EMOTIONAL INTELLIGENCE IN COACHING: PREDICTING SUCCESS IN

COLLEGIATE COACHES

by

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(Under the Direction of Paul Schempp)

ABSTRACT

Individuals with higher levels of emotional intelligence (EI) have demonstrated greater

success in academics, business, leadership, medicine, and sport. Indeed, previous research has

identified EI as a source of success, however little research has examined the role of EI in

coaching success. Thus, the purpose of this study was to assess the power of EI in predicting

coaches' success. To fully vet EI's influence, the present study examined variables which

previously differentiated coaching success including, age, gender, education level, coaching

experience, and playing experience. Three research questions were examined in this study: 1)

Does a coaches' self-reported EI significantly predict coaches' career winning percentage? 2)

Was there a statistically significant relationship between self-reported EI and age, gender,

education level, head coaching experience, assistant coaching experience, and playing

experience? 3) Which variables, if any, could be used in a regression formula to predict a

coaches' career winning percentage? Participants were current and former head college

basketball and volleyball coaches. Each coach completed the Assessing Emotions Scale (Schutte

et al., 1998) as well as a background questionnaire. Additionally, career winning percentage was

obtained by the researchers through institutional websites and NCAA databases. Relationships between EI, coaching success, and the previously mentioned variables were primarily analyzed through multiple linear regression and correlation analyses. EI was not a significant predictor of coaching success when both sport coaches were analyzed together. However, when examined separately, results indicated that EI was a significant predictor of basketball but not volleyball coaches' success. Additionally, basketball coaches' success was influenced by age. Volleyball coaches' success was influenced by head coaching experience and playing experience. Specifically, greater head coaching experience supported greater success while higher reported playing experience negatively impacted coaches' success. In spite of the previous findings, the most meaningful finding of this study was EI's non-uniform impact on coaching success. As the data revealed, EI may meaningfully impact some coaches' success but not others. As such, future research should examine various sport coaches' EI. This may help create an EI profile reflecting characteristics of coaches EI, how they utilize EI, and to what degree EI influences success.

INDEX WORDS: Sport Coaching, Coach, Emotional Intelligence, Success, College

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DEDICATION

This dissertation is dedicated to the memory of my late brother Nicholas R. Magrum. While he may have been unaware, his actions and behaviors shaped my life for the better.

"Hope is a good thing, maybe the best of things, and no good thing ever dies."

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CHAPTER ONE

INTRODUCTION

"Whatever you are, be a good one." ~ Abraham Lincoln

Legendary coaches John Wooden and Bobby Bowden are world-renown for their

success. Though their achievements standout, their approaches to coaching underscored their

successes. As such, it is important for coaching scholars to study and learn from their—and other

successful coaches--examples. To do so, scholars must consider elements that may have

contributed to coaching success.

Interestingly, a few commonalties exist between these two coaches. The first being their

level of knowledge, of which each possessed an expert level in their particular sport. This level

of knowledge is uncommon and likely aided their success. Likewise, both Wooden and Bowden

gained athletic experience in college, and perhaps importantly, in the sport they would ultimately

coach. It is possible that their athletic experiences may have primed their coaching careers by

presenting what it means to be an effective coach. And, before assuming a tenured head coaching

position and creating a winning program, each of these coaches was afforded the opportunity to

gain coaching experience. This experience may have allowed them to hone their craft and

identify what and how to be successful. Finally, both coaches outwardly expressed their

perception of coaching as a teaching process. They portrayed and demonstrated the importance

of compassion, even love, for their players, assistant coaches, and support staff (Smith 2004;

Wooden & James, 2005). Thus, many factors supported their success. Intriguingly, this generates

interest toward understanding other factors that may influence coaching success.

Before elements of coaching success are disclosed, a firm understanding of coaching success is required. Scholars have proposed multiple explanations as to what constitutes coaching success (Cote & Gilbert, 2009). However, the most common indicators include win-loss percentage, athletes' personal attributes, years of experience, level of coaching, coaching position held, or a combination of the above (Cote & Gilbert, 2009; Nash et al., 2012).

Meanwhile, coaching effectiveness has been defined as the consistent application of integrated professional, interpersonal, and intrapersonal knowledge to improve athlete outcomes in specific contexts (Cote & Gilbert, 2009). This definition requires a coach to demonstrate an ability to produce outcomes for athletes. In other terms, coaches must produce winning teams and/or develop their athletes inter and/or intrapersonal skills. Furthermore, coaching expertise, which is associated with effectiveness, partially refers to a coaches' knowledge level. For instance, a coach who attends a clinic and improves their knowledge would have increased their expertise level. However, important to note, an increase in expertise does not necessarily equate to a concomitant increase in effectiveness.

Finally, coaches who routinely demonstrate effectiveness and consistently outperform their peers are branded expert coaches. Therefore, expert coaches are by definition effective and successful in their efforts. Similarly, and potentially most importantly, expert coaches continually seek improvement, new information, and learning opportunities (Saiz, Calvo, & Godoy, 2009; Turner, Nelson, & Potrac, 2012). It is this characteristic that may lead expert coaches to outperform their peers and achieve greater levels of success.

In accordance with the abovementioned items, the literature specifying potential elements leading to coaching success can be examined. Current evidence highlights age, coaching experience (Tracey, Johnson, Giannoulakis, Blom & Judge, 2018; Dimec & Kajtna, 2009;

Schempp & McCullick, 2010; Berger, 2013), playing experience (Kiosoglous, 2013), education level (Dae-Woo, Min-Haeng & Young-Kum, 2005), and gender (Millard, 1996) as factors that influence coaching success. However, among the aforementioned characteristics, evidence indicates experience may be the most influential factor for determining success (Berger, 2013). Interestingly enough, both Bowden and Wooden achieved greater success in the later portions of their careers, when compared to the earlier portions, which supports experience as a factor influencing coaching success.

Moreover, varied and extensive coaching experience predicted 92.3% of first-time head coaches success (Tracey, Johnson, Giannoulakis, Blom, & Judge, 2018). The authors suggested that coaching experience may provide essential learning experiences, help define a coach's identity, and provide sport-specific knowledge. Additionally, the literature on expert coaches supports these claims (Schempp and McCullick, 2010). Both Bowden and Wooden coached various sports at the collegiate level, and Wooden coached at the high school level for a time. Thus, it seems that various coaching experiences may indeed support success.

While experience is a critical factor in coaching success, not surprisingly, Muhe (2015) identified a significant relationship between age and coaching experience. Accordingly, it is possible that age may play a significant role in coaching success through coaching experience. In other words, as the coach grows older changes may occur that influence his/her experience, which then influence success. One study by Dimec and Kajtna (2009) sought to identify the psychological differences between older and younger coaches. Findings may elucidate why older coaches, who likely have more experience, may be more successful. Results showed that younger coaches were more open, agreeable, conscientious and superior managers of their emotions when compared to older coaches. Authors posited young coaches displayed these

behaviors out of necessity, as a way of adapting to their environment because older coaches were described as "preferring to keep things as they are." Thus, young coaches' ability to endure and overcome these situations may have been the difference between continuing and discontinuing their career.

When compared to younger coaches, older coaches more frequently included their athletes in the process of decision making. The authors believed older coaches, through experience, learned when to make decisions by themselves and when to involve the athletes (Dimec & Kajtna, 2009). Lastly, older coaches were better delegators and focused on sport achievement more than younger coaches. Hence, it seems that the changes associated with increased age and experience played a critical role in coaching success.

In support of the evidence above, Kiosoglous (2013) studied the impact of athletic experience and coaching experience on coaching success. Findings revealed coaching experience explained 9% of the variance in success, while athletic experience explained less than 3%. Although, when combined and used to predict coaching success, athletic and coaching experience explained 24% of the variance in coaching success. This highlights an interaction effect between the two variables where their combined effect generates a product on a third variable that is greater than their summative effect. In simpler terms, the whole effect is greater than the sum of the parts.

Long before coaches assume a coaching position, opinions on the role of a coach are subliminally formed through sporting experiences (Gilbert & Cote, 2003). While participating in sport, coaches may learn how to lead others and potentially, how they want to coach in the future. As such, playing experience may serve a significant role in coaches' development. Empirical evidence suggests specific experiences including both recreational and competitive

playing experiences are key contributors to coaching development (Erickson et al., 2007). Specifically, experiences in team sport may provide opportunities for coaches to develop leadership abilities before they begin their coaching career (Erickson et al., 2007).

John Wooden detailed the influences of grade school coach Earl Warriner, high school coach Glenn Curtis, and college coach Ward "Piggy" Lambert (Wooden & Jamison, 2009). Specifically, Wooden learned about effective teaching, fundamentals, and leadership from these coaches. Likewise, Bowden recalled the influences of high school coach Kenny Morgan (Smith, 2004). He declared Coach Morgan inspired him to play football and make coaching football his lifelong career choice. Fascinatingly, both legendary coaches discussed their high school coaches as heavy influencers of their coaching careers. In light of the prevailing evidence, playing experiences are thought to be critical in coaches' development and success.

While the abovementioned evidence indicated playing experience significantly impacts coaching and coaching success, more recent evidence doesn't support this notion. Specifically, Schempp McCullick, Grant, Foo, and Wieser (2010) found that professional playing experience doesn't significantly affect NBA, NFL, or MLB coaching success. In light of these findings, playing experience may influence coaching success, but the level at which one coaches may critically impact its' influence.

Gender may also play a role in coaching success. Evidence indicates females are more agreeable than similarly successful male coaches (Berger, 2013) and display more encouragement (Millard, 1996). Furthermore, females tend to score higher on measures of emotional intelligence (Schutte, Malouff, & Bhullar, 2009). As such, gender represents another potentially influential factor on coaching success.

Lastly, in light of evidence suggesting decision making is critical in coaching, experiences that boost critical thinking and problem solving may also enhance coaching success (Schempp & McCullick, 2010). Training programs geared toward enhancing these skills may then serve to enhance coaching abilities and success. The objective of higher education is to promote and develop these skills and may, therefore, be a contributing factor to coaching success. Research corroborates this and found that the knowledge and skills learned within a BA in sports, exercise, or physical education were found to be among the most important qualities identified in youth sport coaches (Dae-Woo, Min-Haeng, & Young-Kum, 2005). Interestingly enough, both legendary coaches mentioned above were trained as educators.

While the above-mentioned variables represent characteristics that are believed to contribute to coaching success, these factors do not account for the intangible aspects in coaching. For instance, Andrea Becker examined experiences of great coaching by interviewing athletes about their experiences (2009). One core psychological aspect identified was the emotional domain. Athletes stated, "The key to our confidence was his steady emotional state throughout the season" in addition to "you could feel it in [the coach's] presence, the way he ran his practices…in everything he did." Findings revealed that great coaches utilized emotion to regulate their athlete's mood states, particularly to recharge or calm their team. This evidence supports the idea that emotional literacy is important in coaching.

More recently, Hodgson, Butt, and Maynard explored the psychological attributes that underscore elite coaches' abilities (2017). Nine higher order themes were identified, three of which referred to the emotional nature of coaching. In conjunction with other findings it seems that emotional intelligence may play an integral role in their coaching effectiveness (Chan & Mallett, 2011).

Emotional intelligence (EI) is a process whereby an individual identifies, monitors, and analyses emotional information, and as a result, regulates behavior in themselves and others (Mayer & Salovey, 1997). EI has received widespread attention because of a claim implying 80% of life success is due to EI (Goleman, 1995). Meanwhile, empirical evidence suggests EI accounts for between 2 and 25% of individual success (Cartwright, 2008). Regardless, interest in EI has peaked and evidence has supported EI as an indicator of success. As such, studies have begun to investigate the relation between EI and success in a variety of domains including academia (Parker, Saklofske & Keefer, 2017), nursing (Fujino, Tanaka, Yonemitsu & Kawamoto, 2015), leadership (Alston, Dastoor & Sosa-Fey, 2010), sales (Kidwell, Hardesty, Murtha & Sheng, 2011), and sport (Crombie, Lombard & Noakes, 2009).

To date, perhaps no other professional domain has studied EI in relation to success indicators more extensively than academia. A recent meta-analysis indicated EI has a small to moderate association with academic performance, such that students with higher EI tend to gain higher grades and achievement test scores (MacCann, Jiang, Brown, Double, Bucich, and Minbashian, 2019).

Another study examined the influence of EI in exceptionally high achieving high school students on their ability to complete a college degree (Parker, Saklofske & Keefer, 2017). The students who scored higher in EI, prior to the start of their post-secondary education, had a statistically greater probability of completing a degree six years after the initial assessment. These findings are consistent with the growing consensus that life success requires both "head strengths and heart strengths" (Parker, Saklofske, & Keefer, 2017, p. 191). Other investigations found students' self-reported EI to predict academic performance over and above cognitive ability and conscientiousness (Sanchez-Ruiz, Mavroveli, Poulis, 2013). Furthermore, preliminary

evidence indicates educational qualification may impact EI scores (Pooja & Kumar, 2015). Altogether, findings indicate, even among the exceptional, those who score higher in EI outperform their lower EI classmates.

Within nursing, Fujino, Tanaka, Yonemitsu and Kawamoto (2015) examined the association between characteristics of nursing success, years of experience, and EI. Analysis revealed a moderately strong correlation between success and EI, meaning nurses with high EI were also high performers. Additionally, nurses scoring higher in EI reported participating in more professional development activities than those with lower EI scores. This finding is particularly interesting because it may imply EI propels individuals to continually pursue knowledge.

Furthermore, Quoidbach and Hansenne (2009) explored the relationship between nursing team achievement and EI. Findings revealed that a subscale of self-reported EI, emotional regulation, was positively correlated with both health care quality and group cohesiveness provided by the nursing team. These findings may be impactful for nursing team success, but also for team achievement in other domains.

Alston, Dastoor and Sosa-Fey (2010) investigated leaders of *Fortune 500* companies and found that leaders who identify and use their own, as well as others, emotions to inform their thinking and actions were more effective leaders. Authors posited that EI may promote success by enhancing interactions with others, thereby positively influencing the organization. Simply put, those with high EI generated more desirable outcomes. Results from Boyatzis, Good, and Massa (2012) confirmed this finding and discovered divisional executives' EI significantly affected the leader's ability to recruit new financial consultants. And, because the number of

financial consultants dictates the amount of money invested, this evidence indicates leaders EI may ultimately impact future investments.

Likewise, emotionally intelligent leaders were found to create a greater sense of employee belonging and perception of job characteristics (Choudhary, Naqshbandi, Philip & Kumar, 2017). Scholars suggested leaders do this by identifying emotional information, in themselves and others, and altering their attitudes and behaviors to be more effective. Thus, it seems an emotionally intelligent leader is a chameleon of sorts and may alter their demeanor to appropriately serve the situation. This act creates a more pleasant environment for all, while serving to boost work performance and sense of affiliation. In essence, effective leaders utilize EI to enhance the performance of everyone around them.

As with coaches and winning, executives are held accountable for their bottom-line performances. A series of studies by Kidwell, Hardesty, Murtha, and Sheng (2011) sought to examine the impact of EI on sales performance and customer relationships. This examination included control variables such as cognitive ability and years of experience. Results revealed that ability based EI is positively related to real estate and insurance agent performance, even after controlling for cognitive ability. Sales professionals with higher EI were superior revenue generators but also better at retaining customers.

Furthermore, analysis exposed the relationship between EI, cognitive ability and sales performance. Surprisingly, cognitive ability was found to significantly influence customer retention and sales revenue when EI was moderate or high, but not low. This implies that without at least moderate levels of EI the positive effects of cognitive ability cannot but fully exploited (Kidwell et al., 2011). In other words, EI allows one to apply their full cognitive potential which subsequently increases sales revenue and customer retention.

Similarly, Garcia and Costa (2014) examined the relationship between EI, general mental ability, the big five personality traits, and early career success in recent college graduates. Students completed measures before graduation and three and one-half years later. Analysis demonstrated that salary three and one-half years later was significantly predicted by self-reported EI, even after controlling for general mental ability and personality. These findings along with others, indicate EI may be successful in predicting financial success early in a career (De Haro & Castejon, 2014).

Taken together, the reviewed evidence indicates EI is beneficial in academic pursuits, healthcare professionals, leadership situations, sales performance, and early career success. These findings led scholars to ponder whether EI could transcend professional domains and demonstrate significance in sport.

In 2003, researchers began studying EI's influence on sport performance. The seminal study investigated the influence of EI on hockey performance (Zizzi, Deaner & Hirschhorn, 2003). Three years later, a second investigation examined self-reported EI in relation to college baseball performance (Perlini & Halverson, 2006). Findings from these seminal works indicated that EI was moderately related to pitching, but not hitting performance in collegiate baseball players. Among National Hockey League (NHL) players, EI was significantly related to games played and points scored in forwards, but not defensemen. Somewhat surprisingly, when trying to predict NHL performance, EI had greater predictive ability than NHL draft rank. Together, these preliminary results supported initial hypothesis and suggested that EI may influence athlete success.

In recent years, researchers branched out seeking to understand EI's influence on multiple sporting variables including team success (Crombie, Lombard, & Noakes, 2009)

individual success (Ancuta, 2015; Laborde, Lautenbach, Allen, Herbert & Achtezehn, 2013), psychological skills (i.e., goal-setting, imagery, and self-talk) (Lane, Thelwell & Davonport, 2009), and anxiety (Lu, Li, Hsu & Williams, 2010). Within each of the aforementioned areas, EI demonstrated a significant impact. For example, Laborde et al., (2013) considered the correlation between EI and cortisol secretion (a biological marker of stress) in pressure situations. EI predicted 28% of cortisol secretion in near expert tennis players. Other findings indicated athletes who possessed higher EI also: demonstrated superior goal setting (Bahrololoum, Hassani, Bandeli & Akbari, 2012), displayed greater mental toughness (Cowden, 2016), and performed better athletically (Ancuta, 2015; Crombie et al., 2009). Altogether, the available evidence strongly suggests EI significantly impacts athletic success.

Although many inquires illustrate the importance of EI for athletes, few studies examine the impact on coaches. Laborde, Dosseville, and Allen's (2016) in-depth review revealed that just three of thirty-six identified articles investigated coaches. As such, authors suggested that coaches should be targets for future study. Meanwhile, the few inquiries conducted on coaches evaluated self-reported measures of EI in relation to leader efficacy (Magyer, Guivernau, Gano-Overway, Newton, Kim, Watson et al., 2007) and coach efficacy (Thelwell, Lane, Weston & Greenlees, 2008; Hwang, Feltz, & Lee, 2013). A positive and significant association was discovered between EI and coaching efficacy, meaning coaches who reported higher EI were more confident in their leadership and coaching abilities.

Although the aforementioned review identified just three studies, numerous other independent investigations have been conducted on coaches. To date, studies have examined coaches EI in relationship to leadership abilities (Danehy, 2005; Miller, 2003), coach behavior (Dave, Farin, & Farin, 2017), emotional labor (Lee & Chelladurai, 2015), and coach success

(VanSickle, 2004; Muhe, 2015). Succinctly, the evidence indicates that coaches with greater EI are better leaders, demonstrate more prosocial behaviors, and have an increased ability to cope with stress. Furthermore, preliminary evidence indicates EI may impact coaching success, explicitly winning percentage and athlete satisfaction (VanSickle, 2004). Moreover, Muhe (2015) discovered that EI did not make a significant difference on coaching success until a specific experience level was reached. Thus, preliminary evidence indicates there may be a meaningful relationship between coaching experience and EI. Furthermore, EI may also be related to age (Pooja & Kumar, 2015; Payne, 1985). Consequently, the relationship between EI and coaching success remains inconclusive. Therefore, this the relationship between coaching success and coaches' EI requires further exploration.

The reviewed research highlights education, age, gender, coaching experience, and playing experience as potential predictors of coaching success. Furthermore, contemporary scholarship demonstrates EI's influence on success in various domains including coaching. Further still, EI has been linked to the abovementioned potential predictors of coaching success, save playing experience. As such, the current investigation will be the first to link all of the abovementioned variables to EI and coaching success. Therefore, the purpose of this study is to assess the power of EI in predicting coaches' success and examine the relationships between EI, age, gender, education level, coaching experience, and playing experience. More specifically, this study aims to answer the following questions:

Research Questions

1. Does a coach's self-reported EI significantly predict their career winning percentage?

2. Is there a statistically significant relationship between self-reported EI and age, gender, educational level, head coaching experience, assistant coaching experience, and playing experience?

3. Which variables, if any, could be used in a regression formula to predict a coach's career winning percentage?

Definitions

1. Emotional Intelligence (EI) is a process involving: 1) the ability to perceive accurately, appraise, and express emotion, 2) the ability to access and/or generate feelings when they facilitate thought, 3) the ability to understand emotion and emotional knowledge, and 4) the ability to regulate emotions to promote emotional and intellectual growth (Mayer & Salovey, 1997).

2. Coaching success will be operationally defined by a coaches' career winning percentage (Muhe 2015; Steege, 2009; VanSickle, 2004).

CHAPTER TWO

EXTENSIVE REVIEW OF LITERATURE

The purpose of this study was to assess the power of emotional intelligence (EI) in predicting coaching success. A secondary aim was to explore relationships between EI, age, gender, education level, coaching experience, and playing experience. To thoroughly address the purpose of this study, a review of literature was undertaken to a) highlight the development of EI and its assessment, b) summarize the research on EI in relation to performance, success, and achievement, c) summarize the research examining EI in sport, d) identify factors that explain coaching success, and e) develop a mathematical model utilizing EI and other factors to predict coaching success.

This chapter intends to present findings from pertinent literature which supports and justifies this study's directives. Specifically, this literature review focused on a) emotional intelligence theory and assessment, b) the influence of EI on performance, success, and achievement, c) EI in sport, and d) factors associated with coaching success.

Emotional Intelligence Theory and Assessment

Encounters with predatory beasts and hostile environments primed our ancient ancestors to learn and experience fear--an emotion triggered by the perception of danger resulting in an unpleasant feeling (Fear, 2019). Plausibly, these insecure feelings pushed our ancestors to develop weapons and strategies promoting their ability to protect, evade, and even hunt these beasts in order to feel safe. In this instance, experiencing fear drove our ancestors to change their behavior in an effort to preserve their lives. Thus, this basic understanding of emotion is,

perhaps, what lead to their continued existence. This example serves as an introduction to the concept of emotional intelligence (EI).

Mayer and Salovey (1997) described EI as a process involving: 1) the ability to perceive accurately, appraise, and express emotion, 2) the ability to access and/or generate feelings when they facilitate thought, 3) the ability to understand emotion and emotional knowledge, and 4) the ability to regulate emotions to promote emotional and intellectual growth. In other terms, EI is the process by which individuals recognize their emotions, utilize emotions in thought, generate meaning from emotion, and finally, use this information to better their lives. While our ancestors used EI to positively influence their lives, hereafter the up-to-date scholarship will be reviewed, starting with the historical development of EI.

The Buildup to EI

"Rule your feelings, lest your feelings rule you" ~ Publilius Syrus First Century B.C.

For thousands of years human beings have understood the importance of emotions, however, it has taken far longer to specify their importance in written form. Although EI was not formally introduced until the mid 1980's, its forerunner social intelligence (SI) was introduced much earlier. In 1909, John Dewey expressed the idea of social intelligence as a form of moral motive. Briefly thereafter, Herbert Lull expounded on these original ideas in his 1911 article entitled "Moral Instruction through Social Intelligence" (Landy, 2006). Together, these works were aimed at revising school curricula to increase relevance and engage students by including socially relevant topics and calling specific attention to moral motives (Landy, 2006). Briefly, moral motives are thought to be the product of observing and comprehending social situations with the aim of serving social interests (Orchard, MacCann, Schulze, Matthews, Zeidner, & Roberts, 2009). This curriculum was thought to help students train their capacity to demonstrate

control and direct their behaviors toward the greater good. Somewhat importantly, neither Dewey nor Lull was proposing SI as a human attribute.

In 1920, Edward Thorndike built on both Dewey and Lull's ideas to describe SI as a human attribute and specifically "the ability to understand and manage men and women, boys and girls, to act wisely in human relations" (Thorndike, 1920). Thus, it seems the essence of social intelligence was the ability to perceive one's own and others' internal states, motives, and behaviors, and utilize that information to act appropriately (Salovey & Mayer, 1990). This theory is believed to be the origin of the modern-day construct of EI (Thorndike, 1920), which would be conceived many decades later.

Working from a firm definition of SI, Moss and Hunt proposed an amended SI theory to include the ability to get along with others (Gupta, 2016). After Moss and Hunt's alteration, the theory was describing an ability to read people, act wisely in their presence, and flourish beside one another. Moving onward, Vernon (1933) expanded the idea when he offered this definition of SI "the ability to get along with people in general; social technique or ease in society; knowledge of social matter; susceptibility to stimuli from other members of a group; as well as insight into the temporal moods or underlying personality traits of strangers" (Gupta, 2016). Piece by piece, the theory evolved and now included common social knowledge, as well as, observing and appraising strangers' traits.

As SI gained intellectual momentum, notable scholars like David Wechsler, creator of the Weschler Adult Intelligence Scale, openly pondered the idea including non-intellectual abilities into his fundamental factors of intelligence (Weschler, 1943). As a matter of fact, within his definition of intelligence he went on to include a person's capacity to act purposefully, think

rationally, and deal with their environment (Weschler, 1958). However, Weschler's intelligence tests continued to focus solely on measuring mental ability.

After this point, the scientific community began to lose interest in SI and was left largely untouched until Howard Gardner published *Frames of Mind* (1983). This piece introduced the theory of multiple intelligences including interpersonal and intrapersonal intelligences, which have informed the present-day definitions of EI. Gardner's work marks the turning point from SI to EI.

Thus far, the historical and theoretical beginnings of EI have been reviewed. The earlier paragraphs have traced the theoretically development of EI through the scholarship up to the eventual birth of EI. Hereafter, the inauguration of EI will be discussed.

The Birth of EI

In 1985, Wayne Payne completed his project entitled "A study of emotion: developing emotional intelligence; self-integration; relating to fear, pain and desire" (Payne, 1985). Believed to be synonymous with the modern-day dissertation, this was his project demonstrating excellence which was one of his final requirements in completing his PhD at Union Graduate School. Within, Payne presented an alternative model of intelligence which extended beyond the realms of intellect into the physical, emotional, and visual realms.

Furthermore, Payne described the dichotomy of intellectual and emotional abilities, specifying that many people who are "intellectually bright" are, at the same time, "emotionally dull" (Payne, 1985). Additionally, Payne described a study by a team of scientists which set out to study the "female intuition", which he clarified as nonverbal communication. Tests indicated that women were more visually attentive to others, when compared to men. While these scholars concluded women have a superior sense of visual attentiveness, Payne thought otherwise. Instead

he believed the variable truly being sampled was emotional intelligence or the ability to interpret emotional expression through visual channels of awareness alone.

Payne's effort was expansive and original. His assertions provided information on the development of EI, stating it may be developed much later in life than either intellectual or physical intelligence. Payne declared that EI could be expanded in rapid and dramatic fashion at any point in one's life. Moreover, he posited that when given the opportunity and the means, many emotionally suppressed individuals can experience a transformation from a state of emotional ignorance to emotional intelligence in a short period of time. This potentially rapid and dramatic change is thought to be the result of learning awareness and comprehensive abilities that were lying idle beforehand. However, while Payne's work was original and comprehensive, it has received little to no attention from the scientific communities.

Independent of Payne's work, Peter Salovey and John Mayer (1990) generated their own framework of EI. Salovey and Mayer created a three-branched model of EI which included 1) the ability to appraise and express emotion, 2) the ability to regulate emotion, and 3) the ability to utilize emotion. This formed the first widely accepted model of EI defined as the ability to appraise, regulate, and utilize emotion in oneself and in others (1990). Most importantly, this definition upholds the earlier definition put forth by Payne. While Salovey and Mayer maintain their work was independent of Payne's, this couldn't be verified. Regardless, researchers arrived independently at similar conclusions, thus supporting the scientific merit of the construct.

Importantly, before the development of EI is continued, it is necessary to address how Salovey and Mayer's framework was developed. Initially, this model was created as the intersection of both emotion and intelligence (Mayer & Salovey's, 1997). Thus, the constituent's emotion and intelligence will be discussed within the context of the Hilgard's trilogy of mind

(1980). Specifically, Hilgard's framework separates the mind into three spheres: affective, cognitive, and conation (Mayer & Salovey, 1997).

Emotion, the first constituent in the Mayer & Salovey model, resides within the affective sphere which contains feeling states. Emotion originates from the Latin word *motere,* which means "to move" combined with "*e*" meaning away (Goleman, 1995). Thus, emotion literally means to move away. When taken factually, emotions trigger the flight response, however, it is likely the meaning of emotion implies an experience followed by an impulse and action (Goleman, 1995). However, it is imperative to identify the source of the emotions presence when trying to comprehend it. Ordinarily, changes in the organism-environment relationship generate emotions leading to the resulting action impulses (Mayer, Salovey, & Caruso, 2000). For example: a female soccer player may feel extreme joy directly after scoring a goal, while the crowd ecstatically chants, claps, and cheers. Joy, in this situation, leads to smiling, leaping, and celebrating with teammates, and is a direct result of the change in relationship between player and environment. Thus, our emotions direct our attention to important information, specify how to respond, and are activated by small deviations in the relationship between us and our environment that result in a specific action impulse.

Experience
- Δ organism-environment relationshiop

Emotion
- Feeling state triggering action

Specific Action
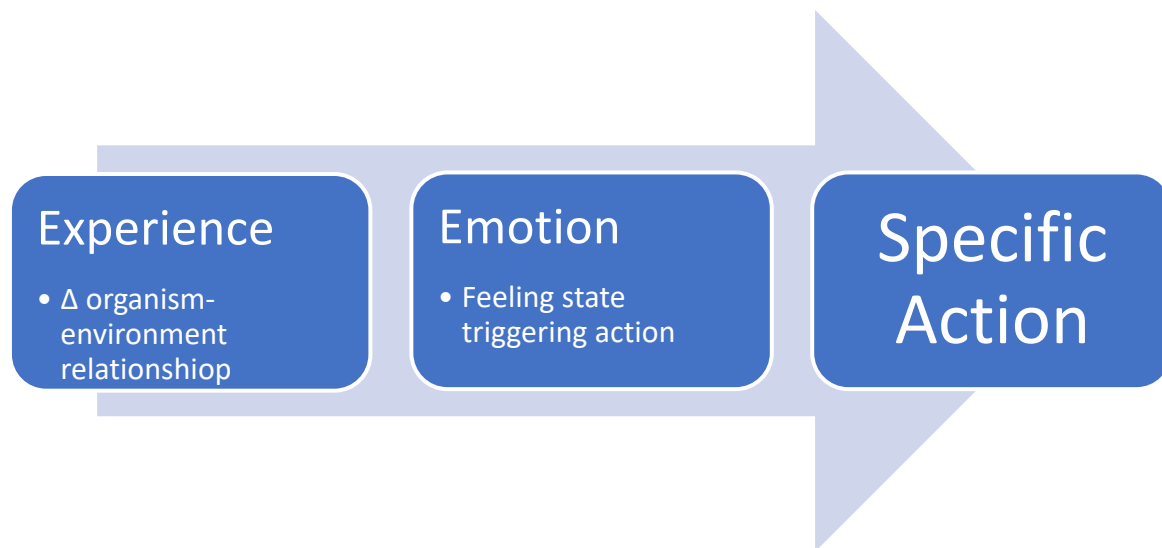
Figure 2.1 Emotion to action pathway

The second constituent, intelligence, resides within the cognitive sphere, which includes the capacity to combine and separate concepts, to reason with, and engage in abstract thought (Walsh & Betz, 1995). In simplified terms, intelligence is the ability to gather, learn, and reason with information (Mayer et al., 2000). Salovey and Mayer (1990; 1997) consulted both of these perspectives as they created their model of emotional intelligence. Simply put, emotional intelligence refers to the ability to identify, gather, and learn information which results from changes in the organism-environment relationship and then reason with the resulting action impulses.

From a firm foundation and an explicit definition, other scholars began giving EI greater attention. Daniel Goleman's book *Emotional Intelligence: Why it can matter more than IQ* is the most popular to date, with over 30,000 citations (1995). So popular in fact, many believed Goleman created EI. While he didn't create the concept, he most certainly popularized it more than any other scholar. This, in part, could be the product of his assertions implying EI may be responsible for up to 80% of life success. While appetizing, yet unfounded, these claims produced positive momentum around the concept of EI in both the scientific community and

mainstream media. Furthermore, Goleman's book was published at a potentially opportune period in history. One year prior, *The Bell Curve* (Herrnstein & Murray, 1994) was published and restated previous linkages between race, IQ, and social mobility. Thus, Goleman's book presented an attractive counterargument to the claim that life success was dependent upon cognitive intelligence (Cartwright & Pappas, 2008).

More than popularizing the concept, Goleman's work expanded EI to include what other scholars have termed a constellation of competencies, skills, abilities, and characteristics that lead to success (Landy, 2006). While this newfound model of EI was ill-defined, it includes factors such as self-awareness, self-management, social awareness, and relationship management. Despite the theoretical alignment with Salovey & Mayer's model, Goleman's model also included characteristics like optimism, confidence, and impulse control. These additions formed a chasm in the development of EI, which will be detailed in the next section.

Not long after Goleman published his model, yet another scholar branded his own model (Bar-On, 1997). While doing so, Bar-On coined the term *Emotional Quotient* or *"EQ"* and his model boasted a more distinctive definition than Goleman's (1997). This model is a set of characteristics, abilities, and competencies that help an individual cope with and adapt to their environment. In review, this is not the first time that a prominent scholar has suggested the ability to cope with their environment is, or at least a part of, an intelligence. David Weschler also believed the ability to deal with the environment was at least partially related to intelligence. Meanwhile, five facets completed this model including interpersonal, intrapersonal, stress management, adaptability, and general mood. Furthermore, Bar-On created his own measure called the Bar-On EQ-I (1997).

Since the original model was created in 1990, two new models had been proposed (Goleman, 1995; Bar-On, 1997). Therefore, in response to these models, Mayer and Salovey (1997) amended their original model. Admittedly, they neglected important aspects of emotional intelligence in their first model and wanted to include them in the subsequent model. Thus, the new four branch model included: 1) the ability to identify, appraise, and express emotions, 2) the ability to use emotional information to facilitate thought, 3) the ability to understand and analyze emotions, and 4) the ability to reflectively regulate emotions and to use emotions to stimulate emotional and intellectual growth.

As stated above, Salovey and Mayer's (1990;1997) models of emotional intelligence are meant to represent a cognitive skillset based around one's ability to identify, gather, learn about, rationalize, and use emotional information to improve their lives. In juxtaposition, the other models offer a constellation of abilities, competences, and general mood measures. With more than one accepted model, the beforementioned chasm seemed to grow between EI scholars. Hereafter, the two predominant models of EI will be addressed along with their idiosyncrasies and nuances.

The Two Models of EI

The original idea of EI was to combine emotional experiences with the ability to collect, filter, learn about, and reason with information to promote more positive outcomes. However, this original idea has been altered by some scholars. Thus, in an effort to understand the contemporary scholarship, it is imperative to understand the two prevailing models of EI. Until this point, the term 'model' has been vaguely referred to in an effort to avoid confusion. From this point forward, models will be referred to in more specific terms and will be labeled in one of two ways: ability or trait.

The ability model was put forth by Salovey and Mayer (1990; 1997). Developers of this model maintain that EI is a result of an aptitude to process and use emotion-laden information to make decisions and produce better outcomes (Petrides & Furnham, 2000). Essentially, this model remains committed to the view that EI lies at the intersection between emotions and the ability to process them (Cartwright & Pappas, 2008).

The first model was proposed after conducting a series of empirical investigations in the early 1990's (Salovey & Mayer, 1990; Mayer, Caruso, Salovey, 2000). The first study explored the ability to recognize emotional content in faces, colors, and abstract designs. Additionally, assessments evaluated associations between the aforementioned aspects and the ability to empathize with others. Analysis revealed a unifactorial solution, thought to be EI, accounted for the discrepancies in emotional identity abilities (Mayer, DiPaolo, & Salovey, 1990). The second study examined whether or not EI meets the standard for an intelligence (Mayer, Caruso, Salovey, 1999). Importantly, an intelligence must reflect mental performance rather than simply preferred ways of behaving or non-intellectual abilities and should be plainly measured by mental performances. All the same, evidence indicated EI satisfied the traditional intelligence criteria (Mayer et al., 1999). Thus, the ability model was created from the scaffolding of intelligence literature.

Moving on, trait models often referred to as mixed models, were built on the foundation of the ability model. Important to note, when compared to the singular ability model of EI, multiple trait models exist and as previously mentioned, these models were made popular by Goleman (1995) and Bar-On (1997) among other scholars. Gaining their name from their included factors, these models closely resemble personality traits such as: optimism, empathy, confidence, and general mood (Goleman, 1995; Bar-On, 1997; Petrides & Furnham, 2000).

Reasonably, trait models are situated within the personality literature instead of the general intelligence literature. This dissimilarity marks an important differentiation between the models. And as mentioned above, an intelligence reflects mental performance rather than non-intellectual abilities. This may be the rationale for alternative names given to trait EI (emotional self-efficacy) and ability EI (cognitive-emotional ability) (Petrides & Furnham, 2001).

Regardless, scholars have made it quite clear, trait and ability models are two separate constructs (Petrides & Furnham, 2001). Admittedly, it can be difficult to discriminate between the two models within the broader EI literature. Therefore, to distinguish which model is being utilized, it is suggested that readers consult the instrument used (Petrides and Furnham, 2001). Specifically, ability models use performance measures, namely the MSCEIT version 2.0 (Mayer et al., 2003), to assess abilities. Meanwhile trait models utilize self-report measures, of which there are many, to assess self-perceived abilities and behavioral tendencies. When comparing the two models, low associations are found between them ($r = 0.14$-0.21) (Brackett & Mayer, 2003; Van Rooy et al., 2005). In Table 2.2, we can clearly view the conceptual differences between the two models.

Table 2.2 Conceptual differences between the two EI models

	Ability	**Trait**
<u>Domain</u>	Cognitive	Personality
Type of measure	Performance	Self-report
What is measured?	Ability via performance	Self-perceived emotional efficacy and behavioral dispositions
Shortcomings	Hard to decipher right/wrong answers to emotional problems (Conte & Dean, 2006)	Discriminant validity from Big 5 Personality Traits
Other purported names	Cognitive-emotional ability	Emotional self-efficacy
Correlation between Ability and Trait EI		$R= .14 - .21$
Correlation with Big 5 Personality Traits	$R= (-.08 - .28)$	$R= (-.57 - .48)$
Correlation with SAT Verbal	$R= (.32)$	$R= (-.03 – .05)$

Magrum et al., 2019. (Data presented in table is based on Conte & Dean, 2006; Brackett & Mayer, 2003)

As previously mentioned, it is now generally acknowledged that ability EI and trait EI are considered separate constructs (Petrides, 2013). Even so, it is important to note the two models are not mutually exclusive and may therefore co-exist. Meyer and Fletcher (2007) suggest that future research examining EI should mutually agree upon a model to follow (trait or ability) and reach a consensus on the type of assessment inventory used (self-report or performance). Though the aforesaid suggestions are sound, it seems plausible that both models may persist in research. However, more diligent work by researchers outlining which model and measure are utilized is needed. Additionally, findings should be applied within the respective theory (ability or trait).

While it is likely both models may persist, the underlying tone of research indicates the ability model is the preferred method of measure (Meyer & Fletcher, 2007). Moreover, even though trait models have been referred to as those that contain anything and everything that contribute to success, they have been widely used and found to have predictive validity in a number of domains. Thus, there seems to be valid claims citing the use of both models and measures. Henceforth, prominent measures from both models will be reviewed.

Measures of EI

In a recent review, Laborde, Dosseville, and Allen (2016) evaluated EI in sport and exercise finding a total of 36 studies. Within, eight different measures were utilized. Interestingly, the trait model was employed to a greater extent than the ability model with 33 studies utilizing the trait model, while 3 used the ability model. Overall, the most frequently used scale was the Schutte EI Scale (Schutte et al., 1998), which was used twelve times. Following suit, the Bar-On EQi (Bar-On, 2004) was used ten times, TEIQue (Petrides, 2009a;b) five times, and the MSCEIT (Mayer et al., 2003) three times. Authors posited the number and variety of measures is thought to reflect conceptual and methodological confusion surrounding trait EI. Likewise, a more recent review of EI in sport found the Schutte EI Scale and Bar-On EQi to be the most frequently used measures (Magrum, Waller, Campbell, & Schempp, 2019).

Interestingly, an unpublished review examining EI's role in performance, success, and achievement identified a total of 125 studies. Within these studies, 25 different measures were used. However, in contrast to the above reviews, the most commonly used measure was the MSCEIT, followed by the Bar-On EQi and the Schutte EI Scale. Somewhat surprisingly, the MSCEIT was used in nineteen of the studies. Upon further inspection, eleven studies focused on participants within or closely resembling the medical field including: nurses, nursing students,

medical students, and physical or occupational therapy students. While three additional studies focused on those within the business sector. Because these fields tend to be well-funded, this trend may imply that financial resources have a role in determining which model and measure are used within EI research.

Due to the number of potential measures and the evidence outlined above, the three most frequently used measures will be detailed in the upcoming section: the MSCEIT, Bar-On EQi, and the Schutte EI Scale. In alignment with the findings above, Brackett & Mayer (2003) indicated these three measures represent full-scale tests of EI. Therefore, each of the following sections will detail one of the aforementioned full-scale EI assessments.

The MSCEIT is a 141-item test that measures individual's ability to solve emotional problems (Mayer et al., 2003). It was designed to measure EI and its graded abilities namely the ability to: 1) perceive emotion, 2) utilize emotion in thought, 3) understand emotions, and 4) regulate emotions to promote growth (Mayer & Salovey, 1997). The assessment evaluates each above-mentioned ability with a task. For instance, perception of emotion is evaluated by having participants rate the degree of emotion expressed on a face, design or landscape (Bracket & Mayer, 2003). Furthermore, to gauge emotional management, participants are tasked with choosing effective ways to manage their own, as well as others' emotions.

Responses are evaluated by the level of agreement with a general or expert consensus. Importantly, both assessments provide similar scores ($r = 0.96 - 0.98$) (Mayer et al., 2003). Five scores are provided to test takers including total EI score and a score for each branch. Split-half reliability coefficients for the for branches range from $r = 0.80 - .91$ and for the entire test, $r = 0.91$. Importantly, reliability and the total scale was deemed excellent and very good at the branch level (Mayer, Salovey, Caruso, & Sitaenious, 2003). Additionally, the MSCEIT's

structure is congruent with the four-factor ability model of EI and has established content and incremental validity (Brackett & Mayer, 2003). However, while most authors support the psychometric properties of the MSCEIT (Rivers, Brackett, Reyes, Mayer, Caruso, & Salovey, 2012; Curci, Lanciano, Soleti, Zammuner, & Salovye, 2013) some authors have noted potential limitations. These limitations include difficulties in interpreting the scoring system and large overlaps with personality and general intelligence (Laborde et al., 2016). While some feel further validation is needed for this measure (Laborde et al., 2016), others posit this measure should be the centerpiece of for future EI research (Meyer & Fletcher, 2007).

Those scoring high on the MSCEIT also scored high in attending to health and appearance, sport performance, leadership performance, and positive interactions with friends and family (Choudhary, Naqshbandi, Philip, & Kumar, 2017; Crombie et al., 2009; Brackett & Mayer, 2003). Additionally, lower EI has been associated with higher illicit drug use, deviant behavior, and number of self-help books (Brackett & Mayer, 2003). Lastly, findings associating EI with academic success with this particular measure remain inconclusive (Chew et al., 2013; Chew et al., 2015; Collins, 2013).

Another EI measure, the EQ-I is a 133-item self-report EI test that was created to shed light on how individuals adapt and cope with their environment (Bar-On, 1997). As mentioned above, trait models were built from the scaffolding of ability measures, but often include additional factors. Thus, this particular model includes fifteen subscales comprising five factors including intrapersonal EQ, interpersonal EQ, adaptability, stress management, and general mood. Each factor is comprised of multiple subscales. For example, intrapersonal EQ includes emotional self-awareness, assertiveness, self-regard, self-actualization, and independence.

Bar-On's EQ-I has been found to contain adequate test-retest reliability (r = .73) (Bar-On, 1997) and predictive validity (Van Rooy & Viswesvara, 2004). However, there seems to be considerable overlap between EQ-I and other psychological variables. Specifically, many items overlap with personality attributes (optimism and emotional stability) (Brackett & Mayer, 2003). Furthermore, Bar-On himself suggested that EQ-I "may be a lower-level primary trait that could be placed below the Big Five in a multistratum model" (Mathews, Zeidner, & Roberts, 2004, p. 213). Thus, although this measure is popular and has been widely used, authors have suggested other measures are better suited to evaluate EI (Meyer & Fletcher, 2007). Irrespective, evidence indicates the EQ-I has successfully discriminated between successful and unsuccessful Air Force recruiters (Handley, 1997) and students (Swart, 1996). Moreover, EQ-I scores have shown to be indicators of academic success (Walsh-Portillo, 2011; Parker et al., 2017).

The third and final specified measure is the Schutte EI Scale. Created from Salovey and Mayer's original three branch model, this assessment is a self-report inventory and includes 33-items (Schutte et al., 2009). It attempts to assess trait EI through individuals' self-ratings on a five-point scale. Four higher-order factors are contained within the inventory including perception of emotion, managing own emotions, managing others' emotions, and utilization of emotions (Ciarrochi, Chan, Caputi & Roberts, 2001). Each factor is comprised of between six and ten items. For example, the item "Other people find it easy to confide in me" resides within the managing others' emotions factor. After completing the assessment, individual items will be scored to provide five scores, one total EI score and four subscale scores. Total scale scores are calculated by reverse coding three items and summing all remaining items. Scores range from 33-165 with higher scores indicating higher trait EI.

Commensurate with the above reviews, Russell and Walker (2011) posit the Schutte EI scale is the leading brief EI scale to date. Furthermore, this measure has been found to have good internal consistency and test-retest reliability (Bracket & Mayer, 2003; Meyer & Fletcher, 2007). Evidence also suggests this scale has good convergent and divergent validity (Schutte et al., 1998; 2009). However, when examining discriminant validity, the current data is inconclusive (Bracket & Mayer, 2003; Ciarrochi et al., 2001; Schutte et al., 1998). Regardless, upon assessing the predictive validity of this scale, there is promise, specifically, in relation to academic performance (Schutte et al., 1998; Ranasinghe, Wathurapatha, Mathangasinghe, & Ponnamperuma, 2017), job performance (Asiamah, 2017), and sales performance (Russell & Walker, 2011).

All three measures of EI appear to be valid and reliable measures. However, as evidenced by the findings above, choosing a measure may depend on the context of the research. Furthermore, the population being studied as well as the resources of the investigative team may play a crucial role in establishing which measure a research team uses. Irrespective, the aforementioned three measures have been shown to be reliable and valid and could all be used in the right situation.

Section Summary

This section aimed to highlight the development of EI and its assessment. The previous section provided a detailed account of EI from its earliest conception to its current form. Moreover, the predominant theoretical models and their corresponding assessments were detailed. In the sections to follow, evidence will be presented which examines EI's position as a general indicator of success.

The Influence of EI on Performance, Success, and Achievement

The primary aim of this section is to present the contemporary scholarship examining EI's influence on performance, success, and achievement. This section builds on the theory put forth in the former section and reviews evidence which aims to establish EI as a general indicator of success. Accordingly, an exhaustive literature review was conducted to explore the relevant literature scrutinizing EI's predictive validity. In order to achieve these purposes, contemporary scholarship was assembled, reviewed, and summarized. This process will be detailed hereafter.

Methods

The first step in this process was to locate pertinent literature. Due to the popularity of EI, the analysis was completed by searching a wide variety of databases including: Academic Search Complete, PsycArticles, PsychINFO, SocINDEX, Complementary Index, Education Research Complete, Social Sciences Citation Index, Business Source Complete, Health Source: Nursing/Academic Edition, Psychology and Behavioral Sciences Collection, Science Direct, Science Citation Index, SPORTDiscus, and ERIC. Databases were searched using combinations of the following keywords: 'emotional', 'intelligence', 'achievement', 'success', 'performance', 'professional', 'career', and 'sport'.

Results recognized a total of 1526 articles for consideration. However, due to the generalizable nature of the search terms, a wide variety of scientific fields were identified. To taper potential articles, materials were screened and restricted to those containing information directly pertaining to emotional intelligence and success in adult populations. Therefore, the second step was to de-limit results by filtering studies through the following inclusion criteria: 1) published between 2008-2018, 2) peer-reviewed, 3) focused on emotional intelligence as an indicator of success, 4) studied adult populations and 5) were written in English. Additionally,

publications cited within the articles identified were also scanned to find relevant articles for this analysis. A total of 125 articles from 89 journals satisfied this criterion.

The resulting articles were the basis for the third step, which involved categorizing articles based on their consistencies. Each article was read, carefully and coded into an excel spreadsheet. Specifically, data including author name(s), year of publication, subject information, purpose statement, variables measured, instruments used for measurement, statistical analysis used, and major finding were compiled within the excel spreadsheet.

Authors selected studies for each category based on commonalities. More specifically, groupings were informed primarily by two means: the outcome variable and population studied. For example, studies investigating student's grade point average or other academic performance indices such as standardized tests were situated within the academic performance category. Likewise, examinations focusing on nurses or nursing student performance were categorized into nursing performance. Hereafter, nine of the ten categories will specify EI's relationship to outcome variables, starting with EI and academic performance. The tenth category will be included in the following sections review. Important to note, articles were not exclusively classified, and may appear in more than one category.

Academic

A total of 22 studies examined EI and academic performance in 4,457 participants. Participants represented several disciplines including medical, dental, nursing, education, and psychology. Nine measures were used to assess EI. Of these measures, the MSCEIT, Schutte EI test, and the Bar-On EQ-I were used most frequently. Academic performance was assessed most commonly by grade point average; however, it was also assessed via medical and dental

examination scores, specific course scores, and the ratio between attempted and completed credits.

Of the identified studies, the majority (14/22) presented evidence indicating EI significantly correlated with or predicted academic performance. Correlations between EI and the outcome variable ranged from $r = 0.134 - 0.51$, signifying small to large relationships between EI and academic performance (Cohen, 1988). Moreover, results from regression analysis indicated emotional intelligence explained between 4-15 % of academic performance in undergraduate medical students and student registered nurse anesthetists. Intriguingly, EI was shown to predict academic performance above established predictors cognitive ability and conscientiousness (Libbrecht, Lievens, Carette, & Cote, 2014; Sanchez-Ruiz, Mavroveli, Poulis, 2013).

Somewhat surprisingly, even among high-achieving high school students EI significantly influenced the student's ability to complete a college degree (Parker et al., 2017). Specifically, gifted high school students who scored in the 90th GPA percentile were targeted for this study. Within the first semester of their college career, students completed EI measures. Six years later, after graduation rates were assimilated, the statistical analysis commenced. Analysis revealed those with higher EI scores displayed a statistically greater probability of completing a degree, when compared with those lower in EI ($F(1167) = 16.31$, $p < .001$). Collectively, the available evidence suggests EI may be essential for both short- and long-term academic success. Based on the findings, authors speculated that trait EI is a significant predictor of a successful transition to postsecondary education for gifted and typically developed students.

In contrast to the abovementioned findings, eight studies recognized an insignificant or negative correlation between EI and academic performance. Chew & colleagues (2015)

examined emotional intelligence in relation to academic performance in medical students. Regression analysis revealed a significant negative relationship. Although, Chew et al.'s (2015) findings contradicted results from their earlier study (2013) which found positive, significant correlations between the EI and academic performance in medical students.

Doherty, Cronin & Offiah (2013) also examined medical students but yielded mixed results. Authors identified a negative relationship between EI and clinical competency, but a positive relationship with multiple bio-medical knowledge assessments. In light of the aforementioned, it should be noted that positive associations have been identified between EI and academic success in medical students (Wijekoon, Amaratunge, Silva, Senanayake, Jayawardane, & Senarath, 2017; Libbrecht et al., 2014; Naeem, Vleuton, Muijtejens, Violato, Ali, Al-Fairs…, 2014). Despite this evidence, Chew et al. (2015) suggested that medical students may require a peculiar set of social skills, social management, and EI. To this point, four of the eight studies identified which refuted a positive influence of EI on academic success examined medical school applicants or students.

Furthermore, other investigations have found negative, yet insignificant correlations between EI and GPA (Suliman, 2010; Por, Barriball, Fitzpatrick, & Roberts, 2010). However, Por et al. (2010) revealed a significant positive relationship between EI and highest educational qualification. While GPA is a direct measure of academic performance, attaining higher degrees of education may also be viewed as a form of academic achievement.

In spite of the inconclusive evidence, the preponderance of evidence suggests EI is likely a positive contributor to academic performance. Curiously, a secondary discovery is the idea that medical students may require a different EI skillset than other students. Although some evidence

indicated a positive impact on medical student performance, the results remain inconclusive within this population.

Clinical/Fieldwork

Eight studies examined the relationship between EI and clinical or fieldwork performance. These studies examined a total of 932 dental, nursing, physical therapy, psychology or occupational therapy students, in addition to nurses. Clinical performance was assessed via performance appraisals, clinical performance instruments, and evaluations from clinical preceptors. Meanwhile, fieldwork performance was assessed through supervisor evaluations. Within the eight studies, EI was assessed with three measures. Specifically, the MSCEIT was utilized in six of the eight studies included in this section. Importantly, this section reviews literature related to student's practical performance, rather than academic performance as reviewed above.

Six of eight studies showed positive associations between EI and clinical or fieldwork performance. Two of these studies investigated nurse's clinical performance and found significant correlations at the .05 level (Codier, Kooker, & Shoultz, 2008; Marvos & Hale, 2015). In a different study, Victoroff and Boyatzis (2013) aimed to identify predictors of dental student clinical performance. Results from regression analysis revealed EI and its four subscales explained an additional 14.6% of clinical performance. In other words, EI explains nearly 15% of clinical performance within the studied population. This enhanced predictability was significant at the .01 level. Other studies corroborate these findings with psychology and occupational therapy students (Grehan, Flanagan, & Malgady, 2011; Brown, Cron, & Slocum, 2016; Andonian, 2013).

However, incongruent with the previous findings, the remaining studies observed an insignificant relationship between EI and clinical performance. Although, similar to medical students in the section above, both investigations that observed no significant relationship studied physical therapy students (Lewis 2010, 2011). One of these studies identified a correlation of $r = 0.37$ but did not include a p-value (Lewis, 2011). Although insignificant, this correlation is classified as a moderate correlation (Cohen, 1988). Lewis (2010) explained that the rigorous entrance requirements and small differences in academic performance may have led to the insignificant findings. Moreover, he posited that the MSCEIT, may not be sensitive enough to assess the subtle aspects of EI that may be related to clinical performance of physical therapy students. Interestingly, this assertion has also been posited by others (Fiori, Antonietti, Mikolajczak, Luminet, Hansenne, & Rossier, 2014). Specifically, authors feel that MSCEIT items are too easy to challenge emotionally intelligent individuals.

Collectively, the present evidence implies that EI is a positive indicator of clinical and fieldwork performance in nurses and students of nursing, dentistry, psychology, and occupational therapy. However, in the case of physical therapy students, the current evidence suggests EI plays no major role in predicting clinical performance. Thus, it is likely that EI positively impacts practical performance in a number of disciplines save physical therapy.

Teaching

Four studies examined EI in relation to teaching performance. 482 teachers, teacher candidates, and health educators volunteered to be studied. Teaching performance was assessed thru the Nursing Clinical Teaching Effectiveness Instrument, Clinical Practice Assessment System, average performance of students, subjective student evaluations, teachers' self-

evaluations, merit pay increases and rewards received in the past twelve months. Meanwhile, EI was assessed differently in each of the four studies.

Among the four studies, one observed a statistically significant relationship between EI and teaching effectiveness (Allen, Ploeg & Kaasalainen, 2012). The correlation observed was large (r = 0.599, p <0.01). Findings from this investigation give credence to the idea that competencies associated with EI are advantageous and desirable for teachers in clinical nursing. Moreover, authors posited that facilitating student learning requires the ability to observe and make meaning of students' emotions and how their actions effect a student's learning experience. Interestingly, only 25% of faculty scored in the "enhanced functioning level" meaning the other 75% were below this and would, as well as their students, stand to benefit from improving their EI level. In another study, mood management, a subfactor of EI, significantly predicted skills relating to health educator performance (Branscum, Haider, Brown & Sharma, 2016). Similar to the findings above, conclusions indicate health educator's ability to manage their emotions and react appropriately to situations determines student perception of educator skill.

The remaining examinations identified no significant relationship between student teacher performance and EI (Hall & West, 2011; Latif, Mojoka, & Khan, 2017). Despite insignificant findings, students taught by high EI teachers secured better grades. Additionally, these same teachers indicated higher job satisfaction (Latif et al., 2017). After evaluating and interpreting the evidence, authors proclaimed EI is an important indicator and one to take note of for those looking to hire teacher candidates.

With mixed results, the most recent literature examining the linkage between teaching performance and EI presents indecisive conclusions. Even though evidence suggests EI is

associated with teaching performance and effectiveness, half of the current evidence points toward null findings. Thus, EI's impact on teaching performance remains elusive.

Job

Twelve studies examined the relationship between job performance and EI in 2,840 accountants, executives, resident advisors, insurance marketers, middle management employees, pharmacists, pharmacy technicians and health & IT professionals. Job performance was assessed via previously used performance instruments, supervisor evaluations, club level membership, self- reported evaluations & questionnaires and objective performance measures. Seven different measures were used to assess EI. Chadha and Singh's EI test developed for Indian respondents was used three times, while the Bar-On EQ-I was used once, MSCEIT once, and Schutte EI test once.

Each of the twelve studies found a positive association between job performance and EI. Correlations ranged from $r = (0.199 - 0.91)$. Results from regression analysis revealed that EI predicted up to 12.3% of the variance in resident advisor performance (Wu & Stemler, 2008). on Health workers' performance was examined by Asiamah (2017) while controlling for gender, education, tenure, and access to in-service training. Outcomes indicated that EI predicted job performance above gender, education, tenure and in-service training. In other terms, EI influenced job performance more than these other factors. As a result, authors claimed that increasing health workers' EI may bolster performance.

Amilin (2017) creatively considered EI's impact on the relation between role conflict and accountant performance. Recall that role conflicts arise when an individual simultaneously abides by two or more sets of pressures, in a way that makes compliance with both challenging (Amilin, 2017). Not surprisingly, within this study, role conflict negatively affected accountant's

performance. However, EI significantly moderated the relationship between role conflict and performance. Essentially, emotionally intelligent accountants were able to manage emotions and resolve existing role conflicts, and in turn, neutralize the negative affect of competing pressures. Thus, through EI, accountants were able to maintain performance in the midst of unpleasant circumstances.

Another creative study considered the effect of pharmacists EI on patients' compliance (Tomovic, 2013). Findings indicated a significant positive relationship between EI and potential for achieving compliance ($r = 0.432$, $p < .001$). These results indicated pharmacists EI substantially influenced patient's compliance when taking their medicine. Authors indicated that compliance improved efficacy of the prescribed drug, but also may reduce the number of hospitalizations, morbidity, mortality, and total cost of healthcare. This statement is thought to illustrate EI's influence on both small and large scales.

Finally, Farh, Seo, & Tesluk (2012) examined the role of context in the EI-performance relationship. To explore this relationship holistically, authors included measures of personality, cognitive ability, emotional labor, job complexity, and demographic variables. Contributing volunteers were graduates of an MBA program who were now in diverse organizations and industries. Unsurprisingly, results indicated EI related to team effectiveness and job performance. However, this was only the case in jobs requiring the management of diverse individuals and functions. Strangely, EI reduced team effectiveness and subsequently performance in situations with lower managerial demands. Although contrary to popular belief, this evidence suggests EI may not be beneficial in all situations.

Taken together, recent evidence substantiated EI's importance in the workplace. Perhaps most importantly, preliminary evidence suggested EI does not function the same in all contexts

and can hinder performance in some instances. Thus, EI may be context specific. Furthermore, linkages have been shown between EI's effect on role conflict and medical professional's patient compliance.

Nursing

Five studies examined 2345 nurses, nursing students, and medical personnel. Four of five studies found significant correlations between EI and nursing performance. Correlations within these studies range from $r = 0.26$ - 0.52. Nursing performance was measured thru a variety of means including: the scale of nursing performance, the six-dimension scale of nursing performance, and a mixture of academic and clinical practice performance. Nursing team performance was assessed at four different levels: 1) job satisfaction, 2) chief nursing executives' rating, 3) turnover rate, and 4) health care quality. EI was assessed by five measures, with the Schutte EI test being used twice.

The largest study explored the relationship between characteristics of nursing performance and years of experience in nurses with high EI (Fujino et al., 2015). A sample of 1045 nurses was diverse in age, experience level, and education. Analysis exposed a moderate, yet significant correlation between nursing performance and EI. In other words, high EI nurses were also high performers. Intriguingly, authors also found nurses high in EI tended to engage in more professional development when compared to low EI. Thus, according to the findings, EI may potentiate nursing performance, but may also serve as an impetus for professional development.

Quoidbach & Hansenne (2009) investigated the relationship between team nursing performance and EI in 23 nursing teams. A subscale of EI, optimism/mood regulation, was found to significantly correlate with health care quality. This finding supports the phenomenon of

emotional contagion, in which one person's emotions and behaviors trigger similar emotions in others (Baker, Le Blanc, & Schaufeli, 2005). For instance, through emotional contagion, individuals who are pessimistic can negatively affect the performance of the group. Should a person be skilled in regulating their mood, they may be able to affect team performance. Thus, the ability to identify, make sense of, and regulate emotions may be critical to nursing team performance.

Contrary to the above findings, Stenhouse, Snowden, Young, Carver, Carver & Brown (2016) found no evidence which indicated EI was a performance indicator. Despite this result, the majority of recent findings present strong, although inconclusive, evidence to suggest EI is important for nursing performance. EI is purported to aid nursing performance by encouraging nurses to continually improve and strategically regulating mood, which impacts team nursing performance.

Leadership

Eleven studies investigated 1586 leaders from nursing, the military, higher education, insurance managers, MBA students, and fortune 500 corporations. Leadership performance was measured with employee ratings, record of success, and number of financial consultants recruited. Additionally, pre-existing measures such as the leadership practices inventory, multi-factor leadership questionnaire, and managerial effectiveness scale were employed. Eight different measures were used to assess EI. The emotional competence inventory made popular by Boyatzis & Goleman was used three times, while the EQ index (Rahim, Psenicka, Polychroniou, Zhao, Yu, Chan,…2002) was used twice. All other measures were used once.

Each of the eleven studies found EI to positively influence leadership. Specifically, Alston, Dastoor & Sosa-Fey (2010) investigated professionals within Fortune 500 companies and

found that emotionally intelligent leaders are more effective. Boyatzis, Good & Massa (2012) found that divisional executives' EI significantly affected the number of new financial consultants recruited over a one-year period. This metric has been previously found to predict cash investments 6 years later. Thus, a leaders' EI may influence the financial success of an organization, particularly future investments.

Furthermore, two studies examined EI's effect on transformational leadership, which is a form of leadership based on improving followers' success by influencing their values (Alston et al., 2010). Results support the linkage between EI and transformational leadership with positive significant relationships (Echevarria, Patterson & Krouse, 2017). Findings from Polychroniou (2009) also support this link, and add that through transformational leadership, EI may serve to increase team effectiveness. Although the effect of EI on team performance will be detailed in a later section, these results imply EI may allow a leader to more effectively influence employee values.

Other investigations highlighted the inter-relationship between a leaders EI, employee's task performance, and employee's perception of their job (Choudhary, Naqshbandi, Philip & Kumar, 2017). High EI leaders were able to create a greater sense of employee belonging and improve perception of job characteristics. Through EI, leaders identified emotional information, in themselves and others, and altered their attitudes and behaviors to be more effective. Consequently, this produced a more pleasant environment which boosted work performance and sense of affiliation. These actions also may have stimulated employee motivation through relatedness (Ryan & Deci, 2000). Finally, EI appeared to create a sense of proactive thinking that may play a role in distinguishing levels of effectiveness (Aslam, IIyas, Imran & Rahman, 2016).

Authors postulated that emotionally intelligent leaders are more responsive to critical situations in dynamic environments.

All of the available evidence signifies EI as an essential skillset for leaders. Emotionally intelligent leaders identify and make use of emotional information to tailor their actions, cultivate a positive work environment, and create a sense of belonging. The reviewed evidence demonstrates and strongly supports EI's influence on leadership.

Sales performance

Eight research investigations studied EI in 845 sales professionals in retail, real estate, insurance, and automotive sales. Sales performance was measured with multiple metrics including subjective and objective supervisor evaluations, self and peer reports of sales performance, annual sales revenue, and percentage of customers retained. Five measures were used to evaluated sales professionals EI. The Schutte EI test was used twice, while all others were used once. Worthy of note, Kidwell et al. (2011) created and validated their own measure of EI from two existing measures (MSCEIT and Schutte).

Six of eight studies indicated a positive relation between EI and sales performance. Significant correlations ranged from $r = 0.28 - 0.916$. Ahuja & Mumbai (2015) pursued the effect of EI on retail performance. Analysis revealed significant correlations ($r = 0.916$, $p < 0.01$) between the two variables. After further analysis, it was found that 83.8% of retail work performance could be explained by EI. Moreover, optimism, happiness, and self-regard were identified as the most important factors within EI.

Kidwell, Hardesty, Murtha & Sheng (2011) examined the impact of EI in marketing exchanges on sales performance and customer retention. Also, authors explored the connection between cognitive ability, EI, and sales performance. Results revealed EI was positively related

to performance of real estate and insurance agents, even when controlling for cognitive ability. Sales professionals with higher EI were superior in revenue generation, as well as, customer retention. Succinctly, EI contributes to sales associates' performance above cognitive ability and those with greater EI are superior at generating revenue and retaining customers. Rationally, a 1% increase in customer retention can boost firm value by up to 5% (Gupta, Lehmann, & Ames, 2004). Therefore, improving sales associates EI may result in greater revenue. However, perhaps more importantly, cognitive ability significantly affected sales performance, but only when EI was at least moderate, not low. These findings indicate the positive effects of cognitive ability cannot but fully exploited without at least moderate levels of EI (Kidwell et al., 2011). In other words, EI allows one to apply their full cognitive potential in sales performance.

The remaining studies found no significant correlations between EI and sales performance (AlDosiry et al., 2016; Harris, Mirabella & Murphy, 2012). These findings conflict with prior evidence. The authors, however, posited an abnormally high mean EI level, in conjunction with low variation in sales performance, as explanations for lack of significance. Despite inconclusive evidence, signifying no significant relationship, authors continued to suggest that an organization may benefit by including EI in the hiring process (Harris, Mirabella, & Murphy, 2012).

Therefore, the present scholarship suggests EI significantly impacts sales performance. Specifically, EI influences revenue generation, customer retention, and retail sales. Somewhat surprisingly, the ability to identify and make meaning of emotional information may allow sales professionals to utilize their full cognitive potential while making sales.

Career

Eleven studies examined the relationship between EI and career success in 1896 students, entrepreneurs, executives, bank employees, translators, project & insurance managers, and post-graduates. Studies within this section were categorized based on the original authors aim to study EI and measures of career success. Career success was measured via self-reported job satisfaction, salary, or position in an organization. Additionally, established questionnaires or inventories were also utilized. In totally, six measures evaluated EI. Specifically, the Trait Emotional Intelligence Questionnaire (Petrides & Furnham, 2006) was used three times, while the MSCEIT and Trait Meta Mood Scale (Salovey et al., 1995) were each used twice.

Garcia & Costa (2014) considered the relationship between EI, general mental ability, the big five personality traits, and early career success. University students completed surveys which assessed the aforementioned. Three and one-half years later, participants were contacted and asked to complete a questionnaire designated to collect information on employment status and entry into the workforce. Analysis showed that, three and one-half years later, EI predicted salary over and above personality and general mental ability. Congruently, other investigations revealed that EI predicted up to 12% of salary at the start of a career (De Haro & Castejon, 2014).

Meanwhile, findings from earlier investigations demonstrated conflicting results (Rode, Arthaud-Day, Mooney, Near & Baldwin, 2008; Howe, Falkenbach, & Massey, 2014). Similar to Garcia & Costa (2014), Rode & Colleagues (2008) examined the effects of general mental ability, EI, and personality on indicators of career success. Results expressed no significant correlation between EI and financial or career success indicators. Therefore, with conflicting evidence, results remain inconclusive. Though, upon further inspection, the studies which identified significant results utilized the Trait Meta Mood Scale, while those finding insignificant

results employed the MSCEIT. Although the measurement of EI has already been discussed, it remains curios that the same research group (Salovey, Mayer, & colleagues) devised both of these measures. This idea gives further credence to the notion that ability and trait measures of EI are, indeed, evaluating different constructs.

In contrast, Sultana & colleagues (2016) wished to observe the moderating role of EI between career commitment and career success. Results revealed EI significantly affected the relationship between career commitment and salary. In other terms, when coupled with high EI bank employee's career commitment was significantly related to salary level. Furthermore, authors proclaimed that career commitment doesn't necessarily lead to objective career success. Authors speculated that emotionally intelligent employees may engage in more career progression activities, and subsequently strengthen advancement opportunities.

Beyond the aforementioned, other noteworthy inquiries identified EI's positive and significant association with entrepreneurial success (Ahmetoglu, Leutner, Chamorro-Premuzic 2011), job satisfaction (Hubscher-Davidson, 2016), position in organizational hierarchy (Obradovic, Jovanovic, Petrovic, Mihic & Mitrovic, 2013), professional life success (Trehan & Shrivastav, 2012), managers success (Aslam et al., 2016) and the success of women in masculine work environments (Jasielska & Mickiewicz, 2014). Thus, the majority of contemporary research illustrated EI was an important indicator of career success.

Team

Six examinations focused on EI's role in team performance. These examinations focused on military personnel, elite handball teams, nursing teams, managers, and organizational leaders. A total of 1,531 professionals were studied. Performance was evaluated through the completion

of questionnaires, in addition to military and firm performance metrics. EI was evaluated through five measurements, with no measure being used more than once.

Among military personnel, EI was found to impact team performance through team level emotional competence and the presence of emotionally competent group norms (ECGN's) (Koman & Wolff, 2008). Through a structural equation model, Military leaders' EI was significantly related to team ECGN's, and in turn related to team performance. Consequently, authors concluded a leader's behavior is important to the development of team norms. Leaders who can manage their own emotions and direct behavior toward a desired goal will improve team development and potentially performance.

Building on the previous idea, Quoidbach & Hansenne (2009) investigated the relationship between EI, performance, and cohesiveness in nursing teams. Results indicated that appraisal of emotion and mood regulation are positively and significantly correlated with team performance. Interestingly, authors identified an important link between mood regulation and health care quality. The link expresses that the team's lowest scorer on optimism/mood regulation determines the quality of care provided by the entire team. In juxtaposition, if the entire team scores high, the quality of care was high. Results also revealed that team cohesiveness was significantly different between high and low EI teams, favoring high EI ($t =$ 3.43, $p < .003$). Thus, EI affects nursing team cohesiveness and performance.

Farh, Seo, & Tesluk (2012) sought to advance the current understanding of EI when they investigated the role of context. Initial conclusions corroborated previous evidence pertaining to EI's effect on team performance and effectiveness. However, for the first time, context was found to be a significant factor in the EI-performance relationship. Specifically, EI was found to be a significant indicator of team performance when managerial demands are high. In other

words, EI improved teamwork effectiveness in jobs requiring the management of diverse people, skills, and functions. On the contrary, when managerial demands were low this was not the case. Specifically, when managerial demands are low, emotionally intelligent individuals may be prone to reading too much into situations and responding to emotional cues not meant to be seen (Elfenbein & Ambady, 2002). Based on the findings, EI is not always positively correlated with outcomes and, furthermore could be detrimental.

The combined evidence suggested EI was important for teamwork performance-- particularly with respect to developing group norms and affecting team behavior. Although EI's positive influence was well supported, preliminary data revealed that EI was not beneficial in all situations.

Section Summary

The main goal of the previous section was to review the current evidence examining the relationship between EI and measures of performance, success, or achievement. Empirical findings indicated that approximately 80% of the completed research found EI had a meaningful impact on performance. More specifically, evidence examining EI within professional realms namely nursing, leadership, sales, job performance, team performance, and career success was strong, while evidence within academics and teaching was generally supportive of the same effect, yet inconclusive. Thus, the preponderance of evidence suggested EI was a valid predictor of performance, success, and achievement.

In the midst of examining EI's effect on performance, other interesting and noteworthy conclusions were discovered. First, EI was purported to be a potential motivator for lifelong learning. This may partially explain why participants characterized with higher EI tended to be

more successful. Conceptually, those who continually strive to learn and grow will accumulate more skills, knowledge, and experience.

Secondly, EI was found to be situationally specific. To clarify, EI oftentimes leads to better results, however, in some situations EI was found to be counterproductive. Specifically, emotionally intelligent supervisors working alongside diverse individuals with unique skillsets were shown to increase performance. On the contrary, supervisors working with homogenous populations and similar skillsets may sense affective information not intended for them and thus be prone to over analyzing. In essence, they may decrease performance through the old adage "paralysis by analysis."

Lastly, preliminary evidence suggested EI may be the key to accessing one's full cognitive abilities. Data suggested that sales revenue and customer retention were significantly impacted by cognitive ability when EI was either moderate or high, but not low. Accordingly, this endorses a theoretical threshold of EI, below which one cannot fully utilize their cognitive abilities.

Overall, the reviewed evidence strengthened the notion that EI was positively associated with or represented a general indicator of success. The present review extended our current understanding of EI's impact on success. However, a major limitation to the current study was a lack of statistical processes to quantify the holistic impact of EI. Moreover, the data reviewed was limited to a ten-year span. Future research should aim to empirically investigate the EI literature, within similar or more inclusive timeframes.

EI in Sport

As illustrated in the previous section, evidence illuminates EI's contribution to success. Despite this, there remains a paucity of evidence investigating EI in sport. Therefore, the

following section will review the pertinent scholarship examining EI in sport. This section will review the research on athletes and coaches separately, beginning with research investigating athletes.

EI in Athletes

Zizzi, Deaner, and Hirschhorn (2003) were the first to explore EI in sport. Their study examined the relationship between trait EI, as measured by the Schutte EI test, and college baseball players hitting and pitching performance. Despite no significant associations between EI and hitting statistics, correlations between EI and pitching statistics were low to moderate ($r = 0.25 – 0.48$) with moderate Cohen's d effect sizes ranging from $0.54 – 1.1$. However, EI was only significantly related to strikeouts $r = 0.484$, $p < .05$.

Three years later another research group investigated the link between EI and National Hockey League (NHL) players, specifically in relation to draft rank, points scored, and games played (Perlini & Halverson, 2006). Interestingly, EI measured by the Bar-On EQ-I (1997) significantly predicted NHL forwards points scored and games played. Shockingly, EI was also found to be a better predictor of NHL performance indices than NHL draft rank.

Interestingly, it was at this point that investigations diverged into two forms: 1) EI and sport performance and 2) EI and psychological skills associated with sport performance. While work relating EI to direct measures of performance persisted, the majority of research was conducted in the latter category. Accordingly, this branch of research will be detailed in a later section, after the work in sport performance has been thoroughly detailed.

Continuing on the performance thread, the literature began to reveal a positive link between EI and team/individual performance. First, Crombie, Lombard, and Noakes (2009) completed a well-designed study scrutinizing EI's impact on National Team Cricket

Performance. Over the course of two competitive seasons, Team EI was found to be positively associated with performance. Moreover, 61% of the variation in team log points (an objective measure of cricket performance) was predicted by Team EI. Authors suggested that teams with a relatively high Total EI would display: (a) better emotional control under pressure, (b) an improved ability to manage the emotional impact of in-game controversies, and (c) a greater understanding of negative emotions and their impact on performance. Important to note, to date, this is one of the only studies to examine ability EI via the MSCEIT and sport performance.

Thereafter, Andrew Lane and his research group conducted two studies regarding the relationship between EI, mood states, and optimal and dysfunctional performances (2009; 2010). Within student athletes, Lane et al. (2009; 2010) found that self-reported EI (Schutte et al., 1998) positively influenced emotions and mood states associated with optimal and dysfunctional performances. More specifically, evidence indicated students lower in EI experienced intense unpleasant emotions before dysfunctional performances. These results supported the contention that self-reported EI can facilitate better sporting performance.

Building from previous work, scholars aimed to investigate other sports to scrutinize EI's ability or inability to distinguish various performers. Findings from handball (Hemmatinezhad, Ramazaninezhad, Ghezelsefloo, & Hemmatinezhad, 2012), basketball (Singh, 2015), volleyball (Venera-Mihaela, C., 2012), and gymnastics (Ancuta, 2015) substantiated previous claims positing EI's positive effect on performance. Two of these studies demonstrated that athletes with a high EI perform better than those with low levels of EI (Ancuta, 2015; Singh, 2015).

Considering the possibility that EI may enhance sport through other means, Arribas-Galarraga, Saies, Cecchini, Arruza and Luis-de-cos (2017) examined if EI impacted the relationship between autonomous motivation and performance. In other words, do intrinsically

motivated athletes have an improved ability to regulate their emotions, which in turn, has a positive influence on their performance? Analysis showed that EI strengthened the relationship between autonomous motivation and performance.

Similar to the study above, Laborde, Lautenbach, Allen, Herbert and Achtzehn (2013) considered the role of EI in emotion regulation and performance under pressure. Through a self-reported measure of EI, Laborde et al. (2013) tested 28 near expert tennis players in serving situations under pressure. While EI was not a significant predictor of performance under pressure, it did explain 28% of the cortisol secreted by athletes. Briefly, cortisol is a biological marker of stress that has been shown to be detrimental to sport performance (Doan, Newton, Kraemer, Kwon & Scheet, 2007). Based on the findings, authors suggested that EI may indirectly impact performance by controlling cortisol secretion, and subsequently allowing performance to be preserved, especially in pressure situations.

The following portion of this segment will provide a succinct account of the research examining EI and psychological skills associated with athletes' performance. To date, within the EI in sport literature, examinations most frequently examine EI in relation to a psychological skill. Interestingly, the current evidence suggests some psychological characteristics may be associated with or enhanced through EI.

Specifically, athletes who had high levels of EI also demonstrated superior goal setting and goal orientation (Bahrololoum, Hassani, Bandeli & Akbari, 2012; Ghazilli, Makvandi & Naderi, 2015). Goal setting is the first step in the mental practice plan and directs one's efforts and depicts other subsequent steps toward success. Goal orientation refers to a set of rationales one uses to obtain a result (Bahrololoum et al., 2012). Thus, the presented evidence indicates athletes with higher EI were better able to set and align goals with a result.

Furthermore, EI was also found to be significantly related to self-confidence (Bahrololoum et al., 2012) and motivation for athletic success (Kajbafnezhad, Ahadi, Heidarie, Askari & Enayati, 2012). Perhaps most surprisingly, EI was found to be significant predictor of one of the most important characteristics for athletic success: mental toughness (Cowden, 2016; Gould, Hodge, Peterson, & Petlichkoff, 1987). Those exemplifying mental toughness consistently strive to attain high performance, irrespective of condition. And EI explained 23% of mental toughness. Accordingly, Cowden (2016) speculated that EI may prove to be the mechanistic factor underpinning expressions of mental toughness. Supporting this notion, an earlier study by Lane and Wilson (2011) examined ultra-endurance athletes and found that EI may be a key component of the ability to endure strenuous and lengthy bouts of physical activity. Therefore, findings lead scholars to believe that EI is central to mental toughness.

Additional studies emphasized the relationship between EI and negative emotions such as perceived cognitive anxiety (Lu, Li, Hsu & Williams, 2010), stress (Laborde, Brull, Weber & Anders, 2011; Tok, Binboga, Guven, Catikkas & Dane, 2013) and unpleasant emotions (Lane & Wilson, 2011) in athletes. Specifically, higher levels of EI were associated with fewer negative emotions prior to and during competition. Results also revealed a significant negative relationship between EI, burnout (Saadati, Nikbaksh & Afarinesh, 2014), and sports injuries (Kalkhoran, Dasilbroon & Shariati, 2013). Findings imply that athletes with higher EI are able to stave off feelings of burnout and use emotional information to avoid risky situations, thereby avoiding injury. Collectively, the available evidence suggests that EI is associated with the psychological functions required for desirable sport experiences and seems to safeguard against undesirable psychological phenomena.

Section Summary

Taken together, these results have extended the previous section affirming EI as a general indicator of success, to include sport performance and psychological skills. Thus, it may be plainly stated that EI is an important indicator of sporting success. Nevertheless, while many investigations have examined athletes' EI, Laborde, Dosseville, and Allen (2016) noted there is a shortage of research on coaches EI. Therefore, the following section will focus on this area of research.

EI in Coaches

Evidence strongly suggests EI is a general indicator of sporting success. Athletes with higher EI demonstrate superior performances, yet when referring to coaches, few studies exist. Indeed, thirty-six studies were identified in a recent in-depth review of EI in sport and exercise, yet just three examined coaches (Laborde et al., 2016). Despite limited findings, scholars believe EI is invaluable for coaches (Chan & Mallett, 2011). Therefore, this section aims to review the body of scholarship and distinguish EI's influence in coaching.

Due to the shortage of published research on the topic, an exhaustive search was completed. Authors scoured databases and non-peer reviewed work including dissertations, thesis, and conference proceedings. And in an effort to increase results, references for each identified article were scanned for relevancy. Articles identified during this process were also included. After compiling the collected studies, and scrutinizing the body of literature, EI was most frequently studied in conjunction with two specific variables: 1) coach leadership and 2) coaching efficacy. As such, these two prominent themes will be reviewed first.

Miller (2003) was the first to investigate EI in coaching. Through qualitative techniques (interviews) EI was examined in relation to altruistic leadership with 15 NCAA Division I

coaches. As indicated in Table 2.3, coaches felt altruistic leadership was supported by EI factors including self-awareness, self-regulation, social skills, empathy, and self-motivation. It was thought that an absence of these factors would create barriers to achieving altruistic leadership.

Another study considered the relation between EI and leadership in 15 Division III coaches (Danehy, 2005). Interestingly, this study employed a Multi-Rater EI scale where supervisors', peers', and students rated the coaches' EI and leadership. Analysis revealed several significant findings. Collectively, other's ratings of coach EI predicted 51% of the variance in perceived leadership. And student's ratings of EI were significantly correlated with their ratings of leadership ($r = 0.732$, $p < .01$). These findings imply that EI may be a vital aspect in leadership, which is strongly supported by evidence outside of sport (Choudhary et al., 2017; Echevarria et al., 2017). However, somewhat surprisingly, the coaches' age, gender, and experience did not significantly predict how others perceived their EI. Moreover, other's perceptions of a coaches' EI may be a better indicator than perhaps more conventional characteristics such as a coaches' age or experience level.

Turning now to EI's impact on the environment, previous evidence indicates leaders may use their EI to create a greater sense of employee belonging and improve job perception (Choudhary et al., 2017). Thus, establishing a positive atmosphere is essential and personal caring may be the nexus. As such, Magyar, Guivernau, Gano-Overway, Newton, Kim, Watson…(2007) sought to examine whether leaders' efficacy and EI would influence 37 youth sport group leaders' leader's ability to demonstrate personal caring. Results revealed that both leader efficacy and EI were significant predictors of personal caring. Based on these results, authors posited that leaders must first utilize affective information to appraise and understand

children's emotional needs before they effectively engage in caring. And as a result, cultivate a positive atmosphere in which to perform.

The focus now shifts towards transforming followers into leaders, otherwise known as transformational leadership. Parks (2012) considered the effects of EI and coaching efficacy on transformational leadership of 148 coaches from Divisions I, II, and III. Results showed a significant correlation between EI and transformational leadership, meaning coaches with higher EI demonstrated higher transformational leadership skills. The current findings are supported by previous work examining Fortune 500 company leaders, which found a positive link between EI and transformational leadership (Alston et al., 2010). It seems that not only do emotionally intelligent coaches develop positive atmospheres, but they also help create the next generation of leaders in sport.

The remaining studies examined leadership styles in relation to EI. Each study independently found EI significantly related to leadership styles (Milek, Lobinger & Ka, 2011; Hwang et al., 2013; Kim et al., 2016; Lobinger & Heisler, 2016). These studies surveyed diverse coaches from different sports, competition levels, and nationalities. Interestingly, Kim and colleagues (2016) found coaches high in EI had a tendency to use democratic leadership styles, because of their ability to detect and understand other's emotions through their expressions. In contrast, coaches with low EI used commanding styles of leadership. Practically, it appears EI allows the coach to use various leadership styles, depending on the scenario and emotional information perceived. This fluid-like leadership would likely prove beneficial in settings with diverse skillsets and individuals.

In summary, the evidence reviewed suggests EI is a significant and meaningful influencer on coaches' leadership. Specifically, EI serves to underpin and bolster altruistic leadership,

leadership practices, transformational leadership, and the ability to use various leadership styles. Practically, in order to lead, a coach must understand people. And in order to understand people, a leader must understand emotions. By doing so, a leader can create an encouraging atmosphere that drives athletes to become better versions of themselves, but simultaneously transforms the followers of today into the leaders of tomorrow.

The second theme found in this review featured the association between coaching efficacy (CE) and EI. Briefly, CE is the extent to which coaches believe that they have the capacity to influence the learning and performance of their athletes (Feltz et al., 1999). Furthermore, coach efficacy can be broken into four dimensions: motivation, game strategy, technique and character building. To date, other than coach leadership, CE has been studied alongside EI most often.

Thelwell, Lane, Weston and Greenless (2008) were the first to explore the relationship between CE and EI. Coaches from various sports including soccer, gymnastics, swimming and rugby, among others completed two self-reported measures assessing the previously mentioned variables. Canonical correlation was used to analyze the data and resulted in significant outcomes (R = 0.50, Ch-Square = 42.55, (df=24), $p < .01$), meaning there is a meaningful association between EI and CE. Furthermore, the relationship between EI and the four dimensions of CE were explored with multiple regression. EI was found to significantly predict each of the four dimensions of CE. In some instances, subfactors of EI were significant predictors of CE dimensions. For example: emotional regulation and social skills were significant predictors of motivation efficacy. Overall, findings suggest EI is related to a coaches' belief in their ability to influence. Importantly, authors claimed that coaches are performers in

their own right, and their inability to appraise and regulate their emotions may significantly

hinder their ability to affect athletes.

Table 2.3 Summary of EI and coaching leadership research.

Authors	Participants	Variables Investigated	EI Measurement scale	Major Finding
Miller, 2003	N= 15 NCAA Division I coaches	EI & altruistic leadership	Qualitative	EI factors self-awareness, self-regulation, social skills, empathy, and self-motivation were reinforced in relation to altruistic leadership.
Danehy (2005)	N=15 part-time Division III college coaches	EI & leadership practices	Emotional Intelligence Appraisal – Multi Rater (Bradberry & Greaves, 2004)	EI and leadership were highly correlated and EI significantly predicted leadership practices.
Magyar et al. (2007)	N= 37 Sport camp group leaders	EI, personal caring & leader efficacy	Wong & Law (2002)	EI was significantly related to personal caring.
Milek, Lobinger & Ka (2011)	N=158 male soccer coaches	EI & leadership styles	TEIQue- Short Form, Freudenthaler et al., 2008)	Coaches who reported higher well-being, emotionality, and self-control claimed to provide more social support and use training and instruction-based leadership styles.
Parks (2012)	N=148 Head and Assistant coaches from Division I, II, & III	EI, coaching efficacy, & transformational leadership	Emotional Intelligence Scale (Schutte et al., 1998)	EI was positively and significantly correlated with transformational leadership and coach efficacy.
Hwang et al. (2013)	N=323 high school basketball coaches	EI, coaching efficacy, and leadership style	Emotional Intelligence Scale (Schutte et al., 1998)	EI significantly predicted coaching efficacy, and EI and coaching efficacy significantly predicted leadership style.
Kim et al. (2016)	N=35 coaches	EI and leadership styles	Lyusin Test (Lyusin, 2006)	EI was found to impact coach-student interactions and team performance through leadership styles. Specifically, high EI development correlated with democratic leadership style, while lower EI correlated authoritative leadership styles.
Lobinger & Heisler (2016)	N=198 soccer coaches	EI & leadership styles	Trait Emotional Intelligence Questionnaire (Freudenthaler et al., 2008)	EI was positively and significantly related to leadership styles described by coaches.

Since 2008, four other studies have investigated the same relationship. As seen in Table 2.5, findings support the original results but also extend this relationship. Specifically, Hwang, Feltz and Lee (2013) sought to investigate the relationships among EI, CE, and leadership style (LS). However, authors pursued the mediation effect of coach efficacy on the relationship between EI and LS. Mediation is a form of analysis which aims to examine the relationship between an independent variable and a dependent variable, with the addition of a third variable thought to influence the original relationship. Through a structural equation model, authors found EI and CE together significantly predicted LS. Additionally, CE was found to significantly influence the relationship between EI and LS, and EI directly predicted coach efficacy.

Collectively, the previous segments offer two important findings that add to the current understanding of EI in coaching. First, EI is significantly associated with CE. As Thelwell et al. (2008) noted, the relationship between EI and CE could be reciprocal, meaning CE could develop EI and vice versa. Furthermore, a cascade of downstream effects has been identified within the literature and can be viewed in Figure 2.4. Kao, Hsieh, and Lee (2017) demonstrated coaches self-reported efficacy was significantly higher when compared to athletes perceived coaching effectiveness, however, there seems to be a relationship between the two. Simply put, a coach with greater efficacy is likely to have greater effectiveness. Continuing with the downstream effects, athletes' perceptions of coaching competence have been linked to developing trust between the athlete and coach (Kao, Hsieh & Lee, 2017). And, trust is central to effective coaching (Jowett, 2017). Thus, CE is indispensable and may ultimately lead to increased coach effectiveness and may also be positively impacted by EI.

Figure 2.4 EI's hypothesized impacts on coach effectiveness through coach efficacy.
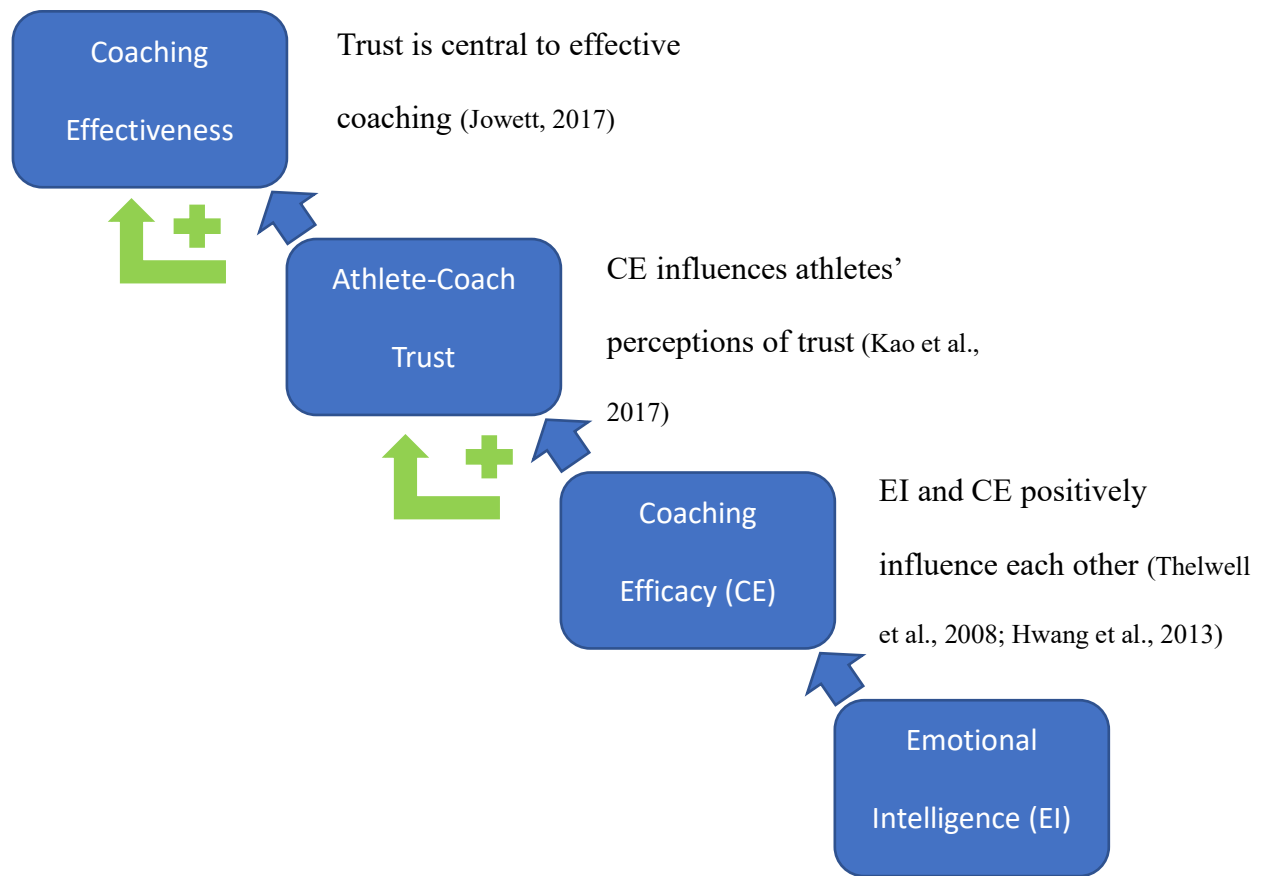
Second, the present findings indicated that EI and CE independently effect coach leadership styles. However, when combined with EI, CE bolsters EI's influences on LS (Hwang et al., 2013). Thus, these three components seem to be entrapped in a perpetual circle, and if one improves, the others will likely follow suit. In light of these results, EI is further substantiated as a critical factor in coaching.

Table 2.5 Summary of EI and coach efficacy research.

Authors	Participants	Variables Investigated	EI Measurement scale	Major Finding
Thelwell et al. (2008)	N=99 coaches	EI & Coaching Efficacy	Emotional Intelligence Scale (Schutte et al., 1998)	Significant relationships were identified between EI, EI subscales, coaching efficacy and its subscales.
Afhkami et al. (2011)	N=120 coaches	EI & Coaching Efficacy	Emotional Intelligence Scale (Syber Yashring, 1986)	A strong relationship was found between EI and coaching efficacy. Coaches who owned high emotional intelligence had high levels of efficacy.
Rutkowska & Gierczuk (2012)	N=27 wrestling coaches and instructors	EI & self-efficacy	Emotional Intelligence Questionnaire (No Citation)	First class coaches had significantly higher levels of EI and self-efficacy than instructors.
Parks (2012)	N=148 Head and Assistant coaches from Division I, II, & III	EI, coaching efficacy, & transformational leadership	Emotional Intelligence Scale (Schutte et al., 1998)	EI was positively and significantly correlated with transformational leadership and coach efficacy.
Hwang et al. (2013)	N=323 high school basketball coaches	EI, coaching efficacy, and leadership style	Emotional Intelligence Scale (Schutte et al., 1998)	EI significantly predicted coaching efficacy, and EI and coaching efficacy significantly predicted leadership style.

As seen in the next table (Table 2.6.) the remaining literature examined EI in coaches while considering variables such as: a) coaching effectiveness, b) job satisfaction, c) emotional labor, d) coaching behaviors, and e) players needs satisfaction. The first of these inquires explored the relationship between EI and coaching effectiveness in Division I coaches (VanSickle, 2004). Sixteen head softball coaches and their players completed the Emotional Competence Inventory (ECI-2) (Boyatzis, Goleman, & Hay/McBer, 2001). Head coaches and athletes completed the assessment by reporting their individual perceptions of the head coaches' emotional competencies. Win-loss record as well as athlete satisfaction were used as measures of

coaching effectiveness. Tests of significance revealed that two sub-factors of EI, self-awareness and social awareness were related to win-loss record. Additionally, subfactor self-awareness was related to athlete satisfaction, while relationship management was related to win-loss record. Finally, coaches who attained better win-loss percentages were perceived to possess: a) a greater grasp on their strengths, b) a stronger sense of self-worth, c) more empathy, and d) more readily recognize their emotions and their aftereffects than their counterparts. Importantly, despite being perceived to be more aware of their emotions, athletes felt successful coaches were just as likely to explode into a disruptive outburst (VanSickle, 2004).

In addition, analysis revealed a number of interesting findings. First, head coaches rated their own emotional competencies above that of their players. The tendency to rate EI, and other capacities, higher than players has been found in other studies (Dave et al., 2017; Danehy, 2005; Kavussanu, Boardley, Jutkiewicz, Vincent, & Ring, 2008). Surprisingly, analysis revealed a significant negative coefficient between head coaching experience and their player perceived EI. Concisely, the longer a coaches' tenure, the lower players rated their EI, and this finding would be corroborated a year later (Danehy, 2005). This same trend was found between tenure and satisfaction. Authors indicated that, perhaps players felt the older, more experience coaches were out of touch with how they feel or were unable to relate to the younger generation.

Muhe (2015) also investigated EI and winning percentage within volleyball coaches. Results did not find a significant relationship between EI and a four-year winning percentage (2008-2012). This evidence led authors to conclude that EI has no predictive power in volleyball coaches' success. However, authors conducted an informational post-hoc analysis to examine the interaction effect between coaching tenure and EI on coaching success. This analysis revealed a significant relationship between EI and coaching success in coaches with between 19-31 years of

experience. In essence, total EI score was able to explain 18.5% of winning percentage within the most experienced coaches of the study. Based on these findings, authors concluded that the benefits of EI may not been seen in athletic coaching until a high level of experience is attained. Curiously, this finding contrasts an earlier finding that coaching experience was negatively related to player perceived EI. Important to note, the present study was based on self-reported EI measures.

However, upon further examination, VanSickle (2004) investigated the four factors of EI, while Muhe (2015) investigated the overall score of EI in relation to winning percentage. The fact that the four factors were omitted from Muhe's analysis is puzzling, especially because Schutte et al. (2009) along with other scholars (Ciarrochi et al., 2001; Petrides and Furnham, 2000) highlighted a four-factor model within the Assessing Emotions Scale. However, in their original piece, authors emphasized a one-factor model which may explain why it was used (Schutte et al., 1998). Furthermore, the first study examining winning percentage and EI examined the four subfactors of EI and found significant results (VanSickle, 2004). Although, a different measure was utilized for Muhe's study, it remains unclear as to why the four subfactor scores, which form the basis of the total EI score, were not included in the analysis. Regardless, both investigations provide evidence that suggests EI may be a predictor of coaching success.

Moving on, Steege (2009) examined college soccer coaches EI in relation to the coach athlete relationship, in addition to other variables including perceived motivational climate, college soccer satisfaction, and coach's ability to motivate. Findings indicated athletes of low EI coaches reported stronger relationships and higher winning percentages for the season compared to athletes of high EI coaches. Furthermore, it was interesting to note that low EI coaches were older and had more experience compared to high EI coaches. This finding is interesting for two

reasons. First, EI is thought to increase over time (Payne, 1985; Mayer et al., 1999). Second, conflicting results have been reported regarding EI and coaching tenure. This is the second study to indicate coaches with more experience had lower EI, however, the first study examined player perceived EI (VanSickle, 2004). Authors postulated that more seasoned coaches can rely more on their experience and reputation to build respect, whereas younger, less experienced coaches must rely on their ability to build caring relationships to develop trust. These findings imply that EI does not impact all coaches in a similar fashion, and that developing and established coaches may have differing uses for this ability.

Furthermore, two studies considered EI in relation to coaching behaviors. Both Andrews (2014) and Dave, Farin, and Farin (2017) studied university coaches and athletes' perceptions of their coaches. Results from the studies suggest that emotionally intelligent coaches display more pro-social behaviors aimed at facilitating skill acquisition, increasing tactical knowledge, display proper decorum, and adhere to the standards expected of them (Andrews, 2014; Dave et al., 2017). Evidence implies that coaches who can skillfully nullify negative emotions, in themselves and/or others, may create superior performances for their athletes (Andrews, 2014). On the contrary, coaches with insufficient emotional competence may allow their emotions, or the emotions of others, to proceed unnoticed and unchecked, potentially compromising instructional effectiveness, relationship building opportunities, and the ability to motivate and affect change in athletes. The notion that EI allows leaders to change their behaviors to suit the situation is supported by research outside of sport (Choudhary et al., 2017). In essence, emotionally intelligent leaders are situational chameleons, feeling the required change and grasping how to administer it.

Likewise, another study examined both athlete and coaches' perceptions in relation to EI, but this time measured player's need satisfaction (Watson & Kleinert, 2016). Briefly, basic psychological needs are the elements needed for optimal growth and functioning. The three basic needs are: a) autonomy, b) relatedness, and c) competence (Deci & Flaste, 1995). Nevertheless, high EI coaches were found to underestimate player's basic psychological needs including competence and relatedness. Conversely, coaches with lower EI were found to overestimate needs compared to the athletes self-reported score. Simply, low EI coaches were found to believe their players' needs were satisfied, when in fact they were not, while high EI coaches believed their players needs were unfulfilled. These findings could indicate emotionally competent coaches constantly seek to satisfy their athlete's needs, even after they have met them.

Another significant aspect of EI in coaches is its ability to enhance job satisfaction and buffer emotional labor. Moradi, Honari, Naghshbandi, Jabari and Azarpira (2012) considered the association between job satisfaction and EI in Under-20 premiere league soccer coaches. Results showed a significant association between EI, and more specifically self-awareness, empathy, and social skills, with job satisfaction. Similarly, Lee and Chelladurai (2015; 2018) examined EI in relation to job satisfaction, but also emotional labor, emotional exhaustion, and coach burnout. EI was not directly linked to job satisfaction, however, it was significantly related to surface acting (negatively), deep acting (positively), and genuine expression (positively). Thus, EI may impact job satisfaction via an increase in deep acting and genuine expression, while mitigating surface acting which negatively and significantly influences job satisfaction. In simpler terms, EI diminishes negative and boosts positive attributes related to job satisfaction. Taken together, findings from the present studies indicate EI positively impacts job satisfaction. Furthermore, Lee and Chelladurai (2015) found that emotionally gifted coaches possess a greater buffering

capacity for stress, which may allow them to sustain their influence and foster athlete

improvements for a longer time period.

Table 2.6 Summary of EI and coaching research.

Authors	Participants	Variables Investigated	EI Measurement scale	Major Finding
VanSickle, (2004)	N=16 NCAA Division I softball coaches and 223 athletes	EI & coaching effectiveness	Emotional Competence Inventory 2 (Boyaztis, Goleman, & Hay/McBer, 2001)	Self-awareness a subfactor of EI was significantly related to win-loss record and athlete satisfaction. Moreover, social awareness, another subfactor of EI was significantly related to current win-loss record, while relationship management was significantly related to overall win-loss record.
Steege (2009)	N= 98 Division III soccer coaches	EI, coach athlete relationship, perceived motivational climate, college soccer satisfaction, & coaches' ability to motivate	MSCEIT (Mayer et al., 2002)	Athletes of lower EI coaches reported stronger coach-athlete relationships compared to higher EI coaches. No other significant differences were found.
VanSickle et al. (2010)	N=16 NCAA Division I softball coaches and 223 athletes	EI and player perceived coach EI	Emotional Competence Inventory 2 (Boyaztis, Goleman, & Hay/McBer, 2001)	Coaches were found to rate their EI, and all emotional competencies within, higher than did their players.
Moradi et al. (2012)	N=56 coaches	EI & job satisfaction	Emotional Intelligence Scale (Syber Yashring, 1986)	Coaches EI was significantly associated with job satisfaction, namely subscales self-awareness, empathy, and social skills.
Andrews (2014)	N=28 NCAA Division III coaches	EI and coaching behaviors	Bar-On EQi (Bar-On, 1997)	Findings reveal positive associations between EI, and coaching behaviors aimed at fostering skill acquisition and tactical knowledge.
Nikhakhsh et al. (2014)	N=640 coaches	EI, gender, age, coaching experience	Emotional Intelligence Scale (Syber Yashring, 1986)	EI was not significantly different between male and female coaches. Moreover, EI was significantly correlated with coaches age, sport experience, and coaching experience.

Lee & Chelladurai (2015)	N=430 NCAA Division I coaches	EI & affectivity, emotional labor, and emotional exhaustion	Wong & Law Emotional Entelligence Scale (Wong & Law, 2002)	EI significantly moderated the role between surface acting and emotional exhaustion. In other words, coaches with higher emotional intelligence, when compared to lower, are less likely to fall prey to emotional exhaustion as a consequence of surface acting.
Muhe (2015)	N= 107 Division I, II, & III volleyball coaches	EI & winning percentage	Emotional Intelligence Scale (Schutte et al., 1998)	Results did not find a significant relationship between EI and winning percentage. However, post hoc analysis indicated a significant interaction between EI and coaching tenure on winning percentage.
Watson & Kleinert (2016)	N=12 coaches and 127 athletes	EI and players need satisfaction	Trait Emotional Intelligence Questionnaire-Short Form (No Citation)	Coaches higher in EI tend to underestimate their players levels of competence and relatedness, while low EI coaches overestimated players competence satisfaction.
Dave et al. (2017)	N=165 coaches and 497 athletes	EI and coaching behavior	Emotional Intelligence Self-evaluation (No Citation)	Findings indicate sport coaches EI and behavior are related from both self and athlete assessments. Moreover, coaches perceived their own EI higher than did their athletes.
Lee & Chelladurai (2018)	N=322 high school coaches	EI, emotional labor, coach burnout, job satisfaction, and turnover intention	Wong & Law Emotional Entelligence Scale (Wong & Law, 2002)	EI was significantly related to surface acting and positively related to deep acting and genuine expression.

Section Summary

The previous section has shown that EI positively influences coaching. Specifically, EI was positively associated with coaching leadership, efficacy, success, behavior, job satisfaction, and stress management. Altogether, the body of scholarship clearly indicates EI is an important characteristic for coaches. However, a primary limitation of the reviewed work is the cross-sectional nature of these inquires. Additionally, while preliminary evidence suggests a direct link between coaches EI and their success, the limited research primes this topic for future research.

Thus, future investigations should aim to study coaches longitudinally and examine direct measures of success in conjunction with EI. Also, scholars should look to examine whether EI influences developing coaches differently than established coaches.

<div align="center">**<u>Factors Associated with Coaching Success</u>**</div>

The primary aim of this study was to assess the power of EI in predicting a coach's success, while exploring relationships between EI, age, gender, education level, coaching experience, and playing experience. As the sections above imply, EI may significantly impact coaching success. However, other factors such as: age, coaching experience, playing experience, education level, and gender have surfaced and may also serve as variables in coaching success. Therefore, the following section considered the scholarship highlighting these factors in the context of coaching success.

Many scholars have offered their unique definition of coaching success. Proposed definitions commonly measure coaching success by the achievements of their athletes or teams (e.g., win-loss percentage), athletes personal attributes (e.g., satisfaction), years of experience, level of coaching, position held, or a combination of the above (Cote & Gilbert, 2009; Nash et al., 2012). In an attempt to clarify coaching success, Cote & Gilbert (2009, p. 316) established a definition of coaching effectiveness as "the consistent application of integrated professional, interpersonal, and intrapersonal knowledge to improve athlete's competence, confidence, connection, and character in specific coaching contexts."

Within this same article, Cote & Gilbert established a hierarchy of coaching prowess. Specifically, the authors delineated coaching expertise, coaching effectiveness, and the expert coach (2009). Conceptually, coaching expertise may be viewed as the skill of applying knowledge in a particular context. Thus, a coach who improves their technical or tactical

knowledge may have also increased their coaching expertise. Coaching effectiveness, a step above coaching expertise, takes the form of applying or demonstrating this knowledge in an effort to improve athlete outcomes. For example, after improving technical knowledge in soccer, an effective coach may then apply this knowledge and help create positive changes in his/her youth soccer teams' abilities. Last but not least, the expert coach is one who consistently demonstrates effectiveness over an extended period of time. Other scholars extended this definition to include consistently outperforming their peers (Schempp & McCullick, 2010).

While the above does not establish precisely what coaching success is, it may be implied from the abovementioned classification system. Specifically, more effective coaches or even expert coaches are those who have generated better winning percentages. Per Schempp and McCullick's (2010), winning percentage may differentiate expert from effective coaches. Moreover, winning percentage is an objective measure of team and coach performance that may determine top-tier performers from inferior performers. As such, this criterion has been used numerous times while evaluating the success of coaches (VanSickle, 2004; Berger, 2013; Muhe, 2015). Therefore, in this study, winning percentage was the single measure of coaching success.

Schempp and McCullick (2010) suggested that expert coaches are superior in three main areas: 1) experience, 2) knowledge, and 3) skills. The authors further posited that experience provides an "unparalleled opportunity to learn (Schempp & McCullick, 2010, pg 222)." Thus, through the perpetual state of learning that *may* accompany experience, coaches develop. As coaches hone and refine their skills they improve. Thus, experience may provide the specified curriculum required for coach development. In other words, experience is critically important in coaching and has been confirmed by empirical evidence (Berger, 2013). Although, as Muhe

(2015) identified, coaching tenure or experience is significantly related to coaches' age. As such, age may be the true driver of a coach's development.

If age and experience are linked, then examining the differences between younger and older coaches may illuminate aspects which underpin coaches' success as they gain experience. Dimec and Kajtna (2009) examined the psychological characteristics of younger and older coaches. Findings illustrated that older coaches emphasized sport achievement and delegated more often, while younger coaches tended to be friendlier. Younger coaches were more agreeable and scored higher in conscientiousness. They also demonstrated greater mental openness whereas older coaches preferred to keep things as they were. These findings may indicate that through age and experience, coaches learn how to be more efficient and keep their focus on the most important aspect: performance. In light of the aforementioned, the aging process may serve to attune coaches to what is truly important for increased performance, leading to greater levels of success.

Berger (2013) examined the relationship between personality and coaching success in high school and college coaches. Head coaches' age was among the insignificant factors found. However, analysis revealed that head coaching experience significantly predicted coaching success. Interestingly, it may be that age is associated with coaching experience as in Muhe's study (2015) and acts as a supporting variable to bolster coaching success.

Kiosoglous (2013) found that coaching experiences were positive predictors of coaching success in rowing. Rowing coaches' experience explained 9% of the variance in success. These findings corroborate the notion that experience is crucial for coaches. Providing more support, DeWeese (2012) qualitatively investigated the constructs of expert coaching through the perspectives of fifteen National Team coaches and athletes. It was found that at the Olympic

level, coaches are valued for their ability to teach and communicate. And regardless of position or title, expert coaching was found to be the result of applying knowledge gained through experience (DeWeese, 2012).

Tracey and colleagues (2018) investigated the influence of prior experiences on first-time Division I Football Bowl Subdivision college football head coaches. Statistical outcomes revealed that coaching experience was the most substantial variable in the study contributing 92.3% of the variance in career attainment. Authors suggested that varied and extensive football coaching experience was an essential antecedent to career attainment. Specifically, it is thought through social capital, a coach may build the reputation and skills needed to be hired and succeed as a head coach. Supporting Schempp & McCullick's (2010) assertions, assistant coaching or non-FBS head coaching positions present invaluable learning experiences that serve useful for an FBS head coaching position. Lastly, it is likely that through various coaching experiences coaches would encounter mentors that may help define a coach's identity, teach important coaching skills and improve the assistant's knowledge base. Therefore, coaching experiences of all types may aid in a coach's development. Thus, both head coaching and assistant coaching experience were used as potential predictors of coaching success in the current study.

In addition to examining coaching experience, Kiosoglous (2013) studied the impact of athletic experience on coaching success. Findings revealed that rowing athletic experience explained 3% of coaching success while coaching experience contributed 9%. Likewise, many expert coaches have indicated their playing careers aided their coaching careers (Nash & Sproule, 2009). Specifically, one coach recalled that "there are some valuable experiences and insights that I've had as a player that perhaps I've used as a coach." Importantly, these experiences could be either explicit or implicit. For instance, a player may subliminally learn

communication skills by recalling their experiences with their coaches, more commonly referred to as the "apprenticeship of observation" within teacher education (Smagorinsky & Barnes, 2014).

Similar to the above findings, Grundel, Schorer, Strauss and Baker (2013) found that participating as an athlete may have amplified the development of requisite skills. Erickson, Cote and Fraser-Thomas (2007) sought to examine the common experiences needed to become a high-performance coach. The first milestone identified was diversified early sport participation, which encompassed participation in both team and individual sporting activities at a recreational level. Next, competitive sport participation was required in at least one sport. While one sport was usually the focus, other sports were often continued. Interestingly, it is these early situations where team sport coaches often honed their leadership abilities by serving as team captain. The next step progressed into highly competitive sport occurring at approximately age 19. After this stage, future coaches began the transition process from competing as an athlete to becoming a coach. Long before assuming a high-performance coaching role, athletes retired and begin focusing on coaching full time as an assistant or volunteer. Finally, if the opportunity arose, a coach secured their first high-performance head coaching position.

Despite previous evidence supporting playing experience as a factor contributing to coaching success, Schempp, McCullick, Grant, Foo, and Wieser (2010) found professional playing experience did not lead to professional coaching success. Negative, albeit insignificant, correlations were found between professional playing experience and professional coaching success in Major League Baseball ($r = -.16$) and the National Basketball Association ($r = -.05$). Therefore, as the evidence suggests playing experience at the highest level of sport is not a

requisite for coaching success at the same level. However, playing experience at other levels may influence coaching success and leadership abilities which may support coaching success.

Gender represents yet another potential indicator of coaching success. Through systematic observations, Millard (1996) examined overt game situation coaching behaviors to determine whether or not differences existed between male and female high school soccer coaches. Because experience, past athletic participation and age were shown to differ greatly between genders, these factors were controlled for. Findings from the one-way Multiple Analysis of Covariance (MANCOVA) revealed that male coaches engaged in significantly more 'keeping control' and general technical instruction behaviors, while females provided more general encouragement behaviors to their athletes. This finding suggests that male and female coaches focus their attention, or at least their actions, in different areas.

Moving from behaviors to intentions, Sagas, Cunningham, and Pastore (2006) used the theory of planned behavior to study male and female assistant coaches' intentions. Specifically, the intentions studied here were those related to pursuing head coaching positions. Analysis uncovered that males express more interest that females in pursuing head coaching positions. Furthermore, work-family conflict significantly impacted female, but not male, intentions to become a head coach.

Another study considered differences between male and female coaches, although unlike the studies discussed above, this study analyzed players expectations and evaluations of coaches. Results from Fasting and Pfister (2000) discovered that male coaches demonstrated a "masculine style" of interaction. Additionally, female athletes felt their male coaches didn't take them seriously. In light of this finding, it was unsurprising to find that female players were more satisfied with female coaches. Explicitly, female athletes preferred female coach's

communication style and felt they were "better psychologists" than male coaches. The previous findings highlighted differences and proposed that gender may play a pivotal role in coaching success.

Despite other qualities, a deep-rooted desire to learn and improve is central to all expert performers. Then, conceptually, becoming an expert may be viewed as the result of continually pursing improvement. As previously stated, experts are superior in knowledge base, skills, and experiences (Schempp & McCullick, 2010). And as denoted in Cote and Gilbert's definition of coaching effectiveness, the application of knowledge is central to coaching success (2009).

Successful coaches face many challenges and apply their integrated knowledge in order to solve problems (Schempp and McCullick, 2010). To solve problems, processes including observing, analyzing, and generating solutions required specific abilities pertaining to abstract reasoning. Moreover, it seems that coaching is conceptually perceived in two distinct fashions (Cushion, Nelson, Armour, Lyle, Jones, Sandford, & O'Callaghan, 2010). First, is the view that coaching is consistent across domains and contexts. In juxtaposition, the second perspective identifies coaching as highly variable. This dichotomy has created disagreement within the coach education scholars, with some advocating for a change from coach education to coach training.

Even so, educational experiences may develop the specific type of abstract reasoning required of coaches. A recent meta-analysis examined whether or not a normal college experience produced gains in critical thinking ability (Huber & Kuncel, 2016). From a total of 71 studies, it was found that the normal college experience produced students with a greater ability to critically think, and perhaps more importantly, and a greater willingness to question and critique. Thus, it seems that educational experiences may benefit coaches in their problem-solving abilities.

Furthermore, Dae-Woo, Min-Haeng, and Young-Kum (2005) sought to identify the most important qualities in successful youth sport coaches. Analysis revealed that sport coaches felt an advanced degree in sport, exercise, or physical education was most important for coaches to possess. Based on this finding, authors suggested these degrees were valued because they trained a coach to study, analyze, compare, and experiment within the sport setting. These specific educational experiences provided the necessary knowledge, skills, and abilities needed to solve specific sporting problems. Therefore, in addition to age, coaching experience, playing experience, and gender, educational level appears to have the potential to influence coaching success.

Section Summary

The former section identified several factors influencing coaching success. Specifically, the coaching characteristics of age, coaching experience, playing experience, gender, and educational level all have the potential to impact coaching success. Thus, each of the aforementioned variables will be examined in the present study.

Chapter Summary

This chapter reviewed literature pertinent to the directives of the impending examination. Specifically, this chapter appraised several areas of research including a) emotional intelligence theory and assessment, b) the influence of EI on performance, success, and achievement, c) EI in sport, and d) factors associated with coaching success. The evidence uncovered within substantiated claims that EI is an indicator of success in sport and life. Furthermore, results demonstrated EI's positive effects on coaching leadership, efficacy, and success. Yet, due to insufficient evidence, EI's influence on coaching success requires further exploration. Beyond EI, research unveiled other factors including age, gender, coaching experience, playing

experience, and educational level as indicators of coaching success. Thus, evidence supports the

notion that EI, alongside other recognized factors, could predict coaching success. In light of this

evidence, the impeding study will examine these claims.

CHAPTER THREE

METHOD

The purpose of this study was to assess the power of EI in predicting coaches' success and examine relationships between EI, age, gender, education level, coaching experience, and playing experience. The current chapter describes the method and procedures utilized to satisfy the study's purpose. This chapter is organized in the following fashion: (a) research design, (b) participant selection, (c) data collection, and (d) data analysis.

Research Design

This study utilized a descriptive, cross-sectional survey design to assess the influence of emotional intelligence on coaching success. Career win-loss percentage served as the measure of coaching success. Career winning percentage is a commonly used metric to establish the success of a coach (Horn, 2008; Cote & Gilbert, 2009). Moreover, variables previously found to influence coach's success such as age, gender, coaching experience, educational level, and playing experience were also investigated. Thus, the intention of this study was to detect the predictive ability of EI on direct measures of coaching success and identify the relationships between EI and variables previously shown to influence coaching success.

To assess the relationship between explanatory variables and coaching success, data was collected through a background questionnaire and the Assessing Emotions Scale (Schutte et al., 1998; 2009) (Appendix B). The background questionnaire and EI test solicited numerical data from the participants including age, years of head and assistant coaching experience, years of playing experience, total EI score, and EI subfactor scores. Since the primary purpose of this

study was to assess the predictive ability of variables on coach's success, a quantitative research design was employed.

<p style="text-align:center"><u>Participant selection and recruitment</u></p>

Head coaches from colleges and universities were the targeted sample for this study. A G*Power priori sample size calculator determined that a sample size of 179 coaches were required to detect a medium effect at a significance level of .05 (Faul, Erkfelder, Lang, & Buchner, 2007). Thus, the principal investigator aimed to sample approximately 200 head college coaches.

Both head volleyball and basketball coaches were chosen because EI has been found to positively influence team success and job performance in situations with diverse individuals and functions (Farh, Seo & Tesluk, 2012). Since both of the aforementioned team sports possess diverse individuals in physical stature, skillset, and role, these sports and their coaches were deemed prime candidates for examination. Furthermore, female and male head coaches were recruited for this study because previous evidence suggests gender represents a variable that may influence coaching success (Millard, 1996).

Two methods were utilized to recruit participants for this study. First, a convenience sample of coaches was recruited at the 2019 American Volleyball Coaches Association (AVCA) National Convention in Pittsburgh, PA, December 18-22, 2019. The AVCA granted the research team full access to those coaches in attendance by providing a booth located near the convention's registration area. Additionally, the booth was situated close to the main thoroughfare connecting the entrances to the convention's marketplace. The AVCA chose this location for maximum exposure to attendees.

The second method utilized a cross-sectional sample of coaches who were recruited through email. Institutional websites provided the primary sources for both basketball and volleyball coaches' email addresses. The investigator accumulated email addresses by searching websites using the phrase "(institution) athletics staff directory" and thereafter located each head coaches' email address. For example: when entering UGA Athletics staff directory, the first website returned was UGA's athletic staff directory. Upon visiting the site, a scroll down menu was accessed and searched within. Hereafter, "Volleyball Staff" was selected. As a result, the investigator collected the pertinent information. The resulting search data was amassed into a master Microsoft excel csv file including coaches' first and last name, email address, and institution. This process was repeated for NCAA divisions I, II, III and NAIA schools. After accumulating the data, recruitment emails were sent to all participants through Qualtrics that contained a link to the survey.

In order to be included in this study, coaches must have met several requirements. First, a coach must have held a head coaching position (current or former) at a college or university. Second, the coach must have had at least one year of coaching experience at the collegiate level. Those without head coaching experience have no win/loss record. Lastly, a coach must have held an accessible email address on their institution's website and/or have attended the 2019 AVCA convention.

Data Collection

Instruments

Two instruments were used to collect data: a) a background questionnaire (Appendix A) and b) an emotional intelligence test, specifically the Assessing Emotions Scale (Schutte et al., 1998; 2009) (Appendix B). The background questionnaire solicited demographic information

from the coaches including name, age, gender, educational level, coaching experience, and playing experience. Additionally, as a result of the link between coach leadership and EI, three questions pertaining to coaches' leadership preferences were included. The information gleaned from the background questionnaire was used to analyze research questions 2 and 3.

The EI test employed was the Assessing Emotions Scale (AES) (Schutte et al., 1998; 2009) and is one of the most frequently used EI measures (Laborde et al., 2016). This particular scale was chosen for several reasons. First, it was founded upon the original model of EI put forth by Salovey and Mayer (1990) (Schutte et al., 2009). Thus, its theoretical framework aligns with the original model of EI. Next, its' validity (convergent, divergent, and predictive) has been well-documented (Schutte et al., 1998, 2009; Van Rooy & Viswesvaran, 2004). Furthermore, evidence from multiple studies indicate good internal consistency and reliability with Cronbach alpha measures ranging from .76 - .95 (mean .87) (Schutte et al., 2009) and two-week test-retest reliability as .78 (Brackett & Mayer, 2003; Meyer & Fletcher, 2007; Schutte et al., 1998). Finally, it is one of the most common and accessible scales available and has been used to study the intended participants of this investigation: coaches (Russell & Walker, 2011; Thelwell et al., 2008; Parks et al., 2012; Hwang et al., 2013; Muhe et al., 2015).

In other terms, the AES was chosen because of its frequent use, validity, reliability, and demonstrated use with the intended population. The AES is comprised of 33-items focusing on trait EI. Through self-report, respondents rate themselves on items using a five-point Likert based scale. Respondents are prompted to provide the answer that best describes them from 1 (strongly disagree) to 5 (strongly agree). Thus, to the item "I like to share my emotions with others" a participant would indicate a 5 (strongly agree) if they feel this best describes them. Each response is scored and corresponds to the overall EI score and a subfactor.

Studies using factor analysis have identified a strong first factor and thus recommend using the total EI score consisting of the summation of all 33 items (Schutte et al., 1998; Brackett & Mayer, 2003). Total EI score is calculated by reverse coding items 5, 28, and 33 and then summing all items together. In reverse coding, items are scored in reverse meaning that selecting a 1 would mean (strongly agree) while a 5 would indicate (strongly disagree). Total EI scores range from 33-165 with several studies reporting mean scores ranging from 117.54 – 142.51 and standard deviations 9.46 - 19.50 (Schutte et al., 2009).

Beyond the single factor structure of EI, other scholars have identified a four-factor solution for the 33 items (Petrides & Furnham, 2000; Ciarrochi et al., 2001; Saklofske et al., 2003). These scholars identify the four factors as follows: 1) the Perception of Emotion (items 5, 9, 15 ,18, 19, 22, 25, 29, 32, 33), 2) Managing Own Emotions (items 2, 3, 10, 12, 14, 21, 23, 28, 31), 3) Managing Others' Emotions (items 1, 4, 11, 13, 16, 24, 26, 30), and 4) Utilization of Emotion (items 6, 7, 8, 17, 20, 27). Each factor score is calculated by summing the items within the factor, including the reverse coded items. Worthy of note, each subfactor has a different number of items and overall score. The range of items and scores are presented here: Perception of emotion scores (10 - 50), Managing Own Emotions (9 - 45), Managing Other's Emotions (8 - 40), and finally Utilization of Emotion (6 – 30). However, the four subfactors have been found to have varying degrees of internal consistencies. Specifically, previous research has reported internal consistency measures for the subscales as follows: Perception of Emotion ($r = .76$, $r = .80$), Managing Own Emotions ($r = .63$, $r = .78$), Managing Others' Emotions ($r = .66$, $r = .66$), and Utilization of Emotion ($r = .55$). Measures of internal consistencies for the present study were: Total EI ($r = .87$), Perception of Emotion ($r = .82$), Managing Own Emotions ($r = .77$), Managing Others' Emotions ($r = .69$), and Utilization of Emotion ($r = .67$).

While this is a popular EI assessment, it is not without limitations. One limitation associated with this scale is the inconclusive evidence signifying AES's discriminant validity. Specifically, previous authors have questioned the amount of variance that is shared with existing personality traits (Brackett & Mayer, 2003). Furthermore, the internal consistency measures of three of the four subfactors remain in question. Thus, this may be problematic when conducting statistical analysis and interpreting the findings. Lastly, when employing this scale, there is a tendency for participants to respond in accordance with social norms rather than the one's authentic perception of themselves. This is known as social desirability bias and is common among self-report measures. Regardless, this measure aligns with the research purpose, design, and viability of the current study.

Survey Administration

Surveys were administered in two fashions: 1) in person and 2) via email. In person surveys were administered during the 2019 AVCA National Convention in Pittsburgh, PA. During the conference, participants were approached by the researcher and asked if they would like to partake in a survey examining coaching success. Each potential participant was informed that the survey would take between 5 – 10 minutes. In return, coaches would receive their EI scores, along with normative scores of other collegiate coaches, and be entered into a drawing to win one of five team *Emotional Intelligence analyses*. This will include administration of EI scales to team members, data analysis, and a 20-minute phone consultation describing how the data can be used to increase player/coaching performance.

The AVCA agreed to advertise the study and encourage coaches to participate through multiple marketing outlets at the conference. One of the marketing strategies was to utilize the

AVCA's mobile application to create awareness and solicit participants. With the help of the AVCA's marketing director, the primary investigator created brief alerts that would inform coaches of the study, the researcher's booth, and provided a link to the survey. Additionally, the AVCA used their social media and email accounts to advertise the project, it's purpose, and the researcher's location. Lastly, emails were sent to coaches who were attending the conference. Each marketing technique contained a link to the survey, specifying the studies location, time requirement, and purpose, while encouraging coaches to participate.

After agreeing to participate, the researcher escorted the coach(es) to the study table, where two chairs and two computers awaited their arrival. At this point the researcher provided a brief overview of how to complete the study and asked if the participants had any questions before they began. If questions were raised the researcher clarified any uncertainties. Otherwise, the participant began reading the informed consent on the survey's first page. If the participant chose to abstain from consenting, the survey automatically end. If the participant chose to consent, the survey continued and directed them to complete the background questionnaire, and the AES. If the participants had any questions during the survey, the researcher was in close enough to offer support.

The second form of survey administration was conducted through email communication. Potential participants with accessible email addresses were sent a series of three recruitment emails spaced one week apart. Each email invited them to participate in the study (Appendix C). The email contained a hyperlink, which directed participants to the survey's first page. After this point, all participants completed the same processes, irrespective of how they were recruited, as indicated in Figure 3.1.
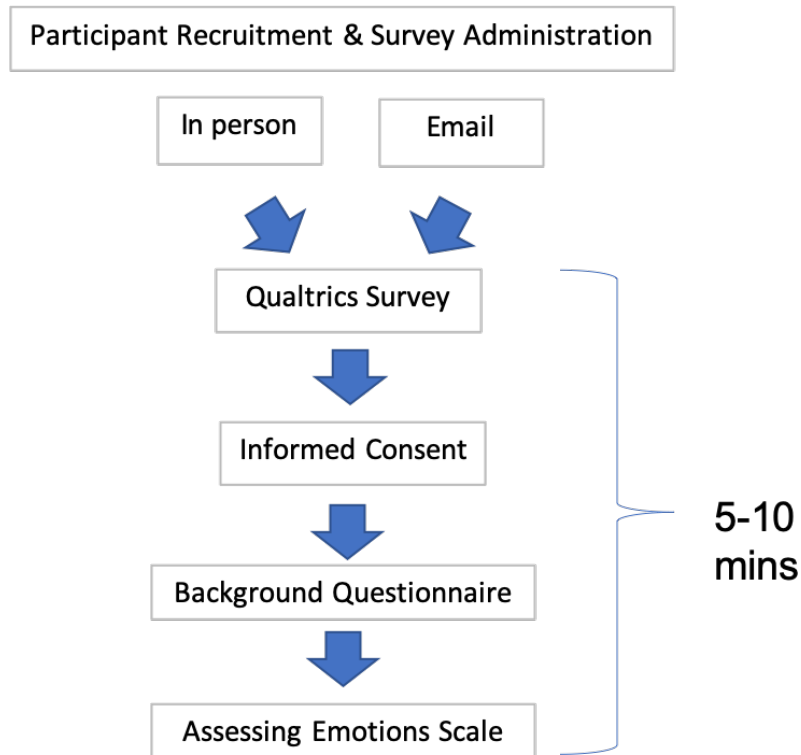
Figure 3.1 Visualizing participant recruitment and survey administration.

As seen in Figure 3.2 a series of three emails were sent to basketball and volleyball coaches on separate dates. Basketball coaches were first emailed on 11/11/19, with follow up emails on 11/18/19 and 11/25/19. Meanwhile, volleyball coaches who did not participate in person at the AVCA convention were first emailed on 1/6/20 and then again on 1/13/20 and 1/20/20.

Figure 3.2 Visualizing survey administration

Once the emails and series of reminders had been delivered all participants were afforded 20 days to complete the survey. After this time the survey was closed. The data was then

downloaded, labeled and stored by the primary investigator into a password encrypted folder on the Sport Instruction Research Lab's desktop computer. The data was then deleted from the Qualtrics server. The computer containing the data is located behind a locked laboratory door and is password protected. The primary investigator then proceeded to sort through the data to identify incomplete records. Due to the design of the survey, incomplete records cannot be used for analysis. Thus, any incomplete records were discarded.

Immediately after each participants' outcome variables were recovered and recorded (career win-loss record) any identifiable participant information (names and schools) were encoded to assure confidentiality. Specifically, each participant was randomly assigned a three-digit code, which corresponds to participant identifiers. The three-digit code replaced the identifiers in the main data set and no identifiable information remained in the main dataset. A reference sheet was created matching the aforementioned three-digit code with identifiable information from each participant. This sheet was stored inside a separate password encrypted folder on the Sport Instruction Research Lab's desktop computer, which is located behind a locked door in room 219 of the Ramsey Student Center located at 330 River Rd, Athens, GA 30602. At the completion of data analysis, the data will be stored for three years, at which point, the data will be destroyed.

Coaching Success

The primary dependent variable in this study is coaching success, which is operationalized as a coaches' career winning percentage. To ensure validity, the primary investigator chose to retrieve this information from institutional websites. Thus, after incomplete records were discarded, the primary investigator began collecting coaches' career win-loss records. This was completed by cross referencing participant names from the background

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questionnaire survey responses to publicly available data located on athletic department or sports information websites. Recovered data was stored on a specified Microsoft Excel csv file. Once all data was collected, the two master excel csv files were merged for data analysis.

Inter-rater Reliability

Due to the amount of data collected and the nature of the collection procedures for the primary outcome variable, the investigative team sought to ensure this measure was not only valid but reliable. To examine reliability, three external coders were asked to independently collect fifty ($n=50$) randomly selected participants career win/loss records from institutional websites. After each of the coders had collected their respective data, the primary investigator visually and statistically examined the data and identified any inconsistencies. Once identified, inconsistencies were discussed, and any errors were corrected. Only after each of the 150 participants had been carefully examined, the primary investigator ran a Pearson product-moment correlation coefficient to reflect the degree of linear relationship between the two coders' ratings (APA Dictionary of Psychology, 2018). The correlation coefficient was $r = 1.0$. Important to note, only a subset of the final dataset (150/ 278) was compared due to the amount of data collected, as well as, resources available.

Data Analysis

The data analysis was conducted in accordance with the specific research question it aimed to answer. Before the primary data analysis began, data was visually and statistically inspected through scatter plots, histograms, and summary statistics for outliers and statistical assumptions. Specifically, the assumptions of normality, independent errors, and multicollinearity were tested.

All statistical analysis was conducted using R Studio. The first research question assessed if coaches' EI significantly predicts career winning percentage. A multiple linear regression (forced entry) was used to evaluate the relationship between EI and career winning percentage. This was deemed the most appropriate statistical analysis because the objective was to use several independent continuous variables to predict one dependent continuous variable. More specifically, career winning percentage represented the dependent or response variable, while EI's four subscales represented the predictor or independent variables. The null hypothesis stated EI, or any of its four subscales, would not significantly impact career winning percentage.

Regression Model= $Y = a + b_1 X_1 + b_2 X_2 + b_3 X_3 + + b_4 X_4 + e$

Where:

- Y = Career winning percentage
- A = intercept
- B_{1-4} = regression coefficient or slope
- X_1 = Perception of emotion subscale
- X_2 = Managing Own Emotions subscale
- X_3 = Managing Others' Emotions subscale
- X_4 = Utilization of Emotion
- E = the error residual

The second research question explored significant relationships between EI, age, gender, education level, head coaching experience, assistant coaching experience, and playing experience. A correlational analysis was conducted to identify any variables that were significantly related to EI or its subscales. If significant relationships were identified in a continuous variable a regression model was used to clarify the relationship. If significant relationships were identified in a categorical variable an ANOVA model was used to elucidate

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the relationship. Additionally, point biserial correlations were used to analyze associations between gender, EI, and EI subfactors. The null hypothesis stated there were no significant relationships between EI, its subscales, or other variables.

The final aim of this study was to identify which variables, if any, could be used in a regression formula to predict a coaches' career winning percentage. A backwards stepwise entry method was used to decipher which variables should remain in the final regression equation. Within this entry method, the decision to include or exclude variables is statistically computed and hinges on whether or not the decision improves (lowers) the Akaike information criterion (AIC). The AIC specifies the fitness of a model when compared to its' number of variables. Therefore, this method was chosen to use statistical means to select variables which would contribute to predicting coaches' career winning percentage.

Results from the original multiple regression were consulted to decipher if EI, or any of its subscales, should be included. Important to note, while continuous variables such as EI, age, coaching experience and playing experience are appropriate for a regression model, categorical variables such as gender and education level are not. Thus, these categorical variables were first dummy coded before R could run the analysis. For instance, the variable education level, which has three possibilities was coded into two variables. The first of which was coded for the presence of a master's degree (0 = No Masters, 1 = Masters) and the second coded for a Doctoral degree (0 = No Doctorate, 1 = Doctorate). Altogether, the full model could incorporate one response variable (career winning percentage) and up to twelve predictors (five EI scores, age, gender, education level, head coach experience, assistant coaching experience, and playing experience).

Due to the number of potential variables in this model, partial and semi-partial correlations were calculated along with outlier analysis. Afterwards, the most impactful variables were selected, in stepwise fashion (backward), to create a restricted regression model, which in turn aimed to predict coaches' career winning percentage. The null hypothesis stated no variable will predict a significant amount of a coach's career winning percentage.

Chapter Summary

The purpose of this study was to assess the influence of emotional intelligence on coach's success. While many EI measures exist, the Assessing Emotions Scale (AES) (Schutte et al., 1998; 2009) has demonstrated validity, reliability, and has been previously used with the target population. For these reasons, it was chosen as the most appropriate measure for this study. Along with the AES, a background questionnaire was administered to gather information pertinent to coaches' success. Because there are many variables that were previously shown to contribute to coaching success, it was necessary to include them in the mathematical model intended to predict success. As a result, in addition to emotional intelligence, previously established variables were used in both correlation and multiple linear regression analyses in an effort to predict coaching success.

CHAPTER FOUR

RESULTS

This study examined the power of EI in predicting coaches' success and explore the relationships between EI, age, gender, education level, coaching experience, and playing experience. This chapter begins with an overview of the collective sample of coaches via descriptive statistics. Thereafter the statistical results for each of the three research questions are reported. The analysis revealed differences between basketball and volleyball coaches. Thus, each research question will report findings in the following fashion: 1) results from all coaches, 2) results from collegiate basketball coaches, and 3) results from collegiate volleyball coaches. The following research questions were tested statistically.

1. Does coaches' self-reported EI significantly predict coaches' career winning percentage?

2. Is there a statistically significant relationship between self-reported EI and age, gender, educational level, head coaching experience, assistant coaching experience, and playing experience?

3. Which variables, if any, could be used in a regression formula to predict coaches' career winning percentage?

Descriptive Statistics

A total of 277 head college coaches participated in the study with 226 being volleyball coaches and 51 coaching basketball (Table 4.1). The difference in sample sizes is thought to be a result of data collection techniques (in person vs. email). To participate in the study coaches must have been a current or former coach at the collegiate level, completed at least one season as

the head coach, and either a) had an email address that could be accessed from the institutions website or b) attended the 2019 AVCA national convention.

Table 4.1 Descriptive Statistics for Nominal and Ordinal Coach Variables (N=277)

Variable	Total
Sport Coached	277
Basketball	51
Volleyball	226
Institutional Level	277
Division I	65
Division II	59
Division III	89
NAIA	51
Community College	9
Canadian College	4
Education Attained	277
Bachelors	92
Masters	178
Doctorate	7
Gender	277
Female	144
Male	133

Of the participants, 133 (48%) were male and 144 were female (52%). These coaches primarily represented the major divisions in the American college system (DI – NAIA) with four of the five major DI college conferences represented. Table 4.2 highlights the studies main response variable coaches' career winning percentage along with age, coaching experiences and

sport playing experiences. Furthermore, that the sample of coaches contained multiple coaches who had won national championships indicates the population sampled is diverse and thought to be representative of the collegiate coaching population. Lastly, Table 4.3 presents the descriptive statistics for coaches' emotional intelligence as measured by the Assessing Emotions Scale (Schutte et al., 1998; 2009).

Table 4.2 Descriptive Statistics Among Coaches' Continuous Variables (N=277)

Variable	Mean	Standard Deviation	Range	Skewness	Kurtosis
All Coaches					
Coaches Career Winning %	50.67	16.5	8-85.97	-0.26	-0.35
Age	41.47	9.68	23-67	0.41	-0.42
Head Coaching Experience	12.17	9.40	1-45	1.04	0.56
Assistant Coaching Experience	5.27	4.34	0-23	1.18	1.68
Sport Playing Experience	17.90	10.22	0-50	0.65	0.29
Basketball Coaches					
Coaches Career Winning %	49.67	17.38	0-84.72	-0.13	-0.46
Age	40.53	7.93	27-59	0.61	-0.41
Head Coaching Experience	9.82	7.45	2-30	1.2	0.47
Assistant Coaching Experience	7.18	3.72	0-15	0.08	-1.02
Sport Playing Experience	17.60	6.34	4-30	0.36	-0.42
Volleyball Coaches					
Coaches Career Winning %	50.91	16.36	8.7-85.97	-0.31	-0.30
Age	41.68	10.03	23-67	0.36	-0.50
Head Coaching Experience	12.69	9.73	1-45	0.98	0.41
Assistant Coaching Experience	4.84	4.36	0-23	1.47	2.7
Sport Playing Experience	17.97	10.92	0-50	6.28	0.02

Table 4.3 Descriptive Statistics Among Coaches' Emotional Intelligence (N=277)

Variable	Mean	Standard Deviation	Range	Skewness	Kurtosis
All Coaches (*n* = 277)					
Total EI	131.2	12.0	102-157	-0.15	-0.48
Perceiving Emotions	39.6	5.3	22-50	-0.54	0.22
Managing Own Emotions	36.8	4.4	22-45	-0.40	-0.18
Managing Others' Emotions	31.7	4.4	20-40	-0.48	-0.30
Utilizing Emotions	23.2	3.1	14-30	-0.27	-0.06
Basketball Coaches					
Total EI	130.6	12.1	112-157	0.20	-0.89
Perceiving Emotions	39.7	4.6	28-50	-0.27	-0.5
Managing Own Emotions	36.2	4.9	22-45	-0.59	0.23
Managing Others' Emotions	31.5	3.9	23-40	0.09	-0.79
Utilizing Emotions	23.2	3.4	15-30	-0.28	-0.42
Volleyball Coaches					
Total EI	131.4	12.1	102-156	-0.23	-0.39
Perceiving Emotions	39.5	5.5	22-50	-0.57	0.23
Managing Own Emotions	36.9	4.3	23-45	-0.33	-0.44
Managing Others' Emotions	31.7	3.8	20-38	-0.63	-0.20
Utilizing Emotions	23.2	3.0	14-30	-0.26	0.03

Lastly, coaches were asked to describe their coaching-leadership styles on a bi-polar 7-point Likert based scale (Appendix A). Three questions were asked pertaining to coaches' preferences between: coach-centered or athlete-centeredness, prefer control or prefer to give others control, and prefer to make decisions myself or prefer to make decisions as a team.

Coaches were scored on a scale from 1-9. On average coaches preferred athlete-centeredness (M = 7.06, SD = 1.6), to make decisions as a team (M = 5.8, SD = 2.1), and were split on their preference for control regarding decisions (M = 4.76, SD = 2.25).

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Results for Research Question #1

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Question one determined if EI significantly predicted coaches' career winning percentage. The null hypothesis stated that EI, or its four subscales, will not significantly impact coaches' career winning percentage. A multiple linear regression analysis was selected to statistically examine the relationship between the response variable and the five explanatory variables.

A multiple regression model indicated that neither total EI, or its four subscales, significantly predicted head coaches career winning percentage, $F(4,272) = 0.75$, $p = .5585$ (Table 4.4). Additionally, the model's R^2 predicted 0.01 or 1.0% of coaches' winning percentage. Thus, the present model did not predict coaches' career winning percentage and provided no evidence to support the notion that EI, or any of its subfactors, reliability predicts coaching success. Thus, we fail to reject the null hypothesis for research question one. While the analysis above indicated a nonsignificant effect of EI on coaches' career winning percentage, results of preliminary analysis led the investigator to examine if this relationship held for each sport. Thus, a post-hoc regression analysis was conducted independently on the basketball and volleyball coaches.

Basketball Coaches

The mathematical model tested with basketball coaches yielded a significant result (Table 4.5). A restricted model was created using a backwards stepwise regression to mathematically select the variables that contributed to the dependent variable. Specifically, the restricted model

contained managing others' emotions (MOTHE), managing own emotions (MOE), and utilizing emotions (UE). This model significantly predicted 0.2609 or 26% of the variance in basketball coaches' career winning percentage, $F(3,46) = 5.412$, $p = .0028$. To establish the magnitude of each variables' contribution to the model, one by one the variables were placed into the model while changes in R^2 were recorded. The ΔR^2 provides an indication of how much variance each variable accounted for. When doing so, UE accounted for 18.3%, MOE 1.0%, and MOTHE was responsible for 6.7% of the variance. Interestingly, EI subfactor MOTHE *negatively* and significantly impacted coaches' success. Thus, while EI subfactors MOE and UE were found to positively contribute to coaches' success, MOTHE detracted from their success. These results provide evidence that suggests EI, and its subfactors, play a role in predicting basketball coaches career winning percentage.

Table 4.4 Multiple Regression Model Predicting Coaching Success in All Coaches (N=277)

Variable	β	SE B	t	Sig
Intercept	0.4892	0.1101		
PE	0.0016	0.0021	0.778	.437
MOE	0.0003	0.0050	-0.747	.901
MOTHE	-0.0048	0.0053	-1.489	.138
UE	0.0045	0.0035	1.131	.259
R^2	0.01091			
Adj. R^2	-0.0036			
F Statistic	0.7504			
P value	.5585			

PE = Perceiving Emotions, MOE = Managing Own Emotions, MOTHE = Managing Others' Emotions, UE = Utilizing Emotions

Volleyball Coaches

In contrast, when examining the model for volleyball coaches, it was nonsignificant in predicting coaches' career winning percentage, $F(4,221) = 0.3627$, $p = .835$. This model accounted for just 0.0065 or 0.65% of the variance in coaches' career winning percentage (Table 4.6). These results provide no evidence to conclude that EI, or its subfactors, can significantly predict volleyball coaches career winning percentage.

Table 4.5 Backwards Stepwise Regression Model Predicting Basketball Coaches' Success (N=50)

Variable	β	SE B	t	Sig
Intercept	0.0565	0.2162		
MOE	0.0068	0.0049	1.382	.174
MOTHE	-0.0127	0.0062	-2.047	.046*
UE	0.0254	0.0074	3.445	.001**
R^2	0.2609			
Adj. R^2	0.2127			
F Statistic	5.412			
P value	.0028			

MOE = Managing Own Emotions, MOTHE = Managing Others' Emotions, UE = Utilizing Emotions. ** (p <.01)*, * (p <.05).

Research Question #1 Section Summary

The proceeding section reported findings from research question one, which determined if EI, or its' subfactors, meaningfully contributed to coaches' success. Within the collective sample of coaches, EI was not found to be a significant factor in their success. Similarly, significant results were not found in collegiate volleyball coaches. However, among basketball coaches, EI and its' subfactors were found to significantly predict coaching success, $F(3,46) = 5.412$, $p = .0028$. This model accounted for 26% of the variance in coaches' career winning

percentage. Thus, the current evidence indicates that EI, particularly the subfactor utilizing emotions, is a significant contributor to collegiate basketball coaches' career winning percentage.

Table 4.6. Multiple Regression Model Predicting Volleyball Coaches' Success (N=226)

Variable	β	SE B	t	Sig
Intercept	0.5921	0.1218		
PE	0.0016	0.0023	0.703	.483
MOE	-0.0013	0.0030	-0.435	.664
MOTHE	-0.0031	0.0036	-0.842	.401
UE	-0.0003	0.0040	-0.010	.992
R^2	0.0065			
Adj. R^2	-0.0115			
F Statistic	0.3627			
P value	.835			

PE = Perceiving Emotions, MOE = Managing Own Emotions, MOTHE = Managing Others' Emotions, UE = Utilizing Emotions.

Results from Research Question #2

Research question two determined if a statistically significant relationship existed between self-reported EI or its subfactors and age, gender, educational level, head coaching experience, assistant coaching experience, and playing experience. The null hypothesis stated there are no significant relationships between EI, its subscales, and the other variables. To test this hypothesis Pearson correlational analysis were conducted. Associations that rose to the level of significance ($p < .05$) were further examined through the appropriate statistical means. Additionally, associations between gender and EI were also examined using point biserial correlations. Important to note, head coaching experience, assistant coaching experience, and

sport playing did not display normal distributions and were, therefore, transformed to reflect a normal distribution.

As Figure 4.7 signifies, two significant correlations were found. Specifically, EI subfactor managing own emotions (MOE) is significantly related to transformed sport playing experience (TSPE), $r = .119$, $p = .048$. Additionally, EI subfactor managing others' emotions (MOTHE) is significantly negatively related to gender $r = -.164$, $p = .006$; $r_{pb} = -.206$, $p = .005$. Due to the significance of these variables, each warranted further inspection to clarify the relationship. Because MOE and TSPE are both continuous variables, a regression model was used to examine this relationship. The regression model indicated that TSPE significantly predicted MOE, $F(1,275) = 3.96$, $p = .0476$. The multiple R^2 specified that TSPE accounted for .0142 or 1.4% of the variance shown in MOE. As a result, there is evidence to conclude that coaches' sport playing experience significantly impacts their perceived ability to manage their own emotions.

The second significant relationship, between gender and MOTHE, was explored through an analysis of variance (ANOVA) because gender is a categorical variable while MOTHE is a continuous variable. This particular ANOVA, and all other ANOVA's, were computed using Type III sum of squares because of their unbalanced design. A significant difference was found between genders on scores of MOTHE. Females reported significantly higher MOTHE (M =32.31 SD =3.69) than males ($M = 31.06$ SD =3.80), $F(1,275) = 7.632$, $p = .006182$. In light of these results there is evidence to suggest that gender significantly influences coaches' perceived ability to manage others' emotions.
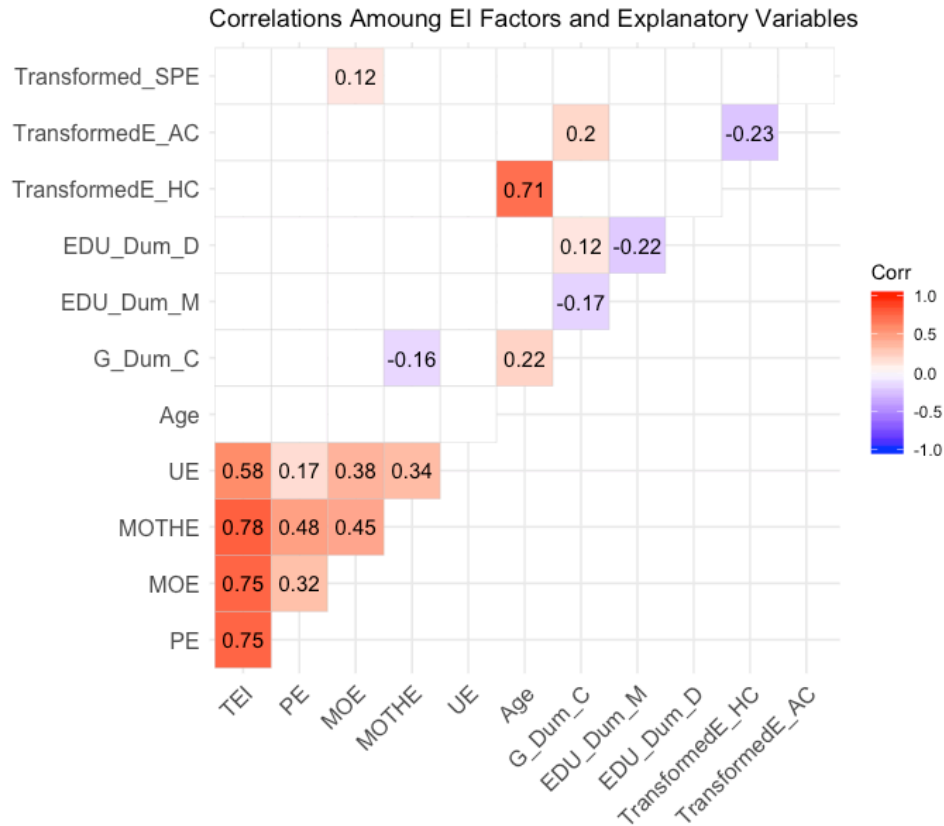
Figure 4.7 Significant Correlations Among EI Factors and Explanatory Variables

Basketball Coaches

Findings from research question one determined a difference between basketball and volleyball coaches. Thus, the decision was made to investigate this emerging trend and analyze the data accordingly to examine the collective coaching sample, as well as each sport separately. Within basketball coaches, there were four significant relationships identified between EI factors and explanatory variables (Figure 4.8).

Three of the four significant relationships identified involved coaches' education level (EDU). Specifically, coaches who attained a Doctorate were more likely to show higher levels of total emotional intelligence (TEI) ($r = .31$, $p = .027$), MOTHE ($r = .28$, $p = .046$), and utilizing emotions (UE) ($r = .29$, $p = .037$). In the following paragraphs these relationships will be explored.

Three separate ANOVA (Type III) tests were used to compare coaches' EDU and TEI, MOTHE, and UE. This statistical test was chosen because EDU is a categorical variable and each of the EI variables are continuous. The ANOVA for EDU and TEI approached the level of significance, but did not reach the .05 level, $F(2,48) = 2.994$, $p = .0595$. However, because the significant relationship was identified between TEI and attaining a Doctorate, a post-hoc Tukey Honest Significant Differences (HSD) test was conducted. This test compared the coaches' level of TEI across the three educational levels. A significant difference in TEI was detected between coaches who had attained a Doctorate ($M = 149$, $SD = 8.48$) with those who had attained a Bachelors ($M = 126.7$, $SD = 12.6$), $p = .047$. No other significant differences were found.
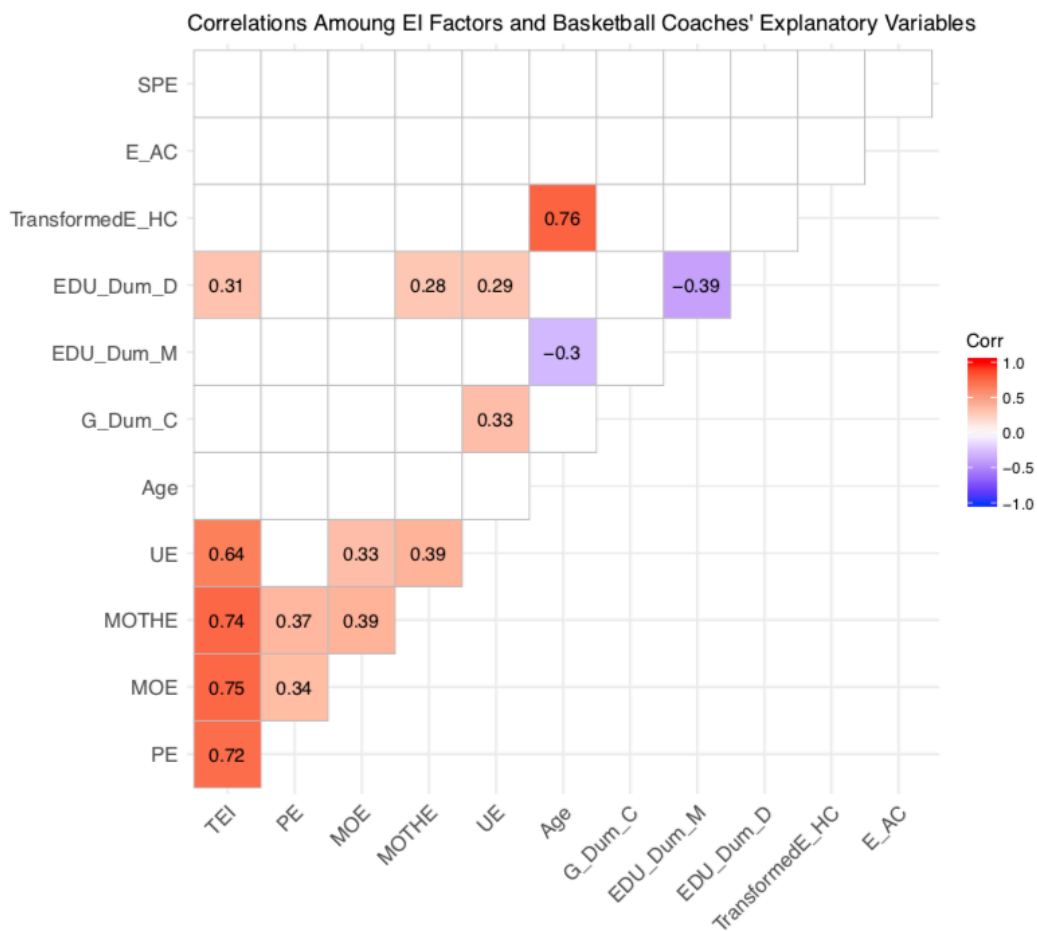

Figure 4.8 Significant Correlations Among EI Factors and Basketball Coaches' Explanatory Variables

Similarly, the second and third ANOVA's examined differences in coaches' MOTHE and UE in relation to their EDU. The results were non-significant for MOTHE, meaning there were no significant difference between the groups, $F(2,48) = 2.136$, $p = .129$. However, results indicated there was a statistically meaningful difference between at least one of the groups involved when UE was compared across the coaches EDU levels, $F(2,48) = 3.859$, $p = .0279$. To reveal which groups significantly differed, a post-hoc Tukey HSD test was computed. Findings revealed that coaches who have attained a Doctorate degree score higher ($M = 28$, $SD = 2.82$) on UE than those who have attained a bachelor's degree ($M = 21.3$, $SD = 3.84$), $p = .027$.

Collectively, these relationships indicate that basketball coaches who have attained a Doctorate will also score significantly higher on TEI and UE. These results, along with the results from the other analyses, will be interpreted in a later chapter. However, these conclusions should be interpreted with caution, as the sample size of coaches who have attained a Doctorate was small ($n = 2$). Furthermore, the reliability of EI subfactor UE was less than ideal with a Cronbach alpha of ($r = .67$).

The final significant relationship identified within basketball coaches was between gender and UE, $r = .33$, $p = .017$; $r_{pb} = .417$, $p = .012$. An ANOVA was used to determine if differences existed between coaches UE on the bases of their gender. The analysis revealed a significant difference between males and females UE, $F(2,49) = 6.051$, $p = .0175$. Males reported higher UE ($M = 24.14$, $SD = 3.29$) than females ($M = 21.91$, $SD = 3.08$). These findings provided evidence which implied that, among collegiate basketball coaches, males tend to utilize their emotions to a greater extent than females.

Volleyball Coaches

In contrast to basketball coaches, only two significant relationships were identified between volleyball coaches self-reported EI factors and explanatory variables. Each of the recognized relationships involved gender and EI. Specifically, gender was found to be significantly and negatively related to TEI ($r = -.16$, $p = .018$; $r_{pb} = -.196$, $p = .017$) and MOTHE ($r = -.20$, $p = .002$; $r_{pb} = -.247$, $p = .002$). However, interpretation of these associations required further analysis.

An ANOVA was chosen to identify if differences existed in coaches TEI and MOTHE on the basis of gender. The analysis revealed a significant difference between males and females TEI, $F(1,224) = 5.649$, $p = .0183$. Females reported significantly higher TEI ($M = 133.1$, $SD = 12.0$) than males ($M = 129.3$, $SD = 11.8$). Likewise, females ($M = 32.43$, $SD = 3.65$) also reported significantly higher MOTHE than males ($M = 30.94$, $SD = 3.75$), $F(1,224) = 9.039$, $p = .00294$. Collectively, the results reveal that among collegiate volleyball coaches, females have higher levels of overall emotional intelligence and the ability to manage others' emotions when compared to their male coaching counterparts.

Research Question #2 Section Summary

This section reported findings from research question two which identified significant relationships between self-reported EI or its subfactors and age, gender, educational level, head coaching experience, assistant coaching experience, and playing experience. Two significant relationships were identified within the collective group of coaches. The first significant relationship was between transformed sport playing experience (TSPE) and managing own emotions (MOE). A follow-up regression analysis revealed that TSPE significantly predicted MOE. The relationship between gender and managing others' emotions (MOTHE) was also

identified. After conducting an ANOVA it was found that females reported significantly higher MOTHE than males.

Four significant associations were identified in the sample of basketball coaches. Three of these relationships were related to education level. Follow-up ANOVA analyses revealed that coaches who had attained a doctorate also reported significantly higher TEI and UE when compared with coaches who had attained a bachelor's degree. However, these relationships must be interpreted with caution as the sample size of coaches with a doctorate was quite small ($n = 2$). The last significant relationship identified revealed that male basketball coaches reported significantly greater UE than female basketball coaches.

Two significant relationships were recognized within the sample of collegiate volleyball coaches (Figure 4.9). Specifically, the relationships involved gender's association with EI subfactors TEI and MOTHE. Follow-up ANOVA's explained that females were found to exhibit significantly higher levels of both TEI and MOTHE. Thus, among collegiate volleyball coaches' females have higher levels of TEI and MOTHE.
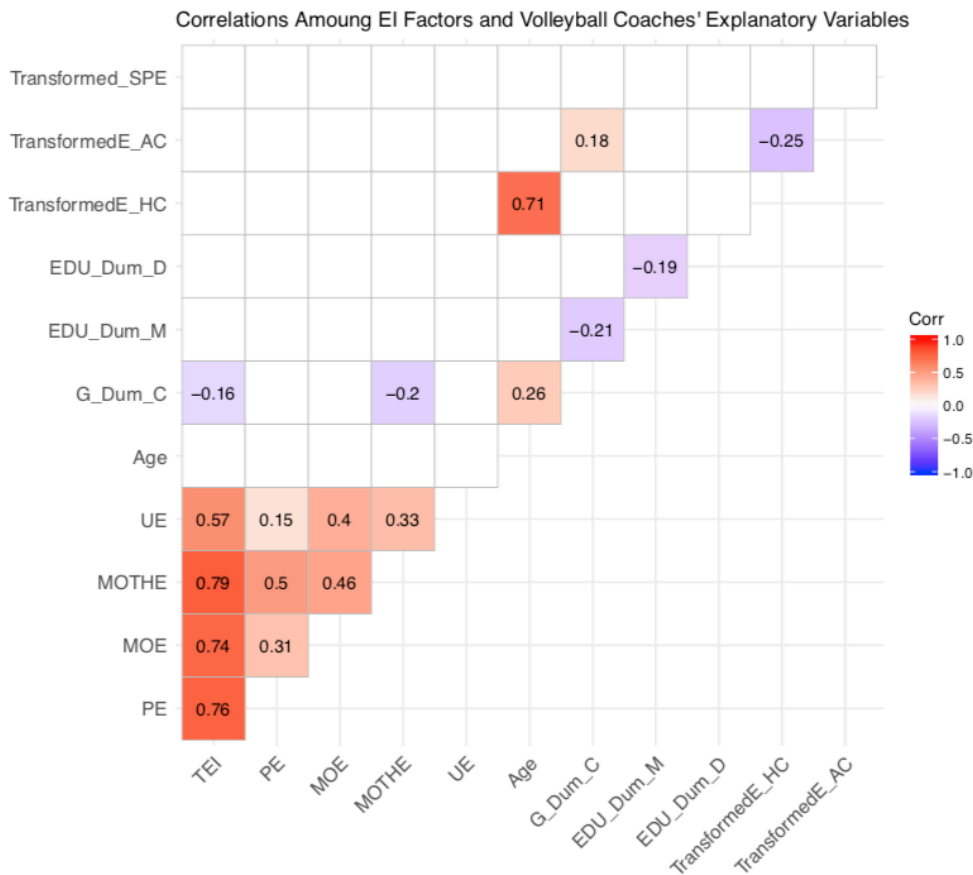
Figure 4.9 Significant Correlations Among EI Factors and Volleyball Coaches' Explanatory Variables

Results from Research Question #3

The third and final aim of this study was to identify which variables, if any, could be used in a regression formula to predict coaching success. The null hypothesis stated that no variable would offer a significant contribution when aiming to predict a coach's career winning percentage. Due to the number of potential explanatory variables (12), a regression model was used to indicate whether variables could significantly contribute to a mathematical model that would meaningfully predict coaches' career winning percentage. The analysis created a simpler model that contained only two variables and was able to significantly predict coaching success, $F(2,274) = 17.56, p < .001$ (Table 4.10). Specifically, the model consisted of gender and head coaching experience, which needed to be transformed due to abnormal distribution (T_E_HC).

Although the model significantly predicted coaching success, T_E_HC was the only significant contributor. The Δ R^2 was used to provide an indication of the amount of variance accounted for by each variable. Accordingly, T_E_HC was responsible for 10.58% of the variance in coaching success while gender accounted for 0.78%. These findings provide evidence to suggest that head coaching experience is critically important for collegiate coaches.

Table 4.10 Backwards Stepwise Regression Model Predicting All Coaches' Success (N=277)

Variable	β	SE B	t	Sig
Intercept	0.3685	0.0253		
Gender	0.0293	0.0187	1.559	.12
T_E_HC	0.0578	0.0101	5.704	.0000***
R^2	0.1136			
Adj. R^2	0.1072			
F Statistic	17.56			
P value	.00000006			

T_E_HC = Transformed Head Coaching Experience, *** (p <.001)** (p <.01),* (p <.05). Note: Gender was dummy coded (1 = male, 0 = female).

Basketball Coaches

Similar to the processes described above, a full model was fit to the data and then a backwards stepwise regression analyses were calculated to create a simpler model to explain the data. Of the twelve potential variables included, three were selected by the software program to generate a restricted model (Table 4.11). Specifically, UE, MOTHE and age (transformed due to abnormal distribution) were included in the model, which significantly predicted coaches' career winning percentage, $F(3,46)= 7.34$, $p = .0004$. This model accounted for 32.36% of the variance in basketball coaches' career winning percentage. Of the three variables, UE and age were significant contributors to the model. Moreover, the Δ R^2 revealed the contributions of each

variable to the model: UE 18.32%, MOTHE 4.7%, and age 9.34%. These findings provided

evidence indicating that EI, specifically UE and age significantly contributed to collegiate

basketball coaching success. Furthermore, of the variables investigated, the aforementioned may

be the most important for success in college basketball.

Table 4.11 Backwards Stepwise Regression Model Predicting Basketball Coaches' Success
(N=50)

Variable	β	SE B	t	Sig
Intercept	-0.9990	0.5034		
UE	0.0296	0.0070	4.242	.000***
MOTHE	-0.0084	0.0057	-1.496	.148
T_Age	0.2890	0.1147	2.520	.015*
R^2	0.3236			
Adj. R^2	0.2795			
F Statistic	7.335			
P value	.00040			

UE = Utilizing Emotions, MOTHE = Managing Others' Emotions, T_Age = Transformed Age.
*** ($p <.001$), ** ($p <.01$),* ($p <.05$)

Volleyball Coaches

After fitting a full model to the dataset, a backwards stepwise regression analysis was

used to select the most influential factors comprising a restricted model. The statistical software

identified three variables, that when put together, significantly predicted coaching success,

$F(1,224)= 13.2, p < .001$. Three variables included in the model were head coaching experience,

sport playing experience, and age (Table 4.12). Both head coaching and sport playing experience

were found to be abnormally distributed, thus a transformation was needed to continue with the

analysis. In total, the variables within the model were able to explain 15.2% of the variance in

volleyball coaches' success. Of this variance, head coaching experience accounted for 12.8%,

age 0.88%, and sport playing experience 1.52% as indicated by the ΔR^2. Important to note, only

the contributions from head coaching experience and sport playing were considered meaningful

to the model ($p < .05$). These results indicated that, of the variables investigated, head coaching

experience is the most essential for coaching success in college volleyball.

Table 4.12 Backwards Stepwise Regression Model Predicting Volleyball Coaches' Success
(N=226)

Variable	β	SE B	t	Sig
Intercept	0.3826	0.0253		
T_E_HC	0.05821	0.01063	5.477	.000***
Age	0.0025	0.0014	1.728	0.0853
T_SPE	-0.0142	0.0071	-1.989	0.0480*
R^2	0.152			
Adj. R^2	0.1405			
F Statistic	13.2			
P value	.00000005			

T_E_HC = Transformed Head Coaching Experience, T_SPE = Transformed Sport Playing
Experience. *** ($p <.001$), ** ($p <.01$), * ($p <.05$).

Research Question #3 Section Summary

This section examined the third and final research question which sought to identify

which variables, if any, could be used in a regression formula to predict coaching success. Two

variables, gender and head coaching experience, were found to influence the collective group of

coaches' career winning percentage. Selected from a backwards stepwise procedure, these

variables when combined in a model were able to significantly predict 11.36% of coaching

success, $F(2,274) = 17.56$, $p < .001$.

Similarly, head coaching experience was found to be a meaningful factor for collegiate

volleyball coaches' success. The model also included both age and sport playing experience.

Collectively, this model was able to significantly predict 15.2% of volleyball coaches' success, $F(1,224)= 13.2, p < .001$. Of the variance accounted for, head coaching experience accounted for 12.8%. This evidence supported the notion that head coaching experience was of vital importance, especially in collegiate volleyball coaches. In summary, head coaching experience was the most critical factor, among the variables studied, that influenced volleyball coaches' success.

In contrast to volleyball coaches, the model which was fit to collegiate basketball coaches contained three variables. The variables UE, MOTHE, and age contributed to a model which significantly predicted collegiate basketball coaches' success, $F(3,46)= 7.34, p = .0004$. Somewhat surprisingly, the combination of these variables was responsible for 32% of the variance in coaches' career winning percentage. The proceeding evidence establishes EI, particularly UE, as an important factor for success among college basketball coaches.

CHAPTER FIVE

DISCUSSION

This study examined the power of EI in predicting coaches' success and explored the relationships between EI, age, gender, education level, coaching experience, and playing experience. A secondary aim of the study was to discover which variables, if any, could be used to predict a coaches' career winning percentage.

The following research questions were addressed.

1. Does a coach's self-reported EI significantly predict their career winning percentage?

2. Is there a statistically significant relationship between self-reported EI and age, gender, educational level, head coaching experience, assistant coaching experience, and playing experience?

3. Which variables, if any, could be used in a regression formula to predict a coach's career winning percentage?

This chapter proceeds as follows. Section one discusses the factors underpinning coaches' success. Section two details factors related to coaches' EI. The third section presents the key findings from the study, acknowledges the study's limitations, and provides recommendations for future research. The chapter closes with practical applications for basketball and volleyball coaches, as well as, recommendations for administrators hiring coaches.

Factors Underpinning Coaching Success

Coaching Success: Is EI a Meaningful Influencer?

Research question one sought to examine if EI, or its' subfactors, meaningfully contributed to coaches' success. Despite previous research indicating EI is related to measures of coaching effectiveness (Thelwell et al., 2008), data analysis in this study revealed that neither EI or its' subfactors contributed to coaches' success ($n = 277$). The findings failed to support rejecting the null hypothesis for research question one. This result supported previous research that also found EI to be a non-significant factor in volleyball coaches' win/loss percentage. Specifically, Muhe (2015) found that self-reported EI had no power in predicting coaches' success over a five-year period. However, after revealing a null result, Muhe (2015) conducted a post-hoc analysis examining the interaction effect of EI and coaching tenure on coaches' success. The analysis indicated that the combination of EI and coaching experience did not significantly impact coaches with five to seven years ($n = 32$) or eight to eighteen ($n = 49$) years of coaching experience. However, a significant portion (18.5%) of five-year winning percentage was predicted by EI among coaches with greater than 19 years of experience ($n = 26$). This finding suggested that EI may only affect the most seasoned coaches, and/or coaches must gain a certain amount of experience before it begins to positively influence their success. Although, in spite of discovering a significant interaction effect, Muhe concluded that EI did not significantly impact success in the majority of the coaches sampled (81/107).

Similar to Muhe (2015), Steege (2009) discovered EI was not a significant influencer of soccer coaches' success. Intriguingly, Steege (2009) found coaches with lower levels of EI demonstrated superior winning percentages compared to those higher in EI. However, upon further inspection, the findings resulted from an analysis computed with only seven coaches and

used one (the current) season's winning percentage. Thus, the findings from Steege (2009) regarding EI and coaching success should be interpreted with caution.

In spite of previous findings, preliminary analysis indicated that EI may have influenced basketball and volleyball coaches differently. Thus, a post-hoc regression analysis was conducted with this study's data to determine if EI impacted the coaches differently based on sport. As shown in the preliminary analysis, the post-hoc analysis revealed EI as a significant predictor of collegiate basketball coaches' success, but not the volleyball coaches. Specifically, three subfactors of EI (UE, MOE, & MOTHE) were found to predict 26% of the variance in coaches' career winning percentage. However, MOTHE was found to *negatively* influence coaches' success, which indicated that not all facets of EI are linked to success. Altogether, these findings support previous evidence which indicated EI is related to coaching effectiveness and is similar to evidence outside of sport which suggested EI was responsible for between 2-25% of individual success (Thelwell et al., 2008; Cartwright, 2008).

To the authors knowledge, only three previous studies have examined the link between EI and winning percentage (VanSickle, 2004; Steege, 2009; Muhe, 2015) (Table 5.1). The first study substantiated the positive link found in the current study between basketball coaches' EI and success (VanSickle, 2004). More specifically, athletes' perceptions of coaches' self-awareness and social awareness (subfactors of EI) were found to significantly predict current win/loss record, while relationship management was found to significantly predict overall win/loss record. However, as previously mentioned, the other two investigations found no significant influence of EI on coaching success. Thus, with the addition of the present findings, the body of literature suggests that EI may influence some coaches' success, but not others.

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The present study extends our current understanding of EI's impact on coaching by uncovering a disparity in the way EI impacts the success of basketball and volleyball coaches. The data indicated EI significantly influenced basketball coach's success but not volleyball coaches. Basketball coaches' perceived ability to utilize affective information to enhance their thoughts and actions were the most significant contributor to basketball coaches' success.

Table 5.1. Summary of research examining the relationship between coaches' EI and winning percentage

Authors	Participants	Variables Investigated	Major Finding	Limitations
VanSickle, (2004)	N=16 NCAA Division I softball coaches & 223 athletes	EI & current and overall winning percentage	Self-awareness a subfactor of EI was significantly related to win-loss record and athlete satisfaction. Moreover, social awareness, another subfactor of EI was significantly related to current win-loss record, while relationship management was significantly related to overall win-loss record.	Utilized self and athlete-reported measure of EI which was intended for business settings and utilized a small sample of coaches.
Steege (2009)	N= 98 Division III soccer coaches	EI & current seasons winning percentage	Athletes of lower EI coaches reported stronger coach-athlete relationships compared to higher EI coaches. No other significant differences were found.	Analysis of lower (n=3) and higher (n=4) EI was computed with seven coaches and compared current seasons winning percentage.
Muhe (2015)	N= 107 Division I, II, & III volleyball coaches	EI & five-year winning percentage	No significant relationship was found between EI and winning percentage. However, post hoc analysis indicated a significant interaction between EI and coaching tenure on winning percentage.	Utilized self-reported measure of EI, participants included anyone within a college volleyball coaching role, winning percentage was self-reported and restricted to a five-year span.
Magrum (2020, current study)	N=277 Division I, II, III, NAIA, CC basketball & volleyball coaches	EI & career winning percentage	No significant relationship was found between EI and winning percentage for volleyball coaches (N=226). However, among basketball coaches (N=51), EI was a significant predictor of coaches' career winning percentage.	Utilized self-reported measure of EI, included former coaches and used a small sample size for basketball coaches.

While this study found no indication that EI meaningfully influenced volleyball coaches' career winning percentage, it remains unclear as to why EI displayed differential effects on basketball and volleyball coaches' success. As shown in an earlier study (Muhe, 2015), it is possible that EI exerts its influence on volleyball coaches through experience. Additionally, despite evidence indicating EI is beneficial to success in sport, it may not be an equally meaningful contributor to all coaches' success. In summary, while the majority of EI in coaching research implies that EI has a positive and universal impact on coaching success, findings from the current study do not support this contention.

Coaching Success: Influential Variables

Research question three sought to identify variables that significantly predicted coaches' career winning percentage. When examining the collective group of coaches ($n = 277$), head coaching experience was the only variable that demonstrated a significant influence on coaches' success. With this finding, the null hypothesis for research question three, which stated no factor would be a significant contributor to coaching success, was rejected. This finding supports conclusions from previous work by Berger (2013), who found that high school and collegiate head coaches' experience was the only significant contributor to their career winning percentage. However, due to the divergent findings between basketball and volleyball coaches it was thought best to examine each respective sample separately. Hereafter, the discussion will focus on each sample, rather than on the collective group.

Intriguingly, the factors explaining coaching success differed across sports. Specifically, EI (UE) and age demonstrated a meaningful influence on basketball coaches' ($n = 51$) success, while head coaching experience and sport playing experience were the significant variables for volleyball coaches ($n = 226$).

Factors Influencing Basketball Coaches' Success

Among basketball coaches, EI subfactor UE, MOTHE and coaches age accounted for 32% of the variance explaining head coaches' career winning percentage. UE accounted for 18.3% of that variance. More practically, for every one-unit increase in coaches perceived UE their winning percentage increased by almost 3% (+ .0295). One possible explanation underpinning or even supporting this relationship is the previously identified association between UE and coaching efficacy (CE) (Thelwell et al., 2008). UE was found to be significantly related to a coach's confidence in their ability to motivate, deliver technical elements, and build character. Additionally, UE was related to overall CE. Taken together, it seems that EI may influence coaching success through CE.

Previous evidence has illuminated several other possible links through which EI may impact coaching success. Specifically, EI may support or influence coaching success through improved coaching behaviors, greater capabilities to build relationships, ability to adapt leadership styles, and a better ability to cope with stress.

Andrews found coaches who displayed higher levels of EI also demonstrated a greater tendency to exhibit behaviors intended to accelerate skill acquisition and tactical knowledge in athletes (2014). Similarly, Milek, Lobinger and Ka (2016) discovered EI was related to coaches' tendency to focus their leadership efforts toward training and instruction. The connections recognized in earlier research highlight a link between EI and coaching behaviors which may have implications on athletes' and coaches' success.

Furthermore, more recent findings identified EI as a key psychological attribute that underpins elite sports coaches' coaching effectiveness (Hodgson et al., 2017). The results highlighted coaches' use of EI to improve their decision-making processes. Specifically, coaches

were able to observe emotional information through athlete body language, communication style, and behavior. This information was then used as the basis to inform their behaviors and decisions (Hodgson et al., 2017; Hodgson, 2018). In light of these findings, coaches felt EI was essential to their coaching effectiveness. Thus, it is possible that the basketball coaches in the current study were able to use their EI to make better decisions, improve their coaching behaviors, and demonstrate more success.

EI may also affect coaching success through the ability to build and maintain relationships. Interestingly, previous evidence has connected EI with qualities that facilitate more successful relationships and predict sport leaders' personal caring (Schutte et al., 2001; Magyar et al., 2007). These associations may be particularly important as Jowett (2017) recently indicated that the coach-athlete relationship resides at the heart of coaching effectiveness. As a result, coaches' EI may be used influence coaching success through an improved ability to build and maintain relationships.

Another potential link between EI and coaching success is through leadership. Evidence has suggested that EI is imperative for high performance coaches and is influential to leaders' success outside of sport (Chan & Mallet, 2011; Alston et al., 2010; Fujino et al., 2015; Kidwell et al., 2011). Specifically, EI was found to increase transformational leadership style (Parks 2012; Echevarria, Patterson & Krouse, 2017; Polychroniou, 2009; Alston et al., 2010) and the use of democratic leadership styles (Kim et al., 2016). Moreover, evidence has suggested that EI may allow a coach to use various leadership styles, depending on the scenario and emotional information perceived (Kim et al., 2016). This fluid-like leadership would likely prove beneficial in settings with diverse skillsets and individuals, such as collegiate level sport.

Other findings have indicated that leaders' may utilize their EI to generate a greater sense of employee belonging (Choudhary, Naqshbandi, Philip & Kumar, 2017). Feeling as though one is a part of something greater than him/herself, or a sense of relatedness, could be quite important when trying to motivate individual athletes and teams (Deci & Flaste, 1995). Another potential connection between EI and coaching success pertains to how a leader develops group norms. Explicitly, research has demonstrated that military leaders' EI is related to the creation of emotional competent group norms, which also happen to be positively related to group performances (Koman & Wolff, 2008). Therefore, through increased EI coaches may be better suited to lead their teams toward success.

Collectively, previous evidence identifies the many influences EI has on leader's success. The winningest college basketball coach of all time, Coach Mike Krzyzewski declared, "Duke basketball depends on leadership – and I love to lead… I'm a coach, and coaching is leading" (Krzyzewski & Phillips, 2000, p. 53). Coach K's statements recognize leadership as an essential skillset for coaches. And when combined with the evidence discussed above, the available evidence proposes EI can enhance coaches' success through leadership.

EI may also influence coaching success by buffering sources of stress. Within athletes, EI was shown to predict 28% of cortisol secretion (a biological marker of stress) in expert tennis players under pressure (Laborde et al., 2013). Although coaches experience different stressors, when compared to athletes, EI may help coaches buffer stress. Specifically, Lee and Chelladurai (2015) found that emotionally gifted coaches possess a greater buffering capacity for stress. This bolstered capacity provided by EI may allow coaches to sustain their influence and foster athlete improvements for a longer time period. Hence, it is possible that the current basketball coaches were more successful because they were to use their EI to buffer the stressors of their position.

In addition to EI, and the benefits associated with EI, age was the other significant contributor to collegiate basketball coaches' success. Previous evidence indicated that older coaches emphasized sport achievement and delegated tasks more often, while younger coaches were found to be friendlier and more agreeable (Dimec & Kajtna, 2009). Additionally, younger coaches were found to be better at managing their emotions than older coaches. This finding was not supported by the current results as age was not a significant determiner of the EI subfactor responsible for managing own emotions (MOE). Nevertheless, it is possible that with increased age basketball coaches tend to focus their attention on sporting achievement and delegating tasks more efficiently, which perhaps enhanced their performance.

Likewise, a more recent study found that as coaches age they become less neurotic (Berger, 2013). In other terms, with increased age coaches become more emotionally stable when compared to younger coaches. Indeed, an increase in emotional stability may be desirable for coaches who must manage their own emotions as well as their players. However, the current results do not support this finding as no significant relationships between age and EI, or its subscales were identified. Perhaps, therefore, basketball coaches increased age supported their success by increasing their capability to delegate tasks and focusing on sport achievement.

Section Summary

In summary, findings from the sections above extend the body of literature while drawing on the previous scholarship to explain how EI may influence coaching success. College basketball coaches' success was meaningfully increased through EI (subfactor UE) and age. Previous scholarship suggested that EI may affect coaching success through several factors including coaching efficacy, coaching behaviors, relationship building, leadership, and stress buffering. Additionally, earlier research indicated that increased age may have benefitted

coaching success by accentuating behaviors geared toward sporting achievement. Thus, through these previously mentioned variables coaches were able to demonstrate superior success through increases in EI and age.

Factors Affecting Volleyball Coaches' Success

In contrast to the basketball coaches, the volleyball coaches' data revealed that head coaching experience and sport playing experience significantly contributed to their career winning percentage. In the current study, coaching experience explained 12.8% of coaching success. This current finding was similar Muhe's (2015) findings which indicated that volleyball coaches' experience explained 11.4% of coaching success over a five-year span. Thus, two independent investigations have found collegiate volleyball coaching experience to predict greater than 10% of coaches' success. However, unlike the current study Muhe (2015) did not limit participation to head coaches, participants were those in a college volleyball coaching role. Furthermore, while the current study examined career winning percentage, Muhe (2015) used a five-year winning percentage from 2008-2012. Although results seem to converge and indicate volleyball coaching experience explained greater than 10% of coaching success, due to the differing methodologies further research is needed to validate this claim.

In addition, several earlier examinations also found coaching experience to be a significant predictor of coaching success (Tracey et al., 2018; Kiosoglous, 2013; Berger, 2013; Schempp & McCullick, 2010). Specifically, coaching experience was found to predict 6.2% of the variance in high school and college coaches' winning percentage (Berger, 2013) and 9% of rowing coaching success (Kiosoglous, 2013). Important to note, evidence suggests holding a coaching position for a longer time period is not what permits coaching success. Rather, it is the knowledge gained through this period that supports success (DeWeese, 2012). Thus, it is likely

that the current sample of volleyball coaches are more successful because they have gained a considerable amount of knowledge during their tenure.

Moreover, previous research highlighted coaching experiences as unparalleled opportunities for coaches to learn and improve (Schempp, Webster, McCullick, Busch, & Mason, 2007). As a result, not only are volleyball coaches able to increase their knowledge through experience, but also their skills. Coaching success is then, perhaps, a byproduct of improved knowledge and skills gained through experience.

The data in the current study supported previous research by discovering a positive and significant link between coaching experience and coaching success. It is believed that coaching experience increases a coaches' knowledge and skill, which yield greater levels of success. More specifically, among college volleyball coaches, coaching experience predicted greater than 10% of coaching success.

In addition to coaching experience, playing experience was also found to be a significant influencer of coaching success. Previous literature highlighted the importance of playing experience on coaches' success and development. Nash & Sproule (2009) found that expert coaches believed that their playing careers aided their coaching careers. It seems these coaches learned the explicit and implicit knowledge of coaching by astutely observing how they were coached, otherwise known as learning through an apprenticeship of observation (Smagorinsky & Barnes, 2014). Playing experience was thought to be such an important element to a coaches' development that Erickson, Cote and Fraser-Thomas (2007) identified varied early sport participation as one of the most common experiences needed to become a high-performance coach. As such, playing experience was found to predicted 3% of coaching success in rowing (Kiosoglous, 2013).

However, contrary to previous research, the resultant negative regression coefficient demonstrated in Table 4.12 indicated a significant and negative relationship between sport playing experience and coaches' career winning percentage. In other words, the more years a coach played the lower their winning percentage. One possible explanation is that coaches who have played for a longer time period have spent less time coaching. Correspondingly, the less time spent coaching the less time a coach has to develop their specific knowledge and skills required to be successful.

The current results align with previous findings that higher levels of playing experience did not necessarily translate into higher levels of coaching success (Tracey et al., 2018; Berger, 2013; Schempp, McCullick, Grant, Foo, and Wieser, 2010). Similar to the present study, one examination found a negative but insignificant correlation between professional playing experience and professional coaching success in Major League Baseball and National Basketball Association coaches (Schempp et al., 2010). Importantly, the current findings do not imply that playing experience is altogether a negative predictor on coaching success. As previous evidence suggested, there are fundamental experiences that have been identified as essential to expert coaches' development. However, with respect to the relationship between playing experience and coaching success in collegiate volleyball coaches, the current findings add to the body of literature indicating more is not always better.

Section Summary

Although volleyball coaches' success was significantly impacted by the number of years of head coaching experience, this may not provide the full rationale for coaching success. Evidence suggests coaches gain knowledge and refine their skills through 'on the job' training. And through experience these factors are increased and serve as potential explanations for

increases in coaching success. Furthermore, the data demonstrated that those volleyball coaches who reported more playing experience were unable to devote as much time to hone their coaching skillsets and, therefore, were less successful when compared to coaches with less playing experience.

Factors Related to Coaches' EI

Research question two examined the relationships between coaches' self-reported EI and age, gender, educational level, head coaching experience, assistant coaching experience, and playing experience for significance. Significant associations with EI or EI subfactors were identified in three variables: 1) gender, 2) education level, and 3) sport playing experience. Thus, the following sections will discuss each of these three variables, and their relation to EI, in succession.

The current results highlighted significant associations between TEI, MOTHE, and UE and gender. Specifically, within collegiate volleyball coaches it was found that TEI was significantly higher in females than males. This aligned with previous literature which found women generally scored higher than men on both self-rated and perceived EI scales (Schutte et al., 2009; Danehy, 2005). The notion that females have higher EI has persisted since the inception of EI where Payne (1985) described an examination that set out to study the "female intuition" later clarified as nonverbal communication. The study concluded that women had a superior sense of visual attentiveness when compared to their male counterparts. However, Payne believed what was truly being studied in this investigation was the ability to interpret emotional expression through visual channels of awareness or an emotional intelligence. Despite linkages to EI's inception, other evidence found that males scored higher on self-reported

measures of EI (Petrides & Furnham, 2000b). Thus, there appears no conclusive evidence to suggest that males or females have higher levels of TEI.

In a similar vein, females were found to have significantly higher MOTHE than their male counterparts in both the combined coaching sample (n = 277) and the volleyball sample (n = 226). On the contrary, with respect to UE in basketball coaches, males were found to have significantly higher levels than females. Collectively, this study found females to have significantly higher levels of TEI in volleyball coaches, and MOTHE in all coaches. However, male basketball coaches were found to score higher on UE than females. The current findings accentuated the ambiguity that exists when trying to decipher meaningful differences in EI between males and females. Clearly, more research on this issue is needed.

Educational level is the second variable found to significantly correlate with EI. Education is one of the ways in which our society strives to improve our knowledge base, skills, and overall success. Existing evidence indicated that EI has a small to moderate, yet significant, association with academic performance (MacCann, Jiang, Brown, Double, Bucich, and Minbashian, 2019). A recent meta-analysis showed students with superior EI scored higher on achievement tests and earned higher grades (MacCann et al., 2019). Additional evidence has suggested that even among exceptionally high achieving students, EI can distinguish performances (Parker et al., 2017). Despite this evidence, there was limited research exploring the connection between earning an advanced degree and a persons' EI.

The present study found significant differences in coaches TEI and UE in relation to their educational level. Specifically, basketball coaches earning a doctorate had significantly higher levels of TEI and UE when compared with those who attained a bachelor's degree, but not a masters. Evidence from the nursing field supported the current finding as Por and colleagues

(2010) found nursing students with the highest educational background demonstrated the strongest correlation with EI ($r = .23$, $p <.01$). In addition to educational level, the type of education undertaken also seemed to be a factor as Pooja & Kumar (2015) found that employees with non-technical educational backgrounds were more emotionally intelligent than their technically educated counterparts. Thus, it seems that the educational experiences undertaken by basketball coaches may have played a role in developing their EI. Meanwhile data on coaches' degree fields was not collected, consequently it is not possible to assess the influence of coaches' field of study on their EI.

The final significant finding linked sport playing experience and managing one's own emotions in the collective group of coaches. This relationship implied that coaches' sport participation meaningfully impacted their ability to monitor their own emotions. Results from the post-hoc regression analysis substantiated this claim indicating that coaches' playing experience significantly predicted their MOE. Though no prior research examined this relationship, it is conceivable that athletes' experience a range and variety of emotions while playing. Athletes are, therefore, afforded many opportunities to learn how to manage their own emotions. While this rationale is speculative, this relationship is a candidate for future study.

The section above highlights the significant associations between EI, EI subfactors and coaching explanatory variables. Our results reveal female volleyball coaches displayed superior levels of TEI, while all female coaches demonstrated superior MOTHE when compared to males. However, male basketball coaches reported significantly greater levels of UE. No speculation was offered as to how or why gender influenced EI. Results within the literature are quite inconclusive and provided little in the form of a conceptual explanation.

Conclusions

The most meaningful finding of this study was EI's non-uniform impact on coaching success. Specifically, data analysis revealed that EI significantly impacted basketball coaches' but not volleyball coaches' success. The disparity between these two findings was most interesting and challenged the current idea that EI impacts all coaches similarly. This chasm extends our current understanding of EI in relation to coaching.

A secondary finding was that EI significantly predicted collegiate basketball coaches' career winning percentage. It was surprising to find such a large portion (26%) of coaching success was explained by EI. A finding of this magnitude may stimulate more thought and scientific interest around the topic with particular interest in coaching. This was also the first study to examine EI and head collegiate basketball coaches' success.

Another key finding was that both head coaching experience and playing experience influenced volleyball coaches' success. More specifically, playing experience *negatively* affected coaching success. However, it may be the case where more time spent playing equates to less time spent coaching, reflecting, and refining coaching skills. This finding extended the literature by highlighting the notion that extensive sport playing experience was not required to be a successful coach and may even be counterproductive to coaching success.

Lastly, it was intriguing to distinguish factors which meaningfully effected basketball and volleyball coaches' success. Of the variables studied, data revealed basketball coaches utilized their EI and age whereas volleyball coaches exploited their head coaching experience and sport playing experience to influence success. This finding highlights the notion that success in coaching is context specific and influential variables in one setting may prove to be extraneous in another.

Limitations

In light of the results discussed above it is important to discuss limitations pertaining to EI and subfactor UE. First, findings specific to UE in coaching are scarce. Additionally, within the limited research there is little methodological consistency regarding EI factors and EI measurement. For example, three studies examined coaches CE and EI through the same EI scale (Schutte et al., 1998), yet each utilized a different factor structure (Thelwel et al., 2008; Hwang et al., 2013; Afkhami et al., 2011). The current study employed the factor structure advised by the creators of the scale (Schutte et al., 1998; 2009). Moreover, UE has routinely demonstrated low measures of internal consistency (0.53, 0.55) (Hwang et al., 2013; Carrochi et al., 2001). In some instances, the authors chose to disregard and omit this subfactor altogether. However, in the present study the measure of internal consistency for UE was 0.67, which is below the preferred range of some scholars (Berry, 1993; Tavakol & Dennick, 2011) and within the range of others (Griethuijsen, Eijck, Haste, Brok, Skinner, Mansour, et al., 2014; Taber, 2018). Thus, the current findings should be interpreted with caution.

While education was found to influence EI, information specific to the data analysis must be considered. First, the sample size of basketball coaches was small to moderate in size (n =51) and of those coaches, only two possessed a doctorate while nine possessed a bachelors. Therefore, the statistically significant findings were in relation to a comparison between two exemplars and nine coaches with bachelor's degrees. Hence, it appeared unwise to draw conclusions when comparing such a small group of unevenly distributed individuals. Furthermore, other findings contradict the notion that education level was able to differentiate coaches. Specifically, the non-significant differences between coaches with bachelors and masters as well as doctorate from masters did not support the notion that education differentiates

coaches. Moreover, educational level was not a significant influencer of EI within the collective group of coaches. Therefore, while there was a significant finding, the collective evidence indicated this may simply be a finding within this particular subsect of basketball coaches. However, future research could serve to clarify this finding.

Analysis revealed educational level played a significant role in coaches EI, specifically basketball coaches TEI and UE. However, upon further examination the low number of coaches holding a doctorate ($n = 2$) and bachelor's degree ($n = 9$), along with other limitations, made it difficult to derive concrete conclusions. Nevertheless, basketball coaches' education level significantly influenced coaches' EI. Lastly, the influence of sport playing experience on the development of an individual's ability to manage their own emotions was examined. No existing evidence examined this relationship; however, it may be possible to learn how to manage emotion through sporting experiences.

The primary dependent variable in the current study was career winning percentage. This variable is the most frequently used variable to study coaching success. However, this does not indicate it's a perfect indication of coaching success. There are many confounding variables which may influence career winning percentage other than the ones examined in this study. Other variables that may have influenced coaches' success in this study are prior coaching success, coaching tenure, number of paid and volunteer assistant coaches, staff members, institutional facilities, and recruiting budget.

The present study utilized a self-reported EI scale to measure the primary independent variables. Self-report measures of EI are particularly open to what is known as social desirability bias. Thus, it is not known if respondents were answering in accordance with their perceived emotional functioning or with respect to social norms.

While multiple methods were used to collect data, in person and via email, both were convenience samples rather than randomly selected. Additionally, it was not known if respondents were those who had a greater proclivity toward EI. In the same vein, the sample size was small to moderate particularly for basketball coaches. Lastly, the current study sought to examine both current and former head coaches. For current head coaches, their EI at the moment they completed the survey may not have been representative of their EI over their career, as evidence indicates EI is alterable. For former head coaches, it is unlikely that their EI score, at the moment they completed the survey, was representative of when they were coaching.

Future research

Future studies should aim to utilize multiple measures of coaching success with the aim of triangulating findings through multiple measures. While winning percentage is the most popular variable to examine coaching success it may be impacted by many factors outside of the coaches' control. For example, the institutional resources available to the coach would unequivocally influence his/her daily tasks, recruiting, and practice routines. Thus, other variables such as peer ratings of coach effectiveness, athlete perceptions, athlete satisfaction, and player development could be used in conjunction with winning percentage to gain a better understanding of how EI influences coaching success.

The findings of this study indicated that EI lacked a universal impact on coaches. Therefore, the sport coached should be a factor in future research. As of this examination, basketball, softball, soccer, and volleyball coaches have been the participants in research on EI and coaching success. Examining coaches of various sports will help create an EI profile reflecting the characteristics of their EI, how coaches utilize EI, and if, and to what degree, EI influences success. It is not known if the technical or tactical nature of a sport alters the degree to

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which EI is utilized by coaches. Moreover, sports such as American Football have a particular set of values or norms, otherwise known as culture, that guide what they do and how they do it. Therefore, culture likely influences a coaches' behavior and in turn how they coach their team. Thus, future research should strive to examine if and to what extent sport and team culture impact how EI's influence on coach performance. Additionally, linking coaches' EI to behaviors displayed during practices and games may prove beneficial, particularly to coaches and those who develop coaches. These inquires would require either observations or qualitative inquires.

Examining direct links between EI and coaching success is important, however, it is also worthwhile to study if or how EI indirectly supports coaching success. Specifically, the inter-relationships between success, EI, and factors previously discussed including coaching behaviors, coaching efficacy, leadership, and coaching stress. Furthermore, the topics of mental health and well-being are currently rising in popularity. These are topics that may be impacted by EI and can be explored within athletes and coaches.

Lastly, there is a call for research which uses experimental designs to examine a) the ability for EI to be learned and b) the effectiveness of different interventions. While most studies examining EI in sport are cross-sectional, experimental designs would allow cause and effect to be ascertained. These studies would help build a platform for future research, as well as our understanding of EI in coaching that would help inform the next generation of coaches.

Recommendations to Coaches

The findings of this study highlighted the impact emotions, and an understanding of them, can have on success. While EI was found to have divergent influences on success, one significant and the other non-significant, a fundamental principle of the coaching process remains clear. Coaching is about people, and to understand people coaches must understand

emotions. Thus, the findings of this study urge coaches, particularly basketball coaches, to attend to their EI.

In conjunction with previous literature, the findings of this study suggest that coaches' EI may foster greater success through increases in coaching efficacy, behavior, relationship building, leadership, and stress buffering. Fundamentally, EI is a process whereby an individual uses emotional information to improve their thought process. As such, coaches are urged to gather emotional information from themselves and their athletes in an effort to make better, more informed decisions.

An emotionally intelligent coach is one who understands both the short- and long-term effects of their actions. For example, using tactics that invoke fear into players may bring about the desired change in behavior (short-term), however coaching requires eliciting a consistent change in behavior over time. Similarly, a coach who feels the urge to yell and let out their frustration on a player may be wiser to first think about how this player will respond afterward. Can the athlete handle it? Will this create the desired change in the athletes' behavior? How will this affect the teams' behavior? Each of these questions are among those emotionally intelligent coaches ask themselves.

In summation, coaches should strive to observe, understand, and utilize emotions to the inform their actions and behaviors. Drawing connections between how one feels, how one's feelings project on to others, and the outcomes of those inter-connections is a part of being emotionally intelligent. The same can be said of athletes' behaviors and how they affect the teams' performance. However, the first step to utilizing EI to improve success is listening and observing.

Coaching experience was identified as a meaningful predictor of volleyball coaches'
success. It is believed that coaching experience provides an unparalleled opportunity to develop
the specific knowledge and skillsets that aid in success. Thus, coaches are urged to reflect on
daily performances by asking the questions:

- What went well?

- What didn't go so well?

- What skills did I use that need refining?

- What areas could I improve my knowledge that would help the team?

- How, specifically, do I improve from here?

Moreover, it is recommended that coaches have someone to observe and provide them with
feedback. These seemingly trivial actions, repeated over time, will likely result in increases in
expertise and effectiveness.

Recommendations to Individuals Hiring Coaches

For those looking to hire coaches, the findings of this study offer several implications.
First, although this study compared coaches EI, it is *not* recommended that self-reported EI
scales be used to compare coaches for hiring situations. In these scenarios, where test takers
stand to benefit from an inflated score, it is likely that participants will adapt their answers to
match their perception of what the hiring organization is looking for. Thus, their scores may not
truly be their perceived emotional capacities, but those thought to give them a better chance at
being hired.

Second, when other factors are equal, coaches with more experience have the potential to
be more successful, particularly in volleyball. Lastly, and perhaps most importantly, coaches
with long and illustrious playing careers may not be more successful. In fact, it is possible that
the longer time spent playing may adversely affect their success. Thus, those looking to hire

coaches should be cognizant of the allure associated with hiring someone with a long and

illustrious playing career, as it may not positively affect their effectiveness.

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BACKGROUND QUESTIONNAIRE

Examining the Influence of Emotional Intelligence in Predicting Coaching Success

Please provide your full name

○ First Name (Ex: Jane) _____

○ Last Name (Ex: Doe) _____

The institution you coach for (Ex: Georgia)

_____

Your age (in years) (Ex: 47)

_____

Gender

○ Male

○ Female

○ Specify if neither male nor female: _____

○ Prefer not to answer

Education Level Attained

◯ Bachelors

◯ Masters

◯ Doctoral

Years of Head Coaching Experience in years (Ex: 5)

_____

Years of Assistant Coaching Experience in years (Ex: 11)

_____

Years of Sport Playing Experience in years (Ex: 15)

_____

Please describe you coaching-leadership style

	A	B	C	D	E	F	G	
Coach-Centered								Athlete-Centered
Prefer control								Prefer to give others control
Prefer to make decisions myself								Prefer to make decisions as a team

ASSESSEING EMOTIONS SCALE

Each of the following items asks you about your emotions or reactions associated with emotions. After deciding whether a statement is generally true for you, use the 5-point scale to respond to the statement. For example: If you "Strongly disagree" a statement is like you, please indicate "Strongly disagree." Likewise, if you "Strongly agree" that a statement is like you, please indicate "Strongly agree."

There are no right or wrong answers. Please give the response that best describes you.

- -

I know when to speak about my personal problems to others.

○ Strongly disagree

○ Somewhat disagree

○ Neither agree nor disagree

○ Somewhat agree

○ Strongly agree

- -

When I am faced with obstacles, I remember times I faced similar obstacles and overcame them.

○ Strongly disagree

○ Somewhat disagree

○ Neither agree nor disagree

○ Somewhat agree

○ Strongly agree

I expect that I will do well on most things I try.

○ Strongly disagree

○ Somewhat disagree

○ Neither agree nor disagree

○ Somewhat agree

○ Strongly agree

Other people find it easy to confide in me.

○ Strongly disagree

○ Somewhat disagree

○ Neither agree nor disagree

○ Somewhat agree

○ Strongly agree

I find it hard to understand the non-verbal messages of other people.

○ Strongly disagree

○ Somewhat disagree

○ Neither agree nor disagree

○ Somewhat agree

○ Strongly agree

Some of the major events of my life have led me to re-evaluate what is important and not important.

○ Strongly disagree

○ Somewhat disagree

○ Neither agree nor disagree

○ Somewhat agree

○ Strongly agree

When my mood changes, I see new possibilities.

○ Strongly disagree

○ Somewhat disagree

○ Neither agree nor disagree

○ Somewhat agree

○ Strongly agree

Emotions are one of the things that make my life worth living.

○ Strongly disagree

○ Somewhat disagree

○ Neither agree nor disagree

○ Somewhat agree

○ Strongly agree

I am aware of my emotions as I experience them.

○ Strongly disagree

○ Somewhat disagree

○ Neither agree nor disagree

○ Somewhat agree

○ Strongly agree

I expect good things to happen.

○ Strongly disagree

○ Somewhat disagree

○ Neither agree nor disagree

○ Somewhat agree

○ Strongly agree

I like to share my emotions with others.

○ Strongly disagree

○ Somewhat disagree

○ Neither agree nor disagree

○ Somewhat agree

○ Strongly agree

When I experience a positive emotion, I know how to make it last.

○ Strongly disagree

○ Somewhat disagree

○ Neither agree nor disagree

○ Somewhat agree

○ Strongly agree

I arrange events others enjoy.

○ Strongly disagree

○ Somewhat disagree

○ Neither agree nor disagree

○ Somewhat agree

○ Strongly agree

I seek out activities that make me happy.

○ Strongly disagree

○ Somewhat disagree

○ Neither agree nor disagree

○ Somewhat agree

○ Strongly agree

I am aware of the non-verbal message I send to others.

○ Strongly disagree

○ Somewhat disagree

○ Neither agree nor disagree

○ Somewhat agree

○ Strongly agree

I present myself in a way that makes a good impression on others.

   ○ Strongly disagree

   ○ Somewhat disagree

   ○ Neither agree nor disagree

   ○ Somewhat agree

   ○ Strongly agree

When I am in a positive mood, solving problems is easy for me.

   ○ Strongly disagree

   ○ Somewhat disagree

   ○ Neither agree nor disagree

   ○ Somewhat agree

   ○ Strongly agree

By looking at their facial expressions, I recognize the emotions people are experiencing.

   ○ Strongly disagree

   ○ Somewhat disagree

   ○ Neither agree nor disagree

   ○ Somewhat agree

   ○ Strongly agree

I know why my emotions change.

○ Strongly disagree

○ Somewhat disagree

○ Neither agree nor disagree

○ Somewhat agree

○ Strongly agree

When I am in a positive mood, I am able to come up with new ideas.

○ Strongly disagree

○ Somewhat disagree

○ Neither agree nor disagree

○ Somewhat agree

○ Strongly agree

I have control over my emotions.

○ Strongly disagree

○ Somewhat disagree

○ Neither agree nor disagree

○ Somewhat agree

○ Strongly agree

I easily recognize my emotions as I experience them.

○ Strongly disagree

○ Somewhat disagree

○ Neither agree nor disagree

○ Somewhat agree

○ Strongly agree

I motivate myself by imagining a good outcome to tasks I take on.

○ Strongly disagree

○ Somewhat disagree

○ Neither agree nor disagree

○ Somewhat agree

○ Strongly agree

I compliment others when they have done something well.

○ Strongly disagree

○ Somewhat disagree

○ Neither agree nor disagree

○ Somewhat agree

○ Strongly agree

I am aware of the non-verbal messages other people send.

○ Strongly disagree

○ Somewhat disagree

○ Neither agree nor disagree

○ Somewhat agree

○ Strongly agree

When another person tells me about an important event in his or her life, I almost feel as though I have experienced this event myself.

○ Strongly disagree

○ Somewhat disagree

○ Neither agree nor disagree

○ Somewhat agree

○ Strongly agree

When I feel a change in emotions, I tend to come up with new ideas.

○ Strongly disagree

○ Somewhat disagree

○ Neither agree nor disagree

○ Somewhat agree

○ Strongly agree

When I am faced with a challenge, I give up because I believe I will fail.

○ Strongly disagree

○ Somewhat disagree

○ Neither agree nor disagree

○ Somewhat agree

○ Strongly agree

I know what other people are feeling just by looking at them.

○ Strongly disagree

○ Somewhat disagree

○ Neither agree nor disagree

○ Somewhat agree

○ Strongly agree

I help other people feel better when they are down.

○ Strongly disagree

○ Somewhat disagree

○ Neither agree nor disagree

○ Somewhat agree

○ Strongly agree

I use good moods to help myself keep trying in the face of obstacles.

○ Strongly disagree

○ Somewhat disagree

○ Neither agree nor disagree

○ Somewhat agree

○ Strongly agree

I can tell how people are feeling by listening to the tone of their voice.

- ○ Strongly disagree

- ○ Somewhat disagree

- ○ Neither agree nor disagree

- ○ Somewhat agree

- ○ Strongly agree

It is difficult for me to understand why people feel the way they do.

- ○ Strongly disagree

- ○ Somewhat disagree

- ○ Neither agree nor disagree

- ○ Somewhat agree

- ○ Strongly agree

APPENDIX C

RECRUITMENT EMAIL

Greetings Coach (Code coaches last name from contact list),

My name is Eric Magrum and I am a PhD candidate in the Department of Kinesiology at the University of Georgia under the direction of Dr. Paul Schempp. I am writing to invite you to participate in a study examining the link between emotional intelligence and coaching success.

Specifically, *this study aims to assess the power of emotional intelligence in predicting coach's success and examine relationships between emotional intelligence and background variables.* Several studies in business, nursing, and leadership have discovered the relationship between emotional intelligence and success. However, very few studies have considered the relationship between coaches' emotional intelligence and their success.

Would you be willing to complete this short survey? Your participation will be complete in no longer than 10 minutes, which includes reading and approving an informed consent, completing a short background questionnaire, and finally, taking an emotional intelligence test. This survey may be completed at your leisure and can be accessed by following the hyperlink below.

Emotional Intelligence in Coaching

Thank you for your time and consideration,

Eric Magrum

APPENDIX D
IRB APPROVAL/EXEMPT DETERMINATION

UNIVERSITY OF GEORGIA

Human Research Protection Program

EXEMPT DETERMINATION

September 3, 2019

Dear Paul Schempp:

On 9/3/2019, the Human Subjects Office reviewed the following submission:

Title of Study:	Emotional intelligence in coaching: Predicting success collegiate coaches
Investigator:	Paul Schempp
Co-Investigator:	Eric Magrum
IRB ID:	PROJECT00000729
Review Category:	DHHS Exempt 2ii

We have approved the protocol from 9/3/2019 to 9/2/2024.

Please close this study when it is complete.

In conducting this study, you are required to follow the requirements listed in the Investigator Manual (HRP-103).

Sincerely,

Jennifer Freeman, IRB Analyst
Human Subjects Office, University of Georgia

TEL 7

AMERICAN VOLLEYBALL COACHES ASSOCIATION OFFICIAL INVITATION

2365 Harrodsburg Rd., Suite A325 • Lexington, KY 40504
Telephone 859-226-4315 • Facsimile 859-317-4212
www.avca.org

August 19, 2019

Dear Sir or Madam:

The purpose of this letter is to confirm Eric Magrum has been granted permission to conduct research and survey coaches during the American Volleyball Coaches Association (AVCA) Annual Convention December 18 – 21, 2019 in Pittsburgh, Pennsylvania. The AVCA has agreed to support this research project with the understanding the study would examine the relationship between career winning percentage and the emotional intelligence of a head coach.

If you have any questions or need additional information regarding the convention please don't hesitate to contact us at the number above.

Sincerely,

Kathy DeBoer
Executive Director
American Volleyball Coaches Association

APPENDIX F

DESCRIPTIVE STATISTICS BY COACHES' GENDER

Table 6.1 Descriptive Statistics by Coaches' Gender

Variables	Gender	Mean	SD	Range
Coaches Career Winning %	F	0.49	0.16	0.087-0.85
	M	0.50	0.17	0.087-0.86
Age (years)	F	39.4	9.08	23-64
	M	41.4	9.68	23-67
Head Coaching Experience (years)	F	11.83	8.75	1-37
	M	12.17	9.40	1-45
Assist. Coaching Experience (years)	F	4.27	3.58	0-19
	M	5.26	4.33	0-23
Sport Playing Experience (years)	F	18.12	9.84	0-50
	M	17.9	10.22	0-50

APPENDIX G

COACHES' EMOTIONAL INTELLIGENCE BY GENDER

Table 6.2 Coaches' Emotional Intelligence by Coaches' Gender

Variables	Gender	Mean	SD	Range
Total EI	F	132.37	11.97	102-156
	M	131.23	12.05	102-157
Perceiving Emotions	F	39.72	5.07	26-50
	M	39.57	5.33	22-50
Managing Own Emotions	F	37.14	4.46	25-45
	M	36.80	4.44	22-45
Managing Others' Emotions	F	32.30	3.69	21-38
	M	31.71	3.79	20-40
Utilizing Emotions	F	23.20	3.12	15-30
	M	23.15	3.08	14-30