mattingly & Kraiger, 2018). Other needs included attempting to improve employee performance, morale, and leadership (Mattingly & Kraiger, 2018), reducing stress and improving health and performance (Slaski & Cartwright, 2003), increasing job satisfaction (Muyia & Kacirek, 2009; Petrides & Furnham, 2006; Sy et al., 2006; Turner & Lloyd-Walker, 2008), positively influencing organizational culture, even improving doctor-patient relationships (Weng,

2008; Weng et al., 2008). Maundu (2013) cited several studies where EI played a role in leadership and suggested leaders increase EI.

The length of the training varied across studies. A study of 60 UK retail chain managers who underwent one day of EI training every week for four weeks found the training group's EI significantly increased while that of the control group remained the same (Slaski & Cartwright, 2003). A study of 60 Netherland mental and behavioral health staff members in a 4-month EI training program experienced a significantly positive increase in EI compared with the control group (Zijlmans et al., 2011). A study of 48 university leaders participated in a 2-day training focused on culture change in which EI played a part. Changes occurred but were not significant, in part, researchers believe, because of the negative organizational culture (Barrett et al., 2019). In a review of 13 studies, Cherry et al. (2012) argued that using simulated patient problems later in medical students' training instead of earlier more effectively improved EI. A study of 103 graduate and undergraduate students showed significantly higher EI scores after participating in an EI program composed of 5-hours of training for 20 weeks with an additional 2 days of training (Pearson & Weinberg, 2017).

EI training in the medical field has also been successful. In a study of five nurses, Davies et al. (2010) found self-awareness and emotion control, two components of mixed EI, were essential to palliative care nursing and should be included in future training. Crowne et al. (2017) found EI leadership training effective in 20 nurse leaders at nursing homes. Guo and Pandis (2015) found working nurses were able to increase clinical communication ability by participating in systematic and specific EI group training.

Empathy skills were also able to be increased by EI training. In a study of first year medical students, Winefield and Chur-Hansen (2000) found significant improvement in empathy

scores. A study of 40 students by Ghorbanshiroudi et al. (2011) found communication skills training significantly increased EI. For the high empathy group in a study of first year medical students, empathy scores did not change significantly but empathic tendency in the low empathy group significantly increased (Harlak et al., 2008).

Demographic factors, especially gender, influence or moderate EI training results. In five studies, women's EI increased more dramatically than men's (Fernández-Olano et al., 2008; Harlak et al., 2008; Holm & Aspegren, 1999; Shapiro et al., 2005; Winefield & Chur-Hansen, 2000), moderating—here, increasing—the relationship between time and EI. In a study of first year medical students, women had higher mean scores than men in pre- and post-tests (Harlak et al., 2008; Winefield & Chur-Hansen, 2000) and scored significantly higher post-intervention.

Not only have many studies in a variety of industries found that EI can be increased and developed, some have found that increases continue after time. A latent structural equation modeling study for ability EI of 105 business administration and management students found that components of ability EI, especially perceiving emotions, can be increased through training. Results were still evident 6 months later (Herpertz et al., 2016). Similarly, a study for trait EI of 37 psychology students showed statistically significantly that EI can be learned, although not all elements were significantly improved. Results in this study were also still present 6 months after training. Nelis et al. (2009) suggested periodic training updates to mainting results. Hodzic et al. (2018) also found that EI results were sustained over time.

Most of the studies thus far have been short-term, but long-term longitudinal studies have shown positive results. Dugan et al. (2014) performed a longitudinal analysis on the effects of a 5-year EI training program on otolaryngology physician residents and faculty. Growth modeling showed participants not only increased their EI scores within the first year, but those increases

continued throughout the study. In repeated measures, between-groups study of 50 Australian salespeople, data from a 20-year longitudinal study composed of 17 longitudinal studies found EI could be learned, but a tumultuous work culture could erode it (Boyatzis & Saatcioglu, 2008).

Some studies reported mixed or lower EI scores after training. A study by Tschannen-Moran and Carter (2016) in which some EI instructional coaches volunteered and others were required to attend EI training found a third of the participants' scores were lower between pre- and post-testing, although the authors fault the reliability of the self-report test. Of the volunteers, all showed statistical increases in all of mixed EI subscales. Of the mandated participants', some scores increased but most decreased. In a study of first year medical students, Craig (1992) found a decrease in empathy and communication after training. Ogińska-Bulik (2005) recommend including EI in workplace stress management trainings. Conversely, in 1993, Evans et al. found no change in empathy and communication after training.

Within many studies listed in this section, several authors called for additional EI training literature. Ornstein and Nelson (2006) called for EI training for college international travel trip leaders to help manage stress, travel unpredictability, and improve communication. Kotsou et al. (2018) said and Walter et al. (2011) agreed the more research is needed before the effects of EI training can be fully determined.

Conceptualizations of EI Psychometrics

In order to identify one's EI and track its change, a reliable measure of EI is needed. Psychometrics is the field of psychological and mental measurement, and EI is measured through psychometric tools. Despite its difficult history, EI psychometrics has grown tremendously over the past 100 years. EI psychometric properties, or its test validity and reliability, are crucial to the accurate measurement of EI.

Since its inception, the integrity of EI assessment has been criticized. Social intelligence's, the original name of EI, testing validity was questioned in the 1920s literature (Landy, 2006). In 1960, Lee Cronbach said social intelligence continued to be unmeasured (Joseph & Newman, 2010). Even today, EI testing is still criticized (Antonakis et al., 2009; Joseph & Newman, 2010).

The first social intelligence assessment was the George Washington Test, created by Fred A. Moss and Thelma Hunt at George Washington University in 1927 and used for the next 50 years (Landy, 2006; Moss & Hunt, 1927). Despite its popularity, however, its validity was frequently questioned (Moss & Hunt, 1927). Between 1909 and 1983, a number of other assessments were developed to measure social intelligence but most of them simply disappeared. Between 1965 and 1983, very little was done to improve existing or develop new social intelligence measures (Landy, 2006).

Historically, each of the social intelligence assessments were ability tests like the modern day Mayer-Salovey-Caruso Emotional Intelligence Test (MSCEIT) and scoring was performed by consensus. These early tests usually tested subjects aged 8-19 from the U.S. (Landy, 2006). EI continues to be measured through self-report and ability tests (Lopez-Zafra & Gartzia, 2014; Mayer, Roberts, & Barsade, 2008).

Psychometric properties are the reliability and validity of the test itself. Despite consistent reexamined of modern tests, most provide adequate psychometric properties. For example, the TEIQue-SF, which will be used in this study, demonstrates superior concurrent and incremental validity in comparison to two other trait EI measures (Gardner & Qualter, 2010).

Two types of EI tests exist: ability and self-report. Ability assessments, also called performance assessments, measure EI by analyzing the responses of emotion-based questions

and usually assess the ability EI model. In self-report tests, individuals self-report their own EI by answering a series of questions. Tests usually evaluate EI in the trait EI model. Tett et al. (2005) found trait EI can be measured by self-report scales and is a distinct multidimensional domain. Most self-report and ability EI tests cite adequate psychometric properties.

Some studies have shown that the EI model, whether ability, trait, or mixed, matters in EI psychometrics. A meta-analysis by Gong & Jiao (2019) examined 484 effect sizes based upon 102,579 participants in nine meta-analyses and found EI effect sizes declined over time. Mixed EI studies presented significantly higher effect sizes than ability studies. Mixed EI effects sizes also had the greatest decline over time while ability EI effect sizes did not decline. Researchers state the decline in mixed EI effect sizes is attributed to overestimation in earlier studies.

EI ability and self-report tests are criticized for four things: assuming individuals respond to questions the same way, the ability for users to intentionally or unintentionally manipulate the results, skewing scores in favor of high scorers, and assuming individuals are able to accurately know how they feel. Both ability tests (Harms & Credé, 2010; Lopez-Zafra & Gartzia, 2014; Mayer et al., 2001; Owen et al., 2006) and self-report tests (Amram, 2009; Boyatzis & Saatcioglu, 2008; Boyd & Pennebaker, 2017; Cherry et al., 2012; Gignac et al., 2012; Harms & Credé, 2010; Lopez-Zafra & Gartzia, 2014; Matthews et al., 2004; Mayer et al., 2001; Owen et al., 2006; Troth et al., 2012; Tschannen-Moran & Carter, 2016; Walter et al., 2011) have received criticism.

Methods to address the main criticisms of EI assessment psychometric properties are also criticized. To account for the assumption that individuals respond to questions in almost the same way, authors of the MSCEIT ability test score correctness based on the majority of responses (Mayer, Roberts, & Barsade, 2008). Unfortunately, even this solution is

unsatisfactory. Antonakis criticized ability EI assessments for calibrating tests on majority or expert ratings (Antonakis et al., 2009), particularly the MSCEIT. This solution, he said, created the problem of preventing respondents from viewing answers from a different perspective which could still be considered correct. A second criticism is that EI assessment scoring is skewed in favor of high scorers (Fiori et al., 2014).

EI measured via self-report and performance methods are commonly cited as a limitation of EI study and are often considered biased because both may be intentionally or unintentionally manipulated by the participant (Lopez-Zafra & Gartzia, 2014; Whitman et al., 2008). Even in the early 1900s, researchers had doubts about self-report assessments; Thorndike and his son R. L. were concerned about the common process of measuring psychometric properties through multiple-choice stimulus questions (Landy, 2006). Nicholls et al. (2012) examined whether the Emotional Quotient Inventory (EQ-i) could be faked. In their study of 154 accounting students, Canadian researchers found students could modify their answers to suit the study's job description, thereby manipulating the scores of both types of tests. Nicholls et al. (2012) also found the Mayer-Salovey-Caruso Emotional Intelligence Test (MSCEIT) could be faked.

Śmieja et al. (2014) explained self-report surveys assumed individuals were aware of their emotions, how they felt, and how they responded to their own emotions. Common EI assessments assume individuals can accurately identify their own emotions and mental states. Further, self-report surveys assume one's emotions are scorable despite social psychologists' common understanding that "what people say about themselves often reflects their self-theories rather than serve as objective markers of their true thoughts and feelings" (Chung & Pennebaker, 2007, p. 356). Fiori (2009) explained EI tests assumed EI is a conscious experience. She said

emotions come from somatic sensations in the body which signal whether something is good or bad, yet individuals do not emotionally react in the same way to the same set of stimuli.

Many shortcomings of self-report tests are well known to social psychologists (Chung and Pennebaker, 2007). A 2008 study by Boyatzis and Saatcioglu found self-report data over-valued one's EI learning, although some EI learning was present. Gignac et al. (2012) found rater-reported EI ability correlated significantly with sales performance, but self-report EI did not. A study by Webb et al. (2010) found no increase in the post-test scores of self-report assessments although the assessments of participants by raters showed significant increases. Finally, Amram (2009) found relying solely on self-report data was not as effective as being combined with observer-related methods.

The shortcomings of ability tests are also acknowledged in the literature. Neal Ashkanasy and Marie Dasborough said ability EI tests are the best of the current choices, although they acknowledged that EI tests other than ability tests may be improved with time and research (Antonakis et al., 2009). Mayer, Roberts, and Barsade (2008) found ability EI measures exhibited test validity as a group.

Currently, self-report and ability EI assessments are the most commonly accepted EI tests, but some studies have identified EI through linguistic tools. In fact, Qiu et al., (2012) found that judgments of an individual's personality is more strongly correlated with linguistic cues than with self-report data. Deriving EI scores from linguistic methods may be a reliable method. This possibility is discussed in the following section.

Conceptualizing Psychometrics from Natural Language

As a psychometric vehicle, natural language—language used by humans ("Natural language," 2018)—has been linked to one's thoughts, feelings, even personality. Freud in 1901

felt a slip of the tongue was “a person’s hidden intentions [which] would reveal themselves in apparent linguistic mistakes” (Tausczik & Pennebaker, 2010, p. 25). Dr. James Pennebaker, a 40-year professor of psychology, said, “The words that people generate in their lifetimes are like fingerprints. Increasingly, these words can be used to establish people’s identities and even their backgrounds” (2011, p. xi).

In particular, word choice and usage has been found to be an effective identifier of personality. Dr. Walter Weintraub in 1981 was the first to look at written words other than nouns and verbs to find psychological meaning. George Armitage Miller in 1995 suggested a relationship between these mostly unnoticed words and their psychological meaning (Tausczik & Pennebaker, 2010). These small words such as pronouns, articles, and prepositions which make up almost 60% of daily word usage reveal parts of one’s “personality, thinking style, emotional state, and connections with others” (Pennebaker, 2011, p. ix). Pennebaker refers to these words as “function words” (p. 2011).

An important characteristic of the psychometrics of one’s language, in particular one’s writing and writing style, is one’s language use which remains largely consistent over time and context. One way to ensure study participants are not purposefully or accidentally biasing their responses is to analyze their past writing which existed before the study was conceived. Further, to avoid accidental or blatant bias by an examiner, computer-based textual software may be used to analyze the text (Borkenau et al., 2016; Hirsh & Peterson, 2009; Holleran & Mehl, 2008; Pennebaker et al., 2014; Proyer & Brauer, 2018; Qiu et al., 2012). According to Chung and Pennebaker (2007), natural language psychometric textual analysis software is “free from the bounds of sampling, coding, and cost, and safe from the pitfalls of self-reports" (p. 356). Fast

and Funder (2008) agreed. This type of software is useful in identifying mental disorders, personality dimensions, even demographics (Tausczik & Pennebaker, 2010).

Pennebaker and his colleagues created Linguistic Inquiry and Word Count (LIWC) to analyze written text and verbal speeches for characteristics of one's personality. Hundreds of studies have utilized LIWC in a variety of ways including identifying grammatical indicators which suggest whether a country's president will lead his country into war, classifying whether people exonerated of felony convictions were actually innocent, even distinguishing whether employees were likely to quit their jobs. LIWC has also successfully identified authors' gender, political leanings, and level of depression simply from their writing samples (Pennebaker, 2011).

LIWC is able to objectively analyze written communication for characteristics which suggest a variety of psychological markers including repudiating an author's personality or communication traits (Pennebaker, 2011) and has effectively revealed Big Five personality traits (Golbeck et al., 2011; Hirsh & Peterson, 2009; Krieger, 2016; Mairesse et al., 2007; Malhotra et al., 2018; McDonnell, 2015; Pennebaker & King, 1999). LIWC has been used to successfully derive a "relatively stable" individual psychological signature from a corpus of one's writing (Boyd & Pennebaker, 2015). In LIWC, word dictionaries are categorized into 93 groups. Each category's mean is calculated and researchers combine categories to make psycholinguistic determinations about the writer and the corpora. Such determinations include recognizing ways individuals use words to convey meaning, revealing their personality or mental state.

Despite its use by thousands of authors and millions of texts, LIWC has only been used to identify EI a few times. Graves et al. (2005) evaluated 177 individuals' written thoughts and feelings about 9/11 to determine expressive writing's linguistic characteristics. Researchers found writers with higher scores of the "attending to emotions" dimension of trait EI and higher

depressive tendencies tended to seek emotional outlets more often than individuals with lower. Pluth (2011) examined how different levels of alexithymia, one's inability to identify and explain one's emotions, described emotional experiences in writing. She found the higher one's alexithymia, the higher one's EI, suggesting that just because one cannot verbalize one's emotions does not mean one cannot respond to them. Finally, Yoon (2008) examined the measurements, circumstances, and verbal and nonverbal communication behaviors of EI leadership effectiveness using interpersonal and structured tasks. He found structured task leadership was not linked to EI, but interpersonal task leadership was.

LIWC is comprised of 93 word categories, but not all correlate with EI. Graves et al. (2005) found the LIWC category "affect words" was linked to high EI. Pluth (2011) linked 14 LIWC categories to EI. Yoon (2008) found six LIWC categories were related to EI.

Other studies using LIWC have not shown associations between specific variables and EI. Abe (2011) used MSCEIT to examine students' field journals for the role positive emotions and EI play in experiential learning. In this study, only two LIWC variables were included, positive emotion and negative emotion, and Abe found neither were significant. Burke (2005) examined whether expressive writing could expand psychotherapy, for whom, when, and how. He utilized LIWC to evaluate participants' writing and interviewer responses to determine if links existed, including links with EI. He found none. It is important to note, however, that neither of these studies looked at all categories nor did they follow Pennebaker's advice about focusing on function words.

Conceptualizing the Connections Between the EI and Big Five

For the sake of this study, the relationship between EI and the Big Five, a personality factor model which explains personality through five dimensions (Abbas & Khan, 2018), is

imperative. As previously mentioned, empirical studies on LIWC and EI are few. With no consistency among LIWC variables, EI has been identified through usage of the LIWC software only five times (Abe, 2011; Burke, 2005; Graves et al., 2005; Pluth, 2011; Yoon, 2008) or through some of its dimensions (Troop et al., 2013) including alexithymia (Jasinski, 2013; Tull et al., 2005). However, the Big Five traits have been identified through LIWC 25 times with much more consistency (see Table 19). Utilizing the Big Five LIWC variables as the basis for the Big Five/EI CDI proxy score for measuring EI will lend more confidence in identifying which LIWC variables are most predictive of EI (see Table 20).

Theories about the Big Five and EI vary in the literature. The Big Five personality factors are understood to categorize personality, but the literature explains that the Big Five and EI often overlap (O'Boyle et al., 2011; Petrides, 2013; van der Zee & Wabeke, 2004; Zeidner et al., 2004). The Big Five is a "commonly accepted personality model" comparison to EI (Freed, 2016) to such a point that some suggest EI is redundant (Landy, 2006; Schulte et al., 2004). Others think EI "represents an aggregate of socially desirable traits" (Zeidner et al., 2004). Regardless, a relationship between the Big Five and EI is clear. Numerous studies identify strong correlations between the Big Five and EI: 59.1% of EI variance can be explained using the Big Five according to Alegre et al. (2019), 57.3% according to Pérez-González and Sanchez-Ruiz (2014), 50.3% according to Petrides et al. (2010), about 50% according to Russo et al. (2012), and 44% according to Arteche et al. (2008). Further, Athota et al. (2009) found EI to be a significant predictor of the Big Five but did not identify the amount.

Associations between the Big Five and EI are prevalent in the literature: (Abbas & Khan, 2017; Alegre et al., 2019; Bukhari & Khanam, 2014; Kappagoda, 2013; O'Boyle et al., 2011; Pérez-González & Sanchez-Ruiz, 2014; Petrides, 2013; Petrides et al., 2010; Siegling, Furnham,

& Petrides, 2015; van der Linden et al., 2012; van der Zee & Wabeke, 2004). O'Boyle et al. (2011) used 128 empirical studies in a meta-analysis of EI and job performance, including comparison with the Big Five. In their EI study, van der Linden et al. (2017) used the Big Five intercorrelations for EI reported by van der Linden et al. (2010) which included Big Five intercorrelations in studies other than just those between the Big Five and EI for stability. They found no reason for Big Five and EI intercorrelations reported in the personality literature to differ from those reported in the EI literature, especially since both use the same EI assessments.

Modern EI tests have different correlations between EI and the Big Five. One reason is because the three models of EI do not strongly correlate with each other (Côté et al., 2010; Mayer, Roberts, & Barsade, 2008; van der Linden et al., 2017). Because EI tests are designed to measure only one EI model, test correlations vary widely. Landy (2006) reports the MSCEIT, which measures ability EI, least correlates with the Big Five while the EQ-i and ECI, which measure mixed EI, strongly correlate. Joseph and Newman (2010) found self-reported EI tests strongly correlate with the Big Five while ability EI tests weakly correlate. O'Boyle et al. (2011), Van Rooy and Viswesvaran (2004), and van der Linden et al. (2017) report similar findings (see Tables 30-32).

Many studies found links between each Big Five personality trait and EI. Alghamdi et al. (2017) and Nawi et al. (2015) found extraversion, agreeableness, and openness to be significant predictors of EI while conscientiousness and neuroticism were not. Conversely, Athota et al. (2009) found EI to be a significant predictor of extraversion, openness, neuroticism, and agreeableness but not conscientiousness. Tables 20-22 contain a data linking EI to the Big Five.

All Big Five traits correlate with EI differently. The following sections examine each's definition, EI relationship, and psychometric correlation between EI models.

Extraversion

Mehl et al. (2012) defines the Big Five personality trait of *extraversion*, which is sometimes referred to as *surgency*, "as the tendency to be sociable, talkative, and enthusiastic" (p. 34). Alghamdi et al. (2017) also found extraversion has a positive relationship with EI. Of the 29 studies linking EI and the Big Five, extraversion was significantly linked to EI 24 different times (see Table 21). Regarding psychometrics, O'Boyle et al. (2011) found the ability EI model was least correlated with extraversion, the mixed model was most correlated with extraversion, and the trait model was more correlated with extraversion than ability measures but less correlated than mixed (see Tables 31-32). Self-report assessment was more correlated than ability (see Table 30).

Agreeableness

Kappagoda (2013) defines the Big Five personality trait of *agreeableness* as the extent to which an individual is easily "affable, tolerant, sensitive, trusting, kind, and warm" (p. 54). Abbas and Khan (2017) relate agreeableness to one's trustworthiness, cooperativeness, and sympatheticness. Of the 29 studies linking EI and the Big Five, agreeableness was significantly linked to EI 25 different times (see Table 21). Regarding psychometrics, O'Boyle et al. (2011) found the ability EI model was least correlated with agreeableness while the mixed model and the trait model were more correlated (see Tables 31-32). Self-report assessment was more correlated than ability (see Table 30).

Conscientiousness

Kappagoda (2013) defines the Big Five personality trait of *conscientiousness* as one's proclivity to be dependable, time-conscience, and organized (p. 54). Abbas and Khan (2017) relate high scores of conscientiousness with self-discipline and organization and low scores with

criminal behavior. Of the 29 studies linking EI and the Big Five, conscientiousness was significantly linked 23 different times (see Table 21). Regarding psychometrics, O'Boyle et al. (2011) found the ability EI model was least correlated with conscientiousness while the mixed model and the trait models were more correlated (see Tables 31-32). Self-report assessment was more correlated than ability (see Table 30).

Neuroticism

Mehl et al. (2012) defines the Big Five personality trait of *neuroticism*, sometimes referred to positively as *emotional stability*, as "the tendency to be anxious and easily upset" (p. 34). Kappagoda (2013) defines neuroticism as moody, temperamental, or irritable. Abbas and Khan (2017) warn that very high scores of neuroticism may reflect a severe psychological problem. They found individuals with higher neuroticism scores were more likely to be sad, tense, anxious, or depressed, and low scores represented better emotional stability. Conversely, Hörmann and Maschke (1996) say neuroticism predicts one's success. Of the 29 studies linking EI and the Big Five, neuroticism was significantly linked to EI 22 different times (see Table 21). Regarding psychometrics, O'Boyle et al. (2011) found the ability EI model was least correlated with neuroticism, the mixed model was most correlated with neuroticism, and the trait model was more correlated with neuroticism than ability measures but less correlated than mixed (see Tables 31-32). Self-report assessment was more correlated than ability (see Table 30).

Openness to Experience

Finally, Kappagoda (2013) defines *openness to experience* as how curious, creative, and intellectual one is. Abbas and Khan (2017) identify six dimensions of openness to experience: 1) imagination, 2) attention to one's feelings, 3) sensitivity to aesthetics, 4) intellectual curiosity, 5) adventurousness, and 6) preference for variety. High scores show an interest in the arts,

creation, imagination, and emotional awareness. Low scores reflect a person with an objective nature, interest in schedules, lack of flexibility, attention to rules, and a lack of interest in the imagination and intellectual discussions. Of the 29 studies linking EI and the Big Five, openness was significantly linked to EI 26 different times (see Table 21). Regarding psychometrics, O'Boyle et al. (2011) found the ability model of EI was least correlated with openness while the mixed model and the trait model were more correlated (see Tables 31-32). Self-report assessment was more correlated than ability (see Table 30).

To assist in the credibility of using LIWC for EI, an alternative method must be applied. A Big Five/EI CDI proxy score will be created from the Big Five traits using Big Five LIWC variable scores for a corpus of text as explained in the following section. To validate the proxy EI score derived from the Big Five, the score from the TEIQue-SF (Petrides, 2009) EI assessment found in the presidents' questionnaire will be available for comparison via bivariate correlation. For more information about EI and its relationship to the Big Five, refer to Table 20.

Categorical-Dynamic Index (CDI)

As illustrated in the previous section, the Big Five has five traits, but EI is simply a single factor. One's EI score can be derived from five separate Big Five personality scores using a categorical-dynamic index (CDI), a formula or composite score, to produce one EI score for each person that combines "heightened abstract thinking" and "cognitive complexity." The higher the score higher the abstract thinking and cognitive complexity (Pennebaker et al, 2014).

A variety of studies have used CDIs from LIWC fields to represent the Big Five. Based upon Licorish and McDonnell (2015), three studies have used CDIs composed of LIWC fields to create profiles to represent the Big Five personality traits: Pennebaker and King (1999), Pennebaker et al. (2014), and Rigby and Hassan (2007). Other studies which use CDIs for

LIWC and other textual variables are Baele (2017), Boyd and Pennebaker (2016), Dzogang et al. (2018), Markowitz and Hancock (2017), and Parikh (2017). Table 4 lists the Big Five personality trait CDIs used in this study.

One Big Five/EI CDI proxy score will be determined for each piece of writing in this study. The CDI is created from a meta-analysis of the positive values and negative values from the 25 studies identified in Table 22 and multiplied by the correlation coefficients describing the relationship between each Big Five Personality trait and EI. For a list of studies identifying from which study the LIWC variables for each of the Big Five personalities are derived, refer to Tables 23-27 in Appendix C.

Big Five/EI CDI

As previously explained, this study will incorporate CDIs for each Big Five personality traits. Licorish and McDonnell (2015), Pennebaker and King (1999), Pennebaker et al. (2014), and Rigby and Hassan (2007) created composite measures of each Big Five personality trait by combining significant LIWC category values into a CDI for that personality trait.

For this study, LIWC values and where at least one of the variable's values was significant at the .05 level in the literature will be included. Because so few studies have examined LIWC values for EI, and the LIWC categories used to link EI and the Big Five vary widely, all relevant LIWC category scores for each Big Five personality, as directed by the literature, will be calculated into one score to represent each of the Big Five traits. Creating the Big Five CDI formula is composed of three steps, described below.

1. Combine significant LIWC category scores for each Big Five trait into one CDI. The literature shows that some LIWC categories positively correlate with one Big Five trait while negatively or not correlating with another. Therefore, each formula will add, subtract, or

exclude LIWC category scores as identified in the literature. Table 4 lists the CDIs for each Big Five trait including the addition or subtraction of each value.

Table 4. Big Five LIWC CDIs

Trait	CDI	Studies
Openness to Experience	Articles - Hear - Numbers - Cognitive processes - 1st person plural - Perceptual processes - Space - Assent - Affective processes - Discrepancy - 2nd person - Negations - Positive emotion - Present focus - 1st person singular - Past focus + Home - Total pronouns - Time - Motion + Death + Prepositions + Causation + Insight + Words > 6 letters - 3rd person singular - 3rd person plural - Social processes + Dictionary words + Work + Anxiety + Certainty + Family - Anger - Negative emotion - Swear words - Tentative - Religion - Question Mark - Apostrophe - Non-fluencies - Body + Quantifiers - Exclamation Mark - Biological processes - Parenthesis + Clout	Golbeck et al., 2011; Krieger, 2016; Mairesse et al., 2007; Mehl et al., 2006; Pennebaker & King, 1999; Yarkoni, 2010
Neuroticism	Anxiety + Negative emotion + Certainty + Anger + Discrepancy + Cognitive processes + 1st person singular + Tentative + Swear words + Causation + Feel + Negations + Sadness + Social processes - Articles (concrete noun markers) - Space + 2nd person - Positive emotion + Words/sentence + Words > 6 letters + Parenthesis + All Punctuation + Comma + Quote + Sexual + Question Mark + Religion + See + Apostrophe + Semicolon + Death + Insight + Hear + Assent + Affective processes - Dictionary words - Time - Home - Motion - Friends - Family - Achievement - Numbers - Total pronouns - Work - Leisure + Past focus + Exclamation Mark	Golbeck et al., 2011; Krieger, 2016; Mairesse et al., 2007; Mehl et al., 2006; Mehl et al., 2012; Pennebaker & King, 1999; Yarkoni, 2010
Contentiousness	Time - Assent - Tentative - Certainty - Perceptual processes - Sadness - Cognitive processes - Causation - Hear - Death - Discrepancy - Swear words - Negations - Negative emotion - Anger - Fillers + Articles + Positive emotion + Family + Dictionary words + Exclamation Mark + 1st person singular + Motion + Total pronouns + 1st person plural + Home - 2nd person - Words > 6 letters - Body - Parenthesis - Auxiliary verbs - Feel - Future focus + Work - Comma + Colon	Golbeck et al., 2011; Mairesse et al., 2007; Mehl et al., 2006; Pennebaker & King, 1999; Yarkoni, 2010; Yuan et al., 2018
Agreeableness	Positive emotion - Causation - Money - Death - Negative emotion - Swear words - Anger - Total pronouns + See + Past focus - Feel + Numbers + Time + Motion + Space + 1st person plural + Home + Articles - 1st person singular - Friends - Family - Question Mark - Exclamation Mark - Affective processes - Dictionary words - Negations - Sadness - Anxiety + Words > 6 letters + Prepositions + Leisure - Achievement + Ingestion + 2nd person + Affiliation	Golbeck et al., 2011; Hirsh & Peterson, 2009; Krieger, 2016; Mairesse et al., 2007; Mehl et al., 2006; Pennebaker & King, 1999; Yarkoni, 2010

Table 4 (Cont.)

Trait	CDI	Studies
Extraversion	Social processes - Health - Parenthesis + Family - Question Mark - Fillers - Period - Quote - Body - Tentative - Words > 6 letters - Articles (concrete noun markers) - Negations - All Punctuation - Apostrophe + Certainty + Dictionary words + 1st person singular + 1st person plural + 3rd person plural + Friends + Positive emotion + Total pronouns + Sexual - Work - Causation - Numbers + Affective processes + 2nd person + Sadness + Perceptual processes + Religion + Hear + Cognitive processes - Negative emotion + Words/sentence - Anxiety	Golbeck et al., 2011; Krieger, 2016; Mairesse et al., 2007; Mehl et al., 2006; Mehl et al., 2012; Pennebaker & King, 1999; Yarkoni, 2010; Yuan et al., 2018

For the significant LIWC variables for each personality trait, positive and negative signs, and the relevant studies, refer to Tables 23-27 in Appendix C.

2. Combine the five Big Five trait CDI scores into one formula by adding each trait's CDI score which positively correlate with EI and subtracting those which negatively correlate with EI. Using the values from the formulas in Table 4, the five different CDI scores representing each of the Big Five traits will be added or subtracted as directed by the literature to produce the one Big Five/EI CDI proxy score. Table 22 identifies whether each Big Five trait correlates positively or negatively with EI. Overwhelmingly, out of 29 studies all traits except neuroticism positively correlate with EI. Only two of 29 studies show neuroticism positively correlating with EI. Therefore, neuroticism is the only trait which will be subtracted in the Big Five/EI CDI proxy: Agreeableness score + Extraversion score + Conscientiousness score + Openness to Experience score – Neuroticism score = Big Five/EI CDI proxy score

3. Perform a meta-analysis on correlation coefficients identified in the Big Five/EI literature to create a weighted correlation coefficient for the relationship between each Big Five personality trait and EI. A weighted correlation coefficient takes into account the different sample sizes used to calculate individual effect sizes in different studies (Borenstein et al., 2009). Field and Wright (2006) highly recommend using the method based upon Hedges and

Olkin (1985) and Hedges and Vevea (1998). This method calculates weighted effect sizes for random-effects using variance which is weighted by incorporating both between- and within-study variance. This process addresses the potential error of both fixed- and random-effects studies. A weighted correlation coefficient for each Big Five trait is calculated by using Fisher's r-to-Z transformation and computing a Q statistic, standard error, a correlation coefficient constant, study weights, confidence intervals, and a mean effect size (Borenstein et al., 2009; Field & Wright, 2006; Hedges & Vevea, 1998). Table 33 in Appendix C identifies each Big Five trait's original average effect size, weighted correlation coefficient, and total samples included in the meta-analysis.

4. Multiply each Big Five/EI CDI proxy score by the appropriate weighted correlation coefficient. Because each of Big Five personality traits correlates differently with EI, a multiplier relative to the weighted correlation of each trait to EI must be included in the formula. Therefore, in the Big Five/EI CDI, each Big Five trait score will be multiplied by its weighted correlation coefficient calculated in the meta-analysis.

Since this study will use the TEIQue-SF as a comparison, each Big Five trait correlation value will be based upon the TEIQue-SF. Table 5 identifies the average variance for the TEIQue and TEIQue-SF for each Big Five trait and the studies from which values were taken. To determine the correlation value for EI and each Big Five trait, the square root of the variance will be used. The standardized *r* for each Big Five trait is also included in Table 5.

Table 5. Average Correlation (r) and Weighted Average Correlation Coefficient (r) for Studies Using the TEIQue and TEIQue-SF*

	Agreeableness	**Conscientiousness**	**Extraversion**	**Neuroticism**	**Openness to Experience**
r	.182	.290	.282	-.250	.197
r*	.229	.299	.298	-.272	.230

Table 5 (Cont.)

Sources for *r*: Antonakis, 2009; Brackett & Mayer, 2003; Côté et al., 2010; Føllesdal & Hagtvet, 2013; García-Sancho et al., 2017; Mayer et al., 2004; Mayer, Salovey, & Caruso, 2008; Ono et al., 2011; Vakola et al., 2004; Van Rooy & Viswesvaran, 2004; Wong & Law, 2002. ***r**** values are weighted correlation coefficient utilizing the method of Hedges and Olkin (1985) and Hedges and Vevea (1981).

Therefore, the final CDI for the Big Five proxy EI score, using the weighted correlation coefficient for each Big Five trait, is as follows: (Agreeableness score * .229) + (Conscientiousness score * .299) + (Extraversion score * .298) + (Openness to Experience score * .230) - (Neuroticism score * -.272) = Big Five/EI CDI proxy score.

Hypotheses

This study extends the following hypotheses for each of its research questions:

1. **H1 Research Question**: Does average emotional intelligence in southeastern United States 2- and 4-year public college presidents differ between presidents?

   Hypothesis: The average emotional intelligence in southeastern United States 2- and 4-year public college presidents differs between presidents.

2. **H2 Research Question**: Does emotional intelligence in southeastern United States 2- and 4-year public college presidents' public electronic written communication change with time? If so, what is the shape of the trajectory?

   Hypothesis: The emotional intelligence in southeastern United States 2- and 4-year public college presidents' public electronic written communication changes with **time**. The trajectory is linear positive.

3. **H3 Research Question**: Does the trajectory of the emotional intelligence in southeastern United States 2- and 4-year public college presidents' public electronic written communication vary across presidents?

   Hypothesis: The trajectory of the emotional intelligence in southeastern United States 2-

and 4-year public college presidents' public electronic written communication varies across presidents.

4. **H4 Research Question**: After controlling for presidents' background variables, do initial levels of emotional intelligence in southeastern United States 2- and 4-year public college presidents vary as a function of
   a. gender,
   b. age,
   c. education level,
   d. experiencing a life-altering event,
   e. institutional type,
   f. institutional size,
   g. or institutional rurality?

   Hypothesis: After controlling for presidents' background variables, initial levels of emotional intelligence in southeastern United States 2- and 4-year public college presidents' vary as a function of
   a. gender, where women have higher EI than men;
   b. age, where EI increases with age;
   c. education level, where EI increases with higher educational levels;
   d. experiencing a life-altering event, where presidents experiencing a life-altering event have higher EI than those who have not;
   e. institutional type ,where presidents at 2-year institutions have higher EI than those at 4-year;

f. institutional size, where presidents at small institutions have higher EI than those at large;

g. or institutional rurality, where presidents from rural institutions have higher EI than those from urban.

5. **H5 Research Question**: After controlling for presidents' background variables, does emotional intelligence in southeastern United States 2- and 4-year public college presidents' public electronic written communication vary over time as a function of

   a. gender,

   b. age,

   c. education level,

   d. experiencing a life-altering event,

   e. institutional type,

   f. institutional size,

   g. or institutional rurality?

   Hypothesis: After controlling for presidents' background variables, emotional intelligence in southeastern United States 2- and 4-year public college presidents' public electronic written communication will vary over time as a function of

   a. gender, where EI growth in women will be greater than in men;

   b. age, where EI growth is greater in older leaders;

   c. education level, where EI growth is greater in leaders with higher levels;

   d. experiencing a life-altering event, where EI growth is greater in those who have experienced a life-altering event;

e. institutional type, where EI growth of presidents at 2-year institutions is greater than those at 4-year institutions;
f. institutional size, where the EI growth of presidents at small institutions is greater than those at large institutions;
g. or institutional rurality, where EI growth of presidents at rural institutions is greater than that of presidents at urban institutions.

Summary

Despite criticism about its lack of a consistent definition, relevance to specific work outcomes, and measurement, EI remains an important psychological theory. Several demographic factors including gender, age, years of experience, educational level, and time may predict EI. EI has also be linked to effective leadership, especially transformational and/or charismatic leadership. Although EI has been positively linked to job performance, its role in HIED leadership has rarely been examined. The literature also shows that higher EI, empathy in particular, has been found to generally provide for more effective communication including interpersonal communication and communication in the workplace. Further, because EI can change over time, studies have shown training can increase overall and sub-domains of EI immediately and over time.

Because EI has been shown to be more strongly linked to language than traditional assessments, examining one's language may provide a more accurate reflection of one's EI than self-report or ability measures. Because EI has been examined in one's writing less frequently than the Big Five personality traits, through the use of LIWC, Big Five personality traits can be identified within written communication. Then, using CDIs as identified in the literature, a person's Big Five personality traits may be formulated into a Big Five/EI CDI proxy score

representing EI. Such a method may provide a more objective reflection of a leader's EI than traditional assessments.

The proposed survey study is designed to test the theory that higher EI in college presidents' public electronic communication improves over time. Little research has been performed on EI of HIED presidents, so this study will add to the literature. In this section, terms specific to this study have been defined and five research questions were identified and will be explored. The scope of this study is southeastern U.S. presidents of colleges and universities who have public blogs or writing posted on the college website during a consecutive 3-year period sometime between January 2015 and December 2019. It is from this population that this study intends to examine EI through written communication using LIWC and the development of an EI Big Five/EI CDI proxy score.

CHAPTER 3: METHODOLOGY

Introduction

This chapter presents the methodology used in this study. The study will evaluate southeastern United States 2- and 4-year public college presidents' public written communication for emotional intelligence (EI) via the LIWC text analysis software. Detailed below are the study's sample size, power, setting, research questions, and hypotheses; each variable's measurements; data collection techniques; and each measure's validity.

Research Questions and Hypotheses

This study is composed of five research questions and five hypotheses. It examines how EI changes over time utilizing multilevel growth modeling and how those changes are influenced by college presidents' demographics and life choices. Table 6 presents research questions, substantive hypotheses, and their statistical hypotheses.

Table 6. Research Questions, Their Substantive, and Their Statistical Hypotheses

Research Question & Model	Hypotheses
1. Does average **emotional intelligence** in southeastern United States 2- and 4-year public college presidents' differ between presidents? Model: $Y_{ti} = \pi_{oi} + \varepsilon_{ti}$ $\pi_{oi} = \beta_{00} + u_{0i}$ $Y_{ti} = \beta_{00} + u_{0i} + \varepsilon_{ti}$	**Substantive:** The average **emotional intelligence** in southeastern United States 2- and 4-year public college presidents' differs between presidents. u_{0i} represents the variance component illustrating differences in average EI between individuals. **Null**: $u_{0i} = 0$ Alternative: $u_{0i} \neq 0$
2. Does **emotional intelligence** in presidents' public electronic written communication change with **time**? If so, what is the shape of the trajectory? Model: $\pi_{1i} = \beta_{10}$ $Y_{ti} = \beta_{00} + \beta_{10}a_{ti} + u_{0i} + \varepsilon_{ti}$	**Substantive:** The **emotional intelligence** in southeastern United States 2- and 4-year public college presidents' public electronic written communication changes with **time**. The trajectory is linear positive. β_{10} represents the linear mathematical relationship between time and EI

Table 6 (*Cont.*)

Research Question & Model	Hypotheses
or $\pi_{2i} = \beta_{20}$ $Y_{ti} = \beta_{00} + \beta_{10}a_{ti} + \beta_{20}a^2_{ti} + u_{0i} + \varepsilon_{ti}$	β_{20} represents the quadratic mathematical relationship between time and EI a_{ti} represents the five time occasions measuring a leader's EI **Null**: $\beta_{10} = 0$ Alternative: $\beta_{10} \neq 0$
3. Does the trajectory of the **emotional intelligence** in presidents' public electronic written communication vary across presidents? Model: $\pi_{1i} = \beta_{10} + u_{1i}$ $Y_{ti} = \beta_{00} + \beta_{10}time_{ti} + u_{1i}time_{ti} + u_{0i} + \varepsilon_{ti}$	**Substantive:** The trajectory of the **emotional intelligence** in southeastern United States 2- and 4-year public college presidents' public electronic written communication varies across presidents. u_{1i} represents the variance component illustrating differences in the trajectory of EI between individuals **Null**: $u_{1i} = 0$ Alternative: $u_{1i} \neq 0$
4. After controlling for presidents' background variables, do initial levels of **emotional intelligence** in southeastern United States 2- and 4-year public college presidents vary as a function of the background variables? Where background variables = gender, age, ed level, life-altering event, institutional type, institutional size, and institution rural. Generic Model: $\pi_{0i} = \beta_{00} + \beta_{0covariates}$ $\pi_{1i} = \beta_{10} + u_{0i}$ $Y_{ti} = \beta_{00} + \beta_{0covariates} + \beta_{10}time_{ti} + u_{1i}time_{ti} + u_{0i} + \varepsilon_{ti}$	**Substantive:** After controlling for presidents' background variables, initial levels of **emotional intelligence** in southeastern United States 2- and 4-year public college presidents vary as a function of a. **gender** where women have higher EI than men, b. **age** where EI increases with age, c. **education level** where EI increases with higher educational levels, d. experiencing a **life-altering event** where presidents experiencing a life-altering event have higher EI than those who have not, e. **institutional type** where presidents at 2-year institutions have higher EI than those at 4-year, f. **institutional size** where presidents at small institutions have higher EI than those at large, g. or **institutional rurality** where presidents from rural institutions have higher EI than those from urban

Table 6 (*Cont.*)

Research Question & Model	Hypotheses
a. Model: $\pi_{0i} = \beta_{00} + \beta_{01}\text{gender} + \beta_{02}\text{age} + \beta_{03}\text{ed\_level} + \beta_{04}\text{life\_event} + \beta_{05}\text{inst\_type} + \beta_{06}\text{inst\_size} + \beta_{07}\text{inst\_rural} + u_{0i}$ $\pi_{1i} = \beta_{10} + u_{1i}$ $Y_{ti} = \beta_{00} + \beta_{01}\text{gender} + \beta_{02}\text{age} + \beta_{03}\text{ed\_level} + \beta_{04}\text{life\_event} + \beta_{05}\text{inst\_type} + \beta_{06}\text{inst\_size} + \beta_{07}\text{inst\_rural} + \beta_{10}\text{time}_{ti} + u_{1i}\text{time}_{ti} + u_{0i} + \varepsilon_{ti}$	a. β_{01}gender represents the differences in the initial level of EI between men and women, where women's EI is higher than men's. **Null**: $\beta_{01} = 0$ **Alternative**: $\beta_{01} > 0$
b. Model: $\pi_{0i} = \beta_{00} + \beta_{01}\text{gender} + \beta_{02}\text{age} + \beta_{03}\text{ed\_level} + \beta_{04}\text{life\_event} + \beta_{05}\text{inst\_type} + \beta_{06}\text{inst\_size} + \beta_{07}\text{inst\_rural} + u_{0i}$ $\pi_{1i} = \beta_{10} + u_{1i}$ $Y_{ti} = \beta_{00} + \beta_{01}\text{gender} + \beta_{02}\text{age} + \beta_{03}\text{ed\_level} + \beta_{04}\text{life\_event} + \beta_{05}\text{inst\_type} + \beta_{06}\text{inst\_size} + \beta_{07}\text{inst\_rural} + \beta_{10}\text{time}_{ti} + u_{1i}\text{time}_{ti} + u_{0i} + \varepsilon_{ti}$	b. β_{02} represents the differences in the initial level of EI between younger and older presidents where older president's EI is higher than younger. **Null**: $\beta_{02} = 0$ **Alternative**: $\beta_{02} > 0$
c. Model: $\pi_{0i} = \beta_{00} + \beta_{01}\text{gender} + \beta_{02}\text{age} + \beta_{03}\text{ed\_level} + \beta_{04}\text{life\_event} + \beta_{05}\text{inst\_type} + \beta_{06}\text{inst\_size} + \beta_{07}\text{inst\_rural} + u_{0i}$ $\pi_{1i} = \beta_{10} + u_{1i}$ $Y_{ti} = \beta_{00} + \beta_{01}\text{gender} + \beta_{02}\text{age} + \beta_{03}\text{ed\_level} + \beta_{04}\text{life\_event} + \beta_{05}\text{inst\_type} + \beta_{06}\text{inst\_size} + \beta_{07}\text{inst\_rural} + \beta_{10}\text{time}_{ti} + u_{1i}\text{time}_{ti} + u_{0i} + \varepsilon_{ti}$	c. β_{03} represents the differences in the initial level of EI between presidents' level of education where presidents with higher educational levels have higher EI. **Null**: $\beta_{03} = 0$ **Alternative**: $\beta_{03} > 0$
d. Model: $\pi_{0i} = \beta_{00} + \beta_{01}\text{gender} + \beta_{02}\text{age} + \beta_{03}\text{ed\_level} + \beta_{04}\text{life\_event} + \beta_{05}\text{inst\_type} + \beta_{06}\text{inst\_size} + \beta_{07}\text{inst\_rural} + u_{0i}$ $\pi_{1i} = \beta_{10} + u_{1i}$ $Y_{ti} = \beta_{00} + \beta_{01}\text{gender} + \beta_{02}\text{age} + \beta_{03}\text{ed\_level} + \beta_{04}\text{life\_event} + \beta_{05}\text{inst\_type} + \beta_{06}\text{inst\_size} + \beta_{07}\text{inst\_rural} + \beta_{10}\text{time}_{ti} + u_{1i}\text{time}_{ti} + u_{0i} + \varepsilon_{ti}$	d. β_{04} represents the differences in the initial level of EI between presidents who have and have not had a life-altering event where presidents who have experienced a life-altering event have higher EI than those who have not. **Null**: $\beta_{04} = 0$ **Alternative**: $\beta_{04} > 0$
	e. β_{05} represents the differences in the initial level of EI between presidents of 2- and 4-year institutions where presidents at 2-year institutions have higher EI than those at 4-year. **Null**: $\beta_{05} = 0$ **Alternative**: $\beta_{05} > 0$

Table 6 (*Cont.*)

Research Question & Model	Hypotheses
e. Model: $\pi_{0i} = \beta_{00} + \beta_{01}\text{gender} + \beta_{02}\text{age} + \beta_{03}\text{ed\_level} + \beta_{04}\text{life\_event} + \beta_{05}\text{inst\_type} + \beta_{06}\text{inst\_size} + \beta_{07}\text{inst\_rural} + u_{0i}$ $\pi_{1i} = \beta_{10} + u_{1i}$ $Y_{ti} = \beta_{00} + \beta_{01}\text{gender} + \beta_{02}\text{age} + \beta_{03}\text{ed\_level} + \beta_{04}\text{life\_event} + \beta_{05}\text{inst\_type} + \beta_{06}\text{inst\_size} + \beta_{07}\text{inst\_rural} + \beta_{10}\text{time}_{ti} + u_{1i}\text{time}_{ti} + u_{0i} + \varepsilon_{ti}$	f. β_{06} represents the differences in the initial level of EI between presidents of smaller and larger institutions, where presidents at small institutions have higher EI than those at large. **Null**: $\beta_{06} = 0$ **Alternative**: $\beta_{06} > 0$
f. Model: $\pi_{0i} = \beta_{00} + \beta_{01}\text{gender} + \beta_{02}\text{age} + \beta_{03}\text{ed\_level} + \beta_{04}\text{life\_event} + \beta_{05}\text{inst\_type} + \beta_{06}\text{inst\_size} + \beta_{07}\text{inst\_rural} + u_{0i}$ $\pi_{1i} = \beta_{10} + u_{1i}$ $Y_{ti} = \beta_{00} + \beta_{01}\text{gender} + \beta_{02}\text{age} + \beta_{03}\text{ed\_level} + \beta_{04}\text{life\_event} + \beta_{05}\text{inst\_type} + \beta_{06}\text{inst\_size} + \beta_{07}\text{inst\_rural} + \beta_{10}\text{time}_{ti} + u_{1i}\text{time}_{ti} + u_{0i} + \varepsilon_{ti}$	g. β_{07} represents the differences in the initial level of EI between presidents of rural and urban institution where presidents from rural institutions have higher EI than those from urban. **Null**: $\beta_{07} = 0$ **Alternative**: $\beta_{07} > 0$
g. Model: $\pi_{0i} = \beta_{00} + \beta_{01}\text{gender} + \beta_{02}\text{age} + \beta_{03}\text{ed\_level} + \beta_{04}\text{life\_event} + \beta_{05}\text{inst\_type} + \beta_{06}\text{inst\_size} + \beta_{07}\text{inst\_rural} + u_{0i}$ $\pi_{1i} = \beta_{10} + u_{1i}$ $Y_{ti} = \beta_{00} + \beta_{01}\text{gender} + \beta_{02}\text{age} + \beta_{03}\text{ed\_level} + \beta_{04}\text{life\_event} + \beta_{05}\text{inst\_type} + \beta_{06}\text{inst\_size} + \beta_{07}\text{inst\_rural} + \beta_{10}\text{time}_{ti} + u_{1i}\text{time}_{ti} + u_{0i} + \varepsilon_{ti}$	
5. After controlling for presidents' background variables, does **emotional intelligence** in southeastern United States 2- and 4-year public college presidents vary as a function of of the background variables? Where background variables = gender, age, ed level, life-altering event, institutional type, institutional size, and institution rural.	**Substantive:** After controlling for presidents' background variables, **emotional intelligence** in southeastern United States 2- and 4-year public college presidents' vary as a function of a. **gender** where EI growth in women will be greater than in men, b. **age** where EI growth is greater in older leaders, c. **education level** where EI growth is greater in leaders with higher levels, d. experiencing a **life-altering event** where EI growth is greater in those who have experienced a life-altering event,
a. Model: $\pi_{0i} = \beta_{00} + \beta_{01}\text{gender} + \beta_{02}\text{age} + \beta_{03}\text{ed\_level} + \beta_{04}\text{life\_event} + \beta_{05}\text{inst\_type} + \beta_{06}\text{inst\_size} + \beta_{07}\text{inst\_rural} + u_{0i}$ $\pi_{1i} = \beta_{10} + \beta_{11}\text{gender} + u_{1i}$ $Y_{ti} = \beta_{00} + \beta_{01}\text{gender} + \beta_{02}\text{age} + \beta_{03}\text{ed\_ level} + \beta_{04}\text{life\_event} + \beta_{05}\text{inst\_type} + \beta_{06}\text{inst\_size} + \beta_{07}\text{inst\_rural} + \beta_{10}\text{time}_{ti} + \beta_{11}\text{gender*time}_{ti} + u_{1i}\text{time}_{ti} + u_{0i} + \varepsilon_{ti}$	

Table 6 (*Cont.*)

Research Question & Model	Hypotheses
f. Model: $\pi_{0i} = \beta_{00} + \beta_{01}\text{gender} + \beta_{02}\text{age} + \beta_{03}\text{ed\_level} + \beta_{04}\text{life\_event} + \beta_{05}\text{inst\_type} + \beta_{06}\text{inst\_size} + \beta_{07}\text{inst\_rural} + u_{0i}$ $\pi_{1i} = \beta_{10} + \beta_{11}\text{gender} + u_{1i}$ $Y_{ti} = \beta_{00} + \beta_{01}\text{gender} + \beta_{02}\text{age} + \beta_{03}\text{ed\_level} + \beta_{04}\text{life\_event} + \beta_{05}\text{inst\_type} + \beta_{06}\text{inst\_size} + \beta_{07}\text{inst\_rural} + \beta_{10}\text{time}_{ti} + \beta_{11}\text{gender*time}_{ti} + u_{1i}\text{time}_{ti} + u_{0i} + \varepsilon_{ti}$	j. **institutional type** where EI growth of presidents at 2-year institutions is greater than those at 4-year institutions, k. **institutional size** where the EI growth of presidents at small institutions is greater than those at large institutions, l. or **institutional rurality** where the EI growth of presidents at rural institutions is greater than those at urban institutions.
g. Model: $\pi_{0i} = \beta_{00} + \beta_{01}\text{gender} + \beta_{02}\text{age} + \beta_{03}\text{ed\_level} + \beta_{04}\text{life\_event} + \beta_{05}\text{inst\_type} + \beta_{06}\text{inst\_size} + \beta_{07}\text{inst\_rural} + u_{0i}$ $\pi_{1i} = \beta_{10} + \beta_{13}\text{ed\_level*time} + u_{1i}$ $Y_{ti} = \beta_{00} + \beta_{01}\text{gender} + \beta_{02}\text{age} + \beta_{03}\text{ed\_level} + \beta_{04}\text{life\_event} + \beta_{05}\text{inst\_type} + \beta_{06}\text{inst\_size} + \beta_{07}\text{inst\_rural} + \beta_{10}\text{time}_{ti} + \beta_{13}\text{ed\_level*time}_{ti} + u_{1i}\text{time}_{ti} + u_{0i} + \varepsilon_{ti}$	a. β_{11} represents the mathematical relationship between gender, time, and EI where EI growth in women will be greater than in men. **Null**: $\beta_{11}\text{Gender*time}_{ti} = 0$ **Alternative**: $\beta_{11}\text{Gender*time}_{ti} > 0$
h. Model: $\pi_{0i} = \beta_{00} + \beta_{01}\text{gender} + \beta_{02}\text{age} + \beta_{03}\text{ed\_level} + \beta_{04}\text{life\_event} + \beta_{05}\text{inst\_type} + \beta_{06}\text{inst\_ size} + \beta_{07}\text{inst\_rural} + u_{0i}$ $\pi_{1i} = \beta_{10} + \beta_{14}\text{life\_event} + u_{1i}$ $Y_{ti} = \beta_{00} + \beta_{01}\text{gender} + \beta_{02}\text{age} + \beta_{03}\text{ed\_level} + \beta_{04}\text{life\_event} + \beta_{05}\text{inst\_type} + \beta_{06}\text{inst\_ size} + \beta_{07}\text{inst\_rural} + \beta_{10}\text{time}_{ti} + \beta_{14}\text{life\_ event*time}_{ti} + u_{1i}\text{time}_{ti} + u_{0i} + \varepsilon_{ti}$	b. β_{12} represents the mathematical relationship between age, time, and EI where EI growth is greater in older leaders. **Null**: $\beta_{12}\text{age*time}_{ti} = 0$ **Alternative**: $\beta_{12}\text{age*time}_{ti} > 0$ c. B_{13} represents the mathematical relationship between education level, time, and EI where EI growth is greater in leaders with higher educational levels. **Null**: $\beta_{13}\text{ed\_level*time}_{ti} = 0$ **Alternative**: $\beta_{13}\text{ed\_level*time}_{ti} > 0$ d. β_{14} represents the mathematical relationship between a life-altering event, time, and EI where EI growth is greater in those who have experienced a life-altering event than those who have not. **Null**: $\beta_{14}\text{Life}_{ti}\text{* time}_{ti} = 0$ **Alternative**: $\beta_{14}\text{Life}_{ti}\text{* time}_{ti} > 0$
i. Model: $\pi_{0i} = \beta_{00} + \beta_{01}\text{gender} + \beta_{02}\text{age} + \beta_{03}\text{ed\_level} + \beta_{04}\text{life\_event} + \beta_{05}\text{inst\_type} + \beta_{06}\text{inst\_ size} + \beta_{07}\text{inst\_rural} + u_{0i}$ $\pi_{1i} = \beta_{10} + \beta_{15}\text{inst\_type} + u_{1i}$ $Y_{ti} = \beta_{00} + \beta_{01}\text{gender} + \beta_{02}\text{age} + \beta_{03}\text{ed\_level} + \beta_{04}\text{life\_event} + \beta_{05}\text{inst\_type} + \beta_{06}\text{inst\_size} + \beta_{07}\text{inst\_rural} + \beta_{10}\text{time}_{ti} + \beta_{15}\text{inst\_type*time}_{ti} + u_{1i}\text{time}_{ti} + u_{0i} + \varepsilon_{ti}$	e. β_{15} represents the mathematical relationship between institutional type, time, and EI where EI growth of presidents at 2-year institutions is greater than those at 4-year institutions. **Null**: $\beta_{15}\text{Inst\_Type*time}_{ti} = 0$ **Alternative**: $\beta_{15}\text{Inst\_Type*time}_{ti} > 0$

Table 6 (*Cont.*)

Research Question & Model	Hypotheses
f. Model: $\pi_{0i} = \beta_{00} + \beta_{01}\text{gender} + \beta_{02}\text{age} + \beta_{03}\text{ed\_level} + \beta_{04}\text{life\_event} + \beta_{05}\text{inst\_type} + \beta_{06}\text{inst\_size} + \beta_{07}\text{inst\_rural} + u_{0i}$ $\pi_{1i} = \beta_{10} + \beta_{16}\text{inst\_size} + u_{1i}$ $Y_{ti} = \beta_{00} + \beta_{01}\text{gender} + \beta_{02}\text{age} + \beta_{03}\text{ed\_level} + \beta_{04}\text{life\_event} + \beta_{05}\text{inst\_type} + \beta_{06}\text{inst\_size} + \beta_{07}\text{inst\_rural} + \beta_{10}\text{time}_{ti} + \beta_{16}\text{inst\_size*time}_{ti} + u_{1i}\text{time}_{ti} + u_{0i} + \varepsilon_{ti}$	f. β_{16} represents the mathematical relationship between institutional size, time, and EI where the EI growth of presidents at small institutions is greater than those at large institutions. **Null**: $\beta_{16}\text{Inst\_Size*time}_{ti} = 0$ **Alternative**: $\beta_{16}\text{inst\_size*time}_{ti} > 0$
g. Model: $\pi_{0i} = \beta_{00} + \beta_{01}\text{gender} + \beta_{02}\text{age} + \beta_{03}\text{ed\_level} + \beta_{04}\text{life\_event} + \beta_{05}\text{inst\_type} + \beta_{06}\text{inst\_size} + \beta_{07}\text{inst\_rural} + u_{0i}$ $\pi_{1i} = \beta_{10} + \beta_{17}\text{inst\_rural} + u_{1i}$ $Y_{ti} = \beta_{00} + \beta_{01}\text{gender} + \beta_{02}\text{age} + \beta_{03}\text{ed\_level} + \beta_{04}\text{life\_event} + \beta_{05}\text{inst\_type} + \beta_{06}\text{inst\_size} + \beta_{07}\text{inst\_rural} + \beta_{17}\text{inst\_rural*time}_{ti} + u_{1i}\text{time}_{ti} + u_{0i} + \varepsilon_{ti}$	g. β_{17} represents the mathematical relationship between institutional rurality, time, and EI where the EI growth of presidents at small institutions is greater than those at large institutions. **Null**: $\beta_{17}\text{Inst\_Rural*time}_{ti} = 0$ **Alternative**: $\beta_{17}\text{Inst\_Rural*time}_{ti} > 0$
h. Model: $\pi_{0i} = \beta_{00} + \beta_{01}\text{gender} + \beta_{02}\text{age} + \beta_{03}\text{ed\_level} + \beta_{04}\text{life\_event} + \beta_{05}\text{inst\_type} + \beta_{06}\text{inst\_size} + \beta_{07}\text{inst\_rural} + u_{0i}$ $\pi_{1i} = \beta_{10} + \beta_{17}\text{inst\_rural} + u_{1i}$ $Y_{ti} = \beta_{00} + \beta_{01}\text{gender} + \beta_{02}\text{age} + \beta_{03}\text{ed\_level} + \beta_{04}\text{life\_event} + \beta_{05}\text{inst\_type} + \beta_{06}\text{inst\_size} + \beta_{07}\text{inst\_rural} + \beta_{17}\text{inst\_rural*time}_{ti} + u_{1i}\text{time}_{ti} + u_{0i} + \varepsilon_{ti}$	

Methods

This study will examine the 3-year change in 2- and 4-year college presidents' EI in the southeastern United States and the factors that moderate that change. To accomplish this, at least two pieces of college presidents' public writing created consecutively every 6 months over a 3-year period from January 2015 to December 2019 will be collected. Collected writings will be scored electronically via LIWC to derive a Big Five score which will serve as a proxy EI measure. This will be discussed further in the measures section of this chapter. Using software

to evaluate presidents' writing improves objectivity and offers a novel method for identifying EI scores.

Study Design

To facilitate growth modeling in this study, I will create redundant spreadsheets to preserve original data. In addition, because most literature shows EI can change over time, all documents examined in this study will have been created within a consecutive range from January 2015 and December 2019.

Using the Carnegie Classification of Institutions of Higher Education™ database (Indiana University, 2015), I will identify 2- and 4-year public colleges and universities in Southeast United States. I will use a Google search to access institutional websites then examine them for public documents written by presidents from 2015 and 2019.

Presidents will receive a questionnaire to complete. It will ask for their full birthdate, highest educational level, if they have experienced a life-altering event, consent of participation, and verification they wrote the communication pieces which will be used in the study. I will also ask them to complete as electronic version of the 30-question TEIQue-SF to assist in validating the EI CDI score. However, failure to complete the TEIQue-SF will not eliminate a president from the study.

Every document within one 6-month period for each president will be saved into a folder. I will use the same naming scheme for each file to prevent confusion: Year Semester – College Name. LIWC will analyze each document individually and scores for each 6 months will be averaged into one 6-month score.

I will create a spreadsheet to house each president's questionnaire responses and TEIQue-SF score. For each president, 6 rows will be designated to hold every 6-month data set over the

3-year period. On each row, every piece of writing used in that 6-month corpus will be documented. For each piece of writing, its document type (writing such as a letter, blog, or a written speech), creation date, direct URL, and document filename will be entered. LIWC generates one score for each of its 93 categories, so each 6-month corpus's LIWC category scores will also be added to the row. Throughout the data collection and LIWC analysis process, I will continually keep a back-up copy of this spreadsheet in a different location, updated after each major change.

I will also create a data analysis spreadsheet grouped by president and containing each 6-month corpus's LIWC scores, Big Five scores derived from LIWC, an EI score derived from the Big Five scores, and TEIQue-SF score. A copy of this spreadsheet will be used to perform a multilevel growth analysis in SPSS utilizing the MIXED function.

Study Setting

Presidents included in this study will be from public 2- and 4-year colleges and universities located in Southeast United States which includes Alabama, Arkansas, Florida, Georgia, Kentucky, Louisiana, Mississippi, North Carolina, South Carolina, Tennessee, Virginia, and West Virginia. Colleges included in the study will be public state-funded institutions, both 2- and 4-year, of any size and rurality. No military, professional-only such as medical or law schools, private, or for-profit institutions will be included. All writing samples will be written by the college's president and available to the public via the college's website, presidential blog, or other electronic public source.

Participants and Placement

Participants will be presidents of public 2- and 4-year colleges and universities located in Southeast United States. Institutions will be identified in the Carnegie Classification of

Institutions of Higher Education™ database (Indiana University, 2015), a standardized list of colleges and universities across the U.S. Inclusion criteria for participation requires each president to have written more than one document, whether intended as written or spoken communication, publicly available on a website, college's newsletter, presidential blog, or other public source consecutively every 6 months over a period of 3 years sometime within the period of January 2015 and December 2019.

A period of three years was chosen because it was slightly below the lowest average tenure for college presidents identified in the literature. According to the American Council on Education, in 2017 the average tenure of a 4-year college or university president was 6.5 years compared to 8.5 in 2006 (American Council on Education, 2017; Thomason, 2018). Cooper (2016) reports community college presidents in California averaged only 3.5 years in 2016 while McDonald (2012) reports less than five. Jaschik and Lederman (2022) found 87% of 2- and 4-year presidents have been president of their institution for less than ten years, 75% for less than five.

No other excluding criteria for presidents will be incorporated. Presidents will be included in the study as long as they are located in Southeast United States and have the minimum number of written documents available.

Power Analysis and Sample Size Estimation

Only two graphical user interface (GUI) programs exist to identify sample size and power analysis for multilevel longitudinal designs in SPSS using the MIXED function: PASS and GLIMMPSE (Guo & Pandis, 2015; Kreidler et al., 2013; Munjal et al., 2014). Other software which identify sample size and power analysis for multilevel longitudinal designs require significant programming experience and are cost prohibitive. Therefore, this study uses

GLIMMPSE. The full results of the GLIMMPSE analysis can be found in Appendix B. Utilizing GLIMMPSE, a sample size of 32 participants yielded a .804 power, exceeding the suggested .80 standard used in most quantitative studies (Trochim, 2020). Therefore, this power value is appropriate for the discipline.

The Hotelling-Lawley Trace statistical test is repeatedly recommended to determine sample size and power analysis and to control the Type I error rate for repeated-measure studies, especially in conjunction with the Wald test for the general linear mixed model with Kenward-Roger degrees of freedom (Keselman et al., 2001; Kreidler et al., 2012; Shieh, 2005) and will be used in this study.

The alpha rate refers to the amount of risk the study has of producing a Type I error, known as a false positive. The commonly accepted Type I error value is .05 and will be used in this study. This means a false positive, or Type I error, has the probability of being made no more than 5% of the time (Creswell & Creswell, 2018).

The effect size explains the variance between two or more variables. According to Field (2014), effect size is a standardized measurement identifying how important a relationship is between variables. It shows the significance of a study's results separate from its population (Creswell & Creswell, 2018). Effect sizes can be compared across studies using both different variables and different measurements and are not effected by sample size, so they are very useful in explaining the significance of a relationship. For this study, the correlation coefficient *r* will reflect the effect size of variables. Tables 31-33 in Appendix C identifies the correlation coefficients between the Big Five and EI as indicated in the literature. The average correlation coefficient in Tables 31-33 for agreeableness is .24, .33 for conscientiousness, .35 for

extraversion, -.33 for neuroticism, and .26 for openness to experience. Therefore, based upon the mean of these averages, a medium effect of .30 will be assumed for this study.

Materials (Instruments)

Each of the instruments in this section are provided in full in Appendix A.

Demographic and EI Survey

Presidents or their designees will complete an online questionnaire and provide the following information: birthdate, highest educational level, life-altering event, consent, verification he or she wrote the communication pieces be used in the study, and this survey will include a link to an electronic copy of the Trait Emotional Intelligence Questionnaire-Short Form (TEIQue-SF) to assist in validating the EI CDI.

TEIQue-SF Measure of EI

TEIQue-SF is the short form of the TEIQue which assesses one's trait EI (Petrides, 2009). Participants respond to a 7-point Likert scale where the maximum score is 210, minimum score is 30, and average score is 120. Higher scores indicate higher EI. The TEIQue-SF provides almost identical estimates as the longer TEIQue (Petrides et al., 2010). The short form evaluates 15 traits of EI but only one overall score is provided in the short form instead of 15 scores for each of the 15 traits like the long form.

Instrument Validity and Reliability. According to Gardner and Qualtern (2010), TEIQue-SF has an adequate reliability and validity. Andrei et al. (2016) also found support for TEIQue validity. Several other studies have found consistent incremental validity of the TEIQue-SF. Siegling, Vesely, Petrides, and Saklofske (2015) identified eight studies where its incremental variance ranged from .01 to .18 while being significant in 81% of analyses.

Item response theory (IRT) is a common method for examining the design and scoring of tests and measurements. In psychometric property analysis, IRT is rarely applied and this lack of use has caused concern in the field. Cooper and Petrides (2010) examined the psychometric properties and content validity using IRT and found the TEIQue-SF to have high reliability. In two studies using IRT, Cooper and Petrides (2010) found Cronbach's alpha to be .89 for men and .88 for women (p. 451). Siegling et al. (2014) found the TEIQue-SF has high reliability with a Cronbach's alpha of .89. Stami et al. (2018) reported studies found Cronbach's alphas ranging from .65 to .85.

Internal consistency is .85 and test re-test reliability ranged from .50 to .82 (Petrides & Furnham, 2006). In Cooper and Petrides (2010), TEIQue-SF psychometric properties were reported as very good to excellent. Siegling et al. (2015b) found that incremental variance explained by the TEIQue–SF has ranged from .01 to .18 and was significant in 13 of the 16 analyses. The TEIQue–SF can be found in Appendix A.

Linguistic Inquiry and Word Count 2015 (LIWC) Software

Presidential writing will be analyzed for EI via LIWC. LIWC was created in 1993 and its dictionaries were cataloged and evaluated between 1992 and 1994 by panels of three human judges. Each word was required to achieve at least a 2-to-3 agreement by the panel in order to be included in one or more of the 80 categories. After this process was complete, a final set of three human judges evaluated the entire dictionary again and agreed between 93% and 100% of the time. This process was undertaken again in 1997 and 2007 (Tausczik & Pennebaker, 2010). According to Licorish and MacDonell (2015), LIWC2015 captures more than 86% of American English written and spoken words.

Instrument Validity and Reliability. LIWC's internal reliability was determined by calculating each dictionary word as a percentage of total words per text. Each of these scores were entered as an item in a standard Cronbach's alpha calculation. This resulted in raw alpha scores for each category of words separately for each corpora. The uncorrected alphas are the averages of each corpora's alpha score.

However, because in writing one tends to say something then move on to the next idea, the vast array of nouns and verbs which constitute a category are not frequently repeated. Therefore, the uncorrected alpha tends to significantly underestimate the reliability in each category because the rate of words in a category used in a given text varies widely from text to text. To address this issue, corrected alphas were calculated for each category using the Spearman-Brown prediction formula, resulting in a more accurate internal consistency for each category (Pennebaker et al., 2015). Uncorrected alphas for all categories averaged an unacceptable .4 but corrected alphas averaged .8, a good internal reliability score. A good reliability suggests LIWC measures the same word categories the same way among different corpora of text.

Donohue et al. (2014) found human coder ratings were significantly correlated at $p < .05$ to the LIWC ratings in three validation studies using LIWC and human coders on a sample of 40 Israeli speeches. The study was performed to validate six constructs of the speeches. Faliagka et al. (2012) found human recruiters' and LIWC scores were correlated with a Spearman's ρ of .63, confirming LIWC's internal reliability.

Content Validity. LIWC's content validity was assessed by groups composed of 4-8 human judges who systematically evaluated every single word in the LIWC dictionary for categorical fit. LIWC2015 dictionaries expanded the already agreed upon LIWC2007

dictionaries. In cases of ties between the judges, copra of appropriate documents were evaluated for word meaning and category appropriateness. Words for which the judges could not agree were discarded. After the dictionary was established, several texts were tested using the new 2015 dictionary and analyzed for frequency.

Psychometric evaluations were also performed on the dictionaries during which 2-8 human judges were again employed for a 5-step evaluation process. Upon its completion, the entire process was performed completely again in order to identify any mistakes. During this repeat, the dictionary was evaluated by another two judges for mistakes (Pennebaker et al., 2015). This process has been performed on all three versions of LIWC beginning in 1993 when the software was conceived.

External Validity. External validity of LIWC has been supported by hundreds of studies (Tausczik & Pennebaker, 2010). The first occurred in 1993 when LIWC was created. In 1996, Pennebaker and Francis again evaluated LIWC by analyzing essays written over three days by 72 introductory psychology students. Four judges evaluated essays against dimensions which aligned with LIWC's dimensions. Pearson correlational analyses were performed on the judges' ratings and the LIWC ratings to test validity. The results provided support for LIWC's external validity (Pennebaker et al., 2015).

Hirsh and Peterson (2009) found the results of the LIWC analysis of the narratives was consistent with previous research findings in personality psychology. Kahn et al. (2007) utilized three experiments to manipulate a writer's seemingly unconnected emotional experience in his or her narrative to four LIWC categories in hypothesized ways. Results supported LIWC as a valid tool for measuring one's verbal expression of emotion. Pennebaker et al. (2014) examined a corpus of more than 50,000 university admissions essays from 25,975 applicants to determine if

function word use could predict academic success and collegiate grade point average (GPA). Results showed internal consistency across the LIWC categories and previous research. Donohue et al. (2014) conducted three validation studies utilizing LIWC and human coders on a sample of 40 Israeli speeches. The results from a correlation analysis were significant for three of the constructs. Tausczik and Pennebaker (2010) provides a list of 121 empirical studies and how they validate specific word categories in LIWC.

During my search of the LIWC and EI literature, I encountered very limited studies which examined EI via LIWC. Only one study examined the validity of LIWC as a tool to measure EI: Abe (2011) reported an internal reliability between EI and LIWC of .77. Only one study identified LIWC categories which correlated with EI; Yoon (2008) found significant correlations of five LIWC categories with EI: Positive feelings, $r = .33$; sociability, $r = .30$; communication, $r = .45$; word count, $r = .29$; and fillers, $r = -.41$.

Because LIWC was designed to examine language, the literature links LIWC to EI through effective communication skills, finding large positive correlations between them. Within the communication literature, Şimşek and Aktaş (2013) found EI and communication skills correlated significantly: $r = .66$. Hendon et al. (2017) found significant correlations between EI and communication skills: $r = .66$. Zhu et al. (2016) and Pitts et al. (2012) found the correlation coefficient to be .47 and .66 respectively. Jorfi and Jorfi (2011) found a strong effect between EI and communication skills through Kendall's tau at .85. All but one of these findings were significant at the .01 level. Zhu et al. (2016) was significant at the .05 level.

Many studies examine LIWC and the Big Five. Table 19 identifies studies where LIWC identified the Big Five and Table 20 lists EI and the Big Five empirical studies.

The literature shows that the Big Five and EI are highly correlated. Table 19 identifies the average variance (R^2) for each Big Five trait and EI model including trait EI. It shows EI correlates more closely with trait EI than with the other two models and neuroticism correlates most closely with trait EI than the other Big Five traits. Table 28 identifies the average variance (R^2) for the Big Five traits and the type of EI test including self-report, illustrating that the Big Five traits correlate more closely with self-report EI tests than ability tests. Further, extraversion correlates most closely with self-report tests than the other Big Five traits. Table 30 identifies the Big Five trait correlation coefficients by EI tests including the TEIQue-SF, illustrating that the TEIQue-SF correlates second most with the Big Five traits of all the EI tests listed. Neuroticism correlates most significantly but negatively with the TEIQue-SF, averaging -.53, while openness correlates least with an average of .26. Table 31 identifies the Big Five trait correlation coefficients by EI type including self-report like the TEIQue-SF, illustrating that the Big Five traits correlate more closely with self-report EI tests than ability tests. Extraversion correlates most significantly with self-report tests with an average of .47 while agreeableness correlates least with an average of .27. Finally, Table 32 lists the Big Five trait correlation coefficients by EI models including trait EI, illustrating that trait EI correlates more with the Big Five traits than ability EI but less than mixed. It also shows that neuroticism correlates most significantly but negatively with EI, averaging -.53, while agreeableness and openness both correlate least with an average of .24.

Studies also found good validity in the TEIQue-SF. For the TEIQue-SF, the validity coefficient for global trait EI was found to be high with $\alpha = .84$ (Halbgewachs, 2018) and $\alpha = .88$ (Petrides, 2009). Further, moderate correlations for the TEIQue-SF and the Big Five from 10 studies can be found in Table 5.

Many studies quantify the connection between the Big Five and EI. Table 21 identifies the predicted EI percent variance for individual Big Five traits. Table 22 identifies the positive or negative Pearson's correlations for each Big Five trait to EI. In general, these two tables provide data from almost 20 studies finding highly significant correlations between EI, the Big Five, and the Big Five traits. All Big Five traits except neuroticism correlate highly significantly and positively with EI; neuroticism correlates highly significantly but negatively with EI.

Finally, the LIWC categories which correlate to each Big Five trait is available in the literature. For each of the Big Five traits, tables 23-27 identify all of the LIWC categories which significantly correlate with that Big Five trait, whether the correlation is positive or negative, and in which study the correlation was found.

To test whether the Big Five/EI CDI proxy score (CDI) and TEIQue-SF are measuring the same thing, I will use a bivariate Pearson's correlation. A strong, significant correlation will suggest they are both measuring EI.

Meta-Analysis

To insure the CDI score for each Big Five trait is accurate and unbiased, a true effect size for each trait must calculated. Using the mean of the effect sizes for a Big Five personality does not take into account that some studies have tens of participants while others studies have thousands of participants. To account for the differences in sample sizes, a weighted correlation coefficient (r^*) will be derived from a meta-analysis to reduce bias. Once each trait's r^* is calculated, it will be multiplied by the value derived from each Big Five trait's LIWC score (Borenstein et al., 2009).

To derive r^*, first the effect sizes (r), or the correlation coefficient, and the total sample sizes (n) for each study are identified. It is important to mention that in some cases, one article

may include more than one study or experiment resulting in more than one effect size for each Big Five trait per study.

Next, the method based upon Hedges and Olkin (1985) and Hedges and Vevea (1998) will be used to calculate the weighted correlation coefficient for fixed- and random-effects using variances. Variance is weighted by incorporating both between- and within-study (Field & Wright, 2006). This process addresses the potential error of both fixed- and random-effects studies. For each Big Five trait, the following values must be calculated: The transformed effect size ($\bar{z}$) calculated by using Fisher's r-to-Z transformation, the trait's homogeneity (Q), a correlation coefficient constant (c), the between-study variance (τ^2), study weights (w), the average weight for each Big Five trait (w*), the random-effects value ($\bar{z}$*), the standard error ($SE(\bar{z}^*)$), the upper and lower confidence intervals, and a mean effect size ($\bar{z}$) (Borenstein et al., 2009; Field & Wright, 2006; Hedges & Vevea, 1998). Any τ^2 values which are negative must be changed to 0. Once the random-effects value ($\bar{z}$*) for each Big Five trait is calculated, it must be converted back to r, designated as r*, which is the weighted correlation coefficient for the relationship between each Big Five trait and EI. Because the TEIQue-SF will be used in this study, only calculations for studies using the TEIQue or TEIQue-SF were employed.

For ease of reading, calculation values for each Big Five trait are presented in tables. Tables 34-38 in Appendix C list the fixed effects meta-analysis. To calculate the random effect size for each Big Five trait, Table 39 identifies the τ^2 values, Table 40 identifies the w* values, and Table 41 identifies the Q values. Table 5 identifies each trait's average of all correlation coefficient/effect sizes in the studies (r) and the standardized weighted aggregate correlation coefficient/effect size (r*). Table 7, below, provides the values for calculating random-effects value ($\bar{z}$*) for each Big Five trait.

Table 7. Calculating Random Effects Mean Effect Size for Big Five Traits

Big Five Trait	Q	$\bar{z}$*	c	SE($\bar{z}$*)	$\bar{z}$	CI Upper	CI Lower
Agreeableness	1,840.167	0.233	4,843.024	0.017	0.205	0.691	-0.224
Conscientiousness	5,415.856	0.309	4,872.577	0.240	0.269	0.915	-0.297
Extraversion	5,423.841	0.307	4,950.909	0.236	0.299	0.910	-0.295
Neuroticism	10,483.146	-0.279	5,064.969	0.340	-0.286	-0.827	0.268
Openness	1,857.740	0.234	4,843.024	0.017	0.202	0.692	-0.224

Note: Q = homogeneity statistic; $\bar{z}$* = random-effects average effect size; c = constant for correlations coefficients; $SE(\bar{z}^*)$ = standard error of $\bar{z}$*; $\bar{z}$ = average of fixed-effect model's effect sizes transformed by Fisher's r-to-Z calculation; *CI Upper* and *CI Lower* = upper and lower confidence intervals for r_i.

Finally, using r* from the meta-analysis, the CDI can be calculated. The LIWC score for each Big Five trait will be multiplied by that Big Five trait's r* derived from the meta-analysis. The final formula for the Big Five/EI CDI for reach piece of writing for each president is as follows: (Agreeableness score * .229) + (Conscientiousness score * .299) + (Extraversion score * .298) + (Openness to Experience score * .230) - (Neuroticism score * -.272) = Big Five/EI CDI proxy score.

Measures

This study is composed of an independent variable *time*, dependent variable *emotional intelligence*, and seven covariates which serve as moderating variables in later models. There are no experimental or control groups in this study; thus, there are no experimental treatments.

Time

Time, the independent variable, explains variance in EI (Ansari & Malik, 2017; Mayer et al., 2004). Defined as "the years of continuous service as a president" (Englert, 2008), *time* is operationalized for each HIED president by the collection of a six-month corpus of public writing samples composed by the president published online consecutively over three years within the period of January 2015 and December 2019.

Emotional Intelligence

The dependent variable, *emotional intelligence*, will be operationalized by the CDI. The categorical-dynamic index (CDI) is a composite of the Big Five CDI scores for each piece of writing identified through LIWC on each 6-month corpus. The TEIQue-SF EI score from each president's questionnaire will be used to validate the CDI. The CDI is necessary because the number of studies which significantly and consistently identify LIWC variables for the Big Five are more numerous than those which identify LIWC for EI.

Gender

The literature shows women have higher EI scores than men (Brackett et al., 2004; Craig et al., 2009; Goldenberg et al., 2006; Hall & Mast, 2008; Mandell & Pherwani, 2020; Mayer et al., 1999; Mayer et al., 2002; Mayer & Geher, 1996; Petrides & Furnham, 2001; Preece, 1999; Schutte et al., 1998; Tsaousis & Kazi, 2013; Van Rooy et al., 2005) although some discount the importance of gender in EI (Abbas & Khan, 2017; Goleman, 1996; Petrides & Furnham, 2001; Whitman et al., 2009). Operationally, *gender* is defined categorically as male or female on the survey completed by presidents.

Age

The literature links age increase to EI increase (Chapman & Hayslip, 2006; Derksen et al., 2002; Luebbers et al., 2007; Mayer et al., 1999; Palmer et al., 2003; Sliter et al., 2013). Further, Derksen et al. (2002) found EI begins to decrease around age 65. In this study, age is operationalized on the online survey completed by college presidents.

Educational Level

According to Adams (2013), *educational level*, defined as the level of education the president has achieved, is not significant to EI. However, Lopes et al. (2006), Maundu (2013), and Mikolajczak and Van Bellegem (2017) find that level of education does have an impact on

EI and Van Rooy and Viswesvaran (2004) found EI was a predictor of academic performance. In this study, educational level is operationalized categorically by *doctorate* or *other* on the online survey completed by college presidents.

Life-Altering Event

Several studies using LIWC illustrate that language changes when one experiences a life-altering event. Studies also indicate EI changes with the personality and perception shifts in life-altering events (Carroll, 2007; Pająk & Trzebiński, 2014; Pennebaker, 2011; Pennebaker & Lay, 2002; Stone, 2003). In this study, *life-altering event* is defined as a life-changing event which may include personal events such as divorce, depression, suicidality, death, major illness, even one's longevity (Mehl et al., 2012) or professional events such as experiencing financial difficulties, having to fire a subordinate, or encountering difficult legal matters. It is operationalized categorically by *Yes* or *No* on the online survey completed by college presidents.

Institutional Type

Increasing demands on HIED presidents is growing and EI is one avenue for addressing presidential issues. Evaluating presidents' EI from different institutional types may provide insight into improving leadership (Boyles, 2011; Eddy, 2013; Miller & Tuttle, 2006). In this study, "Basic Classification" in the Carnegie Classification of Institutions of Higher Education is simplified to *institutional type*, the types of institutions based upon their level of degrees granted and whether privately or publicly funded. It is operationalized categorically according to the Carnegie Classification of Institutions of Higher Education™ database (Indiana University, 2015) by *2-year public* or *4-year public*. Other categories will be excluded from this study.

Institutional Size

Increasing demands on HIED presidents is growing and EI is one avenue to address presidential burnout. Evaluating EI in presidents which differ by institutional size may provide insight into improving leadership (Boyles, 2011; Eddy, 2013; Luzebetak, 2010; Miller & Tuttle, 2006; Tack, 1991; Williams et al., 2007). In this study, *institutional size* is operationalized categorically by an institution of HIED's "Size and Setting Classification," the field in the Carnegie Classification of Institutions of Higher Education™ (Indiana University, 2015) database. This study will combine *very small* and *small* institutions into *small 0-1999* and all *medium* and *large* institutions into *large 2000+*. Institutional sizes are determined by institution-reported full-time equivalent enrollment (FTE) which "was calculated as full-time plus one-third part-time" (Indiana University, 2015). Other categories will be excluded from this study.

Institutional Rurality

Evaluating EI in presidents which differ by institutional rurality may provide insight into improving leadership (Boyles, 2011; Eddy, 2013; Luzebetak, 2010; Miller & Tuttle, 2006; Tack, 1991; Williams et al., 2007). In this study, *institutional rurality* is the "Degree of urbanization" in Carnegie Classification of Institutions of Higher Education (Indiana University, 2015) and is operationalized categorically by combining all *city* and *suburb* classifications into *urban* and all *town* and *rural* classifications into *rural*. Institutions falling within the *other* classification are excluded.

Coding of Variables

Table 8 identifies how variable values are coded.

Table 8. Variable Coding

Variable	Description	Level	Value Type	Values/Coded	Measure
id	Participant ID			Integer	Ordinal
time	Time	Within Individual	Variable representing 6 linear occasions (every 6 months)	0 - Time 0 1 - Time 1 2 - Time 2 3 - Time 3 4 - Time 4 5 - Time 5	Scale
quadtime	Quadratic Time	Within Individual	Recoded time variable from 6 occasions		
EI-SF	EI Score from Short Form	Individual	Numerical	Integer	Ordinal
CDI	EI/Big Five proxy CDI	Individual	Numerical	Integer	Ordinal
time	Time	Individual	Numerical in years	0 - 1st 6 mths 1 - 2nd 6 mths 2 - 3rd 6 mths 3 - 4th 6 mths 4 - 5th 6 mths 5 - 6th 6 mths	Scale
gender	Gender	Individual	Dummy	0 - Male 1 – Female	Scale
age	Age	Individual	Numerical in years	Integer	Ordinal
ed_level	Educational Level	Individual	Dummy	0 - Doctorate 1 - Other	Scale
life_altering	Life-Altering Event	Individual	Dummy	0 - No 1 - Yes	Scale
inst__type	Institutional Type	Individual	Dummy	0 - 2-year public 1 - 4-year public	Scale
inst__size	Institutional Size	Individual	Dummy	0 - Small 0 - 1999 1 - Large 2000+	Scale
inst__rural	Institutional Rurality	Individual	Dummy	0 - Urban 1 - Rural	Scale

Data Collection

Data for this study are a corpora of written works for each president. Each president's corpus is composed of at least two publicly posted written items composed every six months for three years. The time period during which the president may have written these works is any consecutive range from January 2015 and December 2019. Each work must be one of the following types composed by the president him- or herself: a written or transcribed speech; letter to the community, students, faculty, staff, or other public entity; website post; article; or other type of written work posted publicly on the college's website. Social media posts and comments, video audio files, and other audio or video media will be excluded.

Writing samples will be copied from each college's website and pasted into a text file. Extraneous information not part of the author's writing such as addresses, URLs, policies, and direct quotes of others will be stripped from the document. I will collect variable data as identified by the instruments in Table 9 after the University of Arkansas Institutional Review Board (IRB) approves my study, anticipated Summer 2021.

Table 9. Data Collection Instrument by Variable

Variable	Type	Instrument
Emotional Intelligence	Dependent	Big Five/EI CDI proxy score, TEIQue-SF score
Time	Independent	Dates of collected documents
Gender	Covariates/moderators	Public sources on internet, Emailed questionnaire
Age	Covariates/moderators	Public sources on internet, Emailed questionnaire
Educational Level	Covariates/moderators	Public sources on internet, Emailed questionnaire
Life-Altering Event	Covariates/moderators	Emailed questionnaire
Institutional Type	Covariates/moderators	Carnegie classification
Institutional Size	Covariates/moderators	Carnegie classification
Institutional rurality	Covariates/moderators	Carnegie classification

Data for this study will be summarized and described using SPSS. Data will be evaluated for multicollinearity, where a predictor variable is linearly predicted by another predictor in the model. Multicollinearity prevents the researcher from isolating the relationship between a single

predictor variable and the outcome variable. If multicollinearity exists, it can be corrected by transforming the predictors from being polynomials—which are mathematical expressions composed of variables added, subtracted, or multiplied—into orthogonal—where the polynomial is condensed into one term which is statistically independent of the other predictors (Pennsylvania State University, n.d.). Therefore, once transformed, the predictors will no longer be correlated, allowing the researcher to see the relationship between each predictor and the outcome variable. It is important to note that this transformation can only occur correctly if data is not missing or is only partially missing in the study (Heck et al., 2014). Other traditional assumption violations such as normality and missing data are not issues in multilevel growth models (Curran et al., 2010; Heck et al., 2014; Howell, 2008).

Data Analysis

This study uses a multilevel growth for model data analysis (Baayen et al., 2008; Coertjens et al., 2013; Liu et al., 2012; Misangyi et al., 2006; Munjal et al., 2014; Peugh et al., 2005; Rovine & McDermott, 2018). Longitudinal analysis is commonly used to evaluate if and how change occurs over time (Briggs & Sheu, 1999).

To validate the CDI, participants will be asked to complete the electronic short form of an established EI survey (Petrides, 2009). The relationships between leaders' EI survey scores and their proxy scores at each time point will be assessed using a Pearson's Product-Moment Correlation (r) correlation coefficient. A large strength of association at any time point (r = .5 to 1.0) indicates the measures share variance and, therefore, may be measuring the same thing.

Multilevel Growth Analysis

This study will use multilevel growth modeling for a number of reasons. First, multilevel growth modeling is used to better reduce bias among individuals within groups by

acknowledging potential variability present among individuals. For example, a school's success compared to other school's may examine the success in each school's classes. However, every class within every school is not exactly the same. Multilevel growth modeling allows for this type of variability.

Second, growth models help reduce the bias of ignoring nested structures in the data, that is, groups within groups. For example, if a researcher is studying school success by looking at class success, each school would have results from more than one class per school. Each group of classes would be "nested" within each school.

Third, growth models can explain how independent variables at different levels contribute to an outcome's variation better than a single linear model. A linear model can only explain the variance of an independent variable, say *race*, at one level, say *school-level*. However, a multilevel model can analyze and explain the variance of the independent variable at more than one level, say *school-level* and *classroom-level*, thus better expressing how the independent variable *race* contributes to the outcome variable.

Fourth, multilevel modeling can better identify and explain cross-level interactions (Heck et al., 2014). For example, while school success may be evaluated at Level 3 of the model, correlations and interactions can be examined between Level 3 (schools) and Level 2 (classes). This means that not only can a school's success be explained, but class success in the school can also be explained.

In addition, growth models also accommodate a variety of issues which complicate statistical analysis such as missing data, unequal time points, non-normal data, and non-linear trajectories. Unlike general regression models, growth models are extremely forgiving and adaptable to the imperfections of real life data. However, a few assumptions are necessary in

multilevel growth modeling. Missing data must be missing completely at random or missing at random. Time-invariant covariates—covariates whose values do not change as a function of time—are assumed to be constant. Model parameters are assumed to be equivalent across all individuals within the sample.

Finally, because data measurements are taken more than once, growth models may have higher statistical power and require fewer participants (Curran et al., 2010) than linear models.

Preparation of the Data

To ensure SPSS can process data, some preparation is required. Data will be prepared in the univariate format, called *long*, where a row represents a timepoint instead of a participant as is standard for multilevel modeling analysis (Kwok et al., 2008).

The age variable will be grand mean-centered (Bourchtein, 2020; Heck et al., 2014), meaning the average of the ages at the first measurement will be set to zero. The difference in the mean of age will be used, simplifying the analysis. Ages above the mean will be a positive number and those below will be negative. Interpreting the data will be easier because president's results will be compared to presidents' average age.

MIXED Command in SPSS

This study will use version 26 of SPSS because, as the study author, I have experience in SPSS. Using the generalized linear mixed model package (MIXED) within SPSS and the estimating procedure—the measure of how well the model fits the data from this study—of maximum likelihood estimation (ML) will create multilevel models as described in Heck et al. (2014). I will use log likelihood (-2LL) and Akaike Information Criterion (AIC) to determine the best fitting repeated measure covariance structure which, according to Heck et al. (2014), will most likely be autoregressive 1 (AR1). I will also use the modeling procedures suggested by

Heck et al. (2014) which will include three levels: Level 1, the EI change each president is expected to experience during this study; Level 2, the variation of EI between presidents; and Level 3, the variation of presidents' EI as function of the moderating variables.

To do this, I will first construct an unconditional random-intercept model to determine if variation exists in EI across college presidents. Next, to model the growth trajectory of presidents' EI, I will fit a time covariate to this model, addressing Hypothesis 2. I will then allow the presidents' EI growth trajectory to vary which will indicate if presidents' EI changes at different rates, addressing Hypothesis 3. In order to explain the variation around the intercept, I will add seven covariates to the model in the following order: *gender*, *age*, *education level*, *life-altering event*, *institutional type*, *institutional size*, and *institutional rurality*. This model will identify whether initial levels of presidents' EI vary as a function of each covariate, addressing Hypothesis 4. Finally, interactions between covariates and time will be evaluated to determine whether covariates act as moderators which further explain the variation around the time slope, explaining the direction and/or strength of the relationship between the independent and depending variables. This model will address Hypothesis 5, identifying whether levels of presidents' EI vary as a function of each covariate, thus acting as a moderator.

At the beginning of the process, I will calculate the intraclass correlation (ICC) to determine the variance between the groups, indicating whether additional analysis should be performed. If no variation is present, multilevel analysis will not be necessary, meaning all college presidents share a similar starting EI level. If analysis is necessary, after each moderator is added, I will examine the data for significant change, whether positive or negative. If no significance exists, that variable will be removed from further analysis. The Wald Z statistic will be used to assess variation in the parameters (Heck et al., 2014) throughout the entire process.

Internal Validity

Several potential threats to internal validity may exist in this study. Quantitative coding may overlook deeper meanings within administrator's public correspondence (Aerts & Yan, 2017). Significant EI indicators are lost in written text which occur in face-to-face and verbal communication. This study does not differentiate between an administrator's personal and institution's life-altering events or cultural language norms. Threats related to differences in men and women maturation, experiencing severe versus no life-altering event, and other variabilities are not addressed.

In some case, words are located in more than one LIWC category (Proyer & Brauer, 2018). Tausczik and Pennebaker (2010) reminds readers that LIWC largely ignores context, irony, sarcasm, and idioms, and some specialized language found in specific industries may require custom dictionaries (Licorish & MacDonnell, 2015).

The possibilities that a president has previously taken the TEIQue-SF, thus effecting his or her score, or scores unusually high or low are not addressed. Finally, the Big Five/EI CDI proxy score and the TEIQue-SF score may not correlate as well as they do to other trait, ability, and/or mixed EI measurements not utilized in this study.

While utilizing pieces of written communication for this study which have been written in the past, few history threats are possible. However, one possible history threat is that a life-altering event which occurs in an administrator's personal life versus one which occurs with the institution are not being differentiated. Instances in which a president participated in EI development are not being accounted for nor is his or her personal or professional development which may affect his or her EI.

This study attempts to include representative individuals, but not every president could be included. Further, presidents of every education and gender combination could not be included, so some application of the data across populations may not be possible. Presidents from other parts of the nation are not included and the distribution across Southeast U.S. may not be consistent nor may the equality in number of presidents from each state within Southeast U.S. be assured. In addition, equality of the equal spread of participants with the same cultural language norms, often dependent upon the region in which an individual grows up, cannot be assured.

External Validity

Finally, potential threats to external validity may exist in this study. While this study attempts to provide a representative sample, presidents who enjoy writing may have different EI than those who do not. In addition, while presidents may claim they wrote their communication, some works may have been edited or composed by others.

Summary

This chapter delineates the methodology used in this study. The study will evaluate college presidents' public written communication for EI via the LIWC text analysis software. The study's sample size, power, study setting, research questions, and hypotheses are listed, the measurements for each variable was identified, the data collection techniques are listed, and validity for the measures were presented. Limitations were also identified.

CHAPTER 4: RESEARCH FINDINGS

Because higher education (HIED) presidents are important to future leaders, it is important they possess the capability to effectively lead their institutions. An essential component of leadership is working with others productively despite one's sway of emotions. Individuals with strong emotional intelligence (EI) are better able to control their emotions, providing for more effective self-regulation and self-management.

Purpose of the Study

To bolster the understanding of EI among HIED presidents, this study sought to achieve four goals: 1) examine how EI changes among HIED presidents over time; 2) identify which demographic and institutional variables moderate HIED presidents' EI; 3) advance EI research through an analytic technique using textual analysis; and 4) derive a CDI for EI using a categorical-dynamic index derived from the Big Five personalities.

Research Questions

This study examined the following research questions:

1. Does average emotional intelligence in southeastern United States 2- and 4-year public college presidents differ between presidents?
2. Does emotional intelligence in southeastern United States 2- and 4-year public college presidents' public electronic written communication change with time? If so, what is the shape of the trajectory?
3. Does the trajectory of the emotional intelligence in southeastern United States 2- and 4-year public college presidents' public electronic written communication vary across presidents?

4. After controlling for presidents' background variables, do initial levels of emotional intelligence in southeastern United States 2- and 4-year public college presidents vary as a function of
    a. gender,
    b. age,
    c. education level,
    d. experiencing a life-altering event,
    e. institutional type,
    f. institutional size,
    g. or institutional rurality?
5. After controlling for presidents' background variables, does emotional intelligence in southeastern United States 2- and 4-year public college presidents' public electronic written communication vary over time as a function of
    a. gender,
    b. age,
    c. education level,
    d. experiencing a life-altering event,
    e. institutional type,
    f. institutional size,
    g. or institutional rurality?

Organization of Data Analysis

Data analysis is organized into 1) participant and writing sample characteristics; 2) data criterion and collection; 3) research hypotheses; 4) and findings by research question.

Participants and Writing Samples

Study participants were United States public 2- and 4-year college and university presidents who were male or female. Initially, this study planned to limit presidents to those in Southeast United States. However, too few presidents wrote their own public correspondence and posted it on the website, so the study was expanded to include the regions in Table 10. Once the minimum number of participants was confirmed, I stopped seeking additional writings. This resulted in 33 presidents although only 32 were needed.

Table 10. Participants' Regions and Number of Participants by State

U.S. Region	N	n	%	States Targeted	States Included (# of Presidents Included)
Far West	226	1	0.4	Alaska, California, Hawaii, Nevada, Oregon, Washington	California (1)
Great Lakes	196	8	4.1	Illinois, Indiana, Michigan, Ohio, Wisconsin	Illinois (2), Indiana (1), Michigan (2), Wisconsin (3)
Plains	152	1	0.7	Iowa, Kansas, Minnesota, Missouri, Nebraska, North Dakota, South Dakota	Kansas (1)
Southeast	407	12	2.9	Alabama, Arkansas, Florida, Georgia, Kentucky, Louisiana, Mississippi, North Carolina, South Carolina, Tennessee, Virginia, West Virginia	Alabama (1), Florida (1), Georgia (1), Kentucky (2), Louisiana (3), North Carolina (1), Tennessee (2), Virginia (1)
Southwest	182	10	5.5	Arizona, Oklahoma, New Mexico, Texas	New Mexico (3), Texas (7)

N = # region's 2- and 4-year public colleges; n = # of located presidents who wrote their communication

Colleges included in the study were public 2- and 4-year state-funded institutions of higher education and categorized as small or large, rural or urban. No military, professional-only such as medical or law schools, private, or for-profit institutions were included. All writing samples were confirmed written by the president by either the president or a college official and all writings were publicly available on the college's website or blog. From the 33 institutions, 1,397 documents were collected. Table 11 identifies the central tendencies of participant EI, age, and demographics for participants.

Table 11. Central Tendencies of Participant EI and Age for Five Time Points

	Presidents		
Variable	n	Mean	SD
CDI	165	73.34	4.91
Age	165	60.21	7.40

n = # of participants in the five time points

Table 12 breaks down the writings and presidential participants into the demographic information represented by the seven moderating variables.

Table 12. Distribution of Presidents' Demographics and Collected Writings

	Presidents			Writings		
Variable	N	n	%	N	n	%
Age	33			1,397		
40s		3	9.1		149	10.8
50s		11	33.3		332	24.1
60s		16	48.5		846	61.4
70s		3	9.1		70	5.1
Gender	33			1,397		
Male		23	75.8		1062	76.0
Female		10	24.2		335	24.0
Educational Level	33			1,397		
Doctorate		30	90.9		1320	94.5
Other		3	9.1		77	5.5
Institutional Size (student)	33			1,397		
Small 0-1999		5	15.2		319	22.8
Large 2000+		28	84.8		1078	77.2
Institutional Type	33			1,397		
2-Year		11	30.3		425	30.4
4-Year		22	69.7		972	69.6
Institutional Rurality	33			1,397		
Urban		21	66.7	1,397	821	58.8
Rural		12	33.3		576	41.2

N = total # of participants; n = # of participants by demographic category

Only eight presidents completed the President's Demographic and Institutional Questionnaire which included the TEIque-SF EI instrument and the question asking if presidents had experienced a life-altering event during the study's time period. Of the survey respondents, two were female and six were male; all had doctorate degrees; and two were from the southwest

region, six were from the southeast. One was in his 40s, four were in their 50s, two were in their 60s, and one was in his 70s. Two were from small institutions, six from large; two were from 2-year institutions, six from 4-year; and four were from rural institutions, four from urban.

Limitations resulting from the small number of participants who completed the TEIque-SF will be discussed in the Study Design section of Chapter 5. Because only a small number of presidents completed the life-altering event question on the survey, the life-altering event variable was excluded from the study.

Data Criterion and Collection

Inclusion criteria for participation required each president to have written more than one document, whether intended as written or spoken communication, made available to the public on the college's website, college's newsletter, presidential blog, or other public source consecutively every six months over a period of three years sometime within the period of January 2015 and December 2019. Because of the difficulty in finding verified presidential writing posted on the college's website which met the criteria, the 3-year period was reduced to 2.5 years. Further comment on this change will be discussed in the Participants section of Chapter 5.

Documents analyzed were collected one-by-one from each college's website. I saved each document specific to the 6-month period in which the document belonged in a folder dedicated to the college. Table 12 identifies the number of documents collected and the demographics of their presidential authors. Table 13 describes from which United States region the documents came.

Table 13. Participants' Regions and Number of Writing Sample by State

U.S. Region	n	%	States Included (# of Presidents)
Far West	19	1.4	California (1)
Great Lakes	430	30.8	Illinois (2), Indiana (1), Michigan (2), Wisconsin (3)

U.S. Region	n	%	States Included (# of Presidents)
Plains	31	2.2	Kansas (1)
Southeast	421	30.1	Alabama (1), Florida (1), Georgia (1), Kentucky (2), Louisiana (3), North Carolina (1), Tennessee (2), Virginia (1)
Southwest	496	35.5	New Mexico (3), Texas (7)

n = # writings; % = % of all writings

Verification that presidents wrote their own documents was determined by emailing and/or calling one or more of the following: the president him- or herself or the advancement, communications, and/or marketing department at the college. Because these latter departments most commonly oversee the website and their senior leader is usually a vice president or director on the president's executive staff, they are the most knowledgeable as to the documents' authorship other than the president him- or herself.

Presidents' demographics were determined by sources identified in Table 14.

Table 14. Source of Data for Presidents' Demographics

Demographic	Sources
Age	College website, Wikipedia, VoterRecords.com, Facebook, Google search, Whitepages.com, newspapers, LinkedIn, Intelius, ZoomInfo, President's Demographic and Institutional Questionnaire
Gender	College website, Wikipedia, VoterRecords.com, Facebook, President's Demographic and Institutional Questionnaire
Educational Level	College website, Wikipedia, Google search, President's Demographic and Institutional Questionnaire
Institutional Size	Carnegie Classification of Institutions of Higher Education™
Institutional Type	Carnegie Classification of Institutions of Higher Education™
Institutional Rurality	Carnegie Classification of Institutions of Higher Education™

As stated above, only 8 presidents completed the President's Demographic and Institutional Questionnaire which also verified authorship and demographic information.

Hypotheses

The following hypotheses are altered slightly to reflect the changes to the study design. For example, due to the limited number of presidents who composed their own public

correspondence, the target presidents had to be expanded beyond the southeastern region to include the Far West, Great Lakes, Plains, Southeast, and Southwest regions. Further, due to the limited number of respondents to the survey, the *life-altering event* variable was removed; the survey was the only tool to provide the data to determine whether or not a president experienced a life-altering event.

Hypothesis 1: Average emotional intelligence in 2- and 4-year public college presidents differs between presidents.

Hypothesis 2: Emotional intelligence in 2- and 4-year public college presidents' public electronic written communication changes with time. The trajectory is linear positive.

Hypothesis 3: The trajectory of the emotional intelligence in 2- and 4-year public college presidents' public electronic written communication varies across presidents.

Hypothesis 4: After controlling for presidents' background variables, initial levels of emotional intelligence in 2- and 4-year public college presidents' vary as a function of

a. gender, where women have higher EI than men;
b. age, where EI increases with age;
c. education level, where EI increases with higher educational levels;
d. institutional type, where presidents at 2-year institutions have higher EI than those at 4-year;
e. institutional size, where presidents at small institutions have higher EI than those at large;
f. or institutional rurality, where presidents from rural institutions have higher EI than those from urban.

Hypothesis 5: After controlling for presidents' background variables, emotional intelligence in 2- and 4-year public college presidents' public electronic written communication will vary over time as a function of

a. gender, where EI growth in women will be greater than in men;
b. age, where EI growth is greater in older leaders;
c. education level, where EI growth is greater in leaders with higher levels;
d. institutional type, where EI growth of presidents at 2-year institutions is greater than those at 4-year institutions;
e. institutional size, where the EI growth of presidents at small institutions is greater than those at large institutions;
f. or institutional rurality, where EI growth of presidents at rural institutions is greater than that of presidents at urban institutions.

Findings

As noted above, the geographical range of participants for this study's research questions and hypotheses had to be expanded beyond just the Southeast region of the United States to include presidents in the Far West, Great Lakes, Plains, Southeast, and Southwest regions. In addition, because of the lack of President's Demographic and Institutional Questionnaire respondents, the life-altering event variable had to be excluded. Table 17 includes the regression output for this study.

Question 1

Does average emotional intelligence in 2- and 4-year public college presidents differ between presidents?

Statistical analysis for this question showed that EI did differ between presidents. I ran an unconditional model to see if EI scores varied across presidents' writings. For Time 1, I found a highly significant random intercept variance component in Model 1, *Wald Z* = 3.76, $p <$ .01, suggesting that 72.30% of the total variability of EI at Time 1 occurred between presidents. This significant result indicated that future analysis was necessary.

The average EI of presidents in the study was 73.34. The AIC, which was 878.75, will function as a baseline against which the AIC for each of the other models will be compared to identify each model's fit; the lower the AIC, the better the model fits.

Question 2

Does emotional intelligence in 2- and 4-year public college presidents' public electronic written communication change with time? If so, what is the shape of the trajectory?

A list of presidents' average EI scores by semester appears in Table 15. To account for variation in each time point and covariation between time points, I used a best fitting autoregressive covariance structure (ARI). This covariance structure was used in subsequent models with a random intercept. Consistent with visual analysis, presidents' EI scores did not change with time, $t(63.15) = -1.23$, $p = .223$.

Table 15. President's Average EI Score by Time

Time Period	Estimate
Intercept	72.96
Time 0	73.47
Time 1	73.76
Time 2	73.34
Time 3	73.16

Question 3

Does the trajectory of the emotional intelligence in 2- and 4-year public college presidents' public electronic written communication vary across presidents?

Because EI did not significantly change over time, was presumably no variance in the EI trajectory existed and the null hypothesis was accepted for Question 3. This illustrates that the EI a president started with in Time 1 of the study is essentially the same at Time 5.

Additional statistical analysis confirmed this in Model 3. Using a first order autoregressive (AR1) covariance structure, the model showed again that the trajectory of EI did not significantly change over time, *Wald Z* = 1.36, $p > .05$. Mean EI scores by time and their associated variation are illustrated in Table 16.

Table 16. Estimates of Fixed Effects for EI at Each Time Point for Model 3

Parameter	Estimate	Std. Error	df	t	Sig.
Intercept	72.959	2.428	.000	30.052	.000
[Time=0]	.507	.638	155.017	.795	.428
[Time=1]	.804	.638	154.975	1.260	.210
[Time=2]	.378	.638	155.801	.593	.554
[Time=3]	.196	.639	140.837	.307	.759

Question 4

After controlling for presidents' background variables, do initial levels of emotional intelligence in 2- and 4-year public college presidents vary as a function of

a. *gender,*
b. *age,*
c. *education level,*
d. *institutional type,*
e. *institutional size,*
f. *or institutional rurality?*

Statistical analysis for Question 4 showed that initial EI levels did not vary as a function of gender, age, education level, institutional type, institutional size, or institutional rurality. As

noted above, the variable experiencing a life-altering event was dropped from the study due to a lack of participants' President's Demographic and Institutional Questionnaire responses.

I ran Model 4 using the first order autoregressive (AR1) covariance structure. Table 17 illustrates that only one variable explained variations in presidents' EI. Institutional Size was a significant predictor of presidents' overall EI, $t(26.02) = 2.27$, $p = .032$. When holding other variables constant, presidents at larger institutions had average EI scores that were 5.60 points higher than those at smaller institutions.

Question 5

After controlling for presidents' background variables, does emotional intelligence in 2- and 4-year public college presidents' public electronic written communication vary over time as a function of

a. *gender,*
b. *age,*
c. *education level,*
d. *institutional type,*
e. *institutional size,*
f. *or institutional rurality?*

Because Model 3 showed EI did not have a significant change over time, I ended the growth model at Question 4. No further analysis was necessary for the study. Table 17 displays the complete overview of the modelling process and parameter estimates.

Table 17. Multilevel modelling analysis of presidents' EI

	Model 1		Model 2		Model 3		Model 4	
Covariate	β (SE)	t	β (SE)	t	β (SE)	t	β (SE)	t
Intercept	73.34 (0.76)	97.13**	73.68 (0.80)	91.84**	73.69 (0.78)	94.63**	79.14 (5.48)	14.45**
Time	-	-	-0.17 (0.14)	-1.23	-0.17 (0.15)	-1.16		
Age							-.15 (.09)	-1.69
Gender								
None (Ref)								
Female							1.68 (1.62)	1.04
Ed Level								
None (Ref)								
Other							-3.61 (2.30)	-1.57
Institutional type								
None (Ref)								
4-Year							-0.87 (1.57)	-0.55
Institutional size								
None (Ref)								
Large 2000+							5.60 (2.47)	2.27*
Institutional rurality								
None (Ref)								
Rural							-1.38 (1.69)	-0.82
Variance Comp	Est (SE)	z (1-tail)	Est (SE)	z (1-tail)	Est (SE)	z (1-tail)	Est (SE)	z (1-tail)

Table 17 (*Cont*.)

	Model 1		Model 2		Model 3		Model 4	
Covariate	β (SE)	t	β (SE)	t	β (SE)	t	β (SE)	t
Var (Intercept)	17.68 (4.71)	3.76**	17.70 (4.71)	3.76**	17.49 (4.75)	3.69**	11.46 (3.50)	3.28**
Var (Time)	-	-	-	-	.29 (.21)	1.36	-	-
Model Criteria								
ICC (Intercept L1)	72.30%		72.43%		75.13%		62.94%	
ICC (Time L2)	-	-	-	-	0.05%		-	-
AIC	878.75		879.39		879.27		848.98	
ΔAIC	-		0.64		-0.12		-30.29	

Note. Ref: Reference category; AIC: Akaike Information Criterion (lower is better fit), *p < .05, **p < .01.

Summary

Chapter 4 gave the purpose of the study and listed the research questions. It gave the organization of data analysis, the participants and writing samples, the data criterion and collection methods, and the hypotheses. The findings for research questions 1-5 were provided. Only question 1 and 4 were significant. None of the others were significant and the final model was not run for question 5 because no further analysis was needed. Chapter 5 discusses the implications and recommendations.

CHAPTER 5: SUMMARY, IMPLICATIONS, AND RECOMMENDATIONS

Chapter 5 provides a summary of the findings in Chapter 4. The study context will be provided in relation to the study's findings as investigated through the research questions and chosen methodology. Also included are potential implications for future study and practice and study limitations. Finally, the chapter concludes with suggestions for further research.

Statement of the Problem

The effectiveness of college and university presidents has a profound reach: it touches not only the institution of higher education (HIED) but its local, state, and sometimes national and international community shapes the direction and culture of the institution, directly affecting students, graduates, and future leaders. Therefore, presidents must use all tools available to improve their leadership. Emotional intelligence (EI) has been found to assist leaders in mitigating institutional and personal challenges, making them more effective presidents. The following six concepts supported the argument for this research.

Purpose of the Study

This quantitative growth model study attempted to expand the understanding of EI and its source of change among HIED presidents through four goals: 1) examining how EI changes among HIED presidents over time; 2) identifying which demographic and institutional variables moderate HIED presidents' EI; 3) advancing EI research through an analytic technique using textual analysis; and 4) deriving a CDI for EI using a categorical-dynamic index derived from the Big Five personalities. The public writings of college and university presidents created every six months over a 2.5-year period were collected and scored electronically via LIWC to derive a score which served as a proxy EI measure. Multilevel growth modeling was performed to see if presidents' EI changed over time, how it changed if it did, and if gender, age, education level,

institutional type, institutional size, and/or institutional rurality moderated presidents' initial EI and their EI change over time.

Research Questions

This study examined the following research questions:

1. Does average emotional intelligence in 2- and 4-year public college presidents differ between presidents?
2. Does emotional intelligence in presidents' public electronic written communication change with time? If so, what is the shape of the trajectory?
3. Does the trajectory of the emotional intelligence in 2- and 4-year public college presidents' public electronic written communication vary across presidents?
4. After controlling for presidents' background variables, do initial levels of emotional intelligence in 2- and 4-year public college presidents vary as a function of
    a. gender,
    b. age,
    c. education level,
    d. institutional type,
    e. institutional size,
    f. or institutional rurality?
5. After controlling for presidents' background variables, does emotional intelligence in 2- and 4-year public college presidents' public electronic written communication vary over time as a function of
    a. gender,
    b. age,

c. education level,

d. institutional type,

e. institutional size,

f. or institutional rurality?

Methodology

Participants

This study examined the 2.5-year change in HIED presidents' EI and the factors which moderated that change by examining at least two pieces of presidents' public writing created every six months between January 2015 and December 2019. A period of three years was initially chosen because it was slightly below the lowest average tenure for college presidents in the literature (American Council on Education, 2017; Jaschik & Lederman, 2022). However, many presidents did not have 3-years-worth of writing, so I had to reduce the time period.

Study Design

Institutions included were 2- and 4-year public U.S. colleges and universities excluding those which were military, professional-only such as medical or law schools, private, and for-profit. Institutions were identified using the Carnegie Classification of Institutions of Higher Education™ database (Indiana University, 2015). Because of the small number of presidents who wrote their own writings in the initially targeted Southeast region of the U.S., presidents' writing from the Far West, Great Lakes, Plains, Southeast, and Southwest were also included.

Although I sent a Demographic and Institutional Questionnaire to presidents which also included the TEIque-SF EI instrument and the question asking if presidents had experienced a life-altering event during the study's time period, only 8 presidents completed the survey. This

required excluding the *life-altering change* variable and contacting either the president or a college official via email or phone to verify that each writing was composed by the president.

Power Analysis and Sample Size Estimation

This study used GLIMMPSE (Guo & Pandis, 2015; Kreidler et al., 2013; Munjal et al., 2014) to identify the sample size of 32 participants and power analysis of .804 power, exceeding the suggested .80 standard used in most quantitative studies (Trochim, 2020). The Hotelling-Lawley Trace statistical test in conjunction with the Wald test for the general linear mixed model with Kenward-Roger degrees of freedom was used to determine sample size and power analysis and to control the Type I error (Keselman et al., 2001; Kreidler et al., 2012; Shieh, 2005). The commonly accepted Type I error value of .05 was used in this study and the correlation coefficient *r* reflected the mean of the Big Five variables, .30, which is a medium effect (Creswell & Creswell, 2018).

Meta-Analysis

Collected writings were scored electronically via LIWC and CDIs were calculated for each piece of writing. CDIs were derived from LIWC scores by adding or subtracting the values of all LIWC categories which were identified as significant in the literature for each Big Five trait (see Table 4), combining the Big Five trait CDI scores into one formula by adding each trait's CDI score which positively correlated with EI and subtracting those which negatively correlated, and performing a meta-analysis on the correlation coefficients identified in the literature to create a weighted correlation coefficient for the Big Five/EI relationship.

The meta-analysis was included to insure each Big Five's CDI was accurate and unbiased. It required a weighted correlation coefficient (r^*) to be calculated for each Big Five trait using the method identified by Hedges and Olkin (1985) and Hedges and Vevea (1998)

which required the following variables: the effect sizes (r), total sample sizes (n) for each study, between- and within-study variance for each trait, transformed effect size ($\bar{z}$) calculated by using Fisher's r-to-Z transformation, the trait's homogeneity (Q), a correlation coefficient constant (c), the between-study variance (τ^2), study weights (w), the average weight for each Big Five trait (w*), the random-effects value ($\bar{z}$*), the standard error ($SE(\bar{z}^*)$), the upper and lower confidence intervals, and a mean effect size ($\bar{z}$) (Borenstein et al., 2009; Field & Wright, 2006; Hedges & Vevea, 1998). The LIWC score for each Big Five trait was multiplied by that Big Five trait's r* derived from the meta-analysis. The final formula for the CDI for each piece of writing for each president was as follows: (Agreeableness score * .229) + (Conscientiousness score * .299) + (Extraversion score * .298) + (Openness to Experience score * .230) - (Neuroticism score * -.272) = Big Five/EI CDI proxy score.

Study Variables

This study was composed of an independent variable *time* which was operationalized for each HIED president by the collection of a 6-month corpus of public writing samples composed by the president published online consecutively over 2.5 years within the period of January 2015 and December 2019. The dependent variable *emotional intelligence* was operationalized by the CDI. Six moderating variables were included: gender, age, educational level, institutional type, size, and rurality. Variables were then coded into integers or categories as identified in Table 8.

Data Collection

Data for this study were the corpora of written works for each president. Writing samples were copied from each college's website and pasted into a text file and extraneous information not part of the author's writing was stripped. The University of Arkansas Institutional Review Board (IRB) approved my study in August 2021.

Data Analysis

Initially, the EI scores on the survey sent to presidents were to be used to validate the EI/Big Five CDI measure using Pearson's correlation coefficient (r). However, the poor response rate prohibited this from occurring.

This study used version 26 of SPSS to run a multilevel growth model (MLM) using its generalized linear mixed model package (MIXED) to evaluate if and how change occurs over time (Briggs & Sheu, 1999; Coertjens et al., 2013; Liu et al., 2012). MLM was used to better reduce bias among individuals within groups by acknowledging potential variability present among individuals; to reduce the bias of ignoring nested structures in the data; to better explain how independent variables at different levels contribute to an outcome's variation; and to better identify and explain cross-level interactions (Heck et al., 2014). Data was prepared for SPSS by converting it into a long format where each row represents a timepoint instead of a participant as is standard for MLM (Kwok et al., 2008) and grand mean-centering the age variable for analysis simplification (Bourchtein, 2020; Heck et al., 2014),.

I used the Heck et al. (2014) modeling procedures which included three levels: Level 1, EI change each president was expected to experience; Level 2, EI variation between presidents; and Level 3, presidents' EI variation as function of the moderators.

Summary and Discussion of the Findings

Of the 5 research questions, only the first and forth had statistical significance. None of the other questions or variable had significant findings.

Question 1

Does average emotional intelligence in 2- and 4-year public college presidents differ between presidents?

In this study, the presidents average initial EI at the first time point was 73.34. The model found presidents' EI varied significantly between each other, aligning with the literature that EI is not the same for everyone. The average difference between presidents' EI was .57. The literature also identified that EI can change over time (Goleman, 2006), can be influenced by demographic factors such as age and gender (see Tables 1 and 2). These possibilities were examined in question four.

Question 2

Does emotional intelligence in presidents' public electronic written communication change with time? If so, what is the shape of the trajectory?

The model found that while presidents' average EI did vary, it did not change over time. This surprised me; I expected to see a significant, wide variety of change across presidents because most of the literature showed EI changes over time (Goleman, 2006; Mattingly & Kraiger, 2018). However, it may be that EI did not change because no EI training was provided. The empirical studies which report EI change are based upon measuring change after targeted EI training.

Question 3

Does the trajectory of the emotional intelligence in 2- and 4-year public college presidents' public electronic written communication vary across presidents?

Model 2 found that a president's EI at Time 1 is the same as at Time 5. Model 3 showed that this lack of change was the same for all presidents.

I was also surprised this result was not significant. I expected a president's EI to be change significantly from one president to the other. However, because Question 2 found that

presidents' EI did not change significantly over time, it makes sense that no significance would be found in the trajectory over time.

Question 4

After controlling for presidents' background variables, do initial levels of emotional intelligence in 2- and 4-year public college presidents vary as a function of

a. *gender,*
b. *age,*
c. *education level,*
d. *institutional type,*
e. *institutional size,*
f. *or institutional rurality?*

Question 4 evaluated potential moderating variables to explain presidents' EI change. Only one of the variables chosen for this study explained variation in presidents' initial levels of emotional intelligence. A discussion of each variable is presented below.

Gender

I was surprised at gender's lack of significance. However, I believe a contributor to the lack of significance between genders is because in this study, only 10 (24.2%) presidents were women compared to 23 (75.8%) who were men. The population of women and men was likely too small to identify a significant change. However, I did find women's EI was 1.68 points higher on average than men's which aligns with the vast majority of the literature (see Table 1).

Age

Age is important in this study because the age of U.S. college presidents continues to rise: from an average of 52 in 1986 to 61 in 2019 (Jaschik & Lederman, 2019). However, this

moderator also did not prove to be significant. I expected to see significantly higher EI as presidents aged. Like with gender, statistical analysis found that as aged increased, EI decreased by .15, but this finding was not significant. This suggests that, like in Questions 2 and 3, 2.5 years was not long enough to produce a significant change without training.

I also expected to find that presidents aged 70+ had lower EI than those in their 60s as reflected in Derksen et al. (2002) and Freed (2016). However, like with gender, I believe the population of each age generation was too small to identify a significant change: 19 (57.6%) presidents were 60+ but only 9 (27.3%) were aged 65 and up.

Educational Level

Like with the other moderators, this finding was not significant. I expected to see higher EI among presidents with a doctorate compared to those without. The study did find that EI of presidents with a doctorate was 3.61 higher on average than those without which aligned with the EI literature (Maundu, 2013; Mayer et al., 2004; Van Rooy & Viswesvaran, 2004) and communication literature (Cicekci et al., 2017; Zanini et al., 2005), but it was not significant. Like the other moderators, the population was likely too small to identify a significant change: only 3 (9.1%) presidents did not have a doctorate; the other 30 (90.9%) did.

Institutional Type

I hypothesized that presidents at 2-year colleges would have higher EI than those at 4-year based upon the literature. Several studies reported differences in student motivations, their educational outcomes, employee connections, and the vast array of influences an institution's culture, history, shared governance structures, leadership, mission, and other factors had on an institution and its employees (Hendrickson et al., 2013; Rouse, 2016; Young, 2018). Again, while the study detected that the EI of presidents at 2-year colleges was 0.87 higher than that of

those at 4-year colleges in alignment with the predicted hypothesis, the result was not significant. Like the others, this population was probably too small to identify a significant change: only 11 (30.3%) presidents in this study were from 2-year colleges while 22 (69.7%) were from 4-year.

Institutional Size

Institutional Size was the only significant predictor of presidents' overall EI. This surprised me in two ways: of all of the moderators, I never expected the institutional variables to be significant over the demographic ones. Further, this moderator was significant conversely to the way I hypothesized.

I expected presidents of smaller colleges to have higher EI than those at larger. Surprisingly, Model 4 illustrated that the presidents' EI at large colleges was significantly higher by an average of 5.60 than those of small. Even more surprising considering previous findings, this moderator was significant despite only five (17.9%) presidents coming from small colleges and 28 (84.8%) coming from large. Also interesting is this moderator has the greatest difference of all variables, of 5.60 between small and large institutions. The next highest difference was between education levels at 3.61. This suggests institution size is an important moderator of presidents' EI levels.

This finding was contrary to the literature (Bernardin-Demougeot, 2008; Schubert & Yang, 2016). The literature reports that due to the tremendous number of stakeholders, competing needs, and internal and external influences, institutional size can make a difference in a president's job. I inferred that these complexities would make the presidential job more difficult, thus taxing one's EI. However, it may be that smaller institutions are not able to afford the salary presidents with higher EI expect and may employ younger, less experienced presidents. In truth, of the five small colleges, two (33.3%) presidents were in their 40s

compared to one (3.7%) in her 40s at large colleges; one (16.7%) was in his 50s compared to 10 (37.0%); two (33.3%) were in their 60s compared to 14 (51.9%); and none (0.0%) were in their 70s compared to 3 (11.1%). Further, all of the small colleges in this study were in rural areas which may attract presidents with less experienced or desirable resumes.

Institutional Rurality

Like with the other moderators, this finding was not significant. I expected to see higher EI among presidents from more rural institutions than urban. The study did find that EI of presidents from rural institutions was 1.38 points lower than those from urban, the opposite as indicated in the literature, but the result was not significant.

I hypothesized that rural presidents would be happier than urban based upon the small amount of literature available. Much of the organizational research found those who worked in rural areas were happier than those who worked in urban (Helliwell et al., 2019), those who worked in rural colleges were happier than those who worked in urban (Colomeischi & Colomeischi, 2014; McCann, 2018), and rural students had more support than urban (Li, 2019). The communication literature also suggested rural workers have greater communication satisfaction than urban (Desjarlais-deKlerk & Wallace, 2013; Volkman & Hillemeier, 2008).

Like the all of the moderators except Institutional Size, this population was probably too small to identify a significant change: 21 (66.7%) of presidents worked in urban areas while only 12 (33.3%) worked in rural.

Question 5

After controlling for presidents' background variables, does emotional intelligence in 2- and 4-year public college presidents' public electronic written communication vary over time as a function of

a. *gender,*

b. *age,*

c. *education level,*

d. *institutional type,*

e. *institutional size,*

or institutional rurality?

Because Model 3 showed EI did not change over time, I ended the growth model at Question 4. No further analysis was necessary.

Limitations

This study is subject to the limitations of quantitative coding of qualitative data, that is, to overlook deeper meanings within administrator's public correspondence which manual or qualitative coding may reveal (Aerts & Yan, 2017). By focusing only on written text, significant EI indicators are lost which occur in face-to-face communication, verbal inflection, and facial expression. In some case, LIWC words are located in more than one category (Proyer & Brauer, 2018).

Because very few studies have linked LIWC variables with EI, LIWC variables for each of the Big Five personalities were calculated and served as a proxy for direct EI scores. Further, while an attempt was made to validate the Big Five/EI CDI, too few participant responses prevented that from occurring.

In addition, some participants who are natural writers may have an advantage over presidents who are not. Some presidents' written correspondence may have been written or heavily edited by others despite responses to the contrary. Finally, because writing has been shown to relieve stress, improve health, and help one identify one's thoughts and feelings (Abe,

2009; Andersson & Conley, 2013; Kirk et al., 2011; Lestideau & Lavallee, 2007; Lopes et al., 2006; Pennebaker, 2011; Troop et al., 2013), the intended population about which this sample is to generalize may not apply to every 2- or 4-year public college presidents across the United States. It is intended to represent those college presidents who write their own public correspondence who may naturally have more EI than presidents who are not so inclined.

Implications and Contributions

This study's results contribute to theory and research in several ways.

A Method of Measuring EI

While not completely new, using textual analysis to examine writing for EI addresses the common EI assessment concerns about consistency in responding to assessment questions, manipulating test results, skewing test scores, and expecting individuals to identify their personal feelings (Boyatzis & Saatcioglu, 2008; Boyd & Pennebaker, 2017; Mayer et al., 2001). Correlation between EI models or test is no longer a problem (Antonakis et al., 2009; Mayer, Roberts, & Barsade, 2008; O'Boyle et al., 2011). Further, examining one's writing for personality using Pennebaker's method of analyzing function words significantly limits a writer's ability to cheat the system.

This study also assists researchers by identifying all of the LIWC variables which have been found to be significant to EI. Further research will help narrow down those variables to the ones which pose the most significance. This attempt is the first to not only identify all LIWC variables important to EI but utilize them based upon the Pennebaker (2011) function word framework.

It is important to note that using LIWC does have certain drawbacks. One must ensure the author is the composer of the material and that the majority of editing is theirs. Another

problem which occurred in this study was that not enough samples for each moderating of the variables was collected. If this study had been cross-sectional instead of longitudinal, at least 32 participants for each of the variables could have been collected. Collecting that many participants per variable over the time period was difficult and I did not realize that necessity until after the study was run.

EI in HIED President Leadership Study

This study specifically examined HIED presidents' EI levels and attempted to evaluate its change over time. It was successful in unbiasedly identifying presidents' EI levels through LIWC for presidents across the greater U.S. It was able to link institutional size to presidents' EI and show that presidents have different EI levels. While the other findings were not significant, they did indicate a direction for research.

The EI leadership literature is bare regarding HIED presidents and this is a serious problem. With an increasingly global economy and a more connected world, the United States relies on HIED to produce it future leaders. As I examined the myriad of college websites looking for presidential writing, I was astonished at the number of presidential searches and presidents with less than 2 years' experience. In fact, one college in the Southeast had 5 different presidents between 2015 and 2021. That HIED CEOs in the United States are struggling became very obvious.

For a short time, I did an informal count of presidential changes and immediately identifiable institutional problems. Of 100 institutions, 11% of presidents were in some type of serious trouble documented in the newspapers. Within the same group, 57% had two different presidents within a 6-year period, 8% had three, and only 33% had the same president during that time. Even more alarming, the time period of this study occurs before the COVID-19 pandemic

began. I noticed even more leadership change during and after the pandemic as I continued searching for presidential writing during 2020 and 2021 that fit my 2015 to 2019 timeframe.

The literature shows clearly that EI is significantly linked to leadership (see Table 3). It is essential that EI be examined in HIED, particularly in HIED presidents. I am pleased that this study contributes to that literature.

New Connections Between EI and the Big Five

Many studies have linked EI and the Big Five, but this study linked EI and the Big Five in a less common way: through a single EI score using the Big Five LIWC variables and the correlation between EI and each Big Five trait. This is important because it is able to combine all Big Five traits into one score and equate it to EI. It also makes textual analysis easier by reducing the number of variables SPSS must evaluate.

This method also provides an avenue for linking EI to textual analysis where EI scores are unable to be collected, such as in the case of writers who are deceased. Until the EI and LIWC variables are more accurately identified, this method may provide an avenue for identifying EI through writing.

EI, Leadership, and Institutions Size

This study found institutional size significantly moderated HIED presidents' EI and presidents of larger institutions have higher EI than those at smaller. This study's result is the first empirical evidence of institutional size as a moderator of EI. This is important because it may help researchers identify why presidents at larger institutions have higher EI with the goal of improving EI in presidents at smaller institutions.

As mentioned earlier, it may be that presidents who are more qualified and desirable, perhaps because their EI is higher than others, are able to earn jobs at larger institutions. Perhaps

because most larger HIED institutions are in large towns and cities, more desirable leaders want to work there. Whatever the draw, identifying the variables which link quality large HIED institutional leaders is important for future study. Further, identifying variables that make these leaders want to work at those institutions is important to help smaller colleges recruit good leaders.

Answers to Calls in the Literature

This study answered the following calls for research in the literature: a) From Gagliardi et al. (2017) and Zeidner et al. (2009) for increased studies examining HIED leaders and EI; b) from Bornstein (2015) and Ullman (2010) for more studies evaluating EI in HIED executives; and c) from Cherniss (2000), Snuggs (2006) and van der Zee and Wabeke (2004) for more studies focusing on identifying variables which increased EI.

This study contributed to the following calls for research in the literature: a) From Coco (2011), Gough (2011), and Ying and Ting (2010) for more research on how and why HIED leaders should focus on EI development; and b) from Golden (2014) who wanted studies looked more closely at the need for EI in community college leadership.

Implications on and Contributions to Practice

This study's results contribute to practice in several ways.

EI Differs Across Presidents and Can Be Changed

By illustrating that HIED presidents' EI is different from other presidents, this study shows that many HIED presidents would benefit from EI training. As the literature shows, EI can change (Goleman, 2006; Mattingly & Kraiger, 2018) and training is effective in helping leaders improve their EI (Cherniss et al., 1998; Cherry et al., 2012; Hodzic et al., 2018) and its sub-domains (Nelis et al., 2009; Nelis et al., 2011).

HIED presidents must find ways to improve their leadership, emotional control, and emotional response. HIED presidents must do all they can to improve employee morale and job satisfaction, reduce stress, and maintain a healthy organization in order to continue to educate future U.S. leaders. Improving one's EI has been found to address each of these concerns. HIED programs and institutions should also consider this finding and the importance it has to leadership. Implementing EI training and improvement practices in curriculum and post-graduate training programs will also help the U.S. produce and support strong leaders.

EI and Communication Skills Are Connected

This study illustrated that HIED presidents' EI varies across presidents. With the research strongly linking higher EI to better communication, HIED presidents should consider evaluating their EI with the aim of understanding how strong EI skills can help them improve organizational communication. This is important because much of the communication literature supports that higher EI generally supports more effective communication (Cherry et al., 2013; DeClerck & Holtzman, 2018; Guo & Pandis, 2015; Hendon, 2016; Şimşek & Aktaş, 2013).

HIED presidents set the tone for an organization. A leader's poor communication often results in poor college communication. Individuals high in EI recognize these problems and work to improve them. In fact, many studies found increased EI improves communication among employees, supervisors, and teams and is linked to better workplace relationships and productivity (Gilar-Corbi, Pozo-Rico et al., 2019; Jorfi, Jorfi, Yaccob, & Shah, 2011).

HIED Institutions Should Consider EI When Seeking Leaders

To choose the best leader possible, the research and this study encourage HIED institutions to consider EI when seeking presidents. The literature shows that better leadership is connected to higher EI (see Table 3) yet institutions that do not consider EI in leadership hires

are missing an important element which contributes to a leader's success. By incorporating EI into the HIED presidential search process, institutions can insure they are choosing the leader who will make their organization as successful as possible.

Suggestions for Future Research

The results of this study brought up several new questions for further research.

EI as a Factor in HIED Presidential Hires

The HIED culture is different from that of regular business and industry and poses tremendous challenges to traditional leadership practices. Presidents must balance many conflicting priorities: governing boards and shared governance models, state mandates and reduced budgets, the needs of underprepared students and the workforce needs of business and industry (Halbgewachs, 2018; McNair, 2011; Stuart, 2016). This study found that presidents' EI varies widely, but 2.5 years without targeted EI training did not make a difference in their EI change. Proven leaders themselves have identified HIED leadership as challenging: Former University of Texas chancellor William McRaven called the HIED presidency "the toughest job in the nation," a startling comment given he is a Navy SEAL, a retired four-star admiral, a former leader of America's Special Operations Command, and a planner and supervisor of the raid that killed Osama bin Laden (Kroger, 2018).

As retirements increase among HIED presidents (Eddy, 2013), effective leaders will be more essential to HIED, especially since the world is getting more connected. IQ helps individuals identify which field they should enter and technical skill enables them to be hired (Goleman, 2001), but "CEOs are hired for their intellect and business expertise—and fired for a lack of emotional intelligence" (qtd. in Goleman, 2006, p. xv). This study found doing nothing

to improve EI does not increase EI over time; therefore, further research is needed to determine if including EI in HIED CEO hiring is effective.

Causes of HIED Presidential EI Change

It does not make sense that HIED presidents' EI cannot change when the EI literature clearly illustrates that it can (Goleman, 2006; Mattingly & Kraiger, 2018; Rode et al., 2017), but little research has been performed on HIED leaders' EI variation. Further, provided improvement can occur, how should it be integrated into the HIED professional development model? Studies which answer these and questions like them are essential to HIED leadership. With increasing retirements among HIED leaders (Eddy, 2013), increasing age among HIED presidents (Gagliardi et al., 2017; Jaschik & Lederman, 2019), and the alarming presidential change I personally saw during this study, HIED leadership programs need all the assistance they can get to produce competent leaders to fill the vast array of opening presidential positions.

The significance of the moderating variable *institutional size* was a surprise. I believe there are a wide variety of other variables which significantly moderate EI change in HIED presidents. Identifying these would be a tremendous aid to HIED leadership programs—and to current HIED presidents and to those looking to be presidents.

Effects of HIED President EI Change

The effects of HIED presidential EI change may be far reaching, but thus far few studies have explored it. What contribution does HIED presidents' EI offer to organization behavior, employee loyalty, employee satisfaction and happiness? To which factors of HIED presidential effectiveness do EI correlate? Understanding how long EI change lasts and the elements which produce the most effective EI change in HIED presidents is important.

The literature finds that increases in leaders' EI results in positive effects for leaders and organizations (Mencl et al., 2016; Petrides & Furnham, 2006; Weng et al., 2008). For HIED, what are these effects and what occurs on campus as a result? Does student learning improve? Does student and employee leadership effectiveness grow? HIED performs a lot of research, but less frequently is that research about HIED leaders themselves. Answers to these questions through empirical study will go far in supporting effective HIED presidential leadership.

Conclusion

Despite the small number of HIED leadership studies, EI has been found to be important to HIED presidents. While the effect between EI and leadership is commonly studied, the unique role college presidents must perform have not been part of the EI discussion and HIED presidents face a wide variety of unique demands not shared with other CEOs (Halbgewachs, 2018; McNair et al., 2011; Stuart, 2016). High EI has been shown to mitigate many executive problems and further study on HIED should be performed to see if these same is true.

Turnover is high among HIED presidents (Cooper, 2016; Thomason, 2018). More than 75% of presidents have led any institution for less than 5 years (Jaschik & Lederman, 2022). In comparison, CEOs in other sectors have an average tenure of 7.2 years (Crist-Kolder Associates, 2019). Because the U.S. relies on HIED to produce functional, educated leaders, strengthening HIED leadership is essential to the world economy.

The dearth of HIED EI leadership literature provides an abundant source of potential research opportunities. Such opportunities will undeniably improve both the quality of collegiate education for thousands of world, state, community, and business leaders as well as increase the efficient use of federal, state, and private monies which are governed by college presidents.

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APPENDIX A: INSTRUMENTS

All instruments, surveys, questionnaires, and other materials used in this study are included in this appendix.

President's Demographic and Institutional Questionnaire

Please complete this very brief questionnaire. On question 6, please do not provide any details. A simple *yes* or *no* will be appropriate.

1. Please identify your full name.
2. What is your gender?
3. What is your birthday?
4. What is your highest earned degree?
5. From 2012 until now, have you experienced a life-altering event on a personal or professional level?

   A *professional level* includes major events at work or in your professional life which may have bothered you emotionally such as financial problems at your institution, a situation which caused you professional embarrassment, major institutional accreditation issues, having to fire an employee, etc.
6. If you answered yes to a life-altering event, please identify the year(s) in which the event(s) occurred.
7. Of the posted writings on the college/university website which have your name as author, please identify the ones you have written yourself (mark all that apply):
   - Presidential blog
   - Emails
   - Speeches

- Articles
- Reports
- Letters
- Other (please specify)
- None of the above

Trait Emotional Intelligence Questionnaire (TEIQue-SF)

Instructions: Please answer each statement below by putting a circle around the number that best reflects your degree of agreement or disagreement with that statement. Do not think too long about the exact meaning of the statements. Work quickly and try to answer as accurately as possible. There are no right or wrong answers. There are seven possible responses to each statement ranging from 'Completely Disagree' (number 1) to 'Completely Agree' (number 7).

1 . . . . . 2 . . . . . 3 . . . . . 4 . . . . . 5 . . . . . 6 7
Completely Disagree **Completely Agree**

1. Expressing my emotions with words is not a problem for me.	1	2	3	4	5	6	7
2. I often find it difficult to see things from another person's viewpoint.	1	2	3	4	5	6	7
3. On the whole, I'm a highly motivated person.	1	2	3	4	5	6	7
4. I usually find it difficult to regulate my emotions.	1	2	3	4	5	6	7
5. I generally don't find life enjoyable.	1	2	3	4	5	6	7
6. I can deal effectively with people.	1	2	3	4	5	6	7
7. I tend to change my mind frequently.	1	2	3	4	5	6	7
8. Many times, I can't figure out what emotion I'm feeling.	1	2	3	4	5	6	7
9. I feel that I have a number of good qualities.	1	2	3	4	5	6	7
10. I often find it difficult to stand up for my rights.	1	2	3	4	5	6	7
11. I'm usually able to influence the way other people feel.	1	2	3	4	5	6	7
12. On the whole, I have a gloomy perspective on most things.	1	2	3	4	5	6	7
13. Those close to me often complain that I don't treat them right.	1	2	3	4	5	6	7
14. I often find it difficult to adjust my life according to the circumstances.	1	2	3	4	5	6	7
15. On the whole, I'm able to deal with stress.	1	2	3	4	5	6	7
16. I often find it difficult to show my affection to those close to me.	1	2	3	4	5	6	7
17. I'm normally able to "get into someone's shoes" and experience their emotions.	1	2	3	4	5	6	7
18. I normally find it difficult to keep myself motivated.	1	2	3	4	5	6	7
19. I'm usually able to find ways to control my emotions when I want to.	1	2	3	4	5	6	7
20. On the whole, I'm pleased with my life.	1	2	3	4	5	6	7
21. I would describe myself as a good negotiator.	1	2	3	4	5	6	7
22. I tend to get involved in things I later wish I could get out of.	1	2	3	4	5	6	7
23. I often pause and think about my feelings.	1	2	3	4	5	6	7
24. I believe I'm full of personal strengths.	1	2	3	4	5	6	7
25. I tend to "back down" even if I know I'm right.	1	2	3	4	5	6	7
26. I don't seem to have any power at all over other people's feelings.	1	2	3	4	5	6	7

27. I generally believe that things will work out fine in my life.	1	2	3	4	5	6	7
28. I find it difficult to bond well even with those close to me.	1	2	3	4	5	6	7
29. Generally, I'm able to adapt to new environments.	1	2	3	4	5	6	7
30. Others admire me for being relaxed.	1	2	3	4	5	6	7

Trait Emotional Intelligence Questionnaire – Short Form (TEIQue-SF). This 30-item form includes two items from each of the 15 facets of the TEIQue. Items were selected primarily on the basis of their correlations with the corresponding total facet scores, which ensured broad coverage of the sampling domain of the construct. The –SF can be used in research designs with limited experimental time or wherein trait EI is a peripheral variable. Although it is possible to derive from it scores on the four trait EI factors, in addition to the global score, these tend to have somewhat lower internal consistencies than in the full form of the inventory. The –SF does not yield scores on the 15 trait EI facets.

Scoring information for the TEIQue-SF is available at www.psychometriclab.com Please note that we cannot provide advice on how to run the syntax in SPSS or other statistical software.

Please make sure you read the FAQ section at http://psychometriclab.com/faq/. In particular, note that we do not provide free information regarding norms or free feedback reports. Norms and reports are available for a fee (email admin@teique.com for quotes).

Reference for the TEIQue-SF: Petrides, K. V. (2009). Psychometric properties of the Trait Emotional Intelligence Questionnaire. In C. Stough, D. H. Saklofske, and J. D. Parker, *Advances in the assessment of emotional intelligence*. New York: Springer. DOI: 10.1007/978-0-387-88370-0_5

For more information about the trait emotional intelligence research program go to:
www.psychometriclab.com

Please note that any and all commercial use of this instrument, or any adapted, modified, or derivative works thereof, is strictly prohibited.

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Linguistic Inquiry and Word Count 2015 (LIWC) Software

The following chart identifies the variables and categories in the LIWC 2015 dictionary.

Category	Abbrev	Examples	Words in category	Internal Consistency (Uncorrected α)	Internal Consistency (Corrected α)
Word count	WC	-	-	-	-
Summary Language Variables					
Analytical thinking	Analytic	-	-	-	-
Clout	Clout	-	-	-	-
Authentic	Authentic	-	-	-	-
Emotional tone	Tone	-	-	-	-
Words/sentence	WPS	-	-	-	-
Words > 6 letters	Sixltr	-	-	-	-
Dictionary words	Dic	-	-	-	-
Linguistic Dimensions					
Total function words	funct	it, to, no, very	491	.05	.24
Total pronouns	pronoun	I, them, itself	153	.25	.67
Personal pronouns	ppron	I, them, her	93	.20	.61
1st pers singular	i	I, me, mine	24	.41	.81
1st pers plural	we	we, us, our	12	.43	.82
2nd person	you	you, your, thou	30	.28	.70
3rd pers singular	shehe	she, her, him	17	.49	.85
3rd pers plural	they	they, their, they'd	11	.37	.78
Impersonal pronouns	ipron	it, it's, those	59	.28	.71
Articles	article	a, an, the	3	.05	.23
Prepositions	prep	to, with, above	74	.04	.18
Auxiliary verbs	auxverb	am, will, have	141	.16	.54
Common Adverbs	adverb	very, really	140	.43	.82
Conjunctions	conj	and, but, whereas	43	.14	.50
Negations	negate	no, not, never	62	.29	.71
Other Grammar					
Common verbs	verb	eat, come, carry	1000	.05	.23
Common adjectives	adj	free, happy, long	764	.04	.19
Comparisons	compare	greater, best, after	317	.08	.35
Interrogatives	interrog	how, when, what	48	.18	.57
Numbers	number	second, thousand	36	.45	.83
Quantifiers	quant	few, many, much	77	.23	.64
Psychological Processes					
Affective processes	affect	happy, cried	1393	.18	.57
Positive emotion	posemo	love, nice, sweet	620	.23	.64
Negative emotion	negemo	hurt, ugly, nasty	744	.17	.55
Anxiety	anx	worried, fearful	116	.31	.73
Anger	anger	hate, kill, annoyed	230	.16	.53
Sadness	sad	crying, grief, sad	136	.28	.70
Social processes	social	mate, talk, they	756	.51	.86
Family	family	daughter, dad, aunt	118	.55	.88

Category	Abbrev	Examples	Words in category	Internal Consistency (Uncorrected α)	Internal Consistency (Corrected α)
Friends	friend	buddy, neighbor	95	.20	.60
Female references	female	girl, her, mom	124	.53	.87
Male references	male	boy, his, dad	116	.52	.87
Cognitive processes	cogproc	cause, know, ought	797	.65	.92
Insight	insight	think, know	259	.47	.84
Causation	cause	because, effect	135	.26	.67
Discrepancy	discrep	should, would	83	.34	.76
Tentative	tentat	maybe, perhaps	178	.44	.83
Certainty	certain	always, never	113	.31	.73
Differentiation	differ	hasn't, but, else	81	.38	.78
Perceptual processes	percept	look, heard, feeling	436	.17	.55
See	see	view, saw, seen	126	.46	.84
Hear	hear	listen, hearing	93	.27	.69
Feel	feel	feels, touch	128	.24	.65
Biological processes	bio	eat, blood, pain	748	.29	.71
Body	body	cheek, hands, spit	215	.52	.87
Health	health	clinic, flu, pill	294	.09	.37
Sexual	sexual	horny, love, incest	131	.37	.78
Ingestion	ingest	dish, eat, pizza	184	.67	.92
Drives	drives		1103	.39	.80
Affiliation	affiliation	ally, friend, social	248	.40	.80
Achievement	achieve	win, success, better	213	.41	.81
Power	power	superior, bully	518	.35	.76
Reward	reward	take, prize, benefit	120	.27	.69
Risk	risk	danger, doubt	103	.26	.68
Time orientations	TimeOrient				
Past focus	focuspast	ago, did, talked	341	.23	.64
Present focus	focuspresent	today, is, now	424	.24	.66
Future focus	focusfuture	may, will, soon	97	.26	.68
Relativity	relativ	area, bend, exit	974	.50	.86
Motion	motion	arrive, car, go	325	.36	.77
Space	space	down, in, thin	360	.45	.83
Time	time	end, until, season	310	.39	.79
Personal concerns					
Work	work	job, majors, xerox	444	.69	.93
Leisure	leisure	cook, chat, movie	296	.50	.86
Home	home	kitchen, landlord	100	.46	.83
Money	money	audit, cash, owe	226	.60	.90
Religion	relig	altar, church	174	.64	.91
Death	death	bury, coffin, kill	74	.39	.79
Informal language	informal		380	.46	.84
Swear words	swear	fuck, damn, shit	131	.45	.83
Netspeak	netspeak	btw, lol, thx	209	.42	.82
Assent	assent	agree, OK, yes	36	.10	.39
Nonfluencies	nonflu	er, hm, umm	19	.27	.69
Fillers	filler	Imean, youknow	14	.06	.27

APPENDIX B: GLIMMPSE SAMPLE AND POWER ANALYSIS

The results of the sample and power analysis created by GLIMMPSE are located below.

HLT stands for Hotelling-Lawley Trace statistical test.

Table 18. GLIMMPSE Sample and Power Analysis

Desired Power	Actual Power	Total Sample Size	Alpha	Beta Scale	Sigma Scale	Test
.8	.818	13	.05	.5	.5	HLT
.8	.936	9	.05	1	.5	HLT
.8	.899	7	.05	2	.5	HLT
.8	.833	20	.05	.5	1	HLT
.8	.839	10	.05	1	1	HLT
.8	.959	8	.05	2	1	HLT
.8	.804	32	.05	.5	2	HLT
.8	.818	13	.05	1	2	HLT
.8	.936	9	.05	2	2	HLT

APPENDIX C: DETAILED TABLES

The following tables provide additional sources and more details which may be of interest to the reader.

Table 19. Studies Identifying the Big Five via LIWC

Purpose	Study
Studies where LIWC identifies Big Five personality traits	Alghamdi et al., 2017; Antonakis, 2009; Athota et al., 2009; Brackett & Mayer, 2003; Bukhari & Khanam, 2014; Cavazotte et al., 2012; Côté et al., 2010; Føllesdal & Hagtvet, 2013; García-Sancho et al., 2017; Hafen et al., 2011; Kappagoda, 2013; Mairesse et al., 2007; Mayer et al., 2004; Mayer, Roberts, & Barsade, 2008; Mayer, Salovey, & Caruso, 2008; Nawi et al., 2015; Pérez-González & Sanchez-Ruiz, 2014; Petrides et al., 2010; Sadri, 2012; Saklofske et al., 2003; Siegling et al., 2015; Śmieja et al., 2014; Vakola et al., 2004; van der Linden et al., 2012; Van Rooy & Viswesvaran, 2004; Wong & Law, 2002
Studies where Big Five and EI have been correlated	Alghamdi et al. et al., 2017; Antonakis, 2009; Athota et al., 2009; Athota et al., 2009; Avsec et al., 2009; Brackett & Mayer, 2003; Bukhari & Khanam, 2014; Cavazotte et al., 2012; Côté et al., 2010; Føllesdal & Hagtvet, 2013; García-Sancho et al., 2017; Hafen et al., 2011; Kappagoda, 2013; Leary et al., 2009; Mayer et al., 2004; Mayer, Salovey, & Caruso, 2008; McCrae, 2000; Nawi et al., 2015; O'Boyle et al., 2011; Pérez-González & Sanchez-Ruiz, 2014; Petrides et al., 2010; Saklofske et al., 2003; Sala, 2002; Shulman & Hemeenover, 2006; Siegling et al., 2015; Śmieja et al., 2014; Vakola et al., 2004; van der Linden et al., 2012; Van Rooy & Viswesvaran, 2004
Studies with similar findings and/or comprehensive in reporting all personality traits	Brackett & Mayer, 2003; Bukhari & Khanam, 2014; Mayer et al., 2004; Mayer, Salovey, & Caruso, 2008; O'Boyle et al., 2011; Pérez-González & Sanchez-Ruiz, 2014; Petrides et al., 2010; Saklofske et al., 2003; Siegling et al., 2015; Vakola et al., 2004; van der Linden et al., 2012; Van Rooy & Viswesvaran, 2004

Table 20. Empirical Research on EI and the Big Five

Author/ Year	Study Purpose	Method	Samp. Size	Results
Abbas & Khan, 2017	Evaluated the differences in gender between the Big Five personality traits and EI on university students in Lahore, Pakistan	T-tests, descriptive and inferential stats	300	No gender differences in the Big Five personality traits or EI
Alegre et al., 2019	Replicated a study which found the Big Five were a proxy for EI	Regression	497	Successfully replicated the study and found that the Big Five explained 59.1% of the variance in EI

Table 20 (Cont.)

Author/ Year	Study Purpose	Method	Samp. Size	Results
Athota et al., 2009	Investigated the relationship between EI, personality, and moral reasoning	Regression	131	EI was a significant predictor of extraversion, openness, neuroticism, and agreeableness as well as moral reasoning
Brackett & Mayer, 2003	Investigated convergent, discriminant, and incremental validity of MSCEIT, SREIT, and EQi	Factor analysis, regression	202	Found ability EI and self-report EI were weakly related and yielded different measurements of the same person
Bukhari & Khanam, 2014	Evaluated the relationship between EI and the Big Five in Karachi, Pakistan, university students	Correlation	331	Extraversion, agreeableness, conscientiousness, and openness to experience significantly positively correlated to EI while neuroticism was negatively correlated to EI.
Cavazotte et al., 2012	Investigated the effects of intelligence, personality traits and EI on transformational leadership and the effective performance of leaders in the organizational	Chi squared	134	A leader's effectiveness was directly related to his transformational behaviors and indirectly to individual differences like experience, intelligence. Neuroticism was negatively linked to leadership. EI was only significant until personality and ability were controlled for.
Celli & Rossi, 2015	Evaluated how emotional stability affects social relationships in Twitter	Correlation analysis	20,000	Secure uses of Twitter had more mutual connections than neurotic users who tended to post more and have longer "chains" of interacting users because they had trouble belonging to stable communities unlike secure users.
Føllesdal & Hagtvet, 2013	Examined how well ability EI predicted transformational leadership in a sample of Norwegian executives and employees	Regression	563	Found neither the general mental ability nor EI predicted transformational leadership

Table 20 (Cont.)

Author/ Year	Study Purpose	Method	Samp. Size	Results
García-Sancho et al., 2017	Using 2 studies, used cross-sectional and longitudinal designs to explore relationships between ability EI and aggression in adults and adolescents	Hierarchal regression	474, 151	Suggested a negative, significant relationship between ability EI and physical but not verbal aggression
Hafen et al., 2011	Examined the relationship between the Big Five personality traits, EI, and happiness in university students in India	Path analyses	205	EI mediated happiness and several Big Five personalities in women but not for men
Joseph & Newman, 2010	Clarified the theory of EI and examined how well EI predicted job performance	Meta-analysis	18,462	Ability EI models predicted job performance only in some jobs but had a strong theoretical basis while mixed EI models more accurately predicted job performance but their theoretical bases were not well established.
Kappagoda, 2013	Investigated the relationship between EI and the Big Five of English teachers in Sri Lanka	Regression	470	English instructor EI significantly and positively correlated with the Big Five's extraversion, agreeableness, and openness to experience. It did not significantly correlate with conscientiousness or neuroticism.
Lee, 2018	Investigated the relationship with EI using different traits of personality assessment, implicit personality	Correlation analysis	199	Lee did not find a significant relationship between implicit and explicit personalities of aggression but did find a positive association between implicit aggression and managing one's emotions
Mayer et al., 2004	Examined the theories related to EI and compared other measures of personality to EI	Multiple regression	1,584	Overall, ability EI predicted a variety of outcomes.
Mayer, Salovey, & Caruso, 2008	Evaluated what exactly EI was and capable of as an ability	Meta-analysis	-	Identified a variety of recommendations to continue to establish EI as a field

Table 20 (Cont.)

Author/ Year	Study Purpose	Method	Samp. Size	Results
Nawi et al., 2015	Examined Big Five's effect and contribution to EI among high performance public school leaders in Malaysia	Regression	306	All Big Five traits except neuroticism were significant predictors of EI
O'Boyle et al., 2011	Includes other meta-analyses of more and current EI studies and job performance. Compared the 3 models, adds cognitive intelligence, the latest statistical strategies, and included publication bias	Meta-analysis	128 studies	The three models corelated differently with the Big Five, substantially predicted job performance, and were not effected by publication bias.
Ono et al., 2011	Extent to which cognitive ability, the Big Five, and EI related to training and job performance of U.S. federal criminal investigators	Hierarchical regression	131	Conscientiousness was modestly related to training performance. Cognitive ability and EI were positively correlated with job performance while neuroticism was negatively correlated with job performance.
Pérez-González & Sanchez-Ruiz, 2014	Examined the relationship between trait EI and the Big Five, the Big Two, and the Big One	Multiple regression	289	Trait EI was a broad personality trait integrated into multilevel personality hierarchies and could be considered as a proxy of the GFP.
Petrides et al., 2010	Examined the relationship between trait EI and the Big Five in two Dutch samples	Regression	377, 383	Neuroticism then extraversion, conscientiousness, agreeableness, and openness correlated with trait EI in both samples. The overlap between trait EI and the Big Five exceeded 50% even when using shortened assessments
Saklofske et al., 2003	Examined factor structure of Schutte's EI scale and correlations between Big Five and EI with life satisfaction, subjective happiness, loneliness and depression-proneness	Regression	354	EI maked up some of the variance in correlations with life satisfaction, subjective happiness, loneliness and depression-proneness not accounted for by personality but did not correlate with cognitive ability.

Table 20 (Cont.)

Author/ Year	Study Purpose	Method	Samp. Size	Results
Siegling et al., 2015	Examined incremental validity of TEIQue–SF in predicting 7 criteria beyond the variance explained by the Big Five and coping strategies	Regression	645, 444	TEIQue–SF showed consistent incremental effects beyond the Big Five and coping strategies, predicting all 7 criteria for both samples and provided good support for the validity and utility of the TEIQue–SF.
Vakola et al., 2004	Explored how EI and the Big Five dimensions of personality could facilitate organizational change at an individual level	Hierarchical regression	137	Found a relationship between personality traits and employees' attitudes toward change and that EI significantly contributed to change above that of the Big Five.
van der Linden et al., 2012	Examined if overlap was present in of the GFP in the Big Five, the Giant Three, and trait EI in university students in Greece	Hierarchical regression	274	GFP as a construct was consistent across different measures and was closely related to the construct of trait EI
van der Linden et al., 2017	To constructed a meta-analysis of correlations between EI, the Big Five, and General Factor of Personality (GFP)	Meta-analysis	36,268 in 142 studies	High-GFP Individuals with high GFP scored higher on trait and ability EI, supporting the idea that the GFP is very similar if not synonymous with trait EI
van der Zee et al., 2002	Examined the relationship of EI with academic intelligence and personality	Stepwise regression	116	EI and academic intelligence were weakly related, EI and the Big Five were strongly related, and EI predicted academic and social success
Van Rooy & Viswesvaran, 2004	Examined the relationship between EI and GMA and the Big Five	Meta-analysis	69 studies	EI should be considered a predictor of performance and EI and GFP seem to be more correlated than originally thought

Table 21. Predicted EI Percent Variance for Individual Big Five Traits

Study	A	C	E	N	O	Model
Alghamdi et al. et al., 2017	.080**	-	.170**	-	.100***	Mixed
Antonakis, 2009	.006**	.008*	.040***	.023***	.000	Ability
Brackett & Mayer, 2003	.073***	.230 ***	.137***	.325***	.026*	Ability
Brackett & Mayer, 2003	.078***	.001	.012	.006	.063***	Ability

Table 21 (Cont.)

Study	A	C	E	N	O	Model
Brackett & Mayer, 2003	.008	.063***	.102***	.036**	.185***	Mixed
Bukhari & Khanam, 2014	.052***	.105***	.204***	.111***	.081***	Trait
Cavazotte et al., 2012	.053**	.144***	.005	.212**	.004	Trait
Côté et al., 2010	.130***	.036*	.168***	.063**	.090***	Mixed
Côté et al., 2010	.044*	.084***	.000	.004	.048**	Ability
Føllesdal & Hagtvet, 2013	.040*	.040	.010	.005	.068**	Ability
García-Sancho et al., 2017	.017**	.004	.014**	.003	.002	Ability
Hafen et al., 2011	.012	.152**	.168**	.102**	.102**	Mixed
Kappagoda, 2013	.710**	.225	.749**	.149	.886***	Mixed
Mayer et al., 2004	.044***	.012 ***	.004*	.008**	.029***	Ability
Mayer, Salovey, & Caruso, 2008	.073***	.230 ***	.137***	.325***	.026*	Ability
Mayer, Salovey, & Caruso, 2008	.078***	.001	.012	.006	.063***	Ability
Mayer, Salovey, & Caruso, 2008	.008	.063***	.102***	.036**	.185***	Mixed
Mayer, Salovey, & Caruso, 2008	.002	.116**	.462**	.490***	.194**	Trait
O'Boyle et al., 2011	.063**	.009**	.070**	.108**	.058**	Trait
O'Boyle et al., 2011	.047**	.105**	.008**	.017**	.022**	Ability
O'Boyle et al., 2011	.102**	.203**	.179**	.222**	.106**	Mixed
Ono et al., 2011	.068**	.314**	.303**	.250**	.068**	Ability
Pérez-González & Sanchez-Ruiz, 2014	.026***	.109***	.194***	.397***	.116***	Trait
Pérez-González & Sanchez-Ruiz, 2014	.026**	.203**	.194***	.397***	.116***	Trait
Petrides et al., 2010	.130**	.230**	.292**	.348**	.058**	Trait
Petrides et al., 2010	.116**	.096**	.270**	.436**	.058**	Trait
Saklofske et al., 2003	.032**	.109***	.260***	.137***	.073***	Mixed
Siegling et al., 2015	.203***	.221***	.270***	.449***	.073***	Trait
Vakola et al., 2004	.151**	.361**	.291**	.433**	.040*	Ability

A, C, E, N, O stand for the Big Five personality traits of agreeableness, conscientiousness, extraversion, neuroticism, openness to experience.

*p<.05, **p<.01, ***p<.001.

Table 22. Positive or Negative Pearson's Correlations for Each Big Five Trait to EI

Study	A	C	E	N	O	Model
Alghamdi et al., 2017	+**	+	+**	+	+***	Mixed
Antonakis, 2009	+**	-***	+***	-***	+	Ability
Brackett & Mayer, 2003	+***	+***	+***	-***	+*	Ability
Brackett & Mayer, 2003	+***	+	+	-	+***	Ability
Brackett & Mayer, 2003	+	+***	+***	-**	+***	Mixed
Bukhari & Khanam, 2014	+***	+***	+***	-***	+***	Trait
Cavazotte et al., 2012	+**	+	+	-**	+	Trait
Côté et al., 2010	+***	+*	+***	-**	+***	Mixed
Côté et al., 2010	+*	+***	+	-	+**	Ability
Føllesdal & Hagtvet, 2013	+*	+	+	-	+**	Ability
García-Sancho et al., 2017	+**	+*	+**	-	+	Ability
Hafen et al.,(2011	+	+**	+**	-**	+**	Mixed
Kappagoda, 2013	+**	+	+**	+	+***	Mixed
Mayer et al., 2004	+***	+***	+*	-**	+***	Ability
Mayer, Salovey, & Caruso, 2008	+***	+***	+***	-***	+*	Ability
Mayer, Salovey, & Caruso, 2008	+***	+	+	-	+***	Ability
Mayer, Salovey, & Caruso, 2008	+	+***	+***	-**	+***	Mixed
Mayer, Salovey, & Caruso, 2008	-	+**	+**	-***	+**	Trait
O'Boyle et al., 2011	+**	+**	+**	-**	+**	
O'Boyle et al., 2011	+**	+**	+**	-**	+**	Ability
O'Boyle et al., 2011	+**	+**	+**	-**	+**	Mixed
Ono et al., 2011	+**	+**	+**	-**	+**	Ability
Pérez-González & Sanchez-Ruiz, 2014	+***	+***	+***	-***	+***	Trait
Pérez-González & Sanchez-Ruiz, 2014	+**	+***	+***	-***	+***	Trait
Petrides et al., 2010	+**	+**	+**	-**	+**	Trait
Petrides et al., 2010	+**	+**	+**	-**	+**	Trait
Saklofske et al., 2003	+**	+***	+***	-***	+***	Mixed
Siegling et al., 2015	+***	+***	+***	-***	+***	Trait
Vakola et al., 2004	+**	+**	+**	-**	+*	Ability

A, C, E, N, O stand for the Big Five personality traits of agreeableness, conscientiousness, extraversion, neuroticism, openness to experience.

*p<.05, **p<.01, ***p<.001.

Table 23. LIWC Variables for Neurotic Personality Trait

LIWC Variable	+ or -	Source
Anxiety	+	Krieger, 2016; Yarkoni, 2010
Negative emotion	+	Krieger, 2016; Pennebaker & King, 1999; Yarkoni, 2010
Certainty	+	Yarkoni, 2010
Anger	+	Mairesse et al., 2007; Yarkoni, 2010
Discrepancy	+	Yarkoni, 2010
Cognitive processes	+	Yarkoni, 2010
1st person singular	+	Krieger, 2016; Mairesse et al., 2007; Pennebaker & King, 1999; Yarkoni, 2010
Tentative	+	Mairesse et al., 2007; Yarkoni, 2010
Swear words	+	Mairesse et al., 2007; Yarkoni, 2010
Causation	+	Mairesse et al., 2007; Yarkoni, 2010
Feel	+	Golbeck et al., 2011; Mairesse et al., 2007; Yarkoni, 2010
Negations	+	Yarkoni, 2010
Sadness	+	Yarkoni, 2010
Social processes	+	Yarkoni, 2010
Articles	-	Mairesse et al., 2007; Pennebaker & King, 1999; Yarkoni, 2010
Space	-	Yarkoni, 2010
2nd person	+	Mairesse et al., 2007; Yarkoni, 2010
Positive emotion	-	Pennebaker & King, 1999
Words/sentence	+	Mairesse et al., 2007; Mehl et al., 2006; Mehl et al., 2012
Words > 6 letters	+	Mairesse et al., 2007
Parenthesis	+	Mairesse et al., 2007
All punctuation	+	Mairesse et al., 2007
Comma	+	Mairesse et al., 2007
Quote	+	Mairesse et al., 2007
Sexual	+	Mairesse et al., 2007
Question mark	+	Mairesse et al., 2007
Religion	+	Golbeck et al., 2011; Mairesse et al., 2007
See	+	Mairesse et al., 2007
Apostrophe	+	Mairesse et al., 2007
Semicolon	+	Mairesse et al., 2007
Death	+	Mairesse et al., 2007
Insight	+	Mairesse et al., 2007
Hear	+	Golbeck et al., 2011; Mairesse et al., 2007
Assent	+	Mairesse et al., 2007
Affective processes	+	Mairesse et al., 2007
Dictionary words	-	Mairesse et al., 2007

Table 23 (Cont.)

LIWC Variable	+ or -	Source
Affective processes	+	Mairesse et al., 2007
Dictionary words	-	Mairesse et al., 2007
Time	-	Mairesse et al., 2007
Home	-	Mairesse et al., 2007
Motion	-	Mairesse et al., 2007
Friends	-	Mairesse et al., 2007
Family	-	Mairesse et al., 2007
Achievement	-	Mairesse et al., 2007
Numbers	-	Mairesse et al., 2007
Total pronouns	-	Mairesse et al., 2007
Work	-	Mairesse et al., 2007
Leisure	-	Mairesse et al., 2007
Past focus	+	Krieger, 2016
Exclamation mark	+	Golbeck et al., 2011

Table 24. LIWC Variables for Openness Personality Trait

LIWC Variable	+ or -	Source
Articles	+	Golbeck et al., 2011; Pennebaker & King, 1999; Yarkoni, 2010
Hear	-	Mairesse et al., 2007; Yarkoni, 2010
Numbers	-	Yarkoni, 2010
Cognitive processes	-	Mairesse et al., 2007; Yarkoni, 2010
1st person plural	-	Yarkoni, 2010
Perceptual processes	-	Yarkoni, 2010
Space	-	Yarkoni, 2010
Assent	-	Yarkoni, 2010
Affective processes	-	Mairesse et al., 2007; Yarkoni, 2010
Discrepancy	-	Yarkoni, 2010
2nd person	-	Mairesse et al., 2007; Yarkoni, 2010
Negations	-	Mairesse et al., 2007; Yarkoni, 2010
Positive emotion	-	Yarkoni, 2010
Present focus	-	Pennebaker & King, 1999; Yarkoni, 2010
1st person singular	-	Krieger, 2016; Pennebaker & King, 1999; Yarkoni, 2010
Past focus	-	Mehl et al., 2006; Yarkoni, 2010
Home	+	Mairesse et al., 2007; Yarkoni, 2010
Total pronouns	-	Yarkoni, 2010
Time	-	Mairesse et al., 2007; Yarkoni, 2010

Table 24 (Cont.)

LIWC Variable	+ or -	Source
Motion	-	Yarkoni, 2010
Death	+	Mairesse et al., 2007; Yarkoni, 2010
Prepositions	+	Mairesse et al., 2007; Yarkoni, 2010
Causation	+	Golbeck et al., 2011; Pennebaker & King, 1999
Insight	+	Pennebaker & King, 1999
Words > 6 letters	+	Pennebaker & King, 1999
3rd person singular	-	Krieger, 2016; Mehl et al., 2006
3rd person plural	-	Krieger, 2016; Mehl et al., 2006
Social processes	-	Mehl et al., 2006
Dictionary words	+	Mairesse et al., 2007
Work	+	Golbeck et al., 2011; Mairesse et al., 2007
Anxiety	+	Mairesse et al., 2007
Certainty	+	Golbeck et al., 2011; Mairesse et al., 2007
Family	+	Mairesse et al., 2007
Anger	-	Krieger, 2016; Mairesse et al., 2007
Negative emotion	-	Mairesse et al., 2007
Swear words	-	Mairesse et al., 2007
Tentative	-	Mairesse et al., 2007
Religion	-	Mairesse et al., 2007
Question mark	-	Mairesse et al., 2007
Apostrophe	-	Mairesse et al., 2007
Non-fluencies	-	Mairesse et al., 2007
Body	-	Golbeck et al., 2011; Mairesse et al., 2007
Quantifiers	+	Golbeck et al., 2011
Exclamation mark	-	Golbeck et al., 2011
Biological processes	-	Golbeck et al., 2011
Parenthesis	-	Golbeck et al., 2011
Clout	+	Golbeck et al., 2011; Pennebaker & King, 1999; Yarkoni, 2010

Table 25. LIWC Variables for Contentiousness Personality Trait

LIWC Variable	+ or -	Source
Assent	-	Yarkoni, 2010
Tentative	-	Yarkoni, 2010
Certainty	-	Yarkoni, 2010
Perceptual processes	-	Yarkoni, 2010
Sadness	-	Golbeck et al., 2011; Yarkoni, 2010
Cognitive processes	-	Golbeck et al., 2011; Yarkoni, 2010; Yuan et al., 2018

Table 25 (Cont.)

LIWC Variable	+ or -	Source
Causation	-	Pennebaker & King, 1999; Yarkoni, 2010
Hear	-	Yarkoni, 2010
Death	-	Golbeck et al., 2011; Yarkoni, 2010
Discrepancy	-	Golbeck et al., 2011; Pennebaker & King, 1999; Yarkoni, 2010
Swear words	-	Mairesse et al., 2007; Mehl et al., 2006; Yarkoni, 2010
Negations	-	Golbeck et al., 2011; Mairesse et al., 2007; Pennebaker & King, 1999; Yarkoni, 2010
Negative emotion	-	Golbeck et al., 2011; Mairesse et al., 2007; Mehl et al., 2006; Pennebaker & King, 1999; Yarkoni, 2010
Anger	-	Mairesse et al., 2007; Yarkoni, 2010
Fillers	-	Golbeck et al., 2011; Yarkoni, 2010
Time	+	Mairesse et al., 2007; Yarkoni, 2010
Articles	+	Yarkoni, 2010
Positive emotion	+	Mairesse et al., 2007; Pennebaker & King, 1999
Family	+	Mairesse et al., 2007
Dictionary words	+	Mairesse et al., 2007
Exclamation mark	+	Golbeck et al., 2011; Mairesse et al., 2007
1st person singular	+	Mairesse et al., 2007
Motion	+	Mairesse et al., 2007
Total pronouns	+	Mairesse et al., 2007
1st person plural	+	Mairesse et al., 2007
Home	+	Mairesse et al., 2007
2nd person	-	Golbeck et al., 2011; Mairesse et al., 2007
Words > 6 letters	-	Mairesse et al., 2007
Body	-	Mairesse et al., 2007
Parenthesis	-	Mairesse et al., 2007
Auxiliary verbs	-	Golbeck et al., 2011
Feel	-	Golbeck et al., 2011
Future focus	-	Golbeck et al., 2011
Work	+	Golbeck et al., 2011
Comma	-	Golbeck et al., 2011
Colon	+	Golbeck et al., 2011

Table 26. LIWC Variables for Agreeableness Personality Trait

LIWC Variable	+ or -	Source
Causation	-	Golbeck et al., 2011; Yarkoni, 2010
Money	-	Golbeck et al., 2011; Yarkoni, 2010
Death	-	Yarkoni, 2010

Table 26 (Cont.)

LIWC Variable	+ or -	Source
Negative emotion	-	Mairesse et al., 2007; Pennebaker & King, 1999; Yarkoni, 2010
Swear words	-	Mehl et al., 2006; Yarkoni, 2010
Anger	-	Hirsh & Peterson, 2009; Mairesse et al., 2007; Yarkoni, 2010
Total pronouns	-	Mairesse et al., 2007; Yarkoni, 2010
Positive emotion	+	Mairesse et al., 2007; Pennebaker & King, 1999; Yarkoni, 2010
See	+	Mairesse et al., 2007; Yarkoni, 2010
Past focus	+	Yarkoni, 2010
Feel	-	Mairesse et al., 2007; Yarkoni, 2010
Numbers	+	Mairesse et al., 2007; Yarkoni, 2010
Time	+	Yarkoni, 2010
Motion	+	Yarkoni, 2010
Space	+	Mairesse et al., 2007; Yarkoni, 2010
1st person plural	+	Krieger, 2016; Mairesse et al., 2007; Yarkoni, 2010
Home	+	Yarkoni, 2010
Articles	+	Mairesse et al., 2007; Pennebaker & King, 1999
1st person singular	-	Mairesse et al., 2007; Mehl et al., 2006; Pennebaker & King, 1999
Friends	-	Mairesse et al., 2007
Family	-	Mairesse et al., 2007
Question marsk	-	Mairesse et al., 2007
Exclamation mark	-	Mairesse et al., 2007
Affective processes	-	Mairesse et al., 2007
Dictionary words	-	Mairesse et al., 2007
Negations	-	Mairesse et al., 2007
Sadness	-	Mairesse et al., 2007
Anxiety	-	Mairesse et al., 2007
Words > 6 letters	+	Mairesse et al., 2007
Prepositions	+	Mairesse et al., 2007
Leisure	+	Mairesse et al., 2007
Achievement	-	Golbeck et al., 2011
Ingestion	+	Golbeck et al., 2011
2nd person	+	Golbeck et al., 2011
Affiliation	+	Krieger, 2016

Table 27. LIWC Variables for Extraversion Personality Trait

LIWC Variable	+ or -	Source
Health	-	Golbeck et al., 2011
Parenthesis	-	Golbeck et al., 2011; Mairesse et al., 2007
Social processes	+	Golbeck et al., 2011; Mairesse et al., 2007; Pennebaker & King, 1999; Yuan et al., 2018
Family	+	Golbeck et al., 2011; Mairesse et al., 2007
Question mark	-	Golbeck et al., 2011; Mairesse et al., 2007
Fillers	-	Mairesse et al., 2007
Period	-	Mairesse et al., 2007
Quote	-	Mairesse et al., 2007
Body	-	Mairesse et al., 2007
Tentative	-	Mairesse et al., 2007; Yarkoni, 2010
Words > 6 letters	-	Mairesse et al., 2007; Mehl et al., 2006
Articles (concrete noun markers)	-	Mairesse et al., 2007; Pennebaker & King, 1999;
Negations	-	Mairesse et al., 2007; Pennebaker & King, 1999;
All punctuation	-	Mairesse et al., 2007
Apostrophe	-	Mairesse et al., 2007
Certainty	+	Mairesse et al., 2007; Yarkoni, 2010
Dictionary words	+	Mairesse et al., 2007
1st person singular	+	Krieger, 2016; Mairesse et al., 2007
1st person plural	+	Mairesse et al., 2007; Yarkoni, 2010
3rd person plural	+	Mairesse et al., 2007
Friends	+	Mairesse et al., 2007
Positive emotion	+	Mairesse et al., 2007; Pennebaker & King, 1999; Yarkoni, 2010; Yuan et al., 2018
Total pronouns	+	Mairesse et al., 2007
Sexual	+	Mairesse et al., 2007
Work	-	Yarkoni, 2010
Causation	-	Pennebaker & King, 1999; Yarkoni, 2010
Numbers	-	Yarkoni, 2010
Affective processes	+	Yarkoni, 2010
2nd person	+	Yarkoni, 2010
Sadness	+	Yarkoni, 2010
Perceptual processes	+	Yarkoni, 2010
Religion	+	Yarkoni, 2010
Hear	+	Yarkoni, 2010
Cognitive processes	+	Yuan et al., 2018

Table 27 (Cont.)

LIWC Variable	+ or -	Source
Negative emotion	-	Krieger, 2016; Pennebaker & King, 1999
Words/sentence	+	Mehl et al., 2006; Mehl et al., 2012
Anxiety	-	Krieger, 2016

Table 28. Average R^2 for Big Five Trait and EI Models, Not Standardized

Big Five	Trait Model	Mixed Model	Ability Model
Agreeableness	.055	.066	.056
Conscientiousness	.152	.102	.054
Extraversion	.168	.210	.047
Neuroticism	.281	.021	.057
Openness to Experience	.058	.183	.029

Sources: Alghamdi et al., 2017; Antonakis, 2009; Athota et al., 2009; Brackett & Mayer, 2003; Bukhari & Khanam, 2014; Cavazotte et al., 2012; Côté et al., 2010; Føllesdal & Hagtvet, 2013; García-Sancho et al., 2017; Hafen et al., 2011; Joseph and Newman, 2010; Kappagoda, 2013; Mayer et al., 2004; Mayer, Salovey, & Caruso, 2008; O'Boyle et al., 2011; Ono et al., 2011; Pérez-González & Sanchez-Ruiz, 2014; Petrides et al., 2010; Saklofske et al., 2003; Siegling et al., 2015; Vakola et al., 2004; van der Linden et al., 2012; van der Linden et al., 2017; Van Rooy & Viswesvaran, 2004; Wong & Law, 2002

Table 29. Average R^2 for Big Five and Type of EI Test, Not Standardized

Big Five	Ability Test	Self-Report Test
Agreeableness	.043	.086
Conscientiousness	.073	.131
Extraversion	.049	.229
Neuroticism	.076	.142
Openness to Experience	.025	.129

Sources: Alghamdi et al., 2017; Antonakis, 2009; Athota et al., 2009; Brackett & Mayer, 2003; Bukhari & Khanam, 2014; Cavazotte et al., 2012; Côté et al., 2010; Føllesdal & Hagtvet, 2013; García-Sancho et al., 2017; Hafen et al., 2011; Joseph & Newman, 2010; Kappagoda, 2013; Mayer et al., 2004; Mayer, Salovey, & Caruso, 2008; O'Boyle et al., 2011; Ono et al., 2011; Pérez-González & Sanchez-Ruiz, 2014; Petrides et al., 2010; Saklofske et al., 2003; Siegling et al., 2015; Vakola et al., 2004; van der Linden et al., 2012; van der Linden et al., 2017; Van Rooy & Viswesvaran, 2004; Wong & Law, 2002

Table 30. Big Five Trait Correlation Coefficient by Test, Not Standardized

Study	A	C	E	N	O	Test
Antonakis, 2009	.08**	-.08***	.20***	-.15***	.02	EQ-i
Bracket & Mayer, 2003	.27***	.48***	.37***	-.57***	.16*	EQ-i
Mayer et al., 2004	.21***	.11***	.06*	-.09**	.17***	EQ-i
Mayer, Salovey, & Caruso, 2008	.27***	.48***	.37***	-.57***	.16*	EQ-i
Ono et al., 2011	.26**	.56**	.55**	-.50**	.26**	EQ-i
Vakola et al., 2004	.39**	.60**	.54**	-.66**	.20*	EQ-I
Wong & Law, 2002	-.04	.25	.22	-.27	.04	EQ-i
Wong & Law, 2002	.04	.30	.25	-.15	.13	EQ-i
Bracket & Mayer, 2003	.28***	.03	.11	-.08	.25***	MSCEIT
Côté et al., 2010	.21*	.29	.02	-.06	.22**	MSCEIT
Føllesdal & Hagtvet, 2013	.27**	.20**	.10**	-.07**	.26**	MSCEIT
García-Sancho et al., 2017	.13**	.09*	.12**	-.05	.04	MSCEIT
Mayer, Salovey, & Caruso, 2008	.28***	.03	.11	-.08	.25***	MSCEIT
Van Rooy & Viswesvaran, 2004	.23	.31	.34	-.33	.23	MSCEIT
Alghamdi et al., 2017	.28**	.00	.412**	.00	.32***	SSEIT, SREIT, SEIS
Bracket & Mayer, 2003	.09*	.25***	.32	-.19	.43**	SSEIT, SREIT, SEIS
Côté et al., 2010	.36***	.19*	.41***	.25**	.30***	SSEIT, SREIT, SEIS
Hafen et al., 2011	.11	.39***	.41***	-.32**	.32***	SSEIT, SREIT, SEIS
Kappagoda, 2013	.84**	.47	.87**	.39	.94***	SSEIT, SREIT, SEIS
Mayer, Salovey, & Caruso, 2008	.09	.25**	.32**	-.19**	.43**	SSEIT, SREIT, SEIS
Saklofske, Austin, & Minski, 2003	.18**	.38***	.51***	-.37***	.27***	SSEIT, SREIT, SEIS
Mayer, Salovey, & Caruso, 2008	-.04	.34***	.68***	-.7**	.44**	TEIQue
Pérez-González & Sanchez-Ruiz, 2014	.16***	.33***	.44***	-.63***	.34***	TEIQue
Pérez-González & Sanchez-Ruiz, 2014	.16**	.33	.44**	-.63*	.34**	TEIQue
van der Linden et al., 2012	.25	.57	.61	-.68	.25	TEIQue
van der Linden et al., 2017	.37	.40	.47	-.58	.31	TEIQue
Bukhari & Khanam, 2014	.23***	.32***	.45***	-.33***	.29***	TEIQue-SF
Petrides et al., 2010	.36**	.45***	.54***	-.59***	.24***	TEIQue-SF
Petrides et al., 2010	.34**	.48**	.52**	-.66**	.24**	TEIQue-SF

Table 30 (Cont.)

Study	A	C	E	N	O	Test
Siegling et al., 2015	.45***	.47***	.52***	-.67***	.27***	TEIQue–SF
Cavazotte et al., 2012	.23**	.06	.07	-.46**	.06	WLEIS
van der Linden et al., 2017	.19	.30	.07	-.32	.15	WLEIS
Wong & Law, 2002	.17	.50	.24	-.40	.07	WLEIS
Wong & Law, 2002	.19	.51	.27	-.24	.13	WLEIS

A, C, E, N, O stand for the Big Five personality traits of agreeableness, conscientiousness, extraversion, neuroticism, openness to experience. *p<.05, **p<.01, ***p<.001.

Table 31. Big Five Trait Correlation Coefficient by EI Type, Not Standardized

Study	A	C	E	N	O	Type
Antonakis, 2009	.08**	-.08***	.20***	-.15***	.02	Ability
Bracket & Mayer, 2003	.27***	.48***	.37***	-.57***	.16*	Ability
Bracket & Mayer, 2003	.28***	.03	.11	-.08	.25***	Ability
Cavazotte et al., 2012	.23**	.06	.07	-.46**	.06	Ability
Côté et al., 2010	.21*	.29	.02	-.06	.22**	Ability
Føllesdal & Hagtvet, 2013	.27**	.20**	.10**	-.07**	.26**	Ability
García-Sancho et al., 2017	.13**	.09*	.12**	-.05	.04	Ability
Joseph & Newman, 2010	.29	.13**	.18**	-.2***	.21**	Ability
Mayer et al., 2004	.21***	.11***	.06*	-.09**	.17***	Ability
Mayer, Salovey, & Caruso, 2008	.27***	.48***	.37***	-.57***	.16*	Ability
Mayer, Salovey, & Caruso, 2008	.28***	.03	.11	-.08	.25***	Ability
Ono et al., 2011	.26**	.56**	.55**	-.50**	.26**	Ability
Vakola et al., 2004	.39**	.60**	.54**	-.66**	.20*	Ability
van der Linden et al., 2017	.19	.30	.07	-.32	.15	Ability
Van Rooy & Viswesvaran, 2004	.23	.31	.34	-.33	.23	Ability
Wong & Law, 2002	-.04	.25	.22	-.27	.04	Ability
Wong & Law, 2002	.04	.30	.25	-.15	.13	Ability
Wong & Law, 2002	.17	.50	.24	-.40	.07	Ability
Wong & Law, 2002	.19	.51	.27	-.24	.13	Ability
Alghamdi et al., 2017	.28**	.00	.412**	.00	.32***	Self-report
Bracket & Mayer, 2003	.09*	.25***	.32	-.19	.43**	Self-report
Bukhari & Khanam, 2014	.23***	.32***	.45***	-.33***	.29***	Self-report
Côté et al., 2010	.36***	.19*	.41***	.25**	.30***	Self-report
Hafen et al., 2011	.11	.39***	.41***	-.32**	.32***	Self-report
Joseph & Newman, 2010	.31	.38	.32	-.40	.29	Self-report
Joseph & Newman, 2010	.43	.38	.46	-.53	.29	Self-report
Kappagoda, 2013	.84**	.47	.87**	.39	.94***	Self-report

Table 31 (Cont.)

Study	A	C	E	N	O	Type
Mayer, Salovey, & Caruso, 2008	.09	.25**	.32**	-.19**	.43**	Self-report
Mayer, Salovey, & Caruso, 2008	-.04	.34***	.68***	-.7**	.44**	Self-report
O'Boyle et al., 2011	.25**	.31**	.27**	-.33**	.24**	Self-report
Pérez-González & Sanchez-Ruiz, 2014	.16***	.33***	.44***	-.63***	.34***	Self-report
Pérez-González & Sanchez-Ruiz, 2014	.16**	.33	.44**	-.63*	.34**	Self-report
Petrides et al., 2010	.36**	.45***	.54***	-.59***	.24***	Self-report
Petrides et al., 2010	.34**	.48**	.52**	-.66**	.24**	Self-report
Saklofske et al., 2003	.18**	.38***	.51***	-.37***	.27***	Self-report
Siegling et al., 2015	.45***	.47***	.52***	-.67***	.27***	Self-report
van der Linden et al., 2017	.37	.40	.47	-.58	.31	Self-report
van der Linden et al., 2012	.25	.57	.61	-.68	.25	Self-report

A, C, E, N, O stand for the Big Five personality traits of agreeableness, conscientiousness, extraversion, neuroticism, openness to experience.
*p<.05, **p<.01, ***p<.001.

Table 32. Big Five Trait Correlation Coefficient by EI Model, Not Standardized

Study	A	C	E	N	O	Model
Alghamdi et al., 2017	.28**	.00	.412**	.00	.32***	Mixed
Antonakis, 2009	.08**	-.08***	.20***	-.15***	.02	Ability
Bracket & Mayer, 2003	.27***	.48***	.37***	-.57***	.16*	Ability
Bracket & Mayer, 2003	.09*	.25***	.32	-.19	.43**	Mixed
Bukhari & Khanam, 2014	.23***	.32***	.45***	-.33***	.29***	Trait
Cavazotte et al., 2012	.23**	.06	.07	-.46**	.06	Trait
Côté et al., 2010	.21*	.29	.02	-.06	.22**	Ability
Côté et al., 2010	.36***	.19*	.41***	.25**	.30***	Mixed
Føllesdal & Hagtvet, 2013	.27**	.20**	.10**	-.07**	.26**	Ability
García-Sancho et al., 2017	.13**	.09*	.12**	-.05	.04	Ability
Hafen et al., 2011	.11	.39***	.41***	-.32**	.32***	Mixed
Joseph & Newman, 2010	.29	.13**	.18**	-.2***	.21**	Ability
Joseph & Newman, 2010	.31	.38	.32	-.40	.29	Mixed
Kappagoda, 2013	.84**	.47	.87**	.39	.94***	Mixed
Mayer et al., 2004	.21***	.11***	.06*	-.09**	.17***	Ability
Mayer, Salovey, & Caruso, 2008	.27***	.48***	.37***	-.57***	.16*	Ability
Mayer, Salovey, & Caruso, 2008	.28***	.03	.11	-.08	.25***	Ability

Table 32 (Cont.)

Study	A	C	E	N	O	Model
Mayer, Salovey, & Caruso, 2008	.09	.25**	.32**	-.19**	.43**	Mixed
Mayer, Salovey, & Caruso, 2008	-.04	.34***	.68***	-.7**	.44**	Trait
O'Boyle et al., 2011	.22**	.10**	.09**	-.13**	.15**	Ability
O'Boyle et al., 2011	.32**	.32**	.42**	-.471**	.33**	Mixed
Ono et al., 2011	.26**	.56**	.55**	-.50**	.26**	Ability
Pérez-González & Sanchez-Ruiz, 2014	.16***	.33***	.44***	-.63***	.34***	Trait
Pérez-González & Sanchez-Ruiz, 2014	.16**	.33	.44**	-.63*	.34**	Trait
Petrides et al., 2010	.36**	.45***	.54***	-.59***	.24***	Trait
Petrides et al., 2010	.34**	.48**	.52**	-.66**	.24**	Trait
Saklofske et al., 2003	.18**	.38***	.51***	-.37***	.27***	Mixed
Siegling et al., 2015	.45***	.47***	.52***	-.67***	.27***	Trait
Vakola et al., 2004	.39**	.60**	.54**	-.66**	.20*	Ability
van der Linden et al., 2012	.25	.57	.61	-.68	.25	Trait
van der Linden et al., 2017	.16	.09	.05	-.09	.14	Ability
van der Linden et al., 2017	.19	.30	.07	-.32	.15	Trait
van der Linden et al., 2017	.37	.40	.47	-.58	.31	Trait
Van Rooy & Viswesvaran, 2004	.23	.31	.34	-.33	.23	Ability
Wong & Law, 2002	-.04	.25	.22	-.27	.04	Ability
Wong & Law, 2002	.04	.30	.25	-.15	.13	Ability
Wong & Law, 2002	.17	.50	.24	-.40	.07	Trait
Wong & Law, 2002	.19	.51	.27	-.24	.13	Trait

A, C, E, N, O stand for the Big Five personality traits of agreeableness, conscientiousness, extraversion, neuroticism, openness to experience. *p<.05, **p<.01, ***p<.001.

Table 33. Big Five Weighted Correlation Coefficient and Effect Sizes

Big Five	Total Sample Size	Weighted Correlation Coefficient	Big Five Effect Size
Agreeableness	64,045	0.258	0.245
Conscientiousness	43,210	0.314	0.305
Extraversion	44,303	0.358	0.337
Neuroticism	45,204	-0.338	-0.314
Openness to Experience	41,620	0.264	0.243

Table 33 (Cont.)

Sources: Alghamdi et al., 2017; Antonakis, 2009; Athota et al., 2009; Brackett & Mayer, 2003; Bukhari & Khanam, 2014; Cavazotte et al., 2012; Côté et al., 2010; Føllesdal & Hagtvet, 2013; García-Sancho et al., 2017; Hafen et al., 2011; Joseph and Newman, 2010; Kappagoda, 2013; Mayer et al., 2004; Mayer, Salovey, & Caruso, 2008; O'Boyle et al., 2011; Ono et al., 2011; Pérez-González & Sanchez-Ruiz, 2014; Petrides et al., 2010; Saklofske et al., 2003; Siegling et al., 2015; Vakola et al., 2004; van der Linden et al., 2012; van der Linden et al., 2017; Van Rooy & Viswesvaran, 2004; Wong & Law, 2002

Table 34. Fixed Effects Meta-Analysis Studies Using the TEIQue and TEIQue-SF for Agreeableness

Study	**n**	**w**	**w^2**	**r**	**Z_r**	**wZ_r**
Antonakis, 2009	446	443	196,249	.080	.080	35.516
Bracket & Mayer, 2003	188	185	34,225	.280	.288	53.221
Bracket & Mayer, 2003	188	185	34,225	.090	.090	16.695
Bracket & Mayer, 2003	188	185	34,225	.270	.277	51.220
Côté et al., 2010	138	135	18,225	.360	.377	50.880
Côté et al., 2010	138	135	18,225	.210	.213	28.778
Føllesdal & Hagtvet, 2013	111	108	11,664	.270	.277	29.901
García-Sancho, Salguero, & Fernández-Berrocal, 2017	474	471	221,841	.130	.131	61.578
Mayer, Salovey, & Caruso, 2004	656	653	426,409	.210	.213	139.201
Mayer, Salovey, & Caruso, 2008	135	132	17,424	-.040	-.040	-5.283
Ono et al., 2011	131	128	16,384	.260	.266	34.062
Vakola et al., 2004	137	134	17,956	.389	.411	55.023
Van Rooy & Viswesvaran, 2004	3,306	3303	10,909,809	.230	.234	773.528
Wong & Law, 2002	116	113	12,769	-.040	-.040	-4.522
Wong & Law, 2002	116	113	12,769	.040	.040	4.522
Wong & Law, 2002	116	113	12,769	.170	.172	19.398
Wong & Law, 2002	116	113	12,769	.190	.192	21.734

Note: *n* is the number of samples; *w* is the number of samples minus 3; *r* is the original effect size; Z_r is the Fisher's r-to-Z transformation value; and *wZr* is the value of *w* times Z_r.

Table 35. Fixed Effects Meta-Analysis Studies Using the TEIQue and TEIQue-SF for Conscientiousness

Study	**n**	**w**	**w^2**	**r**	**Z_r**	**wZr**
Antonakis, 2009	446	443	196,249	-.080	-.080	-35.516
Bracket & Mayer, 2003	188	185	34,225	.030	.030	5.552
Bracket & Mayer, 2003	188	185	34,225	.250	.255	47.251
Bracket & Mayer, 2003	188	185	34,225	.480	.523	96.752
Côté et al., 2010	138	135	18,225	.190	.192	25.966

Table 35 (Cont.)

Study	n	w	w2	r	Zr	wZr
Côté et al., 2010	138	135	18,225	.290	.299	40.306
Føllesdal & Hagtvet, 2013	111	108	11,664	.200	.203	21.895
García-Sancho, Salguero, & Fernández-Berrocal, 2017	474	471	221,841	.090	.090	42.505
Mayer, Salovey, & Caruso, 2004	656	653	426,409	.110	.110	72.122
Mayer, Salovey, & Caruso, 2008	135	132	17,424	.340	.354	46.740
Ono et al., 2011	131	128	16,384	.560	.633	81.003
Vakola et al., 2004	137	134	17,956	.601	.695	93.091
Van Rooy & Viswesvaran, 2004	3,414	3,411	11,634,921	.310	.321	1,093.380
Wong & Law, 2002	116	113	12,769	.250	.255	28.862
Wong & Law, 2002	116	113	12,769	.300	.310	34.976
Wong & Law, 2002	116	113	12,769	.500	.549	62.072
Wong & Law, 2002	116	113	12,769	.510	.563	63.588

Note: *n* is the number of samples; *w* is the number of samples minus 3; *r* is the original effect size; Z_r is the Fisher's r-to-Z transformation value; and *wZr* is the value of *w* times Z_r.

Table 36. Fixed Effects Meta-Analysis Studies Using the TEIQue and TEIQue-SF for Extraversion

Study	n	w	w^2	r	Z_r	wZr
Antonakis, 2009	446	443	196,249	.200	.203	89.811
Bracket & Mayer, 2003	188	185	34,225	.110	.110	20.433
Bracket & Mayer, 2003	188	185	34,225	.320	.332	61.355
Bracket & Mayer, 2003	188	185	34,225	.370	.388	71.858
Côté et al., 2010	138	135	18,225	.410	.436	58.808
Côté et al., 2010	138	135	18,225	.020	.020	2.700
Føllesdal & Hagtvet, 2013	111	108	11,664	.100	.100	10.836
García-Sancho, Salguero, & Fernández-Berrocal, 2017	474	471	221,841	.120	.121	56.794
Mayer, Salovey, & Caruso, 2004	656	653	426,409	.060	.060	39.227
Mayer, Salovey, & Caruso, 2008	135	132	17,424	.680	.829	109.443
Ono et al., 2011	131	128	16,384	.550	.618	79.153
Vakola et al., 2004	137	134	17,956	.539	.603	80.768
Van Rooy & Viswesvaran, 2004	3,718	3,715	13,801,225	.340	.354	1,315.454
Wong & Law, 2002	116	113	12,769	.220	.224	25.273
Wong & Law, 2002	116	113	12,769	.250	.255	28.862
Wong & Law, 2002	116	113	12,769	.240	.245	27.659
Wong & Law, 2002	116	113	12,769	.270	.277	31.286

Note: *n* is the number of samples; *w* is the number of samples minus 3; *r* is the original effect size; Z_r is the Fisher's r-to-Z transformation value; and *wZr* is the value of *w* times Z_r.

Table 37. Fixed Effects Meta-Analysis Studies Using the TEIQue and TEIQue-SF for Neuroticism

Study	n	w	w^2	r	Z_r	wZr
Antonakis, 2009	446	443	196,249	-.150	-.151	-66.955
Bracket & Mayer, 2003	188	185	34,225	-.080	-.080	-14.832
Bracket & Mayer, 2003	188	185	34,225	-.190	-.192	-35.582
Bracket & Mayer, 2003	188	185	34,225	-.570	-.648	-119.792
Côté et al., 2010	138	135	18,225	.250	.255	34.481
Côté et al., 2010	138	135	18,225	-.060	-.060	-8.110
Føllesdal & Hagtvet, 2013	111	108	11,664	-.070	-.070	-7.572
García-Sancho, Salguero, & Fernández-Berrocal, 2017	474	471	221,841	-.050	-.050	-23.570
Mayer, Salovey, & Caruso, 2004	656	653	426,409	-.090	-.090	-58.929
Mayer, Salovey, & Caruso, 2008	135	132	17,424	-.700	-.867	-114.484
Ono et al., 2011	131	128	16,384	-.500	-.549	-70.311
Vakola et al., 2004	137	134	17,956	-.658	-.789	-105.763
Van Rooy & Viswesvaran, 2004	4,213	4,210	17,724,100	-.330	-.343	-1,443.307
Wong & Law, 2002	116	113	12,769	-.270	-.277	-31.286
Wong & Law, 2002	116	113	12,769	-.150	-.151	-17.079
Wong & Law, 2002	116	113	12,769	-.400	-.424	-47.872
Wong & Law, 2002	116	113	12,769	-.240	-.245	-27.659

Note: *n* is the number of samples; *w* is the number of samples minus 3; *r* is the original effect size; Z_r is the Fisher's r-to-Z transformation value; and *wZr* is the value of *w* times Z_r.

Table 38. Fixed Effects Meta-Analysis Studies Using the TEIQue and TEIQue-SF for Openness

Study	n	w	w^2	r	Z_r	wZr
Antonakis, 2009	446	443	196,249	.020	.020	8.861
Bracket & Mayer, 2003	188	185	34,225	.250	.255	47.251
Bracket & Mayer, 2003	188	185	34,225	.430	.460	85.081
Bracket & Mayer, 2003	188	185	34,225	.160	.161	29.857
Côté et al., 2010	138	135	18,225	.300	.310	41.785
Côté et al., 2010	138	135	18,225	.220	.224	30.194
Føllesdal & Hagtvet, 2013	111	108	11,664	.260	.266	28.740
García-Sancho, Salguero, & Fernández-Berrocal, 2017	474	471	221,841	.040	.040	18.850
Mayer, Salovey, & Caruso, 2004	656	653	426,409	.170	.172	112.098
Mayer, Salovey, & Caruso, 2008	135	132	17,424	.440	.472	62.334
Ono et al., 2011	131	128	16,384	.260	.266	34.062
Vakola et al., 2004	137	134	17,956	.201	.204	27.306
Van Rooy & Viswesvaran, 2004	3,306	3,303	10,909,809	.230	.234	773.528

Table 38 (Cont.)

Study	n	w	w^2	r	Z_r	wZr
Wong & Law, 2002	116	113	12,769	.040	.040	4.522
Wong & Law, 2002	116	113	12,769	.130	.131	14.774
Wong & Law, 2002	116	113	12,769	.070	.070	7.923
Wong & Law, 2002	116	113	12,769	.130	.131	14.774

Note: *n* is the number of samples; *w* is the number of samples minus 3; *r* is the original effect size; Z_r is the Fisher's r-to-Z transformation value; and *wZr* is the value of *w* times Z_r.

Table 39. τ^2 Values for Calculating Random Effect Size for Big Five Traits

Study	A	C	E	N	O
Antonakis, 2009	.288	1.020	1.006	1.982	.292
Bracket & Mayer, 2003	.341	1.073	1.058	2.033	.345
Bracket & Mayer, 2003	.341	1.073	1.058	2.033	.345
Bracket & Mayer, 2003	.341	1.073	1.058	2.033	.345
Côté et al., 2010	.352	1.083	1.068	2.043	.355
Côté et al., 2010	.352	1.083	1.068	2.043	.355
Føllesdal & Hagtvet, 2013	.357	1.089	1.073	2.048	.361
García-Sancho, Salguero, & Fernández-Berrocal, 2017	.282	1.014	1.000	1.976	.286
Mayer, Salovey, & Caruso, 2004	.245	.977	.963	1.940	.248
Mayer, Salovey, & Caruso, 2008	.352	1.084	1.068	2.043	.356
Ono et al., 2011	.353	1.085	1.069	2.044	.357
Vakola et al., 2004	.352	1.084	1.068	2.043	.356
Van Rooy & Viswesvaran, 2004	.000	.411	.345	1.238	.000
Wong & Law, 2002	.356	1.088	1.072	2.047	.360
Wong & Law, 2002	.356	1.088	1.072	2.047	.360
Wong & Law, 2002	.356	1.088	1.072	2.047	.360
Openness	.356	1.088	1.072	2.047	.360

A, C, E, N, and O stand for the Big Five personality traits of agreeableness, conscientiousness, extraversion, neuroticism, openness to experience.

Table 40. w Values for Calculating Random Effect Size for Big Five Traits*

Study	A	C	E	N	O
Antonakis, 2009	3.444	.978	.992	.504	3.402
Bracket & Mayer, 2003	2.884	.927	.941	.491	2.854
Bracket & Mayer, 2003	2.884	.927	.941	.491	2.854
Bracket & Mayer, 2003	2.884	.927	.941	.491	2.854
Côté et al., 2010	2.785	.917	.930	.488	2.757

Table 40 (Cont.)

Study	A	C	E	N	O
Côté et al., 2010	2.785	.917	.930	.488	2.757
Føllesdal & Hagtvet, 2013	2.728	.911	.924	.486	2.702
García-Sancho, Salguero, & Fernández-Berrocal, 2017	3.516	.984	.998	.505	3.472
Mayer, Salovey, & Caruso, 2004	4.061	1.022	1.037	.515	4.002
Mayer, Salovey, & Caruso, 2008	2.779	.916	.929	.488	2.751
Ono et al., 2011	2.771	.915	.928	.487	2.743
Vakola et al., 2004	2.783	.917	.930	.488	2.755
Van Rooy & Viswesvaran, 2004	-3.310	2.431	2.898	.808	3303
Wong & Law, 2002	2.739	.912	.925	.486	2.712
Wong & Law, 2002	2.739	.912	.925	.486	2.712
Wong & Law, 2002	2.739	.912	.925	.486	2.712
Openness	2.739	.912	.925	.486	2.712

A, C, E, N, and O stand for the Big Five personality traits of agreeableness, conscientiousness, extraversion, neuroticism, openness to experience.

Table 41. Q Values for Calculating Random Effect Size for Big Five Traits

Study	A	C	E	N	O
Antonakis, 2009	6.943	54.144	4.087	8.019	14.645
Bracket & Mayer, 2003	1.254	10.605	6.562	7.814	.531
Bracket & Mayer, 2003	2.452	.036	.200	1.612	12.321
Bracket & Mayer, 2003	.946	11.894	1.486	24.222	.303
Côté et al., 2010	3.972	.802	2.527	39.526	1.566
Côté et al., 2010	.008	.115	10.492	6.872	.064
Føllesdal & Hagtvet, 2013	.552	.480	4.253	5.019	.446
García-Sancho, Salguero, & Fernández-Berrocal, 2017	2.623	15.123	14.957	26.153	12.331
Mayer, Salovey, & Caruso, 2004	.040	16.505	37.210	24.942	.594
Mayer, Salovey, & Caruso, 2008	7.948	.946	37.125	44.653	9.652
Ono et al., 2011	.472	16.904	13.074	8.896	.529
Vakola et al., 2004	5.646	24.236	12.381	33.983	.001
Van Rooy & Viswesvaran, 2004	2.745	8.912	11.364	13.748	3.460
Wong & Law, 2002	6.804	.022	.638	.009	2.958
Wong & Law, 2002	3.089	.182	.213	2.046	.571
Wong & Law, 2002	.128	8.851	.330	2.151	1.960

A, C, E, N, and O stand for the Big Five personality traits of agreeableness, conscientiousness, extraversion, neuroticism, openness to experience.

APPENDIX D: RESEARCH COMPLIANCE PROTOCOL LETTER

UNIVERSITY OF ARKANSAS

To:	Karen Liebhaber
From:	Justin R Chimka, Chair IRB Expedited Review
Date:	09/02/2021
Action:	**Expedited Approval**
Action Date:	09/02/2021
Protocol #:	2105335349
Study Title:	Evidence of Emotional Intelligence in College Presidents' Public Writing: Does Their Emotional Intelligence Change Over Time?
Expiration Date:	07/15/2022
Last Approval Date:	

The above-referenced protocol has been approved following expedited review by the IRB Committee that oversees research with human subjects.

If the research involves collaboration with another institution then the research cannot commence until the Committee receives written notification of approval from the collaborating institution's IRB.

It is the Principal Investigator's responsibility to obtain review and continued approval before the expiration date.

Protocols are approved for a maximum period of one year. You may not continue any research activity beyond the expiration date without Committee approval. Please submit continuation requests early enough to allow sufficient time for review. Failure to receive approval for continuation before the expiration date will result in the automatic suspension of the approval of this protocol. Information collected following suspension is unapproved research and cannot be reported or published as research data. If you do not wish continued approval, please notify the Committee of the study closure.

Adverse Events: Any serious or unexpected adverse event must be reported to the IRB Committee within 48 hours. All other adverse events should be reported within 10 working days.

Amendments: If you wish to change any aspect of this study, such as the procedures, the consent forms, study personnel, or number of participants, please submit an amendment to the IRB. All changes must be approved by the IRB Committee before they can be initiated.

You must maintain a research file for at least 3 years after completion of the study. This file should include all correspondence with the IRB Committee, original signed consent forms, and study data.

cc: Kevin M Roessger, Investigator